



Engineering
& Design

WATER POLLUTION ABATEMENT PLAN

TREVOR FIELDS TRACT

LOCATION: 2,000 LF EAST OF THE INTERSECTION OF BABCOCK RD
AND W HAUSMAN RD

PLAT NUMBER: 22-11800100

CED JOB NUMBER: 1065-13-03

DATE: APRIL 2024



Clayton J. Linney
4/10/2024

PREPARED FOR:
BEAZER HOMES TEXAS, LP.
11467 HUEBNER ROAD, SUITE 225
SAN ANTONIO, TEXAS 78230

PREPARED BY:
CLAYTON LINNEY, P.E.

COLLIERS ENGINEERING & DESIGN
3421 PAESANOS PKWY., STE. 200
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TBPLS Reg. 10194550 • TBPE Reg. F-14909 • TBPG 50617



April 8, 2024

Ms. Sandra Gonzalez
TCEQ Region 13
14250 Judson Rd.
San Antonio, TX 78233-4480

Re: Trevor Fields Tract
Water Pollution Abatement Plan

Dear Ms. Gonzalez,

This application has been prepared according to the guidelines set forth in 30 TAC Chapter 213 Subchapter B. Please review the application for completeness and compliance with the applicable regulations for development over the Recharge Zone of the Edwards Aquifer. Upon acceptance, we request that written approval be provided to our office.

Thank you for your time and consideration in this matter. Should you have any questions or need further information feel free to contact me.

Sincerely,
Colliers Engineering & Design,


Clayton Linney, P.E.
Department Manager

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: Trevor Fields Tract					2. Regulated Entity No.: N/A				
3. Customer Name: Beazer Homes Texas, LP.					4. Customer No.: 601723620				
5. Project Type: (Please circle/check one)	New <input checked="" type="checkbox"/>		Modification			Extension		Exception	
6. Plan Type: (Please circle/check one)	WPAP <input checked="" type="checkbox"/>	CZP	SCS	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures
7. Land Use: (Please circle/check one)	Residential		Non-residential <input checked="" type="checkbox"/>			8. Site (acres):		38.29	
9. Application Fee:	\$6,500		10. Permanent BMP(s):			Batch Detention Pond & Vegetative Filter Strip			
11. SCS (Linear Ft.):	N/A		12. AST/UST (No. Tanks):			N/A			
13. County:	Bexar		14. Watershed:			Leon Creek			

Application Distribution

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

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

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

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

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

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

CLAYTON LINNEY

Print Name of Customer/Authorized Agent

Clayton Linney

4/10/2024

Signature of Customer/Authorized Agent

Date

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

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

General Information Form

Texas Commission on Environmental Quality

For Regulated Activities on the Edwards Aquifer Recharge and Transition Zones and Relating to 30 TAC §213.4(b) & §213.5(b)(2)(A), (B) Effective June 1, 1999

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

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

Signature

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

Print Name of Customer/Agent: Clayton Linney, P.E.

Date: 4/10/2024

Signature of Customer/Agent:



Project Information

1. Regulated Entity Name: Trevor Fields Tract
2. County: Bexar County
3. Stream Basin: Maverick Creek & Leon Creek
4. Groundwater Conservation District (If applicable): Edward Aquifer Authority
5. Edwards Aquifer Zone:
 - Recharge Zone
 - Transition Zone
6. Plan Type:
 - WPAP
 - SCS
 - Modification
 - AST
 - UST
 - Exception Request

7. Customer (Applicant):

Contact Person: Calvin New

Entity: Beazer Homes Texas, LP.

Mailing Address: 11467 Huebner Road, Suite 225

City, State: San Antonio, Texas

Zip: 78230

Telephone: (214) 769-0966

FAX: _____

Email Address: william.new@beazer.com

8. Agent/Representative (If any):

Contact Person: Clayton Linney, P.E.

Entity: Colliers Engineering & Design

Mailing Address: 3421 Paesanos Pkwy

City, State: San Antonio, Texas

Zip: 78231

Telephone: (877) 627-3772

FAX: _____

Email Address: Clayton.linney@collierseng.com

9. Project Location:

The project site is located inside the city limits of San Antonio, Texas.

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.

Approximately 2,000 L.F. East of the intersection of Babcock Rd and W Hausman Rd.

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: _____

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:

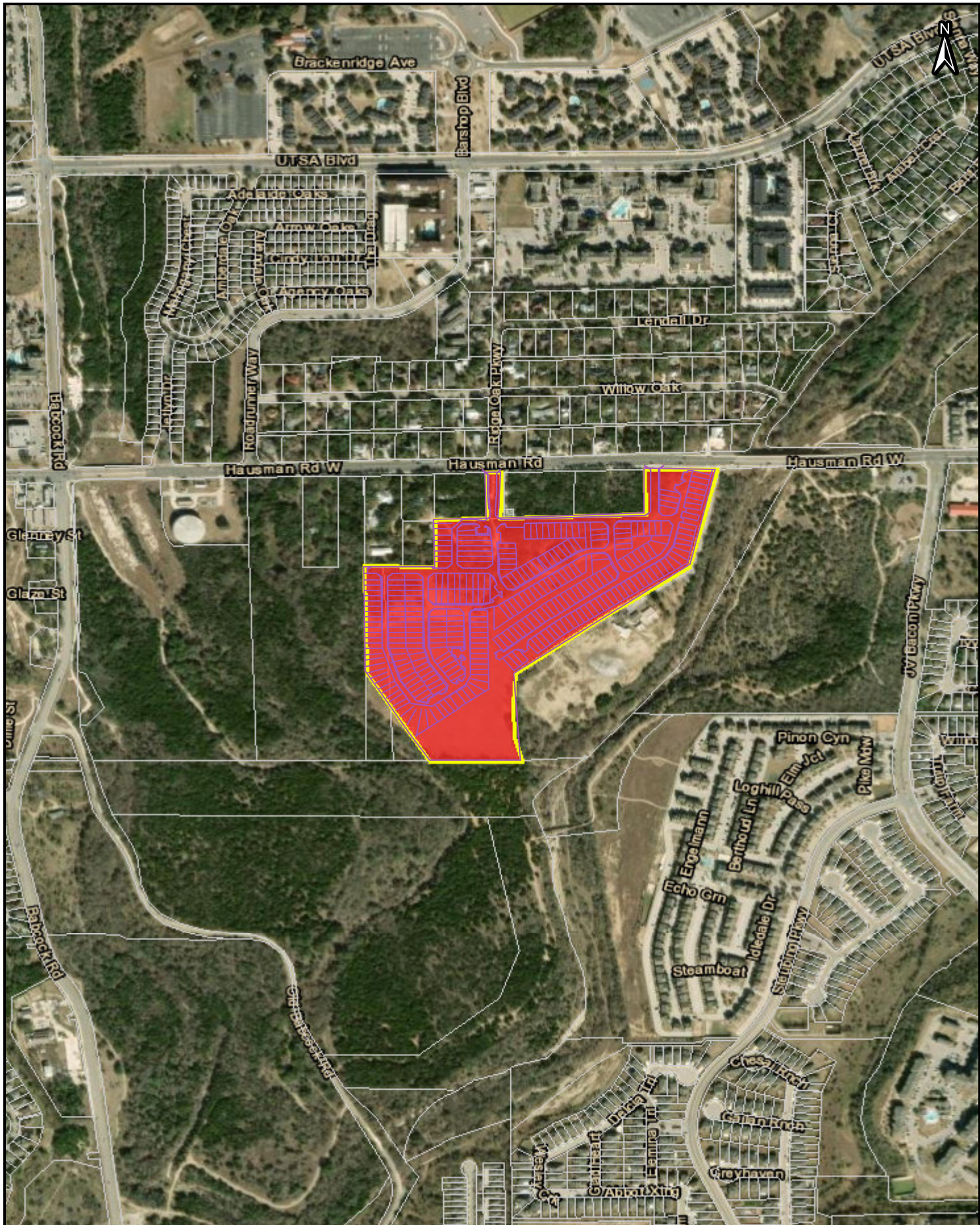
- (1) Waste disposal wells regulated under 30 TAC Chapter 331 (relating to Underground Injection Control);
- (2) Land disposal of Class I wastes, as defined in 30 TAC §335.1; and

- (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.



Date: Feb 28, 2024, 11:25:21 AM

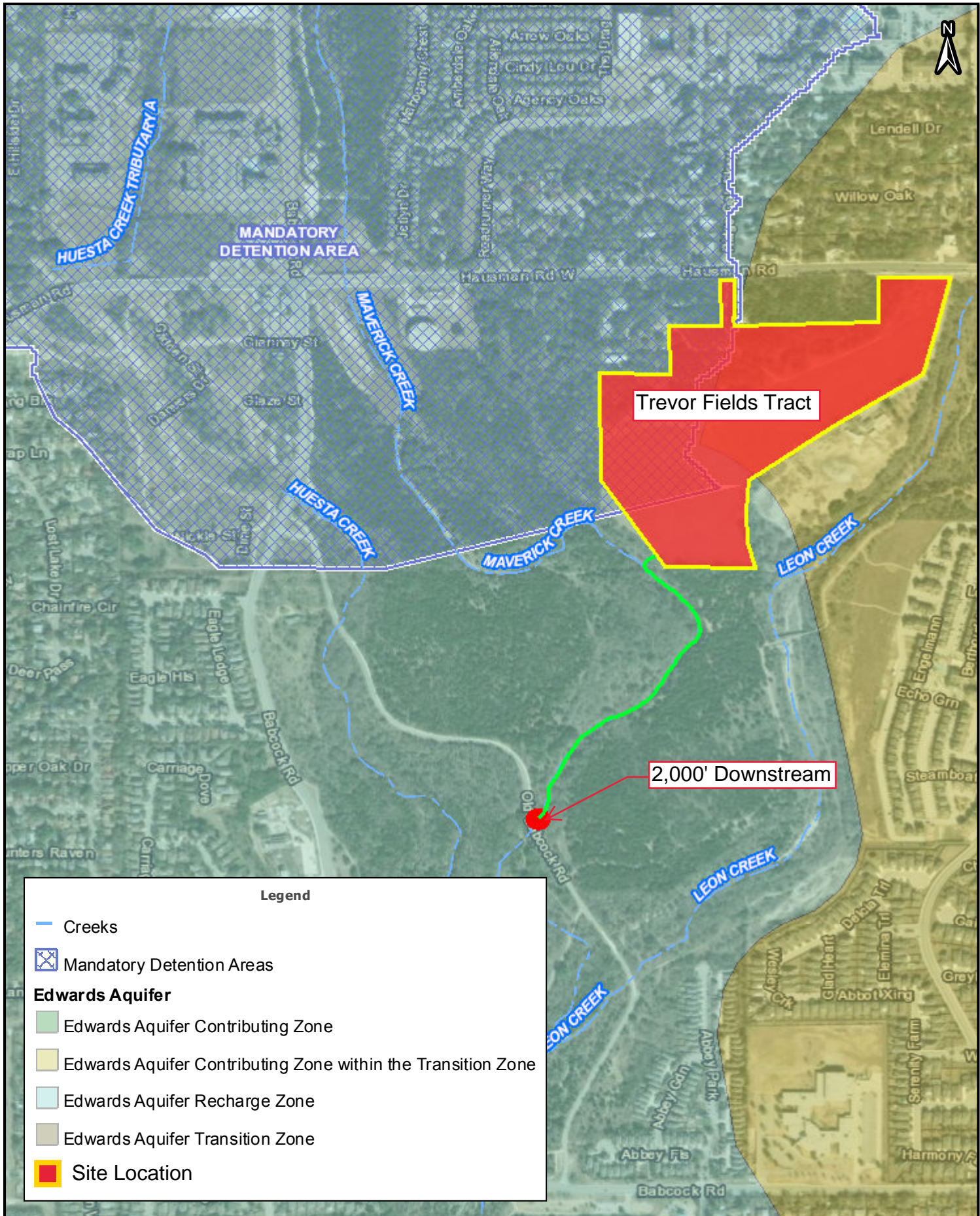
San Antonio Office
 3421 Paesanos Pkwy
 San Antonio, TX
 T: 877.627.3772
 www.colliersengineering.com
 TBPE Firm# F-14909
 TBPLS Firm# 10194550



**Trevor Fields Tract
 Water Pollution Abatement Plan
 Aerial & Location Map**

Prj No.	
Designer: Initials	
February 2024	EX

1" = 750'



Legend

- Creeks
- Mandatory Detention Areas

Edwards Aquifer

- Edwards Aquifer Contributing Zone
- Edwards Aquifer Contributing Zone within the Transition Zone
- Edwards Aquifer Recharge Zone
- Edwards Aquifer Transition Zone
- Site Location

Date: Feb 28, 2024, 10:57:27 AM

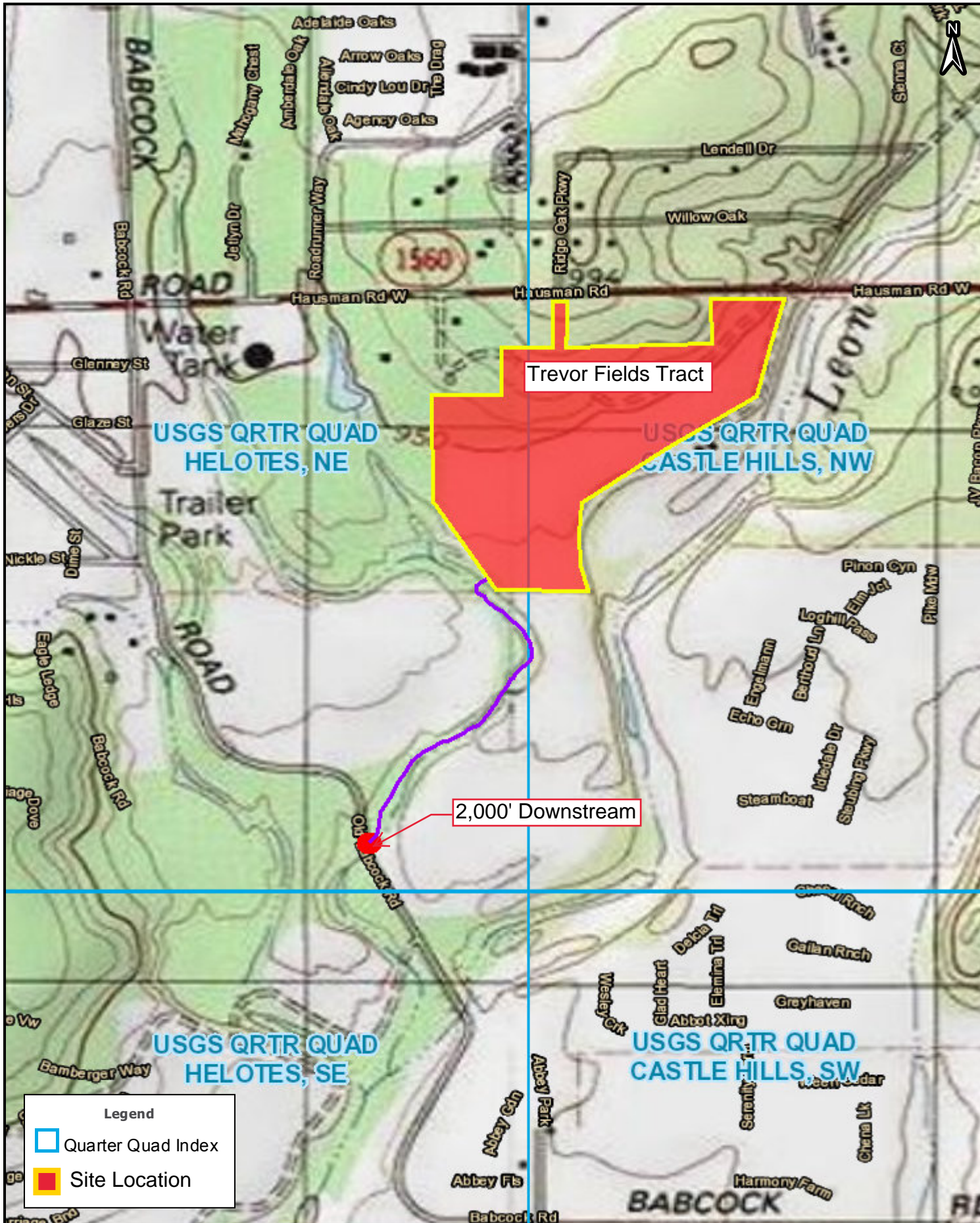
San Antonio Office
 3421 Paesanos Pkwy
 San Antonio, TX
 T: 877.627.3772
 www.colliersengineering.com
 TBPE Firm# F-14909
 TBPLS Firm# 10194550



Trevor Fields Tract
Water Pollution Abatement Plan
Edwards Aquifer Recharge Zone

Prj No.	
Designer: Initials	
February 2024	EX

1" = 750'



Legend

- Quarter Quad Index
- Site Location

Date: Feb 28, 2024, 11:05:56 AM

San Antonio Office
 3421 Paesanos Pkwy
 San Antonio, TX
 T: 877.627.3772
 www.colliersengineering.com
 TBPE Firm# F-14909
 TBPLS Firm# 10194550

**Trevor Fields Tract
 Water Pollution Abatement Plan
 USGS Quadrangle**

Prj No.	
Designer: Initials	
February 2024	EX

1" = 750'

PROJECT DESCRIPTION

Trevor Fields Tract is located approximately 2,000 LF East of the intersection of Babcock Road and W Hausman Road. The Trevor Fields Tract is situated within the Edwards Aquifer Recharge Zone and the Contributing Zone within the Transition zone with areas of 20.38 acres and 17.91 acres respectively, resulting in a total project area of 38.29 Acres to be treated as Recharge Zone within the Edwards Aquifer. The Trevor Fields development proposes multi-family dwelling units. The project site is located within the Helotes, and the Castle Hills USGS quadrangle. The property lies within the San Antonio city limits. Trevor Fields Tract is located within the Edwards Aquifer Recharge Zone and the Contributing Zone within the Transition zone. A portion of the site contains the 100-YR floodplain per FEMA firm panel # 48029C0210G & 48029C0230G.

The existing topography provides drainage to the south with grades ranging from 1% to 15%. The site drains into Maverick Creek in the Leon Creek watershed. The site consists of medium dense grass and moderate tree canopy cover.

The site lies within the Buda Formation (Kbu), Del Rio clay formation (Kdr) and overlying Quaternary aged Fluvial Terrace Deposits (Qt). The Kbu is characterized by buff, light gray, dense mudstone. The Kdr is characterized by blue green to yellow-brown waxy clay. The Qt is characterized as a mixture of light brown, reddish brown, gray or yellowish-brown sand, silt, clay, and gravels of various proportions. The pre-development runoff coefficient for the site is 0.53 per the City of San Antonio Storm Water Design Criteria Manual Section 5.5.3 Table 5.5.3A. Temporary BMPs for the construction activities will include: silt fence, rock berms, tree protection, stabilized construction entrance/exit, concrete washout area and existing vegetation. All on-site temporary BMP's will be designed in accordance with the TCEQ Technical Guidance Manual.

The project site treated as the Edwards recharge zone is 38.29 acres. There is a total of 20.62 acres, or 53.86% impervious cover proposed on the Edwards Recharge Zone. The impervious cover consists of structures, private driveways, concrete flush curbs, and asphalt pavement. See attached sheet for impervious cover calculations. Permanent BMPs after construction is completed will include vegetative buffers, and a batch detention basin. The post-development runoff coefficient for this site is 0.80 per the COSA Storm Water Design Criteria Manual – April 2019.

Trevor Fields Tract

IMPERVIOUS COVER CALCULATIONS - ATTACHMENT C

4/4/2024

ON-SITE DRAINAGE AREAS	TOTAL AREA (AC.)	PAD AREA (SF)	DRIVEWAY (SF)	SIDEWALK AREA (4' WIDE TYP.) (SF)	PAVEMENT AREA (SF)	DRAINAGE STRUCTURES (SF)	TOTAL IMPERVIOUS (SF)	TOTAL IMPERVIOUS (AC.)
Edwards Aquifer Site	38.29	420,750	110,631	57,851	297,749	11,405	898,386	20.624
TOTALS:	38.29	420,750	110,631	57,851	297,749	11,405	898,386	20.624

SITE TOTALS:

TOTAL AREA (AC): 38.29

IMPERVIOUS COVER TOTALS:

OVERALL ACRES IMPERVIOUS: 20.624

OVERALL % IMPERVIOUS: 53.86%



Clayton J. Linney
4/10/2024



Engineering
& Design

Geologic Assessment

Pursuant to The Texas Commission on Environmental Quality Standard Practice For "Geologic Assessments" (Title 30 Texas Administrative Code (TAC), Part 1, Chapter 213; Texas Water Code, §26.401; and Texas Occupations Code, Chapter 1002)

February 29, 2024

Trevor Fields Tract

Located at the intersection of Ridge Oak Parkway and West Hauman Road,
San Antonio, Bexar County, Texas 78249

Colliers Engineering & Design Project Number: 23008042A

Prepared for:

Beazer Homes
11467 Huebner Road, Suite 225
San Antonio, TX 78230

Prepared by:

Roman C. Pineda
State of Texas, Professional
Geoscientist
License No. 10083

Ezra C. Urigwe
State of Texas, Associate
Geoscientist

Colliers Engineering & Design

3421 Paesanos Pkwy, Ste. 200
San Antonio, Texas 78231
Main: 210 979 8444
Colliersengineering.com

Project No. 23008042A

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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: Roman C. Pineda,
P.G.

Telephone: (210) 979-8444

Fax: (210) 979-8441

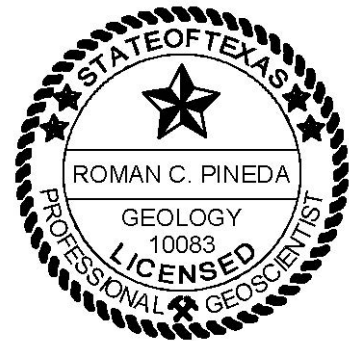
Date: 2/29/2024

Representing: Colliers Engineering & Design, TBPE Firm #9513 (Name of Company and TBPG or TBPE registration number)

Signature of Geologist:

Roman C. Pineda

Regulated Entity Name: Trevor Fields Tract



Project Information

1. Date(s) Geologic Assessment was performed: January 18th, 2024

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)
Tinn and Frio Soils, 0 to 1 percent slopes (Tf)	D	2-5
Lewisville silty clay, 1 to 3 percent slopes (LvB)	B	0-4
Patrick Soils, 1 to 3 percent slopes (PaB)	B	0-3

Soil Name	Group*	Thickness(feet)
Eckrant cobbly clay, 1 to 8 percent slopes (TaB)	D	0-3

** 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" = 500'

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.

GEOLOGIC ASSESSMENT TABLE						PROJECT NAME: Trevor Fields Tract															
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	29.570764°	-98.624698°	MB	30	Kbu	~4	~4	~5		0		-	N,X,F	5	35	35		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

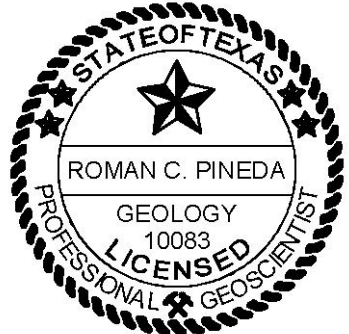
I have read, I understood, and I have followed the Texas Commission on Environmental Quality's Instructions to Geologists. The information presented here complies with that document and is a true representation of the conditions observed in the field. My signature certifies that I am qualified as a geologist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

Roman C. Pineda

Date 2/29/2024

Sheet 1 of 1

Attachment A



Trevor Fields Tract

Stratigraphic Column

[Hydrogeologic subdivisions modified from Maclay and Small (1976); groups, formations and members modified from Rose (1972); lithology modified from Dunham (1962); and porosity type modified from Choquette and Pray (1970); CU, confining unit; AQ, aquifer]

Hydrogeologic subdivision		Group, formation, or member	Hydrologic function	Thickness (feet)	Lithology	Field Identification	Cavern development	Porosity/permeability type			
Quaternary	Pleistocene	Fluviatile terrace deposits	N/A	5 - 70	Sand, silt, clay, rounded to angular limestone in various proportions; siliceous, coarse; chert and dolomite	Alluvium; lithic sand and silt to sandy gravel	None	Generally porous, moderate to high permeability			
	Upper Cretaceous	Upper Confining Units	Eagle Ford Group	CU	30-50	Brown, flaggy shale and argillaceous limestone	Thin flagstones; petroliferous	None	Primary porosity lost/low permeability		
Buda Limestone			CU	40-50	Buff, light gray, dense mudstone	Limestone with calcite-filled veins	Minor surface karst	Low porosity/low permeability			
Del Rio Clay			CU	40-50	Blue-green to yellow-brown clay	Fossiliferous; <i>Ilymatogyra arietina</i>	None	None/primary upper confining unit			
Lower Cretaceous	Edwards Aquifer	Edwards Group	Person Formation (Kep)	I	Georgetown Formation (Kgt)	Karst AQ; non-karst CU	2-20	Reddish-brown, gray to light tan marly limestone	Marker fossil; <i>Waconella wacoensis</i>	None	Low porosity/low permeability
				II	Cyclic and marine members, undivided	AQ	80-90	Mudstone to packstone; <i>miliolid</i> grainstone; chert	Thin graded cycles; massive beds to relatively thin beds; crossbeds	Many subsurface; might be associated with earlier karst development	Laterally extensive; both fabric and not fabric/water-yielding
				III	Leached and collapsed members, undivided	AQ	70-90	Crystalline limestone; mudstone to grainstone; chert; collapsed breccia	Bioturbated iron-stained beds separated by massive limestone beds; stromatolitic limestone	Extensive lateral development; large rooms	Majority not fabric/one of the most permeable
				IV	Regional dense member	CU	20-24	Dense, argillaceous mudstone	Wispy iron-oxide stains	Very few; only vertical fracture enlargement	Not fabric/low permeability; vertical barrier
				V	Grainstone member	AQ	50-60	<i>Miliolid</i> grainstone; mudstone to wackestone; chert	White crossbedded grainstone	Few	Not fabric/recrystallization reduces permeability
				VI	Kirschberg evaporite member	AQ	50-60	Highly altered crystalline limestone; chalky mudstone; chert	Boxwork voids, with neospar and travertine frame	Probably extensive cave development	Majority fabric selective/one of the most permeable
				VII	Dolomite member	AQ	110-130	Mudstone to grainstone; crystalline limestone; chert	Massively bedded light gray, <i>Toucasia</i> abundant	Caves related to structure or bedding planes	Mostly not fabric; some bedding plane fabric/water-yielding
				VIII	Basal nodular member	Karst AQ; not karst CU	50-60	Shaly, nodular limestone mudstone and <i>miliolid</i> grainstone	Massive, nodular and mottled, <i>Exogyra texana</i>	Large lateral caves at surface; a few caves near Cibolo Creek	Fabric; stratigraphically controlled/large conduit now at surface; no permeability in subsurface

(Modified from Small and Hanson, 1994)

Trevor Fields GA (WPAP) | Attachment C

Geologic Assessment

Narrative Description of Site Geology

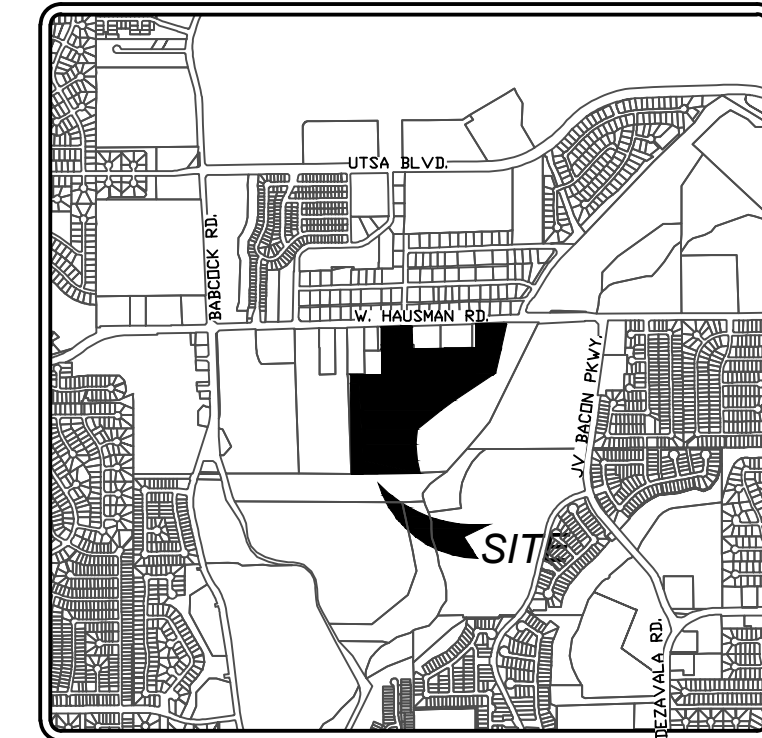
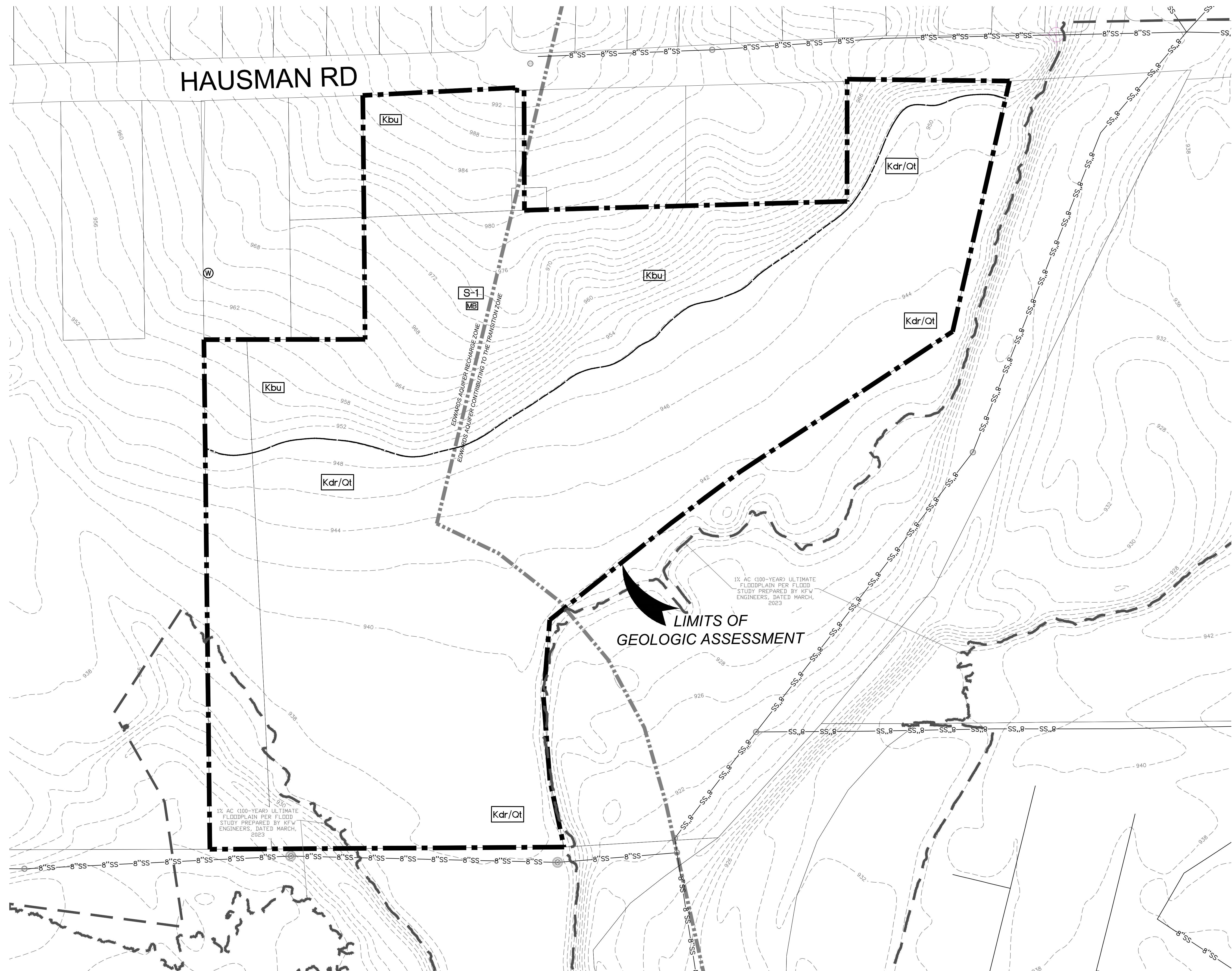
The overall potential for fluid migration to the Edwards Aquifer on the site does not exist. The site lies within the Buda Formation (Kbu), Del Rio clay formation (Kdr) and overlying Quaternary aged Fluvial Terrace Deposits (Qt). The dominant trend for the site is N35°E, based on the average of the trends of faults within the surrounding area and from published maps (Stein & Ozuna, 1995). Stratigraphically, the Kbu, Kdr and Qt lie above the Georgetown Formation and Edwards Group with the Kbu and Kdr characterized as confining units.

The Kbu is characterized by buff, light gray, dense mudstone. Karst development is restricted to minor surface karst in the Kbu. The Kdr is characterized blue green to yellow-brown waxy clay. No karst development occurs within the Del Rio Clay. The Qt is characterized as a mixture of light brown, reddish brown, gray or yellowish-brown sand, silt, clay, and gravels of various proportions. Karst development does not occur within the Qt. No caves or sinkholes were identified onsite.

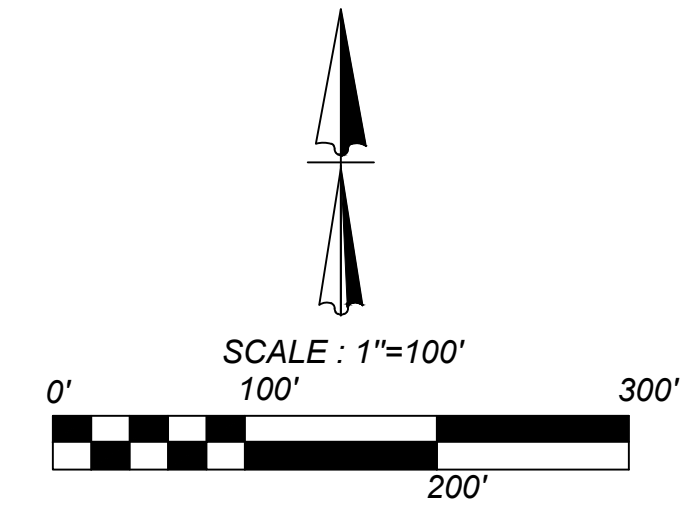
Feature S-1

Feature is identified as a concrete septic system currently in-use. The concrete top of the septic system was exposed and measured approximately 4-ft in diameter. The depth of the septic system is estimated to be 4 to 5-ft below ground surface. Ponded liquid observed within the septic tank at the time of the site visit suggests evidence of fine infilling. Therefore, the probability for rapid infiltration is low.

Date: Apr 02, 2024, 9:17am User ID: rthompson
 File: K:\055\1503 Design\Environmental\Geologic Assessment\WPAP\Trevor Fields GA WPAP x 100.dwg



LOCATION MAP
N.T.S.



LEGEND	
	FLUVIATILE TERRACE DEPOSITS
	EAGLE FORD GROUP
	BUDA LIMESTONE
	DEL RIO CLAY
	GEORGETOWN LIMESTONE
	KAINER FORMATION
	PERSON FORMATION
	GLEN ROSE FORMATION
	POTENTIAL RECHARGE FEATURE
	DRAINAGE PATHWAY
	CONTACT, LOCATED APPROXIMATELY
	FAULT, LOCATED APPROXIMATELY (D, DOWNTHROWN SIDE; U, UPTHROWN SIDE)
	FAULT EXISTANCE UNCERTAIN
	POSSIBLE FAULT (AS LOCATED BY AERIAL PHOTOGRAPHS)
	STRIKE AND DIP OF BEDDING
	STRIKE AND DIP OF JOINTS
	STRIKE OF VERTICAL JOINTS
	CAVE
	NON-KARST CLOSED DEPRESSION
	SWALLOW HOLE / SINKHOLE
	SOLUTION CAVITY
	OTHER NATURAL BEDROCK FEATURES: VUGGY ROCK, REEF DEPOSITS
	MAN-MADE FEATURE IN BEDROCK
	WATER WELL
	PROPOSED SANITARY SEWER LINE
	EXISTING SANITARY SEWER LINE
	50' SEWER ENVELOPE
	PROPOSED MANHOLE
	EXISTING MANHOLE
	SITE

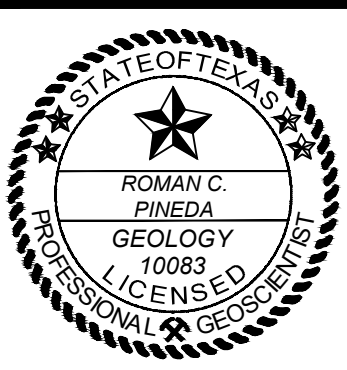
NOTE: THE GEOSCIENTIST SEAL HAS BEEN AFFIXED TO THIS SHEET ONLY FOR PURPOSES OF GEOLOGIC INFORMATION. ALL OTHER INFORMATION SHOULD BE ACQUIRED FROM THE APPROPRIATE SIGNED AND SEALED CIVIL ENGINEERING DRAWINGS

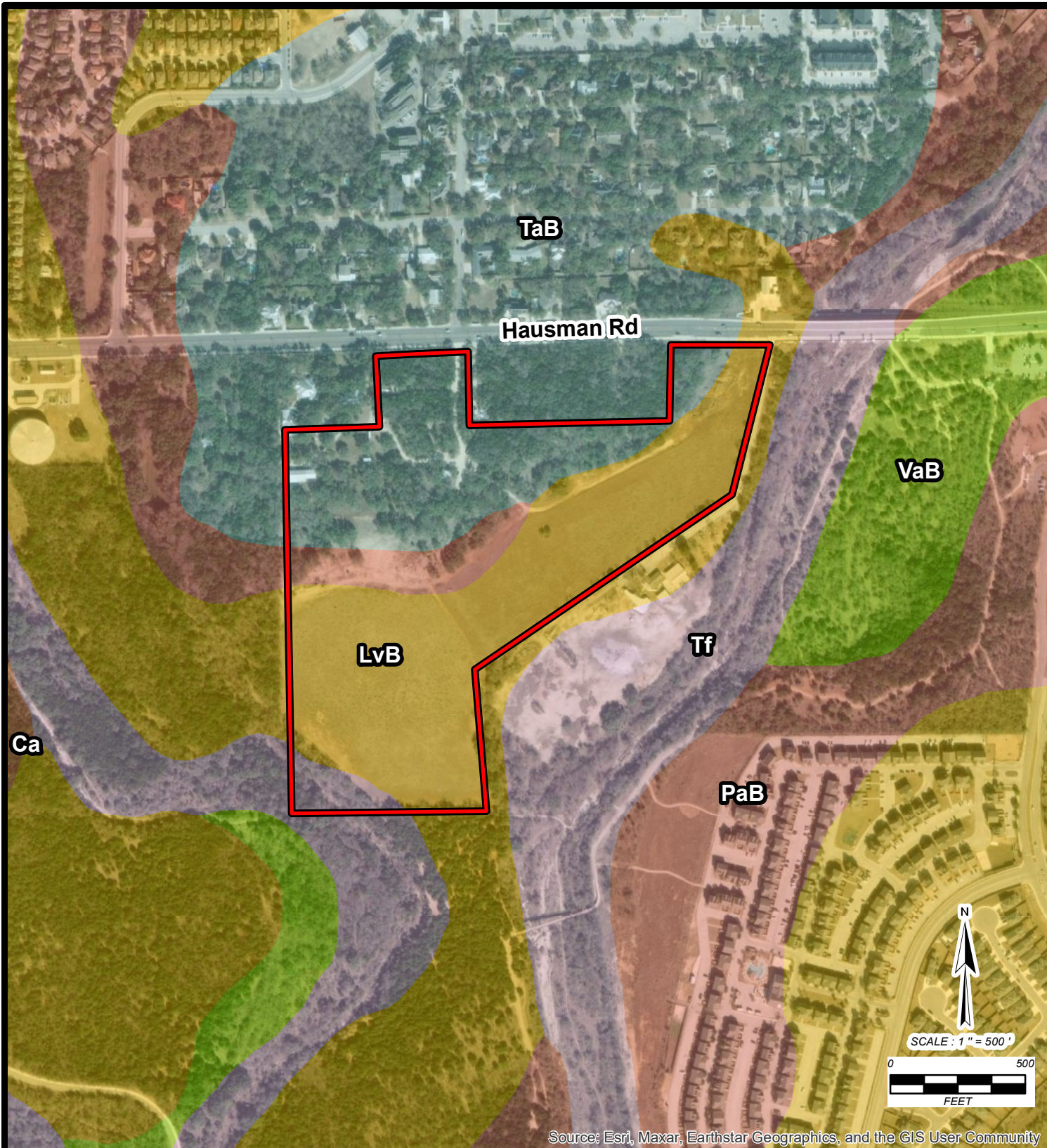
TREVOR FIELDS TRACT
 SAN ANTONIO, TEXAS
 SITE GEOLOGIC MAP FOR WPAP

JOB NO. 23008042A
 DATE: JANUARY 2024
 DRAWN: EU CHECKED: RCP

ATTACHMENT
D

SAN ANTONIO
 3421 Pacesanos
 Parkway, 79231
 San Antonio, TX
 Phone: 210.979.8444
 COLLIERS ENGINEERING & DESIGN, INC.
 TBB# FIRM# F-1509 TBB#S FIRM# 1019450
www.colliersengineering.com





Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Prepared For:

USDA SOILS SURVEY MAP
TREVOR FIELDS TRACT
BEXAR COUNTY, TEXAS
GEOLOGIC ASSESSMENT

ATTACHMENT E

Prepared By:

- Subject Property**
- Bexar County Soils**
- Anhalt clay, 0 to 2 percent slopes
- Eckrant cobbly clay, 1 to 8 percent slopes
- Eckrant very cobbly clay, 5 to 15 percent slopes
- Lewisville silty clay, 1 to 3 percent slopes
- Patrick soils, 1 to 3 percent slopes, rarely flooded
- Sunev loam, 1 to 3 percent slopes
- Tinn and Frio soils, 0 to 1 percent slopes, frequently flooded

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 San Antonio, TX 78231
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DATE

JOB NUMBER

DRAWN BY

February 2024

23008042A

E.U.

References | Attachment F

- Arnow, Ted, 1959, Groundwater Geology of Bexar County, Texas: Texas Board of Water Engineers, Bulletin 5911, 62pp., 18 figs.
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- Texas Natural Resource Conservation Commission, 1999, Edwards Aquifer Recharge Zone Map, Round Rock Quadrangle, TNRCC, San Antonio, Texas.
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- Veni, G., 1988, The Caves of Bexar County, Second Edition, The Texas Memorial Museum, University of Texas, Austin, Texas.
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Infrastructure • Geotechnical/Environmental • Telecommunications • Utilities/Energy*

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: Clayton Linney, P.E.

Date: 4/10/2024

Signature of Customer/Agent:



Regulated Entity Name: Trevor Fields Tract

Regulated Entity Information

1. The type of project is:

- Residential: Number of Lots: _____
- Residential: Number of Living Unit Equivalents: 306
- Commercial
- Industrial
- Other: Multi-family Residential

2. Total site acreage (size of property): 38.29

3. Estimated projected population: 918 = (306 x 3)

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	420,750	÷ 43,560 =	9.66
Parking	127,359	÷ 43,560 =	2.92
Other paved surfaces	350,277	÷ 43,560 =	8.04
Total Impervious Cover	898,386	÷ 43,560 =	20.62

Total Impervious Cover 20.62 ÷ Total Acreage 38.29 X 100 = 53.86% Impervious Cover

5. **Attachment A - Factors Affecting Surface Water Quality.** A detailed description of all factors that could affect surface water and groundwater quality that addresses ultimate land use is attached.
6. Only inert materials as defined by 30 TAC §330.2 will be used as fill material.

For Road Projects Only

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

7. Type of project:

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

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

- Concrete
 Asphaltic concrete pavement
 Other: _____

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

Width of R.O.W.: _____ feet.

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

10. Length of pavement area: _____ feet.

Width of pavement area: _____ feet.

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

Pavement area _____ acres ÷ R.O.W. area _____ acres x 100 = _____% impervious cover.

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

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

Stormwater to be generated by the Proposed Project

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

Wastewater to be generated by the Proposed Project

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

<u>100%</u> Domestic	<u>61,200</u> Gallons/day
<u> </u> % Industrial	<u> </u> Gallons/day
<u> </u> % Commingled	<u> </u> Gallons/day
TOTAL gallons/day <u>61,200=(306 EDU X 200 gpd/EDU)</u>	

15. Wastewater will be disposed of by:

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

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

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

Sewage Collection System (Sewer Lines):

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

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

The SCS was previously submitted on _____.

The SCS was submitted with this application.

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

The sewage collection system will convey the wastewater to the _____ (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): _____

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.

FACTORS AFFECTING WATER QUALITY

Materials that are anticipated to be used on site that could be a potential source of contamination include the following:

During Construction:

1. Concrete and Masonry Materials
2. Wood, plastic, and metal Materials
3. Tar and hydrocarbons from paving operations
4. Oil, Grease, fuel, and hydraulic fluid from construction equipment and vehicle drippings
5. Fertilizers, Herbicides, and Pesticides
6. Cleaning solutions and detergents
7. Miscellaneous construction trash and debris
8. Soil erosion and sedimentation due to construction activity

Ultimate Use:

1. Pollutants generated from vehicles utilizing the roadways
2. Fertilizers, Herbicides, and pesticides used to maintain landscaping and lawns
3. Miscellaneous trash and debris generated from the public
4. Dumping of Hazardous Materials into the storm drainage system by the general public

(This is not intended to be an all inclusive list)

All practical management practices will be used to reduce the risk of spills and other exposure of any contaminant to surface or groundwater.

VOLUME AND CHARACTER OF STORMWATER

The portion of the Trevor Fields Tract within the Edwards Aquifer Recharge Zone consists of 38.29 acres. The existing topography contains a ridgeline that divides drainage towards the southeast and southwest with grades ranging from 1% to 20%. The portion of the site draining southeast drains into Leon Creek. The portion of the site draining southwest drains into Maverick Creek. The site consists of medium dense grass and moderate tree canopy cover. The existing soils on the site consist of Buda Limestone (Kbu), Del Rio Clay (Kdr) and Fluvial Terrace Deposits (Qt). Stratigraphically, the Kbu, Kdr and Qt lie above the Georgetown Formation and Edwards Group with the Kbu and Kdr characterized as confining units. The pre-development runoff coefficient for the site is 0.53 per the City of San Antonio Storm Water Design Criteria Manual Section 5.5.3 Table 5.5.3A. The existing flow patterns drain naturally south of the site and into Leon Creek and Maverick Creek. The pre-development runoff values for the 25-yr events for the site are shown in the drainage area map provided with form TCEQ-0602, Attachment G.

The proposed Trevor Fields Tract site will have a total impervious cover of 20.62 acres or 54.33% within the Edwards Aquifer Recharge Zone and will consist of structures, concrete driveways, concrete flush curbs, and asphalt pavement. The post-development runoff composite coefficient for this site is 0.80 per the City of San Antonio Storm Water Design Criteria Manual Section 5.5.3 Table 5.5.3A. The site has been divided into five (5) on-site drainage areas which will maintain the existing flow patterns throughout the site. The post-development runoff values for the 25-yr storm events for the site are shown in the drainage area map provided with form TCEQ-0602, Attachment G. The rainfall intensities used to calculate storm water runoff produced by the site were obtained from the City of San Antonio Storm Water Design Criteria Manual Section 5.5.3 Table 5.5.3A.

Permanent BMP's are required for this development. BMP's are represented by a batch detention basin and vegetative filter strips. The combination of BMPs are created to reduce the total suspended solids (TSS) by 80%. Calculations may be found within document TCEQ-0600 (attachment "C").

SUITABILITY LETTER FROM AUTHORIZED AGENT

Not applicable. Geologic Assessment is attached.

EXCEPTION TO THE REQUIRED GEOLOGIC ASSESSMENT

Not applicable. Geologic Assessment is attached.

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: Clayton Linney, P.E.

Date: 4/10/2024

Signature of Customer/Agent:



Regulated Entity Name: Trevor Fields Tract

Project Information

Potential Sources of Contamination

Examples: Fuel storage and use, chemical storage and use, use of asphaltic products, construction vehicles tracking onto public roads, and existing solid waste.

1. Fuels for construction equipment and hazardous substances which will be used during construction:

The following fuels and/or hazardous substances will be stored on the site: _____

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

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

- Aboveground storage tanks with a cumulative storage capacity between 250 gallons and 499 gallons will be stored on the site for less than one (1) year.
- Aboveground storage tanks with a cumulative storage capacity of 500 gallons or more will be stored on the site. An Aboveground Storage Tank Facility Plan application must be submitted to the appropriate regional office of the TCEQ prior to moving the tanks onto the project.
- Fuels and hazardous substances will not be stored on the site.
- 2. **Attachment A - Spill Response Actions.** A site specific description of the measures to be taken to contain any spill of hydrocarbons or hazardous substances is attached.
- 3. Temporary aboveground storage tank systems of 250 gallons or more cumulative storage capacity must be located a minimum horizontal distance of 150 feet from any domestic, industrial, irrigation, or public water supply well, or other sensitive feature.
- 4. **Attachment B - Potential Sources of Contamination.** A description of any activities or processes which may be a potential source of contamination affecting surface water quality is attached.

Sequence of Construction

- 5. **Attachment C - Sequence of Major Activities.** A description of the sequence of major activities which will disturb soils for major portions of the site (grubbing, excavation, grading, utilities, and infrastructure installation) is attached.
 - For each activity described, an estimate (in acres) of the total area of the site to be disturbed by each activity is given.
 - For each activity described, include a description of appropriate temporary control measures and the general timing (or sequence) during the construction process that the measures will be implemented.
- 6. Name the receiving water(s) at or near the site which will be disturbed or which will receive discharges from disturbed areas of the project: Maverick Creek & Leon 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.

SPILL RESPONSE ACTIONS

If there is an accidental spill on site, the contractor shall respond with appropriate action. The contractor will be required to contact the owner and in turn the owner will contact the TCEQ in the event of a spill on site. In addition to the following guidance, reference the latest version of TCEQ's Technical Guidance Manual (TGM) RG-348 Section 1.4.16.

General Measures

1. To the extent that the work can be accomplished safely, spills of oil, petroleum products, substances listed under 40 CFR parts 110,117, and 302, and sanitary and septic wastes should be contained and cleaned up immediately.
2. Store hazardous materials and wastes in covered containers and protect from vandalism.
3. Place a stockpile of spill cleanup materials where it will be readily accessible.
4. Train employees in spill prevention and cleanup.
5. Designate responsible individuals to oversee and enforce control measures.
6. Spills should be covered and protected from stormwater runoff during rainfall to the extent that it doesn't compromise clean-up activities.
7. Do not bury or wash spills with water.
8. Store and dispose of used clean up materials, contaminated materials, and recovered spill material that is no longer suitable for the intended purpose in conformance with the provisions in applicable BMPs.
9. Do not allow water used for cleaning and decontamination to enter storm drains or watercourses. Collect and dispose of contaminated water in accordance with applicable regulations.
10. Contain water overflow or minor water spillage and do not allow it to discharge into drainage facilities or watercourses.
11. Place Material Safety Data Sheets (MSDS), as well as proper storage, cleanup, and spill reporting instructions for hazardous materials stored or used on the project site in an open, conspicuous, and accessible location.
12. Keep waste storage areas clean, well organized, and equipped with ample cleanup supplies as appropriate for the materials being stored. Perimeter controls, containment structures, covers, and liners should be repaired or replaced as needed to maintain proper function.

Cleanup

1. Clean up leaks and spills immediately.
2. Use a rag for small spills on paved surfaces, a damp mop for general cleanup, and absorbent material for larger spills. If the spilled material is hazardous, then the used cleanup materials are also hazardous and must be disposed of as hazardous waste.
3. Never hose down or bury dry material spills. Clean up as much of the material as possible and dispose of properly. Specific spill response procedures are outlined below for each spill category (Minor – Hazardous).

Minor Spills

1. Minor spills typically involve small quantities of oil, gasoline, paint, etc. which can be controlled by the first responder at the discovery of the spill.
2. Use absorbent materials on small spills rather than hosing down or burying the spill.
3. Absorbent materials should be promptly removed and disposed of properly.
4. Follow the practice below for a minor spill:
 - Contain the spread of the spill.
 - Recover spilled materials.
 - Clean the contaminated area and properly dispose of contaminated materials.

Semi-Significant Spills

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

Spills should be cleaned up immediately:

1. Contain spread of the spill.
2. Notify the project foreman immediately.
3. If the spill occurs on paved or impermeable surfaces, clean up using "dry" methods (absorbent materials, cat litter and/or rags). Contain the spill by encircling with absorbent materials and do not let the spill spread widely.
4. If the spill occurs in dirt areas, immediately contain the spill by constructing an earthen dike. Dig up and properly dispose of contaminated soil.
5. If the spill occurs during rain, cover spill with tarps or other material to prevent contaminating runoff.

Significant/Hazardous Spills

For significant or hazardous spills that are in reportable quantities:

1. Notify the TCEQ by telephone as soon as possible and within 24 hours at (512)339-2929 (Austin) or 210-490-3096 (San Antonio) between 8 AM and 5 PM. After hours, contact the Environmental Release Hotline at 1-800-832-8224. It is the contractor's responsibility to have all emergency phone numbers at the construction site.
2. For spills of federal reportable quantities, in conformance with the requirements in 40 CFR parts 110, 119, and 302, the contractor should notify the National Response Center at (800) 424-8802.
3. Notification should first be made by telephone and followed up with a written report.
4. The services of a spills contractor or a Haz-Mat team should be obtained immediately. Construction personnel should not attempt to clean up until the appropriate and qualified staffs have arrived at the job site.
5. Other agencies which may need to be consulted include, but not limited to, the City Police Department, County Sheriff Office, Fire Departments, etc.

Vehicle and Equipment Maintenance

1. If maintenance must occur onsite, use a designated area and a secondary containment, located away from drainage courses, to prevent the runoff of stormwater and the runoff of spills.
2. Regularly inspect onsite vehicles and equipment for leaks and repair immediately
3. Check incoming vehicles and equipment (including delivery trucks, and employee and subcontractor vehicles) for leaking oil and fluids. Do not allow leaking vehicles or equipment onsite.
4. Always use secondary containment, such as a drain pan or drop cloth, to catch spills or leaks when removing or changing fluids.
5. Place drip pans or absorbent materials under paving equipment when not in use.
6. Use absorbent materials on small spills rather than hosing down or burying the spill. Remove the absorbent materials promptly and dispose of properly.
7. Promptly transfer used fluids to the proper waste or recycling drums. Don't leave full drip pans or other open containers lying around.
8. Oil filters disposed of in trashcans or dumpsters can leak oil and pollute stormwater. Place the oil filter in a funnel over a waste oil-recycling drum to drain excess oil before disposal. Oil filters can also be recycled. Ask the oil supplier or recycler about recycling oil filters.
9. Store cracked batteries in a non-leaking secondary container. Do this with all cracked batteries even if you think all the acid has drained out. If you drop a battery, treat it as if it is cracked. Put it into the containment area until you are sure it is not leaking.

Vehicle and Equipment Fueling

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

POTENTIAL SOURCES OF CONTAMINATION

During Construction:

1. Oil, grease, fuel, and hydraulic fluid contamination from construction equipment and vehicle dripping.
2. Hydrocarbons from paving operations.
3. Miscellaneous trash and litter from construction workers and material wrappings.
4. Construction debris.
5. Silt leaving the site.

Ultimate Use:

1. Pollutants from vehicles utilizing the roadways
2. Stormwater runoff contamination from fertilizers, herbicides, and pesticides used to maintain landscaping and lawns.
3. Dumping of hazardous materials into the storm drain system by the general public.

SEQUENCE OF MAJOR ACTIVITIES

Intended Schedule or Sequence of Major Activities:

1. Mobilization of the contractor's equipment.
2. Installation of temporary BMP's as described in attachment "D" of this section.
3. Site clearing and grubbing activities for streets, drains, detention ponds, and utilities.
 - a. 35.45 Acres
4. Rough subgrade preparation: earthwork, grading, street and drainage excavation and embankment
 - a. 35.45 Acres
5. Trenching and installation of utilities
 - a. 2.73 Acres
6. Final street prep, curbing, and paving activities
 - a. 8.15 Acres
7. Home construction
 - a. 12.20 Acres
8. Topsoil, irrigation and landscaping
 - a. 7.33 Acres
9. Site cleanup and removal of temporary BMP's

TEMPORARY BEST MANAGEMENT PRACTICES AND MEASURES

A: A majority of the upgradient runoff will be intercepted by earthen swales along the property lines and directed to the natural lows. The upgradient drainage area flowing onto the site is undeveloped and vegetation is well established so additional sedimentation is not anticipated to originate from upstream. The selection of the onsite BMP's has taken into account the additional runoff volume from the upgradient area.

B: Temporary BMPs will be installed prior to soil disturbing construction activity. Silt fencing and natural vegetated buffers will be placed along the down-gradient sides of the property to prevent silt from escaping the construction area. Rock berms will be placed in the drainage lows where runoff is concentrated. A temporary construction entrance will be placed at the site entry/exit point to reduce tracking onto adjoining streets. A construction staging area will be used onsite to perform all vehicle maintenance and for equipment and material storage. A concrete truck washout pit will be placed on site to provide containment and easier clean up of waste from concrete operations.

Practices may also be implemented on site for interim and permanent stabilization. Stabilization practices may include but are not limited to: establishment of temporary vegetation, establishment of permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of existing trees and vegetation, and other similar measures.

C: There are no existing surface streams or sensitive features within the site, therefore additional temporary BMP's are not required.

D: There are no sensitive features identified within this site, therefore additional temporary BMP's are not required. If a naturally-occurring sensitive feature is identified during construction all activity will be stopped and the contractor should notify TCEQ.

REQUEST TO TEMPORARILY SEAL A FEATURE

There will be no temporary sealing of any naturally occurring features on site.

STRUCTURAL PRACTICES

Structural BMPs will be used to limit runoff discharge of pollutants from exposed areas of the site. BMPs will be installed prior to soil disturbing construction activity. Silt fencing will be placed along the down-gradient sides of the property to prevent silt from escaping the construction area. A temporary construction entrance will be placed at the site entry/exit point to reduce tracking onto adjoining streets. A construction staging area will be used onsite to perform all vehicle maintenance and for equipment and material storage. A concrete truck washout pit will be placed on site to provide containment and easier clean up of waste from concrete operations. The location of all structural temporary BMP's is shown on the Site Plan, **EX-1.0** and details and specifications are provided in **EX-1.1** which can be found at the end of this report under the appropriate tab.

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DRAINAGE AREA MAP

A drainage area map is included with this report as **Attachment G**.

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TEMPORARY SEDIMENT POND(S) PLANS AND CALCULATIONS

Temporary sediment basin and/or traps are not proposed; however other temporary BMPs and measures will be used in combination to protect down slope and side slope boundaries of the construction area.

INSPECTION AND MAINTENANCE FOR BMP'S

MAINTENANCE

All temporary and permanent erosion and sediment control BMPs will be maintained and repaired as needed to assure continued performance of their intended function. All maintenance and repair of BMPs will be conducted in accordance with manufacturers' specifications.

All temporary erosion and sediment control BMPs will be removed within 30 days after final site stabilization is achieved or after the temporary BMPs are no longer needed. Trapped sediment will be removed or stabilized on site. Disturbed soil areas resulting from removal of BMPs or vegetation will be permanently stabilized as soon as possible.

Erosion and sediment controls are designed to prevent soil erosion and sediment migration offsite, to the extent practicable, which may result from construction activity. This design considers local topography, soil type, and rainfall.

Control measures must be installed and maintained according to the manufacturer's specifications. If periodic inspections or other information indicates a control has been used inappropriately, or incorrectly, the permittee must replace or modify the control for site situations.

Sediment must be removed from sediment traps or sedimentation ponds when design capacity has been reduced by 50%.

If sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize off-site impacts, and whenever feasible, prior to the next rain event.

The controls must be installed, maintained, and operated in a manner that will limit, to the extent practicable, offsite transport of litter, construction debris, and construction materials.

INSPECTIONS

An inspection will be performed by the qualified personnel, as designated by the permittee, on a weekly basis and after any rainfall event. An inspection and maintenance report shall be made per inspection. An inspection form has been included in this report. Based on the inspection results, the controls shall be corrected before the next scheduled inspection.

A log of inspection results will be maintained on-site and will include the name of the inspector, date, major observations, and necessary corrective measures. Reports of maintenance and inspection activities will be maintained on-site, in conformance with the TPDES permit conditions. Reports must identify any incidents of non-compliance. Where a report does not identify any incidents of non-compliance, the report must

contain a certification that the facility or site is in compliance with the WPAP. This report must be signed by the responsible party.

Major observations shall, at a minimum, include the following:

The locations of discharges of sediment or other pollutants from the site;

Locations of BMPs that need to be maintained;

Locations of BMPs that failed to operate as designed or proved inadequate for a particular location;

Location where additional BMP's are needed;

All needed repairs or modifications will be reported to the contractors to permit the timely implementation of required actions. Necessary repairs or modifications will be implemented within seven days of inspection. The WPAP will be modified within seven days to reflect any modifications to measures as a result of inspection.

The WPAP must be amended whenever there is a change in design, construction, operation or maintenance that has a significant effect on the discharge of pollutants to the waters of the United States that was not addressed in the WPAP.

The WPAP must be amended when inspections or investigations by site operations, local, state or federal officials indicate that the WPAP is proving ineffective in eliminating or significantly minimizing pollutants from the construction site or otherwise is not achieving the general objectives of controlling pollutants in storm water discharges associated with construction activity.

INSPECTION FORM

Project Name: Owner (s)/Operator (s): Permit Numbers(s): Inspection Date:	NOT APPLICABLE	IN COMPLIANCE	NEEDS CORRECTION	COMMENTS
RECORD KEEPING				
SWP3 Current				
NOI and Permit Posted				
BEST MANAGEMENT PRACTICES (BMPs)				
Vegetative Buffers				
Soil Covering(Including mulch and temporary vegetation)				
Outlet Protection				
Sediment Control Basins				
Silt Fence				
Stabilized Entrances/Exits				
Construction Staging Areas				
Inlet Protection				
Gravel Filter Bags				
Vegetated Filter Strip				
Concrete Truck Washout Pit				
Trash Receptacles				
General Site Cleanliness				
Other _____				
Other _____				
Other _____				

MAJOR OBSERVATIONS

CERTIFICATION

"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 NAME/SIGNATURE:
(Inspector must attach a brief summary of qualifications to this report.)

DATE:

OWNER NAME/SIGNATURE:

DATE:

SCHEDULE OF INTERIM AND PERMANENT SOIL STABILIZATION

Construction practices shall disturb the minimal amount of existing ground cover as required for land clearing, grading, and construction activity for the shortest amount of time possible to minimize the potential of erosion and sedimentation from the site. Existing vegetation shall be maintained and left in place until it is necessary to disturb for construction activity. For this project the following stabilization practices will be implemented:

1. Hydraulic Mulch and Seeding: Disturbed areas subject to erosion shall be stabilized with hydraulic mulch and/or seeded and watered to provide interim stabilization. For areas that are not to be sodded as per the project landscaping plan, a minimum of 85% vegetative cover will be established to provide permanent stabilization.
2. Sodding and Wood Mulch: As per the project landscaping plan, Sodding and wood mulch will be applied to landscaped areas to provide permanent stabilization prior to project completion.

Records of the following shall be maintained by the permittee in the attached Project Timeline:

- a) The dates when major grading activities occur;
- b) The dates when construction activities temporarily or permanently cease on a portion of the site;
- c) The dates when stabilization measures are initiated.

Stabilization measures must be initiated as soon as practical in portions of the site where construction activities have temporarily or permanently ceased, and except as provided in the following, must be initiated no more that fourteen (14) days after the construction activity in that portion of the site has temporarily or permanently ceased:

Where the initiation of stabilization measures by the 14th day after construction activity temporarily or permanently ceased is precluded by snow cover or frozen ground conditions, stabilization measures must be initiated as soon as practical.

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 the site. In arid areas (areas with an average rainfall of 0-10 inches), semiarid areas (areas with an average annual rainfall of 10 to 20 inches), and 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 practical.

PROJECT TIMELINE

DATES WHEN MAJOR GRADING ACTIVITIES OCCUR	
Date	Construction Activity

DATES WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE	
Date	Construction Activity

DATES WHEN STABILIZATION MEASURES ARE INITIATED	
Date	Stabilization Activity

Permanent Stormwater Section

Texas Commission on Environmental Quality

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

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

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

Signature

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

Print Name of Customer/Agent: Clayton Linney, P.E.

Date: 4/10/2024

Signature of Customer/Agent



Regulated Entity Name: Trevor Fields Tract

Permanent Best Management Practices (BMPs)

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

- Permanent BMPs and measures must be implemented to control the discharge of pollution from regulated activities after the completion of construction.
 N/A
- These practices and measures have been designed, and will be constructed, operated, and maintained to insure that 80% of the incremental increase in the annual mass loading of total suspended solids (TSS) from the site caused by the regulated activity is removed. These quantities have been calculated in accordance with technical guidance prepared or accepted by the executive director.
 The TCEQ Technical Guidance Manual (TGM) was used to design permanent BMPs and measures for this site.

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

N/A

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

N/A

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

The site will be used for low density single-family residential development and has 20% or less impervious cover.

The site will be used for low density single-family residential development but has more than 20% impervious cover.

The site will not be used for low density single-family residential development.

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

Attachment A - 20% or Less Impervious Cover Waiver. The site will be used for multi-family residential developments, schools, or small business sites and has 20% or less impervious cover. A request to waive the requirements for other permanent BMPs and measures is attached.

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

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

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

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

11. **Attachment G - Inspection, Maintenance, Repair and Retrofit Plan.** A plan for the inspection, maintenance, repairs, and, if necessary, retrofit of the permanent BMPs and measures is attached. The plan includes all of the following:
- Prepared and certified by the engineer designing the permanent BMPs and measures
 - Signed by the owner or responsible party
 - Procedures for documenting inspections, maintenance, repairs, and, if necessary retrofit
 - A discussion of record keeping procedures
- N/A
12. **Attachment H - Pilot-Scale Field Testing Plan.** Pilot studies for BMPs that are not recognized by the Executive Director require prior approval from the TCEQ. A plan for pilot-scale field testing is attached.
- N/A
13. **Attachment I -Measures for Minimizing Surface Stream Contamination.** A description of the measures that will be used to avoid or minimize surface stream contamination and changes in the way in which water enters a stream as a result of the construction and development is attached. The measures address increased stream flashing, the creation of stronger flows and in-stream velocities, and other in-stream effects caused by the regulated activity, which increase erosion that results in water quality degradation.
- N/A

Responsibility for Maintenance of Permanent BMP(s)

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

14. The applicant is responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation, an owner's association, a new property owner or lessee, a district, or municipality) or the ownership of the property is transferred to the entity. Such entity shall then be responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred.
- N/A
15. A copy of the transfer of responsibility must be filed with the executive director at the appropriate regional office within 30 days of the transfer if the site is for use as a multiple single-family residential development, a multi-family residential development, or a non-residential development such as commercial, industrial, institutional, schools, and other sites where regulated activities occur.
- N/A

20% OR LESS IMPERVIOUS COVER WAIVER

Not applicable.

BMP'S FOR UP-GRADIENT STORMWATER

Please refer to the Drainage Area Map provided with form TCEQ-0602, Attachment G. The upgradient drainage area is undeveloped and does not contain impervious cover. These areas were not included in the impervious cover calculations for the site. These drainage areas have been included in the TSS removal calculations under off-site area draining to BMP.

At the time the upgradient areas are undeveloped they will need to prepare a water pollution abatement plan and implement permanent BMPs to treat the stormwater runoff prior to entering this site.

BMP'S FOR ON-SITE STORMWATER

There is a total of Three (3) permanent BMP's that will be used to treat storm water runoff from the site. The required amount of pollutant load to be treated from the site is 18,075 pounds of TSS. The desired amount of pollutant load to be treated from the site is 18,166 pounds of TSS.

BMP #1 – Batch Detention Basin

A Batch Detention Basin that has been designed to treat runoff from a total area of 32.01 acres. The pond has a required capture volume of 96,215 cubic feet. The pond has an actual capture volume of 108,512 cubic feet. The available volume was calculated using the TCEQ 2005 Technical Guidance Manual. The required amount of TSS required to be treated from BA-1 was calculated using current TCEQ rules and was determined to be 15,914 pounds of TSS. The actual desired amount of TSS to be treated from BA-1 was determined to be 16,500 pounds of TSS to mitigate areas that could not receive treatment.

BMP #2 – Vegetative Filter Strip

A vegetative filter strip has been designed to treat runoff from a total area of 3.06 acres. The required amount of TSS required to be treated from BMP #2 was calculated using current TCEQ rules and was determined to be 1,195 pounds of TSS. The actual desired amount of TSS to be treated from BMP #2 was determined to be 1,315 pounds of TSS to mitigate areas that could not receive treatment.

BMP #3 – Vegetative Filter Strip

A vegetative filter strip has been designed to treat runoff from a total area of 0.82 acres. The required amount of TSS required to be treated from BMP #3 was calculated using current TCEQ rules and was determined to be 319 pounds of TSS. The actual desired amount of TSS to be treated from BMP #3 was determined to be 351 pounds of TSS to mitigate areas that could not receive treatment.

BMP'S FOR SURFACE STREAMS

There are two surface streams located off-site on the east and west side of the property. The best management practice used to prevent pollution to Maverick Creek and Leon Creek is silt fence on the down gradient of the proposed lots and rock berm for the proposed drain (Drain "A") found in the middle of the property. The post development best management practices used to prevent pollution to Maverick Creek and Leon Creek is vegetative buffers and a batch detention basin to provide settlement of suspended solids before releasing surface water to Maverick Creek.

REQUEST TO SEAL A FEATURE

No sensitive features will be requested to be sealed.

CONSTRUCTION PLANS

Calculations for the load removal requirements for the project and the load removal provided by the permanent BMP's are provided in the attached spreadsheet which have been signed and sealed by a professional engineer licensed in the state of Texas. The load removal requirements are derived from the equations from the technical guidance manual based upon project area and increase in impervious cover. Provided within the calculations is a summary of the amount of pollutant load required to be removed from the drainage areas and the amount of removal provided by the permanent BMP's. All calculations, construction plans, details, specifications, and construction notes are provided in this section.

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/OR CONTRACTORS INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

COMPACTION NOTE:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING 98% COMPACTION ON ALL TRENCH BACKFILL AND PAVING FOR THE TESTS TO BE PERFORMED BY A THIRD PARTY. COMPACTION TESTS WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED OR AS INDICATED BY THE SAWS INSPECTOR/TEST ADMINISTRATOR, PER EACH 12 INCH LOOSE LIFT PER 400 LINEAR FEET AT A MINIMUM. PERMITS AND/OR WILL NOT BE ACCEPTED AND FINALIZED BY SAWS WITHOUT THIS REQUIREMENT BEING MET AND VERIFIED BY PROVIDING ALL NECESSARY DOCUMENTED TEST RESULTS.

DRY UTILITY CONDUIT NOTE:

CONDUIT LOCATIONS SHOWN ON PLAN ARE FOR GEOGRAPHICAL PURPOSES ONLY AND ARE APPROXIMATE. CONTRACTOR TO INSTALL PROPOSED CONDUITS IN ACCORDANCE WITH DRY UTILITY PURVEYOR'S SPECIFICATIONS. CONTRACTOR TO VERIFY THE CONDUIT LOCATIONS AND SIZES BASED ON THE DRY UTILITY PURVEYOR'S PLAN.

CAUTION!

THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRICAL, PRIMARY ELECTRICAL, DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

SEQUENCE OF OPERATION:

- UPON ACTIVATION OF FLOAT SWITCH, DDC CONTROLLER TO START DETENTION TIMER #1.
- DETENTION TIMER #1 TO BE MANUALLY SET TO 12 HOURS AND TO BE USER ADJUSTABLE VALUE.
- WHEN DETENTION TIMER #1 HAS ELAPSED, A 6" BUTTERFLY VALVE IS TO OPEN AND RELEASE DETAINED WATER IN BASIN.
- UPON DEACTIVATION OF FLOAT SWITCH, DDC CONTROLLER TO START DETENTION TIMER #2.
- DETENTION TIMER #2 TO BE MANUALLY SET TO 2 HOURS AND TO BE USER ADJUSTABLE.
- WHEN DETENTION TIMER #2 HAS ELAPSED, THE 6" BUTTERFLY VALVE IS TO CLOSE.
- VALVE TO BE ACTUATED PERIODICALLY TO SHOW ACTIVE REGARDLESS OF FLOAT SWITCH OPERATION.

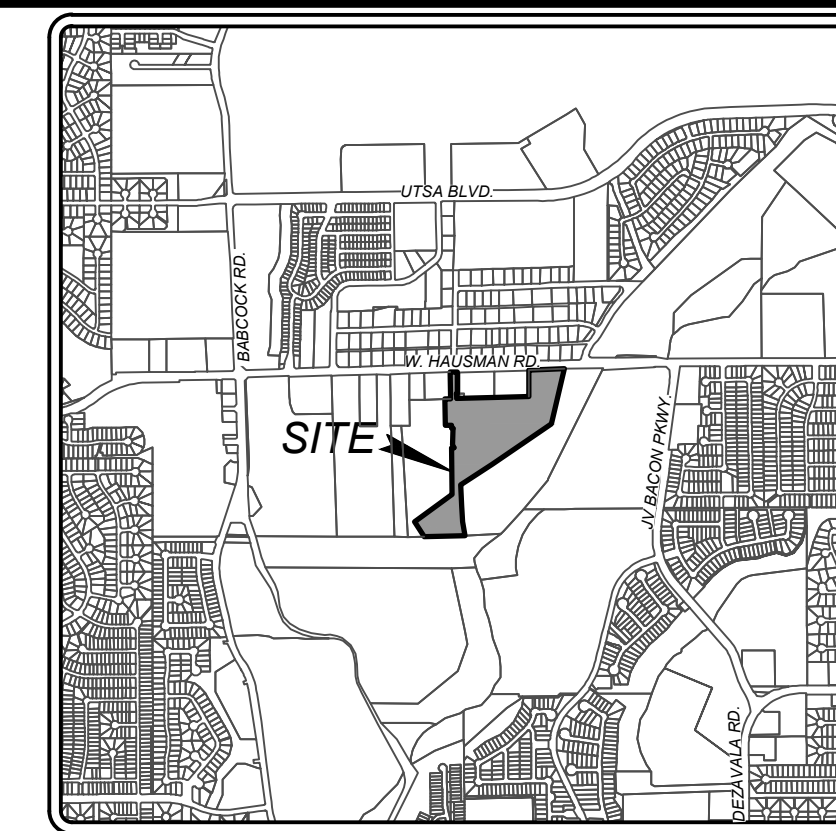
LEGEND

- FLOW ARROW
- - - 706 EXISTING CONTOURS
- - - 707 PROPOSED CONTOURS
- PROPERTY LINE
- ☆ POINT # 707.00 TOE
- ☆ POINT # 707.00 INV

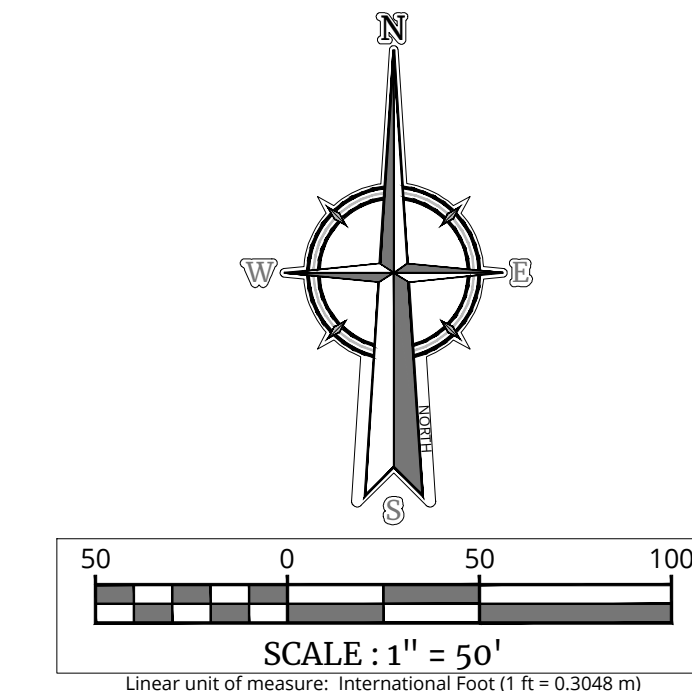
PROPOSED DISCHARGE

Q5 = 69.90	WSEL5 = 941.2	VEL5 = 4.23
Q25 = 154.70	WSEL25 = 942.0	VEL25 = 3.27
Q100 = 242.60	WSEL100 = 942.5	VEL100 = 3.58

STAGE (FT)	STORAGE (SQFT)	ELEVATION	DISCHARGE (CFS)
0	0	936.00	0.00
0.05	0	936.05	0.00
1.00	27,450.32	937.00	0.00
2.00	78,657.90	938.00	0.00
3.00	90,853.46	939.00	6.40
4.00	95,643.87	940.00	29.90
5.00	100,524.82	941.00	63.20
6.00	105,495.86	942.00	155.70
6.50	108,029.16	942.50	242.60



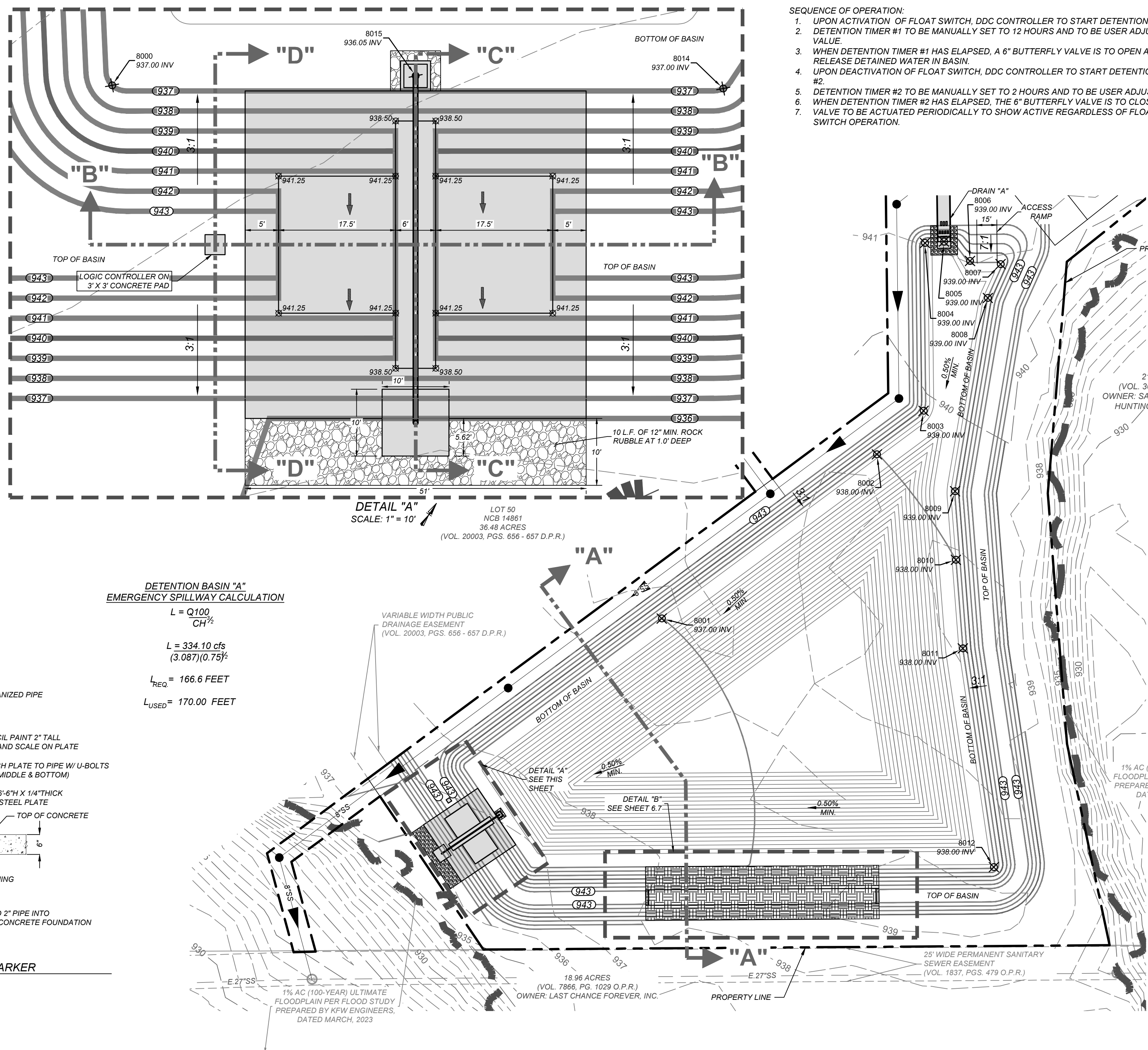
LOCATION MAP NOT-TO-SCALE



- NOTE:**
- ALL CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 3000 PSI IN 28 DAYS.
 - ANY DISTURBED AREAS WILL BE VEGETATED BY SEEDING OR SODDING. EIGHTY-FIVE PERCENT OF THE DISTURBED SURFACE AREA MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT.
 - ALL EARTHEN CHANNELS MUST NOT EXCEED 3:1 SIDE SLOPES (MAX).

Point Table

Point #	Elevation	Northing	Easting
8000	937.00	13756525.78	20887875.47
8001	937.00	13756635.69	2088023.57
8002	938.00	13756758.48	2088184.51
8003	939.00	13756791.04	2088219.40
8004	939.00	13756916.58	2088220.46
8005	939.00	13756917.63	2088234.66
8006	939.00	13756903.12	2088254.11
8007	939.00	13756900.73	2088277.03
8008	939.00	13756875.44	2088267.46
8009	939.00	13756730.89	2088242.93
8010	938.00	13756679.59	2088243.56
8011	938.00	13756613.39	2088248.76
8012	938.00	13756449.80	2088271.93
8013	937.00	13756451.17	2088088.61
8014	937.00	13756449.73	2087926.19
8015	936.05	13756488.93	2087902.03



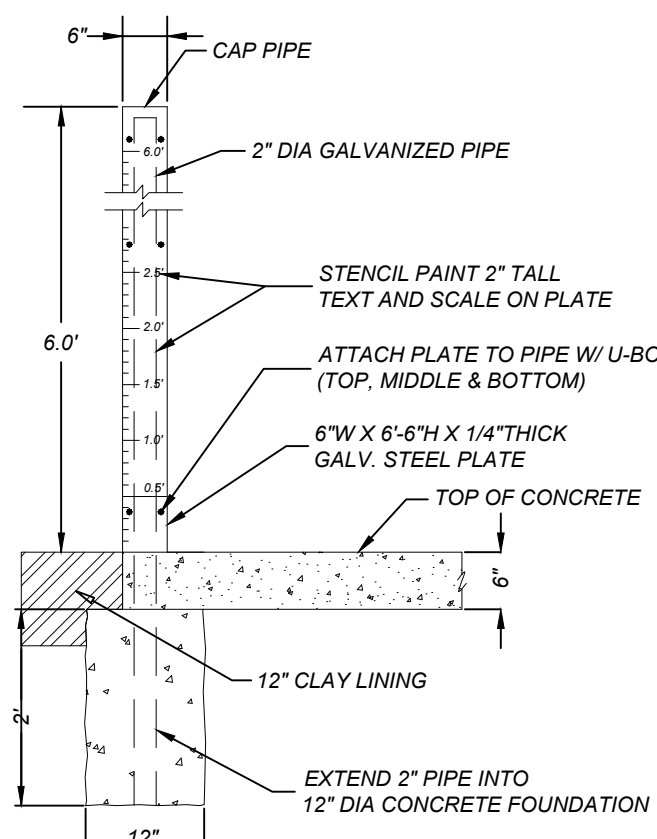
DETENTION BASIN "A" EMERGENCY SPILLWAY CALCULATION

$$L = \frac{Q_{100}}{CH^{1.48}}$$

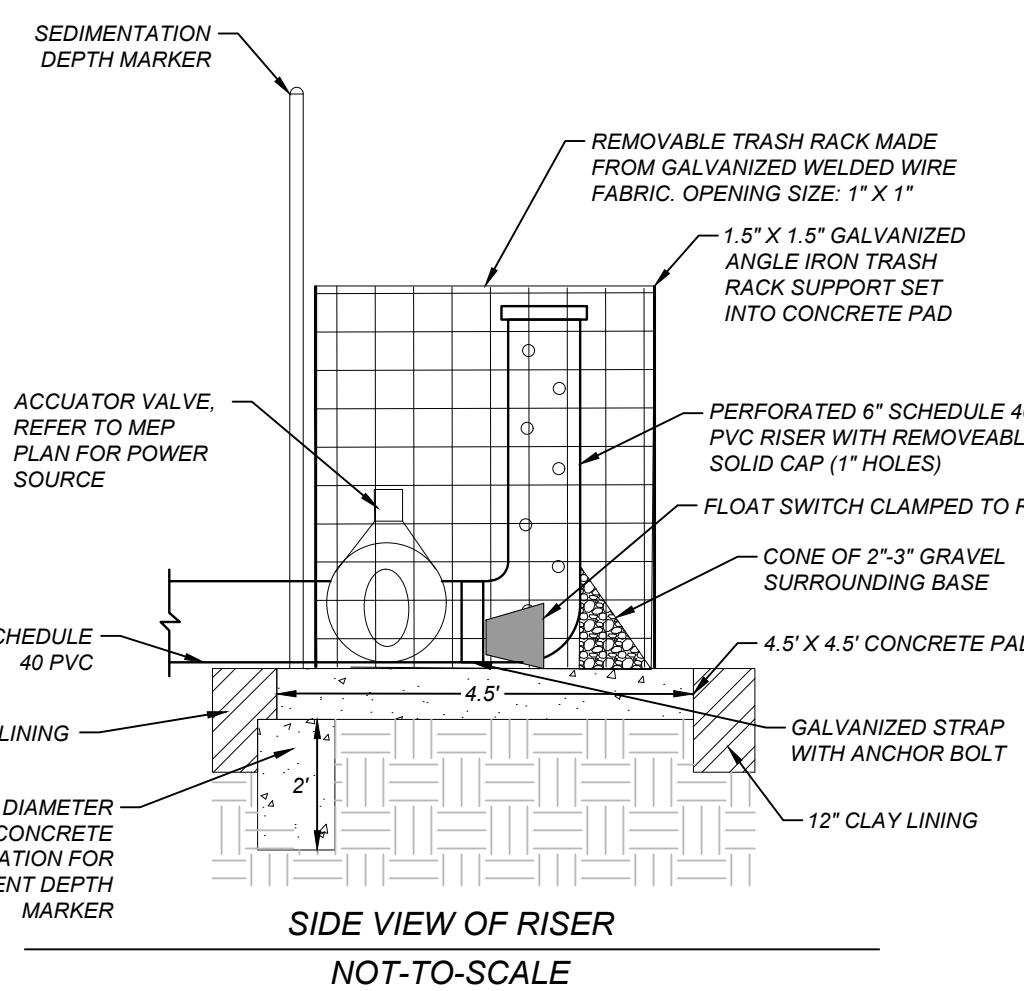
$$L = \frac{334.10 \text{ cfs}}{(3.087)(0.75)^{1.48}}$$

$$L_{REQ} = 166.6 \text{ FEET}$$

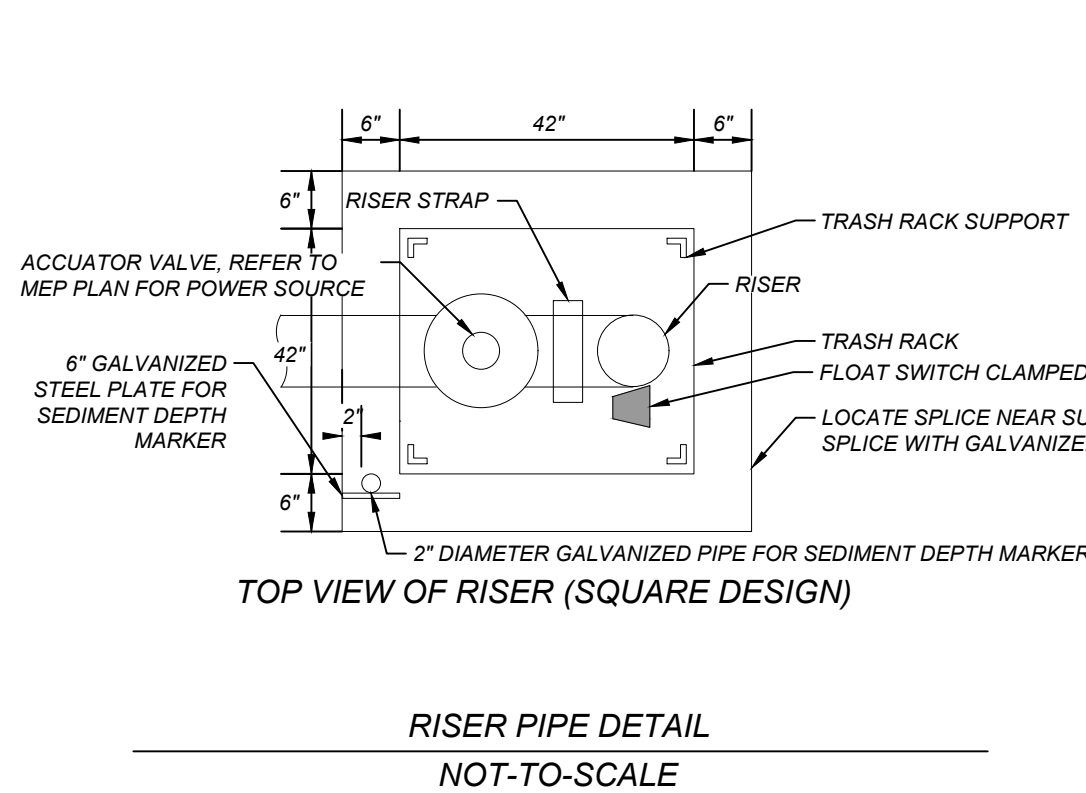
$$L_{USED} = 170.00 \text{ FEET}$$



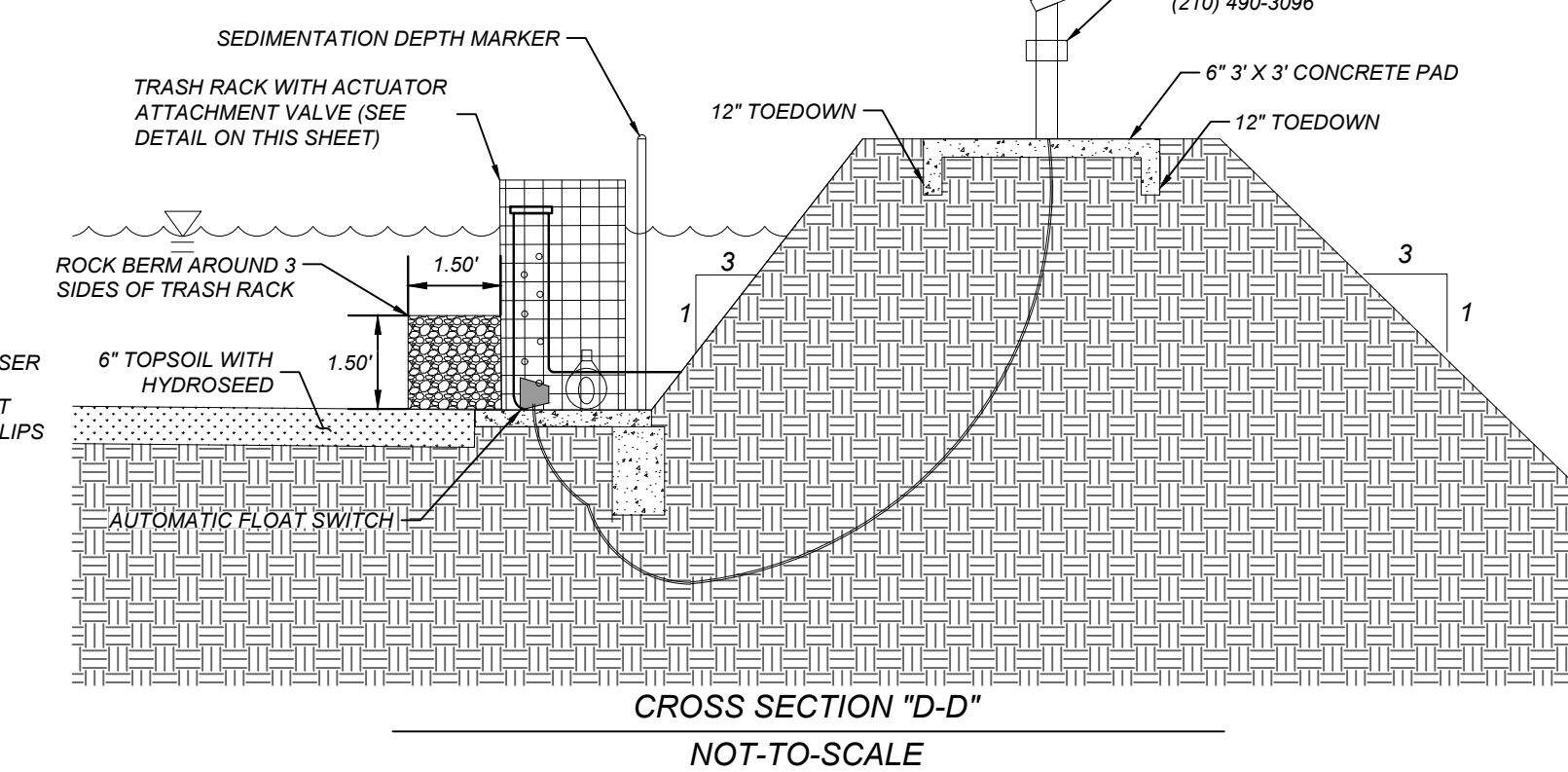
SEDIMENT DEPTH MARKER NOT-TO-SCALE



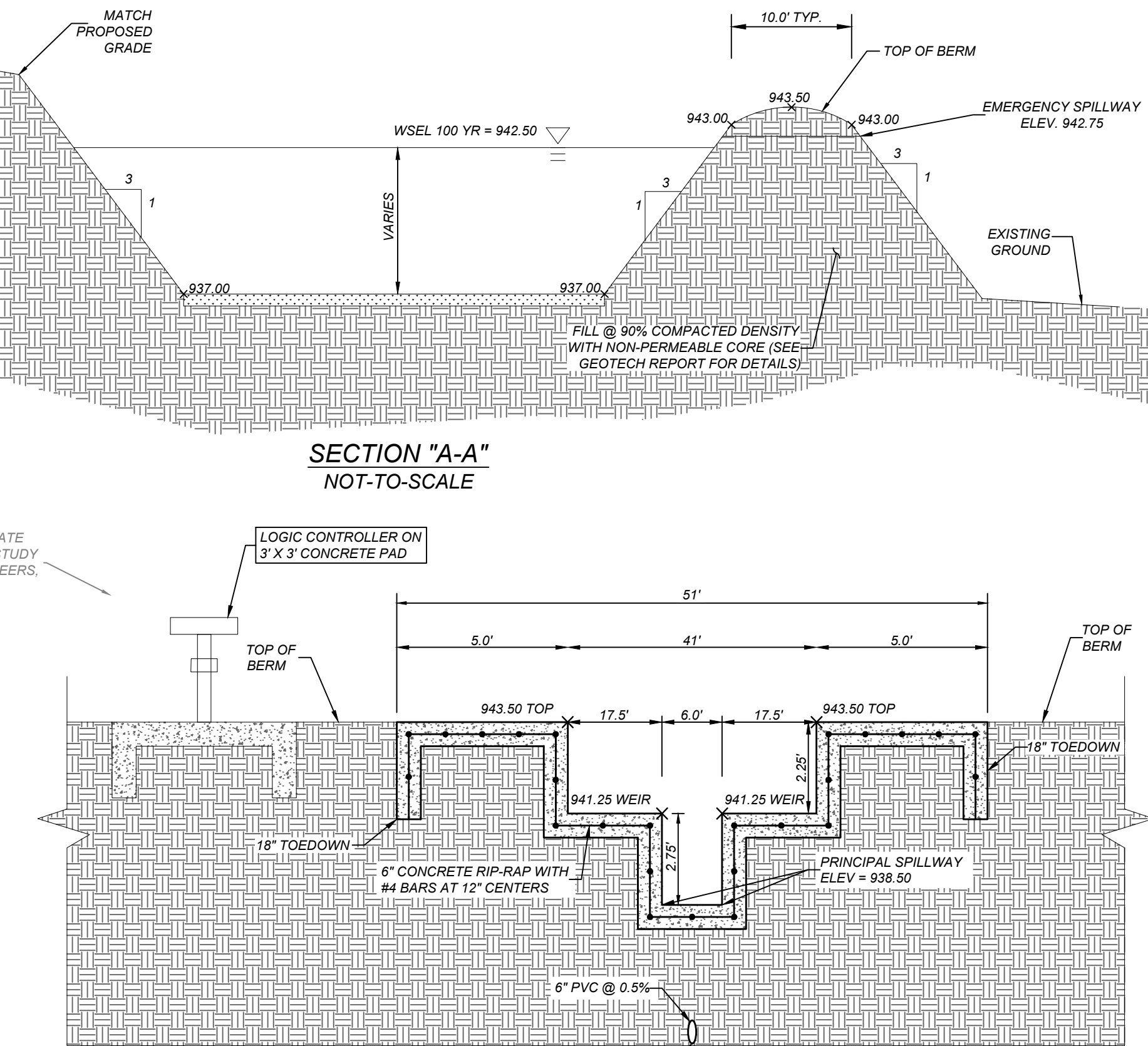
SIDE VIEW OF RISER NOT-TO-SCALE



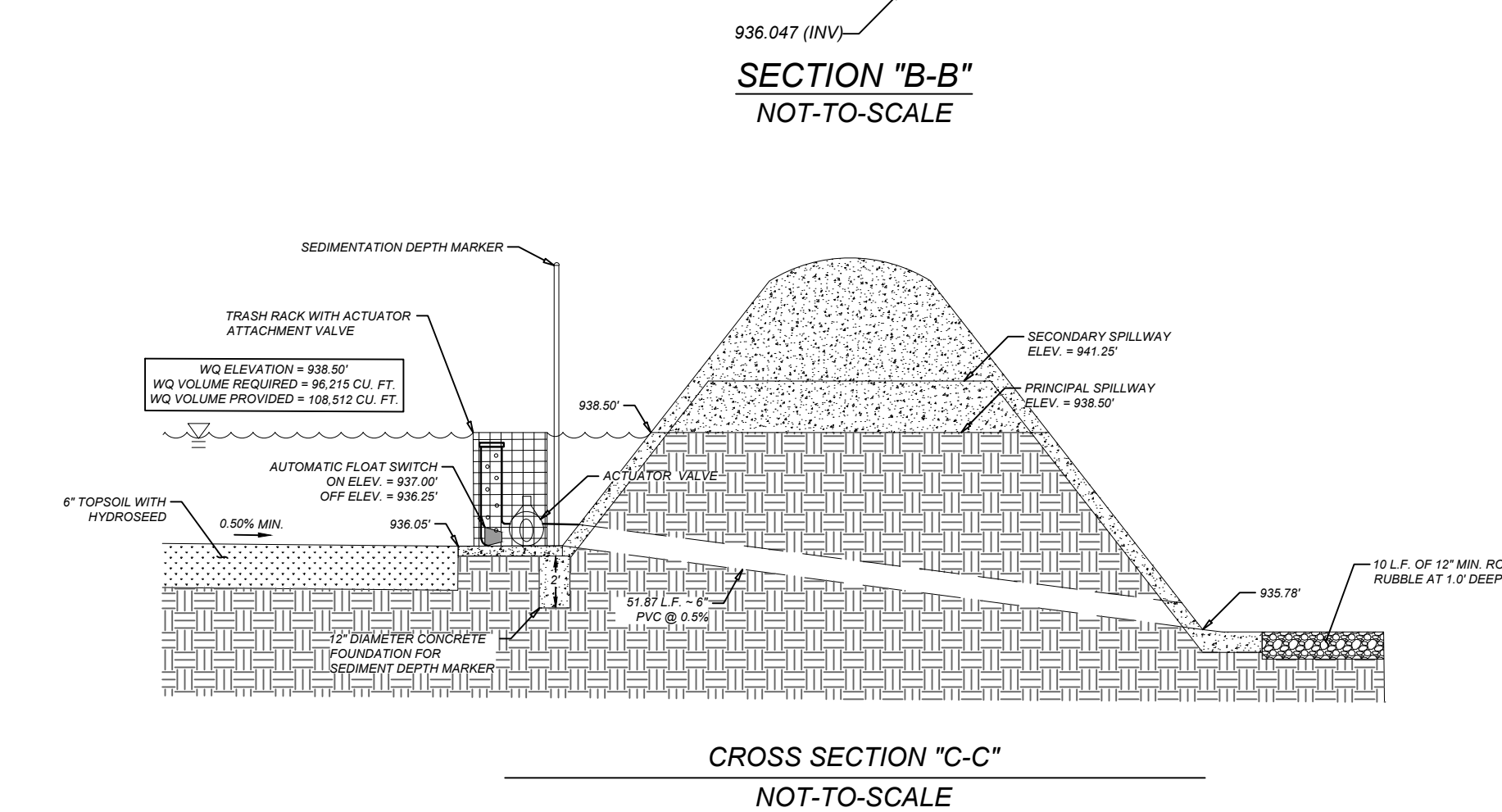
RISER PIPE DETAIL NOT-TO-SCALE



CROSS SECTION "D-D" NOT-TO-SCALE



SECTION "A-A" NOT-TO-SCALE



SECTION "B-B" NOT-TO-SCALE

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CLAYTON J. LINNEY
TEXAS LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: 111543
COLLIERS ENGINEERING & DESIGN, INC.
TPE Firm#: E-14909 TPES Firm#: 10194550

TREVOR FIELDS, UNIT 1 STREET, DRAINAGE, WATER, SANITARY SEWER & UTILITY IMPROVEMENTS FOR MOSAIC LAND DEVELOPMENT

CITY OF SAN ANTONIO BEXAR COUNTY TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paellas Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TPE Firm #: E-14909 TPES Firm #: 10194550

SCALE: AS SHOWN	DATE: DEC - 2023	DRAWN BY: JA	CHECKED BY: CL
PROJECT NUMBER: 1065-13-03	DRAWING NAME: BA10651-303		

DETENTION BASIN PLAN

SHEET NUMBER: 6.6

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

TREVOR FIELDS SUBDIVISION

IMPERVIOUS COVER CALCULATIONS - ATTACHMENT C

4/8/2024

OFF-SITE DRAINAGE AREAS	TOTAL AREA (AC.)	PAD AREA (SF)	DRIVEWAY (SF)	SIDEWALK AREA (4' WIDE TYP.) (SF)	CURB AREA (SF)	DRAINS AREA (SF)	PAVEMENT AREA (SF)	TOTAL IMPERVIOUS (ESTIMATION) (SF)	TOTAL OFF-SITE IMPERVIOUS (AC.)
OS-1 (OFF-SITE EXISTING DEVELOPED AREAS)	2.34	0	0	0	0	0	0	0	0.000
OS-2 (OFF-SITE EXISTING DEVELOPED AREAS)	4.32	0	0	0	0	0	0	0	0.000
TOTALS:	6.66	0	0	0	0	0	0	0	0.000
ON-SITE DRAINAGE AREAS	TOTAL AREA (AC.)	PAD AREA (SF)	DRIVEWAY (SF)	SIDEWALK AREA (4' WIDE TYP.) (SF)	CURB AREA (SF)	DRAINS AREA (SF)	PAVEMENT AREA (SF)	TOTAL IMPERVIOUS (SF)	TOTAL ON-SITE IMPERVIOUS (AC.)
BA-1A	30.30	315,019	104,311	55,320	33,301	9,997	264,461	782,408	17.962
BA-1B	1.71	0	0	0	0	0	0	67,117	1.541
BA-2	3.06	63,780	0	0	0	22	0	63,802	1.465
BA-3	0.82	17,011	0	0	0	0	0	17,011	0.391
BA-4	1.18	24,387	6,320	2,435	0	0	0	33,142	0.761
BA-5	1.09	0	0	0	0	1,387	0	1,387	0.032
TOTALS:	38.16	420,197	110,631	57,755	33,301	11,405	264,461	964,867	22.150

SITE TOTALS:
TOTAL AREA (AC): 38.16

IMPERVIOUS COVER TOTALS:
OVERALL ACRES IMPERVIOUS: 22.150
OVERALL % IMPERVIOUS: 58.04%

** AVERAGE PAD SIZE IS 1,375 SQ. FT. (INCLUDES PATIOS, WALKWAYS, ETC.)
 ** AVERAGE DRIVEWAY IS 360 SQ. FT.
 ** AVERAGE LOT SIZE 0.064 AC.
 ** UNKNOWN IMPERVIOUS COVERS DETERMINED BY STORMWATER DESIGN MANUAL TABLE 5.6.1.1.1.2



TREVOR FIELDS SUBDIVISION

SUMMARY TABLE

4/8/2024

Overall Summary:

BASIN AREA	TOTAL ON-SITE AREA (ACRES)	EXISTING IMPERVIOUS COVER (ACRES)	IMPERVIOUS COVER (ACRES)	REQUIRED TSS REDUCTION (LBS/YEAR)	ACTUAL TSS REDUCTION (LBS/YEAR)	PROPOSED BMPS
BA-1A	30.30	0.00	17.962			Batch Detention Pond (BMP #1)
BA-1B	1.71	0.00	1.541			Batch Detention Pond (BMP #1)
BA-1 (BA-1A & BA-1B COMBINED)	32.01	0.00	19.502	15,914	16,500	
BA-2	3.06	0.00	1.465	1,195	1,315	Vegetative Filter Strip (BMP #2)
BA-3	0.82	0.00	0.391	319	351	Vegetative Filter Strip (BMP #3)
BA-4	1.18	0.00	0.761	621	0	No Treatment
BA-5	1.09	0.00	0.032	26	0	No Treatment
TOTALS:	38.16	0.000	22.150	18,075	18,166	



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:

$L_{M \text{ TOTAL PROJECT}}$ = Required TSS removal resulting from the proposed development = 80% 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 = **Bexar**

Total project area included in plan * = **38.16** acres

Predevelopment impervious area within the limits of the plan * = **0.00** acres

Total post-development impervious area within the limits of the plan * = **22.150** acres

Total post-development impervious cover fraction * = **0.58**

P = **30** inches

$L_{M \text{ TOTAL PROJECT}}$ = **18074** lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = **5**



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

Drainage Basin/Outfall Area No. = **BA-1**

Total drainage basin/outfall area = **32.01** acres

Predevelopment impervious area within drainage basin/outfall area = **0.00** acres

Post-development impervious area within drainage basin/outfall area = **19.502** acres

Post-development impervious fraction within drainage basin/outfall area = **0.61**

$L_{M \text{ THIS BASIN}}$ = **15914** lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = **Batch Detention Basin**

Removal efficiency = **91** 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: $L_R = (\text{BMP efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

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 = **32.01** acres

32.02

$A_i = 19.502$ acres 19.444
 $A_p = 12.51$ acres
 $L_R = 18606$ lbs

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

Desired $L_{M \text{ THIS BASIN}} = 16500$ lbs.

$F = 0.89$

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area.

Calculations from RG-348

Pages 3-34 to 3-36

Rainfall Depth = 1.60 inches
 Post Development Runoff Coefficient = 0.43
 On-site Water Quality Volume = 79406 cubic feet

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

Off-site area draining to BMP = 6.66 acres
 Off-site Impervious cover draining to BMP = 0.00 acres
 Impervious fraction of off-site area = 0.00
 Off-site Runoff Coefficient = 0.02
 Off-site Water Quality Volume = 774 cubic feet

Storage for Sediment = 16036

Total Capture Volume (required water quality volume(s) x 1.20) = 96215 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 = N/A 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 = NA cubic feet

9. Filter area for Sand Filters

Designed as Required in RG-348

Pages 3-58 to 3-63

9A. Full Sedimentation and Filtration System

Water Quality Volume for sedimentation basin = NA cubic feet

Minimum filter basin area = NA square feet

Maximum sedimentation basin area = NA square feet For minimum water depth of 2 feet

Minimum sedimentation basin area = NA square feet For maximum water depth of 8 feet

9B. Partial Sedimentation and Filtration System

Water Quality Volume for combined basins = NA cubic feet

Minimum filter basin area = NA square feet

Maximum sedimentation basin area = NA square feet For minimum water depth of 2 feet

Minimum sedimentation basin area = NA square feet For maximum water depth of 8 feet

10. Bioretention System

Designed as Required in RG-348

Pages 3-63 to 3-65

Required Water Quality Volume for Bioretention Basin = NA cubic feet

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.
 Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.

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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:

$L_{M \text{ TOTAL PROJECT}}$ = Required TSS removal resulting from the proposed development = 80% 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 = **Bexar**
 Total project area included in plan * = **38.16** acres
 Predevelopment impervious area within the limits of the plan * = **0.00** acres
 Total post-development impervious area within the limits of the plan* = **22.150** acres
 Total post-development impervious cover fraction * = **0.58**
 P = **30** inches

$L_{M \text{ TOTAL PROJECT}}$ = **18074** lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = **5**

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

Drainage Basin/Outfall Area No. = **BA-3**
 Total drainage basin/outfall area = **0.82** acres
 Predevelopment impervious area within drainage basin/outfall area = **0.00** acres
 Post-development impervious area within drainage basin/outfall area = **0.391** acres
 Post-development impervious fraction within drainage basin/outfall area = **0.48**
 $L_{M \text{ THIS BASIN}}$ = **319** 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: $L_R = (\text{BMP efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

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 = **0.82** acres

A_i = 1.465 acres
A_p = 1.60 acres
L_R = 1315 lbs

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

Desired L_{M THIS BASIN} = 1315 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 = 0.35
On-site Water Quality Volume = 15377 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 = 0

Total Capture Volume (required water quality volume(s) x 1.20) = 15377 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 = N/A 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 = NA cubic feet

9. Filter area for Sand Filters

Designed as Required in RG-348

Pages 3-58 to 3-63

9A. Full Sedimentation and Filtration System

Water Quality Volume for sedimentation basin = NA cubic feet

Minimum filter basin area = NA square feet

Maximum sedimentation basin area = NA square feet For minimum water depth of 2 feet

Minimum sedimentation basin area = NA square feet For maximum water depth of 8 feet

9B. Partial Sedimentation and Filtration System

Water Quality Volume for combined basins = NA cubic feet

Minimum filter basin area = NA square feet

Maximum sedimentation basin area = NA square feet For minimum water depth of 2 feet

Minimum sedimentation basin area = NA square feet For maximum water depth of 8 feet

10. Bioretention System

Designed as Required in RG-348

Pages 3-63 to 3-65

Required Water Quality Volume for Bioretention Basin = NA cubic feet

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:

$L_{M \text{ TOTAL PROJECT}}$ = Required TSS removal resulting from the proposed development = 80% 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 = **Bexar**
 Total project area included in plan * = **38.16** acres
 Predevelopment impervious area within the limits of the plan * = **0.00** acres
 Total post-development impervious area within the limits of the plan* = **22.150** acres
 Total post-development impervious cover fraction * = **0.58**
 P = **30** inches

$L_{M \text{ TOTAL PROJECT}}$ = **18074** lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = **5**

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

Drainage Basin/Outfall Area No. = **BA-2**
 Total drainage basin/outfall area = **3.06** acres
 Predevelopment impervious area within drainage basin/outfall area = **0.00** acres
 Post-development impervious area within drainage basin/outfall area = **1.465** acres
 Post-development impervious fraction within drainage basin/outfall area = **0.48**
 $L_{M \text{ THIS BASIN}}$ = **1195** 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: $L_R = (\text{BMP efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

where:

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

A_C = **3.06** acres



$A_i = 0.391$ acres
 $A_p = 0.43$ acres
 $L_R = 351$ lbs

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

Desired $L_{M \text{ THIS BASIN}} = 351$ 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 = 0.35
 On-site Water Quality Volume = 4108 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 = 0

Total Capture Volume (required water quality volume(s) x 1.20) = 4108 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 = N/A 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 = NA cubic feet

9. Filter area for Sand Filters

Designed as Required in RG-348

Pages 3-58 to 3-63

9A. Full Sedimentation and Filtration System

Water Quality Volume for sedimentation basin = NA cubic feet

Minimum filter basin area = NA square feet

Maximum sedimentation basin area = NA square feet For minimum water depth of 2 feet

Minimum sedimentation basin area = NA square feet For maximum water depth of 8 feet

9B. Partial Sedimentation and Filtration System

Water Quality Volume for combined basins = NA cubic feet

Minimum filter basin area = NA square feet

Maximum sedimentation basin area = NA square feet For minimum water depth of 2 feet

Minimum sedimentation basin area = NA square feet For maximum water depth of 8 feet

10. Bioretention System

Designed as Required in RG-348

Pages 3-63 to 3-65

Required Water Quality Volume for Bioretention Basin = NA cubic feet

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell. Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.

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1. The Required Load Reduction for the total project:

Calculations from RG-348

Pages 3-27 to 3-30

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

where:

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% 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 = **Bexar**
 Total project area included in plan * = **38.16** acres
 Predevelopment impervious area within the limits of the plan * = **0.00** acres
 Total post-development impervious area within the limits of the plan* = **22.150** acres
 Total post-development impervious cover fraction * = **0.58**
 P = **30** inches

$L_{M\ TOTAL\ PROJECT}$ = **18074** lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = **5**

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

Drainage Basin/Outfall Area No. = **BA-4**
 Total drainage basin/outfall area = **1.18** acres
 Predevelopment impervious area within drainage basin/outfall area = **0.00** acres
 Post-development impervious area within drainage basin/outfall area = **0.761** acres
 Post-development impervious fraction within drainage basin/outfall area = **0.64**
 $L_{M\ THIS\ BASIN}$ = **621** lbs.



3. Indicate the proposed BMP Code for this basin.

Proposed BMP =
 Removal efficiency = **#N/A** 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: $L_R = (\text{BMP efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

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 = **1.09** acres

$A_i = 0.000$ acres
 $A_p = 1.09$ acres
 $L_R = \#N/A$ lbs

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

Desired $L_{M \text{ THIS BASIN}} = 0$ lbs.

$F = \#N/A$

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 = $\#N/A$ inches
 Post Development Runoff Coefficient = 0.02
 On-site Water Quality Volume = $\#N/A$ 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 = $\#N/A$ cubic feet

Storage for Sediment = 0

Total Capture Volume (required water quality volume(s) x 1.20) = $\#N/A$ 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 = N/A 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 = NA cubic feet

9. Filter area for Sand Filters

Designed as Required in RG-348

Pages 3-58 to 3-63

9A. Full Sedimentation and Filtration System

Water Quality Volume for sedimentation basin = NA cubic feet

Minimum filter basin area = NA square feet

Maximum sedimentation basin area = NA square feet For minimum water depth of 2 feet

Minimum sedimentation basin area = NA square feet For maximum water depth of 8 feet

9B. Partial Sedimentation and Filtration System

Water Quality Volume for combined basins = NA cubic feet

Minimum filter basin area = NA square feet

Maximum sedimentation basin area = NA square feet For minimum water depth of 2 feet

Minimum sedimentation basin area = NA square feet For maximum water depth of 8 feet

10. Bioretention System

Designed as Required in RG-348

Pages 3-63 to 3-65

Required Water Quality Volume for Bioretention Basin = NA cubic feet

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell. Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.

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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:

$L_{M \text{ TOTAL PROJECT}}$ = Required TSS removal resulting from the proposed development = 80% 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 = **Bexar**
 Total project area included in plan * = **38.16** acres
 Predevelopment impervious area within the limits of the plan * = **0.00** acres
 Total post-development impervious area within the limits of the plan* = **22.150** acres
 Total post-development impervious cover fraction * = **0.58**
 P = **30** inches

$L_{M \text{ TOTAL PROJECT}}$ = **18074** lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = **5**

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

Drainage Basin/Outfall Area No. = **BA-5**
 Total drainage basin/outfall area = **1.09** acres
 Predevelopment impervious area within drainage basin/outfall area = **0.00** acres
 Post-development impervious area within drainage basin/outfall area = **0.032** acres
 Post-development impervious fraction within drainage basin/outfall area = **0.03**
 $L_{M \text{ THIS BASIN}}$ = **26** lbs.



3. Indicate the proposed BMP Code for this basin.

Proposed BMP =
 Removal efficiency = **#N/A** 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: $L_R = (\text{BMP efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

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 = **1.09** acres

$A_i = 0.000$ acres
 $A_p = 1.09$ acres
 $L_R = \#N/A$ lbs

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

Desired $L_{M \text{ THIS BASIN}} = 0$ lbs.

$F = \#N/A$

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 = $\#N/A$ inches
 Post Development Runoff Coefficient = 0.02
 On-site Water Quality Volume = $\#N/A$ 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 = $\#N/A$ cubic feet

Storage for Sediment = 0

Total Capture Volume (required water quality volume(s) x 1.20) = $\#N/A$ 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 = N/A 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 = NA cubic feet

9. Filter area for Sand Filters

Designed as Required in RG-348

Pages 3-58 to 3-63

9A. Full Sedimentation and Filtration System

Water Quality Volume for sedimentation basin = NA cubic feet

Minimum filter basin area = NA square feet

Maximum sedimentation basin area = NA square feet **For minimum water depth of 2 feet**

Minimum sedimentation basin area = NA square feet **For maximum water depth of 8 feet**

9B. Partial Sedimentation and Filtration System

Water Quality Volume for combined basins = NA cubic feet

Minimum filter basin area = NA square feet

Maximum sedimentation basin area = NA square feet **For minimum water depth of 2 feet**

Minimum sedimentation basin area = NA square feet **For maximum water depth of 8 feet**

10. Bioretention System

Designed as Required in RG-348

Pages 3-63 to 3-65

Required Water Quality Volume for Bioretention Basin = NA cubic feet

H-12VSP-DPLL

Solar Powered Detention
Level Control

Valworx
6 " 12V DC Valve

Features

- Direct mount wafer butterfly valve with ISO5211 mount
- 3-layer epoxy coated ductile iron body with 316 SS disc
- Unique wave line seat reduces torque and extends seal life
- Visual valve position indicator
- Rugged aluminum Type 4X weatherproof enclosure
- Heavy duty motors with overload protection
- Thermostatically controlled anti-condensation heater
- Manual override with end of travel mechanical stops
- Two auxiliary position confirmation limit switches
- EPS - Electronic Positioning System models available
- Actuators Intertek ETL Listed per UL429 and CSA C22.2

Applications

EPDM seals typically used for on-off control of water and other media compatible with the materials of construction. NBR (Buna-N) seals typically used for air, oil, vacuum and other media compatible with the materials of construction. Multi-standard alignment holes, suitable for flanges: ANSI/ASME Class 125/150, EN1092 PN10,PN16, BS10 Table D, E and JIS B2239 10K,16K. Actuators designed for 60% duty cycle.

Operation

On-Off electric actuated valve uses power-to-open and power-to-close, stays in the last known position with loss of power. On receipt of a continuous voltage signal, the motor runs and via a rugged all metal gear system rotates the ball 90°. The motor is automatically stopped by internal cams striking limit switches. On receipt of a reversing continuous signal, the motor turns in the opposite direction reversing the valve position. Power connections direct to terminal strip via included cable connector or 1/2" NPT conduit.

Construction

Valve Body	3-layer Epoxy/Epoxy/PUR coated ductile iron
Disc	316 stainless steel CF8M
Disc Seat/Liner	EPDM or NBR (Buna-N)
Stem/Stem Seals	420 stainless steel / (2) v-rings same material as seat
Gear Drive	Heavy duty alloy steel/aluminum bronze, self locking
Actuator Enclosure	Aluminum, polyester powder painted, Type 4X, IP65
Visual Valve Position Indicator	Clear Polycarbonate cover, red/yellow open-closed
Fasteners	Stainless Steel
Auxiliary Limit Switches	2 x SPDT (5A/125VAC), on-off actuators only



Description

Electric operated direct mount butterfly valves with epoxy-coated ductile iron wafer body are designed for commercial and industrial applications. Valve mounts between two standard ANSI/ASME Class 150 flanges and includes integral molded flange gaskets. Disc is precision machined 316SS. Two piece stem and disc design enhances the flow capacity and reduces turbulence. Rugged corrosion resistant electric actuator includes a manual override, valve position confirmation switches (on-off units), thermostatically controlled anti-condensation heater, and over-torque protection.

Approvals

Actuators



- Intertek ETL Listed to:
 - UL429 and CSA C22.2 No. 139
 - UL50E Type 4X enclosure
- CE mark, conforming to:
 - 2006/42/EC Machinery Directive
 - 2006/95/EC Low Voltage Directive
 - 2004/108/EC EMC Compatibility (FCC)
 - RoHS2 and WEEE Compliance
 - ISO5211 mounting and IP65 enclosure

Valves

- Design complies with API-609, MSS SP-67
- Tests per API-598, AWWA C502-87
- CE according to PED 97/23/EC, ISO5208

Construction Features

Auxiliary Limit Switches(2) for confirming valve position, standard in on-off units

Heavy duty integral motor design significantly reduces physical size of actuator

Rugged polyester powder coated aluminum corrosion resistant Type 4X weather-proof enclosure, ETL listed per UL50E

Unique wave line seat reduces torque and extends seal life

316SS disc with 2-piece stem design enhances flow capacity, reduces pressure drop

Anti-Condensation Heater

Terminal Box, wire directly to terminal strip via 1/2" NPT conduit connection or use included cable connector

Manual Override with protective cover

Self-locking all metal gear train, no additional brake required

Direct mount wafer butterfly valve with standard ISO5211 mount, no brackets required

Ductile iron body with 3-layer epoxy/epoxy/PUR coating



Visual Valve
Position Indicator

Pressure Rating

Pressure Rating: 230 PSI (16 Bar), Vacuum 29in Hg

Temperature Rating

Actuator Temperature Rating: -4 to +140° F (-20 to 60° C)

Valve Temperature Rating: EPDM seals 0 to 248° F (-18 to 120°C)

NBR seals 5 to 185° F (-15 to 85°C)



Electric Actuated Butterfly Valves

Ductile Iron Wafer Body ASME 150#
2 to 6 inch On-Off Models

SERIES
5670

Specifications (English units)

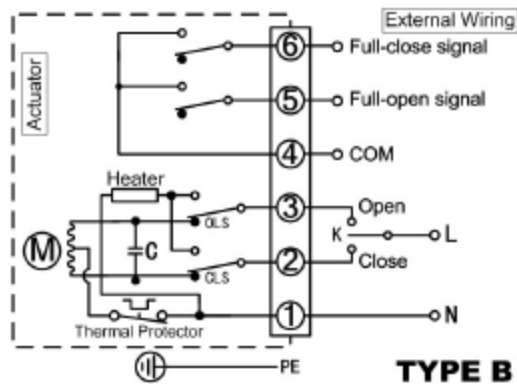
Stock Number	Pipe Size (inch)	Orifice Size (inch)	Cv Flow Factor	Pressure Max. (PSI)	Cycle Time/90* (seconds)	Voltage	Current (amps)	Duty Cycle	Electrical Dwg.
120 VAC ELECTRIC ACTUATED WAFER BODY BUTTERFLY VALVE. EPDM SEALS									
567002	2	2.00	124	230	18	AC120,50/60Hz	0.38	60%	B
567003	2-1/2	2.50	247	230	18	AC120,50/60Hz	0.38	60%	B
567004	3	3.00	470	230	18	AC120,50/60Hz	0.38	60%	B
567005	4	4.00	929	230	18	AC120,50/60Hz	0.38	60%	B
567007	6	6.00	2243	230	27	AC120,50/60Hz	0.92	60%	B
12 or 24 VDC ELECTRIC ACTUATED WAFER BODY BUTTERFLY VALVE. EPDM SEALS									
567027	2	2.00	124	230	10	DC12/24	2.7/1.5	60%	G1
567028	2-1/2	2.50	247	230	10	DC12/24	2.7/1.5	60%	G1
567029	3	3.00	470	230	10	DC12/24	2.7/1.5	60%	G1
567030	4	4.00	929	230	10	DC12/24	2.7/1.5	60%	G1
567032	6	6.00	2243	230	24	DC12/24	5.6/2.7	60%	G1
120 VAC ELECTRIC ACTUATED WAFER BODY BUTTERFLY VALVE. NBR (BUNA-N) SEALS									
567036	2	2.00	124	230	18	AC120,50/60Hz	0.38	60%	B
567037	2-1/2	2.50	247	230	18	AC120,50/60Hz	0.38	60%	B
567038	3	3.00	470	230	18	AC120,50/60Hz	0.38	60%	B
567039	4	4.00	929	230	18	AC120,50/60Hz	0.38	60%	B
567041	6	6.00	2243	230	27	AC120,50/60Hz	0.92	60%	B
12 or 24 VDC ELECTRIC ACTUATED WAFER BODY BUTTERFLY VALVE. NBR (BUNA-N) SEALS									
567046	2	2.00	124	230	10	DC12/24	2.7/1.5	60%	G1
567047	2-1/2	2.50	247	230	10	DC12/24	2.7/1.5	60%	G1
567048	3	3.00	470	230	10	DC12/24	2.7/1.5	60%	G1
567049	4	4.00	929	230	10	DC12/24	2.7/1.5	60%	G1
567050	6	6.00	2243	230	24	DC12/24	5.6/2.7	60%	G1

* Cv is the GPM of water at 60° F that will pass through the valve with 1 PSI pressure drop

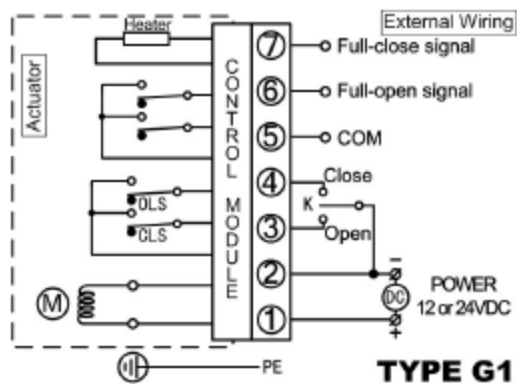
* Voltage tolerance: AC voltage -10/+5%, DC voltage -0/+5%

Electrical Wiring

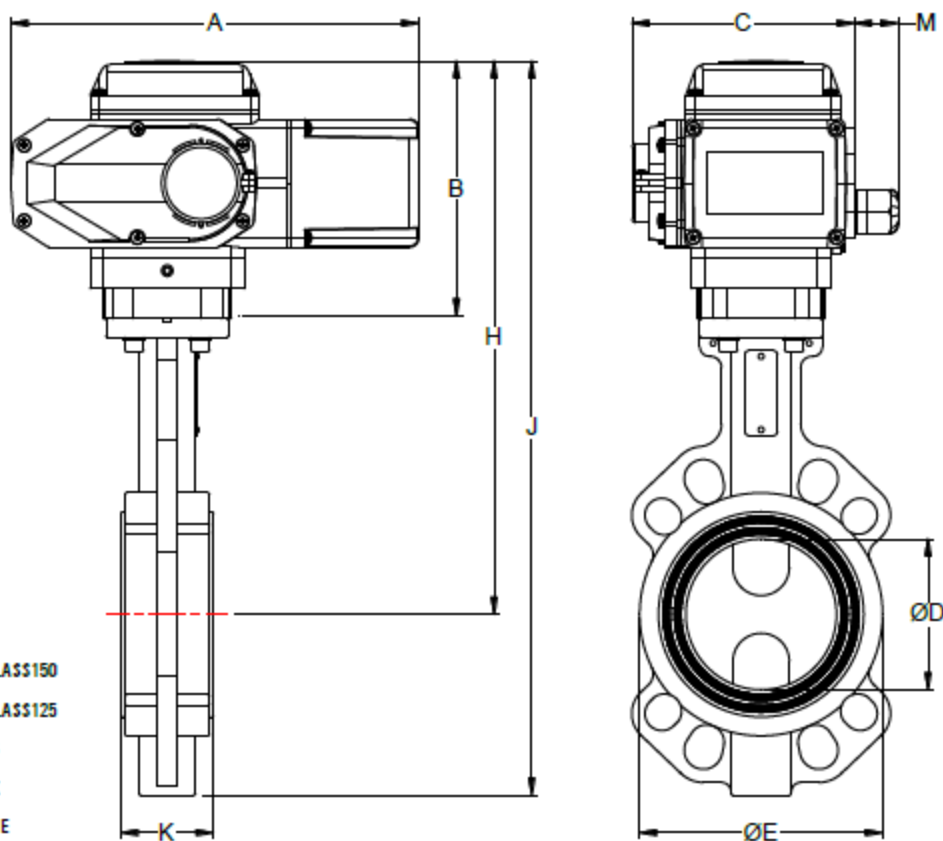
AC Voltages



DC Voltages



Dimensions: Valves with DC Voltages



Suitable between flanges:

- ◆ ANSI/ASME B16.5 CLASS150
- ◆ ANSI/ASME B16.1 CLASS125
- ◆ EN1092 PN10, PN16
- ◆ JIS B 2239 10K, 16K
- ◆ BS 10 Table D, Table E

Pipe Size		A	B	C	D	E	H	J	K	M	ISO	Weight
2	inch	8.54	5.39	4.65	1.97	3.90	10.35	13.35	1.81	0.91	F05	11.0 lb
DN50	mm	217	137	118	50	99	263	339	46	23		5.0 kg
2-1/2	inch	8.54	5.39	4.65	2.56	4.46	10.67	13.90	1.93	0.91	F05	12.1 lb
DN65	mm	217	137	118	65	113	271	353	49	23		5.5 kg
3	inch	8.54	5.39	4.65	3.15	5.07	11.57	15.35	1.93	0.91	F05	13.9 lb
DN80	mm	217	137	118	80	129	294	390	49	23		6.3 kg
4	inch	8.54	5.39	4.65	3.94	6.17	11.97	16.46	2.20	0.91	F05/F07	17.5 lb
DN100	mm	217	137	118	100	157	304	418	56	23		7.9 kg
6	inch	11.85	7.76	6.30	5.91	8.39	15.75	21.34	2.32	0.91	F07	39.2 lb
DN150	mm	301	197	160	150	213	400	542	59	23		17.8 kg

Float switch

A2H SERIES

SJE VerticalMaster® Pump Switch

Features

- Mechanically activated vertical operation.
- Controls pumps up to ½ HP at 120 VAC and 1 HP at 230 VAC.
- Non-corrosive PVC housing for use in liquids up to 140° F (60° C).
- Overall Dimensions: 12" High, 5" Deep, 3" Wide.
- Not sensitive to rotation.
- Pumping range: .75" to 6.5".
- 16 AWG, SJOW cord is available with or without piggyback plug.
- Available for pump down applications only.
- For confined applications requiring an accurate pumping range.
- Stainless steel mounting bracket and hose clamp.
- UL Recognized for use in non-potable water and sewage.
- CSA Certified.
- See chart for amperage range and other data.





ITT

CENTRIPRO
Wastewater

PUMP SWITCHES (WIDE ANGLE) can be connected directly to a pump.
CONTROL SWITCHES (NARROW ANGLE) can only be used with control panels or alarm panels.

ORDER NUMBER	MAXIMUM RUNNING AMPS	MAXIMUM STARTING AMPS	CORD LENGTH (FEET)	BARE LEADS	PUMP SWITCH	CONTROL SWITCH	(1) N.O.	(2) N.C.	MOUNTING STRAP	WEIGHT
A2D13	13	85	10	X	X	—	X		X	
A2D23U	13	85	15	X	X	—		X	X	
A2D23W	13	85	15	X	X	—	X			X
A2D33	13	85	20	X	X	—	X		X	
A2D33U	13	85	20	X	X	—		X	X	
A2D33W	13	85	20	X	X	—	X			X
A2D53W	13	85	30	X	X	—	X			X
A2D63W	13	85	50	X	X	—	X			X
A2D83W	13	85	100	X	X	—	X			X
A2E23	15	85	15	X	X	—	X		X	
A2E23U	15	85	15	X	X	—		X	X	
A2E33	15	85	20	X	X	—	X		X	
A2E53	15	85	30	X	X	—	X		X	
A2E53U	15	85	30	X	X	—		X	X	
A2E63	15	85	50	X	X	—	X		X	
A2E63U	15	85	50	X	X	—		X	X	
A2E73	15	85	75	X	X	—	X		X	
A2E83	15	85	100	X	X	—	X		X	
A2G33	20	120	20	X	X	—	X		X	
A2G43	20	120	25	X	X	—	X		X	
A2G53	20	120	30	X	X	—	X		X	
A2G63	20	120	50	X	X	—	X		X	
A2HT33	13	58	20	X	X	X	X		X	
A2HT53	13	58	30	X	X	X	X		X	
A2HT63	13	58	50	X	X	X	X		X	
A2N13	5	N/A	10	X	—	X	X		X	
A2N33	5	N/A	20	X	—	X	X		X	
A2N33U	5	N/A	20	X	—	X		X	X	
A2N93	5	N/A	125	X	—	X	X		X	
A2S23 [®]	10	N/A	15	X	—	X	X		X	
A2S53 [®]	10	N/A	30	X	—	X	X		X	
A2S63 [®]	10	N/A	50	X	—	X	X		X	
A2X13	See description	N/A	10	X	—	X	X		X	
A2X33	See description	N/A	20	X	—	X	X		X	
A2X53	See description	N/A	30	X	—	X	X		X	

N.O. (1) = PUMP DOWN

N.C. (2) = PUMP UP

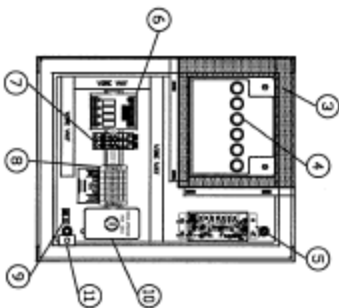
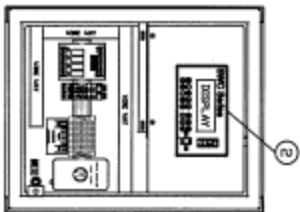
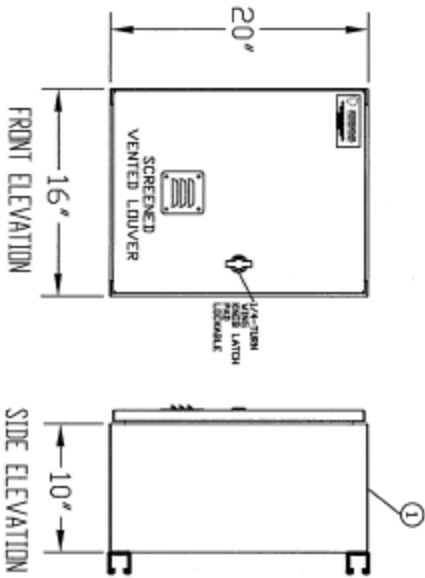
[®] Diaphragm switch with 6" differential.

Control Panel

NOTES:
 1. PRECAUTIONS:
 A) LETHAL VOLTAGES ON ALL COMPONENTS. EXERCISE CARE WHEN POWER IS ON. POWER MAY BE PRESENT FROM REMOTE SOURCES.
 2. DIMENSIONS ARE SHOWN IN INCHES.

3. FINISH ENCLOSURE - GREY POWDER COATING INSIDE AND OUT.
 4. ALLOW SUFFICIENT AISLE SPACE IN FRONT OF EQUIPMENT TO PERMIT FULL DOOR OPENING. CHECK LOCAL CODES FOR SPECIFIC REQUIREMENTS.
 5. INSTALLATION OF EQUIPMENT SHALL BE IN ACCORDANCE WITH CURRENT AND APPLICABLE LOCAL, NATIONAL ELECTRIC CODE (NEC) AND/OR INTERNATIONAL ELECTRIC CODES.
 6. WARRANTY VOID IF PANEL IS MODIFIED.

INDUSTRIAL CONTROL PANEL - SUBJECT 508A
 UNDERWRITERS LABORATORIES, INC.
 DYNAMIC AUTOMATION & CONTROLS FILE NO. E353956



PANEL COMPONENTS:
 1. ENCLOSURE BASE MEASURES 20"X16"X10" WITH POLE MOUNTING STRAPS.
 2. 4X7 GRAPHIC PANEL, NUMERIC KEYPAD, MONOCHROME ALIENS USER TO PROGRAM AND CHECK ALARM EVENTS.
 3. ELEM. INSTANTINATION KEEPS HEAT OR COIL TEMPERATURE BEING TRANSFER INTO BATTERY.
 4. 40AH BATTERY GELLED-ELECTROLYTE BATTERY PROVIDES LEADIC POWER FOR CONTROLLER.
 5. SOLAR CONTROLLER ALLOWS CHARGER OF BATTERY AND PROTECTS BATTERY FROM OVER AND UNDER VOLTAGE CONDITION.
 6. PROGRAMMABLE BIC CONTROL VALVE DURING A STORE EVENT AND LOSS DATA WHEN EVENT VALVE OPENING AND VALVE FAILED TO OPEN.
 7. CONTROL RELAYS SPOT 12 AMP RATE CONTACTS LEADIC COIL MULTIPLE CONTROL FUNCTIONS.
 8. TERMINAL BLOCK ALLOW FIELD CONNECTION TO CONTROL PANEL.
 9. GROUND LUG.
 10. OVERRIDE SWITCH ALLOW USER TO MANUALLY OPERATE VALVE FROM CLOSE TO OPEN OR OPEN TO CLOSE.
 11. DOOR SWITCH TURN POWER ON/OFF ON THE DISPLAY.

UL TYPE ENCLOSURE: 3R
 ENCLOSURE SIZE: 20" X 16" X 10"

Part# SWC12VDC40AH10W

CONFIDENTIAL PROPRIETARY INFORMATION

THIS DOCUMENT (INCLUDING THAT IS THE CONFIDENTIAL AND PROPRIETARY PROPERTY OF DAC AND MAY NOT BE COPIED, REPRODUCED, OR DISCLOSED TO OTHERS OR USED FOR ANY OTHER PURPOSE WITHOUT THE WRITTEN PERMISSION AND AUTHORIZATION OF AN AUTHORIZED OFFICE OF DAC. THIS DOCUMENT MUST BE KEPT IN DAC'S CONFIDENTIAL FILES WHEN NOT IN USE.



DYNAMIC
 AUTOMATION & CONTROLS

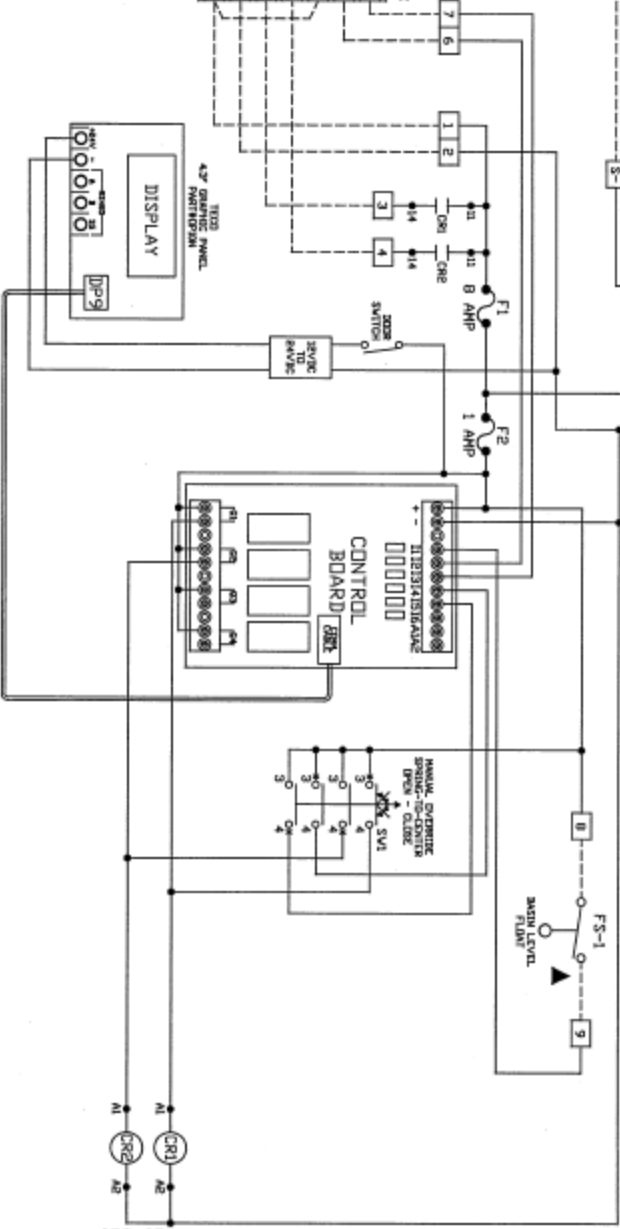
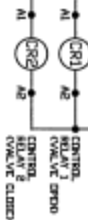
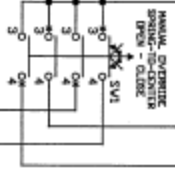
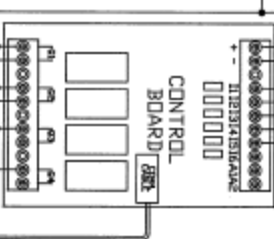
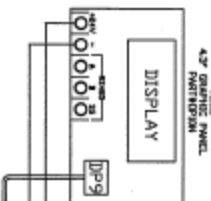
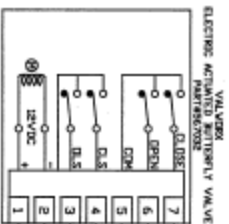
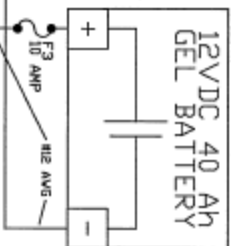
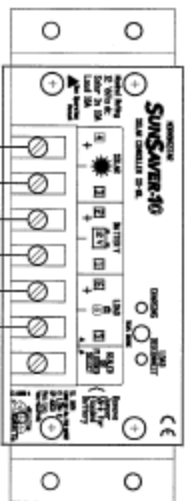
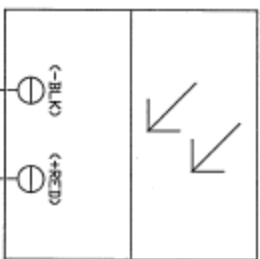
LEGEND
 □ - FIELD TERMINAL
 ● - PANEL/SERVICE TERMINATION
 ▲ - REMOTE SERVICE
 - - FIELD WIRING
 ◇ - WIRE JUMPER

CONTROL WIRE 16GA MTW

REV	DESCRIPTION	DATE	BY	CHK
1	ISSUE FOR PRODUCTION	08/11/09	WJ	WJ

NO.	REV	DESCRIPTION	DATE	BY	CHK
1	1	ISSUE FOR PRODUCTION	08/11/09	WJ	WJ

20 VOLT SOLAR PANEL
PART#SDS-12



CONFIDENTIAL PROPRIETARY INFORMATION

THIS DRAWING AND ALL INFORMATION CONTAINED HEREIN IS THE PROPERTY OF DYNAMIC AUTOMATION & CONTROLS, INC. AND IS NOT TO BE REPRODUCED, COPIED, OR DISCLOSED TO OTHERS WITHOUT THE WRITTEN PERMISSION OF DYNAMIC AUTOMATION & CONTROLS, INC. THIS DRAWING IS THE PROPERTY OF DYNAMIC AUTOMATION & CONTROLS, INC. AND IS NOT TO BE REPRODUCED, COPIED, OR DISCLOSED TO OTHERS WITHOUT THE WRITTEN PERMISSION OF DYNAMIC AUTOMATION & CONTROLS, INC. THIS DRAWING IS THE PROPERTY OF DYNAMIC AUTOMATION & CONTROLS, INC. AND IS NOT TO BE REPRODUCED, COPIED, OR DISCLOSED TO OTHERS WITHOUT THE WRITTEN PERMISSION OF DYNAMIC AUTOMATION & CONTROLS, INC.



DYNAMIC
AUTOMATION & CONTROLS

LEGEND
 ○ - FIELD TERMINAL
 ● - PANEL/DEVICE TERMINATION
 ▲ - REMOTE DEVICE
 ▽ - FIELD WIRING
 ◇ - WIRE JUMPER

CONTROL WIRE 16GA MTW

NOTES

REV.	DESCRIPTION	DATE
1	ISSUED	12/10/08
2	REVISED	12/10/08
3	REVISED	12/10/08
4	REVISED	12/10/08
5	REVISED	12/10/08
6	REVISED	12/10/08
7	REVISED	12/10/08
8	REVISED	12/10/08
9	REVISED	12/10/08
10	REVISED	12/10/08

INSPECTION, MAINTENANCE, REPAIR AND RETROFIT PLAN

Inspection and Maintenance Plan

The attached inspection and maintenance plan outlines the procedures necessary to maintain the performance of the Permanent Best Management Practices for this project.

It is the responsibility of the owner to contract with a representative to provide the inspections and maintenance as outlined in the plan for the duration of the project. The owner will maintain this responsibility until it is assumed or transferred to another entity in writing. If the property is leased or sold, the responsibility for the maintenance will be required to be transferred through the lease agreement, binding covenants, closing documents, or other binding legal instrument.

I, the owner, have read and understand the requirements of the attached Inspection and Maintenance Plan for the proposed Permanent Best Management Practices for my project. I acknowledge that I will maintain responsibility for the implementation and execution of the plan until the responsibility is transferred to or assumed by another party in writing through a binding legal instrument.

Owner: Beazer Homes Texas, LP.

By:



4/10/24
Date

MAINTENANCE GUIDELINES FOR BATCH DETENTION BASINS

Batch detention basins may have somewhat higher maintenance requirements than an extended detention basin since they are active stormwater controls. The maintenance activities are identical to those of extended detention basins with the addition of maintenance and inspections of the automatic controller and the valve.

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

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

Litter 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.

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

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

Structural Repairs 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.

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

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

RECORD KEEPING

A binder containing all of the maintenance records for each type of permanent BMP is to be kept by the owner.

PILOT-SCALE FIELD TESTING PLAN

The TCEQ Technical Guidance Manual (TGM) was used to design permanent BMP's and measures for this site; therefore pilot-scale field testing is not required.

MEASURES FOR MINIMIZING SURFACE STREAM CONTAMINATION

During the construction phase temporary BMP's such as silt fencing, rock berms, inlet protection, and vegetative striping will be used to prevent pollution from leaving the site. All disturbed areas will be re-vegetated as soon as practical. This development will contain a batch detention basin. Runoff from impervious cover will be treated before leaving the site and velocity limits have been designed to prevent erosion.

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, Blake Yantis of SA Given To Fly, LP.
Land Owner Signatory Name Land Owner Name (Legal Entity or Individual)

am the owner of the property located at
N.C.B. 14861, LOT 50,51 & 901 (VOL. 20003, PG. 656-657 O.P.R.)
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 Beazer Homes Texas, LP.
Applicant Name (Legal Entity or Individual)

to conduct Water Pollution Abatement Plan and Sewer Collection System Reports
Description of the proposed regulated activities

at Trevor Fields Tract
Precise location of the authorized regulated activities

Land Owner Acknowledgement

I understand that SA Given to Fly, LP.
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.

Land Owner Signature

[Signature]
Land Owner Signature

4/9/24
Date

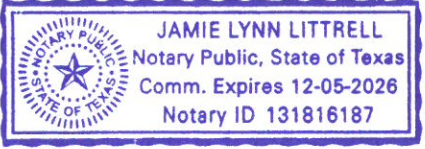
THE STATE OF § TEXAS

County of § BEXAR

BEFORE ME, the undersigned authority, on this day personally appeared Blake Yantis 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 9th day of April, 2024

[Signature]
NOTARY PUBLIC
Jamie Littrell



Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 12/05/2024

Attached: (Mark all that apply)

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

Applicant Acknowledgement

I, John Friesenhahn of Beazer Homes Texas, LP.
Applicant Signatory Name Applicant Name (Legal Entity or Individual)

acknowledge that SA Given To Fly, LP.
Land Owner Name (Legal Entity or Individual)

has provided Beazer Homes Texas, LP.
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 Beazer Homes Texas, LP.
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

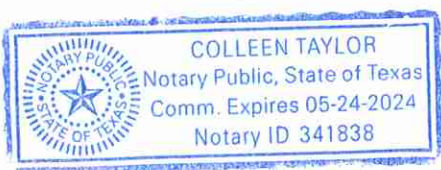
[Signature]
Applicant Signature

4/9/24
Date

THE STATE OF § Texas
County of § Bexar

BEFORE ME, the undersigned authority, on this day personally appeared John Friesenhahn 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 9th day of April, 2024



[Signature]
NOTARY PUBLIC

Colleen Taylor
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 05-24-2024

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

I _____ John Friesenhahn _____,
Print Name

_____ Division President _____,
Title - Owner/President/Other

of _____ Beazer Homes Texas, LP. _____,
Corporation/Partnership/Entity Name

have authorized _____ Clayton Linney, P.E. _____,
Print Name of Agent/Engineer

of _____ Colliers Engineering & Design _____,
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:

[Signature]
Applicant's Signature

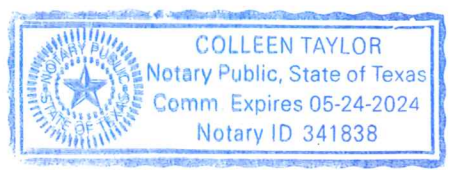
3/1/24
Date

THE STATE OF Texas §
County of Bexar §

BEFORE ME, the undersigned authority, on this day personally appeared John Friesenbahn 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 1st day of March, 2024.

[Signature]
NOTARY PUBLIC



Colleen Taylor
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 05-24-2024

Application Fee Form

Texas Commission on Environmental Quality

Name of Proposed Regulated Entity: Trevor Fields Tract

Regulated Entity Location: 2,000 L.F. East of the intersection of Babcock Rd and W Hausman Rd.

Name of Customer: Beazer Homes Texas, LP.

Contact Person: Calvin New

Phone: (214) 769-0966

Customer Reference Number (if issued): CN 601723620

Regulated Entity Reference Number (if issued): RN _____

Austin Regional Office (3373)

Hays

Travis

Williamson

San Antonio Regional Office (3362)

Bexar

Medina

Uvalde

Comal

Kinney

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

Austin Regional Office

San Antonio Regional Office

Mailed to: TCEQ - Cashier

Overnight Delivery to: TCEQ - Cashier

Revenues Section

12100 Park 35 Circle

Mail Code 214

Building A, 3rd Floor

P.O. Box 13088

Austin, TX 78753

Austin, TX 78711-3088

(512)239-0357

Site Location (Check All That Apply):

Recharge Zone

Contributing Zone

Transition Zone

<i>Type of Plan</i>	<i>Size</i>	<i>Fee Due</i>
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling	Acres	\$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	Acres	\$
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	38.29 Acres	\$ 6,500
Sewage Collection System	L.F.	\$
Lift Stations without sewer lines	Acres	\$
Underground or Aboveground Storage Tank Facility	Tanks	\$
Piping System(s)(only)	Each	\$
Exception	Each	\$
Extension of Time	Each	\$

Signature: 

Date: _____

Application Fee Schedule

Texas Commission on Environmental Quality

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

Water Pollution Abatement Plans and Modifications

Contributing Zone Plans and Modifications

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

Organized Sewage Collection Systems and Modifications

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

Underground and Aboveground Storage Tank System Facility Plans and Modifications

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

Exception Requests

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



TCEQ Core Data Form

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

SECTION I: General Information

1. Reason for Submission (If other is checked please describe in space provided.)		
<input checked="" type="checkbox"/> New Permit, Registration or Authorization (Core Data Form should be submitted with the program application.)		
<input type="checkbox"/> Renewal (Core Data Form should be submitted with the renewal form)	<input type="checkbox"/> Other	
2. Customer Reference Number (if issued)	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number (if issued)
CN 601723620		RN

SECTION II: Customer Information

4. General Customer Information		5. Effective Date for Customer Information Updates (mm/dd/yyyy)		
<input type="checkbox"/> New Customer <input checked="" type="checkbox"/> Update to Customer Information <input type="checkbox"/> Change in Regulated Entity Ownership <input type="checkbox"/> Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)				
<i>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).</i>				
6. Customer Legal Name (If an individual, print last name first: eg: Doe, John)			<i>If new Customer, enter previous Customer below:</i>	
Beazer Homes Texas, LP.				
7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)		9. Federal Tax ID (9 digits)	10. DUNS Number (if applicable)
0010702011	17604963532		76-0496353	
11. Type of Customer:	<input checked="" type="checkbox"/> Corporation		<input type="checkbox"/> Individual	Partnership: <input type="checkbox"/> General <input type="checkbox"/> Limited
Government: <input type="checkbox"/> City <input type="checkbox"/> County <input type="checkbox"/> Federal <input type="checkbox"/> Local <input type="checkbox"/> State <input type="checkbox"/> Other			<input type="checkbox"/> Sole Proprietorship	<input type="checkbox"/> Other:
12. Number of Employees			13. Independently Owned and Operated?	
<input checked="" type="checkbox"/> 0-20 <input type="checkbox"/> 21-100 <input type="checkbox"/> 101-250 <input type="checkbox"/> 251-500 <input type="checkbox"/> 501 and higher			<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
14. Customer Role (Proposed or Actual) – as it relates to the Regulated Entity listed on this form. Please check one of the following				
<input type="checkbox"/> Owner <input type="checkbox"/> Operator <input checked="" type="checkbox"/> Owner & Operator <input type="checkbox"/> Other: <input type="checkbox"/> Occupational Licensee <input type="checkbox"/> Responsible Party <input type="checkbox"/> VCP/BSA Applicant				
15. Mailing Address:	11467 Huebner Road, Suite 225			
	City	San Antonio	State	TX
	ZIP	78230	ZIP + 4	
16. Country Mailing Information (if outside USA)			17. E-Mail Address (if applicable)	
			William.new@beazer.com	
18. Telephone Number		19. Extension or Code		20. Fax Number (if applicable)

SECTION III: Regulated Entity Information

21. General Regulated Entity Information <i>(If 'New Regulated Entity' is selected, a new permit application is also required.)</i>							
<input checked="" type="checkbox"/> New Regulated Entity <input type="checkbox"/> Update to Regulated Entity Name <input type="checkbox"/> Update to Regulated Entity Information							
<i>The Regulated Entity Name submitted may be updated, in order to meet TCEQ Core Data Standards (removal of organizational endings such as Inc, LP, or LLC).</i>							
22. Regulated Entity Name <i>(Enter name of the site where the regulated action is taking place.)</i>							
Trevor Fields Tract							
23. Street Address of the Regulated Entity: <i>(No PO Boxes)</i>							
		City		State		ZIP	
						ZIP + 4	
24. County							

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

25. Description to Physical Location:							
26. Nearest City				State		Nearest ZIP Code	
San Antonio				TX		78249	
<i>Latitude/Longitude are required and may be added/updated to meet TCEQ Core Data Standards. (Geocoding of the Physical Address may be used to supply coordinates where none have been provided or to gain accuracy).</i>							
27. Latitude (N) In Decimal:		29.570359		28. Longitude (W) In Decimal:		-98.624211	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds		
29	34	13	-98	37	27		
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)	
1522				236116			
33. What is the Primary Business of this entity? <i>(Do not repeat the SIC or NAICS description.)</i>							
Multi-Family Residential							
34. Mailing Address:		11467 Huebner Road, Suite 225					
		City	San Antonio	State	TX	ZIP	78230
						ZIP + 4	
35. E-Mail Address:		William.new@beazer.com					
36. Telephone Number			37. Extension or Code			38. Fax Number <i>(if applicable)</i>	
(214) 769-0966						() -	

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


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

SECTION IV: Preparer Information

40. Name:	Clayton Linney, P.E.			41. Title:	Department Manager
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address		
(877) 627-3772		() -	Clayton.Linney@collierseng.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:	Colliers Engineering & Design	Job Title:	Department Manager	
Name (In Print):	Clayton Linney, P.E.	Phone:	(877) 627- 3772	
Signature:			Date:	4/10/2024