VERAMENDI ROADWAY C & PRECINCT 11A

Water Pollution Abatement Plan

August 2024

PAPE-DAWSON ENGINEERS

Transportation | Water Resources | Land Development | Surveying | Environmental

VERAMENDI ROADWAY C
PHASE 1 & PRECINCT 11A
Water Pollution Abatement Plan

8/8/2024

August 2024

PAPE-DAWSON ENGINEERS

PAPE-DAWSON ENGINEERS

August 07, 2024

Ms. Monica Reyes
Texas Commission on Environmental Quality (TCEQ)
Region 13
14250 Judson Road
San Antonio, Texas 78233-4480

Re: Veramendi Roadway C Phase 1 and Precinct 11A
Water Pollution Abatement Plan

Dear Ms. Reyes:

Please find included herein the Veramendi Roadway C Phase 1 and Precinct 11A Water Pollution Abatement Plan. This Water Pollution Abatement Plan has been prepared in accordance with the regulations of the Texas Administrative Code (30 TAC 213) and current policies for development over the Edwards Aquifer Recharge Zone.

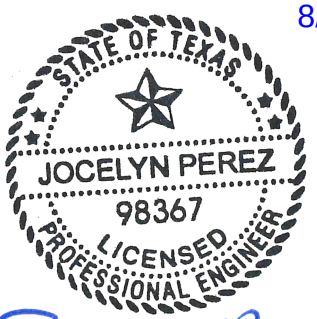
This Water Pollution Abatement Plan applies to an approximate 39.69-acre site as identified by the project limits. Please review the plan information for the items it is intended to address. If acceptable, please provide a written approval of the plan in order that construction may begin at the earliest opportunity.

Appropriate review fees ($6,500) and fee application are included. If you have questions or require additional information, please do not hesitate to contact me at your earliest convenience.

Sincerely,
Pape-Dawson Consulting Engineers, LLC

Jocelyn Perez, P.E.
Vice President

8/8/2024



Attachments

P:\300\01\51\Word\Reports\WPAP\240625-WPAP Cover Letter.docx

EDWARDS AQUIFER APPLICATION COVER PAGE (TCEQ-20705)

Texas Commission on Environmental Quality

Edwards Aquifer Application Cover Page

Our Review of Your Application

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

Administrative Review

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

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

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

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

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

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

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

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

Technical Review

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

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

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

3. We evaluate the application for technical completeness and contact the applicant and agent via Notice of Deficiency (NOD) to request additional information and identify technical deficiencies. There are two deficiency response periods available to the applicant. There are 14 days to resolve deficiencies noted in the first NOD. If a second NOD is issued, there is an additional 14 days to resolve deficiencies. If the response to the second notice is not received, is incomplete or inadequate, or provides new information that is incomplete or inadequate, the application must be withdrawn or will be denied. Please note that because the technical review is underway, whether the application is withdrawn or denied **the application fee will be forfeited**.
4. The program has 90 calendar days to complete the technical review of the application. If the application is technically adequate, such that it complies with the Edwards Aquifer rules, and is protective of the Edwards Aquifer during and after construction, an approval letter will be issued. Construction or other regulated activity may not begin until an approval is issued.

Mid-Review Modifications

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

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

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

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

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

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

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

1. Regulated Entity Name: Veramendi Roadway C Phase 1 & Precinct 11A						**2. Regulated Entity No.:**			
3. Customer Name: Veramendi PE - Cairns, LLC						**4. Customer No.:**			
5. Project Type: **(Please circle/check one)**	(New)		Modification			Extension		Exception	
6. Plan Type: **(Please circle/check one)**	(WPAP)	CZP	SCS	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures
7. Land Use: **(Please circle/check one)**	Residential		(Non-residential)			**8. Site (acres):**		39.69	
9. Application Fee:	$6,500		**10. Permanent BMP(s):**			1 Batch Detention			
11. SCS (Linear Ft.):			**12. AST/UST (No. Tanks):**						
13. County:	Comal		**14. Watershed:**			Blieders Creek			

Application Distribution

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

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

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

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

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

I certify that to the best of my knowledge, that the application is complete and accurate. This application is hereby submitted to TCEQ for administrative review and technical review. Jocelyn Perez, P.E.
Print Name of Customer/Authorized Agent Signature of Customer/Authorized Agent 8/8/2024 Date

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

GENERAL INFORMATION FORM (TCEQ-0587)

General Information Form

Texas Commission on Environmental Quality

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

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

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

Signature

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

Print Name of Customer/Agent: Jocelyn Perez, P.E.

Date: 8/8/2024

Signature of Customer/Agent:

Project Information

1. Regulated Entity Name: Veramendi Roadway C Phase 1 & Precinct 11A
2. County: Comal
3. Stream Basin: Blieders Creek
4. Groundwater Conservation District (If applicable): _____
5. Edwards Aquifer Zone:

   ☒ Recharge Zone
   ☐ Transition Zone

6. Plan Type:

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

7. Customer (Applicant):

   Contact Person: Garrett Mechler
   Entity: Veramendi PE - Cairns, LLC
   Mailing Address: 2168 Oak Run Pkwy STE 101
   City, State: New Braunfels, TX Zip: 78132
   Telephone: 830-643-1338 FAX: _____
   Email Address: garrett.mechler@asaproperties.us.com

8. Agent/Representative (If any):

   Contact Person: Jocelyn Perez, P.E.
   Entity: Pape-Dawson Consulting Engineers LLC
   Mailing Address: 1672 Independence Dr STE 102
   City, State: New Braunfels, TX Zip: 78132
   Telephone: 830-632-5633 FAX: _____
   Email Address: jperez@pape-dawson.com

9. Project Location:

   ☐ The project site is located inside the city limits of _____.
   ☒ The project site is located outside the city limits but inside the ETJ (extra-territorial jurisdiction) of New Braunfels.
   ☐ The project site is not located within any city's limits or ETJ.

10. ☒ The location of the project site is described below. The description provides sufficient detail and clarity so that the TCEQ's Regional staff can easily locate the project and site boundaries for a field investigation.

    From TCEQ's regional office, turn left and proceed approximately 1.5 miles to IH-35 north and turn left. Travel approximately 14.5 miles to exit 184 toward TX-337 and turn left. Proceed approximately 3.5 miles to TX-46 and stay left. Travel approximately 0.48 miles on TX-46/TX-337 to Borchers Blvd. The project site is located approximately 0.26 miles northwest of TX-46/TX-337 and Borchers Blvd intersection.

11. ☒ **Attachment A – Road Map**. A road map showing directions to and the location of the project site is attached. The project location and site boundaries are clearly shown on the map.

12. ☒ **Attachment B - USGS / Edwards Recharge Zone Map**. A copy of the official 7 ½ minute USGS Quadrangle Map (Scale: 1" = 2000') of the Edwards Recharge Zone is attached. The map(s) clearly show:

    ☒ Project site boundaries.
    ☒ USGS Quadrangle Name(s).
    ☒ Boundaries of the Recharge Zone (and Transition Zone, if applicable).
    ☒ Drainage path from the project site to the boundary of the Recharge Zone.

13. ☒ **The TCEQ must be able to inspect the project site or the application will be returned**. Sufficient survey staking is provided on the project to allow TCEQ regional staff to locate the boundaries and alignment of the regulated activities and the geologic or manmade features noted in the Geologic Assessment.

    ☒ Survey staking will be completed by this date: Once advised by TCEQ staff of inspection.

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

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

15. Existing project site conditions are noted below:

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

Prohibited Activities

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

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

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

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

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

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

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

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

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

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

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

Administrative Information

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

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

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

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

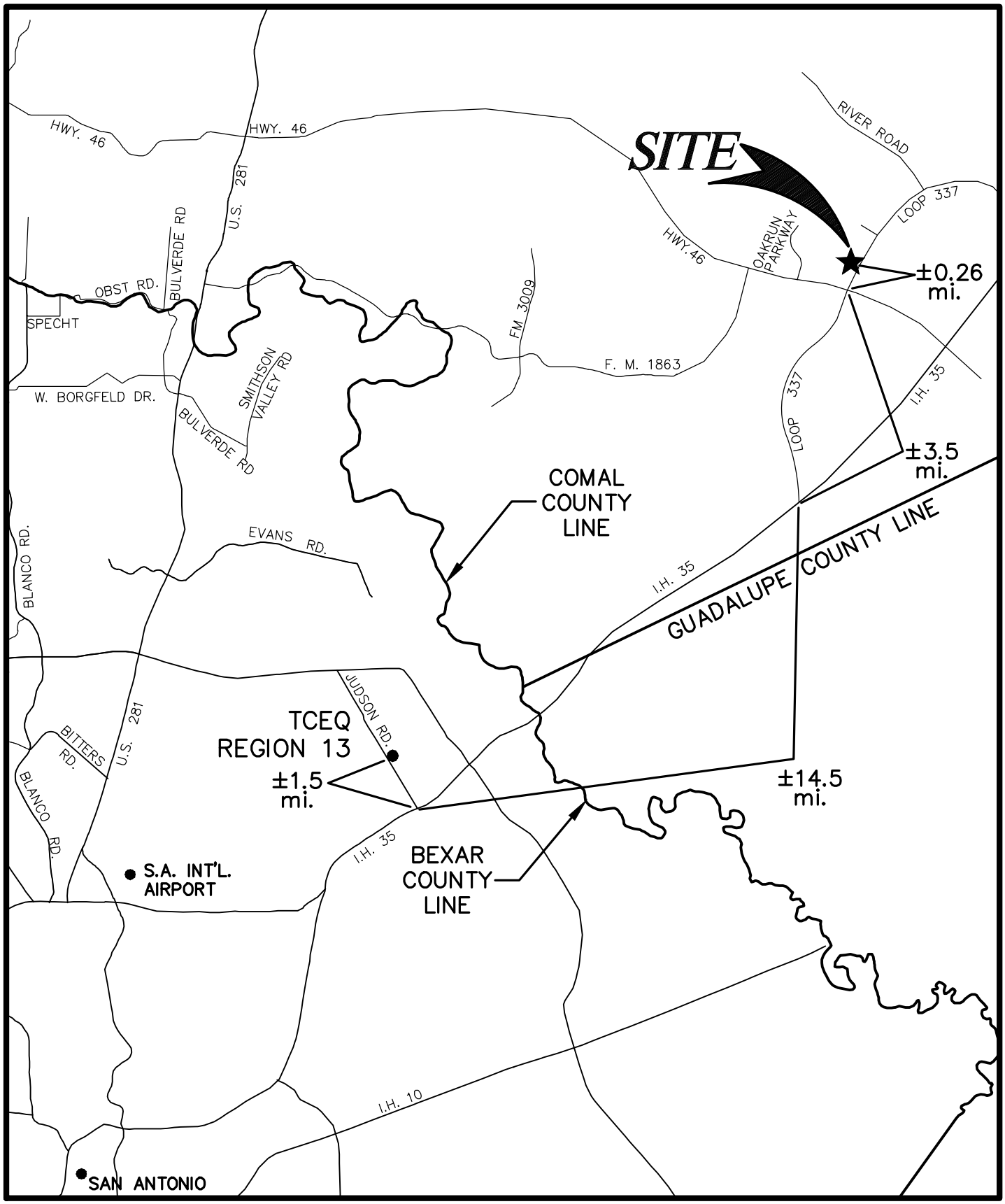
20. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies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

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

ATTACHMENT A

VERAMENDI - ROADWAY C PHASE 1 AND PRECINCT 11A
New Braunfels, Texas
Water Pollution Abatement Plan

N
NOT TO SCALE



Pape-Dawson Consulting Engineers, LLC.
Date: Jun 27, 2024, 5:05pm User ID: DLynch
File: P:\300\01\51\Design\Environmental\RM-3000151-wpap.dwg

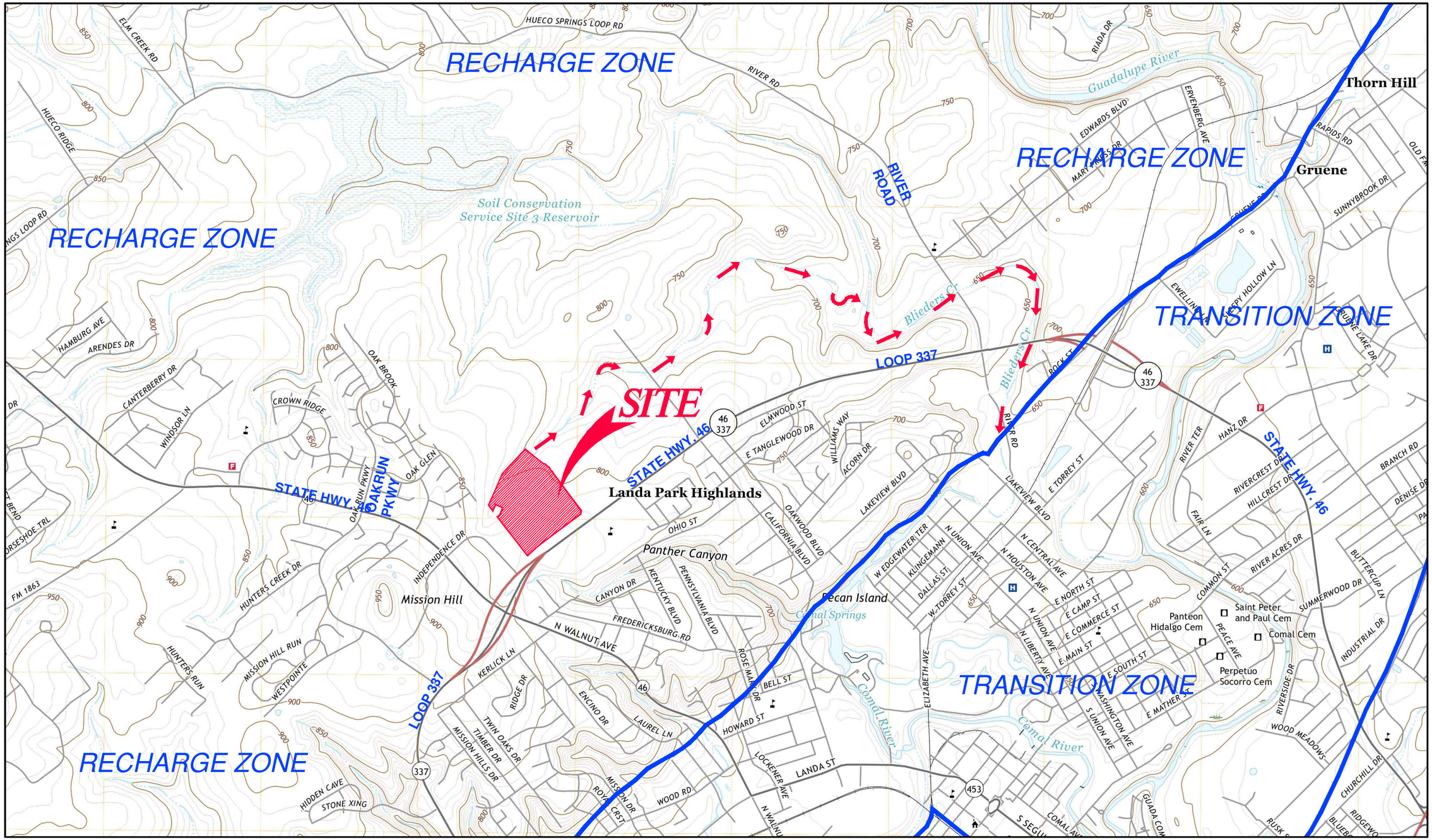
ATTACHMENT A
Road Map

ATTACHMENT B

VERAMENDI - ROADWAY C PHASE 1 AND PRECINCT 11A
New Braunfels, Texas
Water Pollution Abatement Plan

N

SCALE: 1" = 2000'



Date: Jun 27, 2024, 8:01am User ID: DLynch
File: P:\300\01\51\Design\Environmental\(20-30001-51-WPAP.dwg

GENERAL LOCATION MAP - NEW BRAUNFELS WEST, TX QUAD;
NEW BRAUNFELS EAST, TX QUAD
DRAINAGE FLOW → →

Pape-Dawson Consulting
Engineers, LLC.

USGS/EDWARDS RECHARGE ZONE MAP

ATTACHMENT B

ATTACHMENT C

Attachment C – Project Description

Veramendi Roadway C Phase 1 and Precinct 11A is a proposed 4-lane minor collector road and a subdivision of land with installation of utilities. This 39.69 -acre project site is located approximately 0.26 miles northwest of TX-46/TX-337 and Borchers Blvd intersection within the Extra-Territorial Jurisdiction of the City of New Braunfels in Comal County, TX. It is located entirely over the Edwards Aquifer Recharge Zone, lies within the Bleiders Creek watershed, and does not contain 100-year floodplain within its limits.

Regulated activities include clearing, mass grading with stockpiles, grading, excavation, installation of utilities and drainage improvements, construction of one (1) batch detention basin, a 4-lane collector roadway, hardscapes, landscape, and site clean-up. Approximately 2.81 acres of impervious cover, or 7.08% of the 39.69-acre project limits, are proposed for construction in this WPAP. One (1) existing sand filter basin (EAPP ID No. 13000418), one (1) proposed batch detention basin, and one (1) interim filter strip are the PBMPs for this development. The existing sand filter basin constructed as a part of Veramendi 1A-1 was designed with extra treatment capacity intended for any future development. The design of the approved basin provides a TSS removal overtreatment of 313lbs. Overtreatment for 283lbs of TSS contributed by the proposed impervious cover will be accounted within the existing Basin 8. Updated calculations are provided in the exhibits section of this application. Please see treatment summary table included for additional details. All PBMPs have been designed in accordance with the TCEQ'S Technical Guidance Manual (TGM) RG-348 (2005) to remove 80% of the increase in TSS from the site.

GEOLOGIC ASSESSMENT FORM (TCEQ-0585)

Geologic Site Assessment (WPAP)

for Regulated Activities / Development
on the Edwards Aquifer Recharge / Transition Zone

The Veramendi Subdivision
+/- 2,400 Acres
New Braunfels, Texas

FROST GEOSCIENCES CONTROL # FGS-E10139

May 9, 2017

Prepared exclusively for

ASA Properties, LLC
2021 SH 46, Suite 101
New Braunfels, Texas 78132

Frost GeoSciences

Geotechnical ▪ Construction Materials
Forensics ▪ Environmental

13402 Western Oak • Helotes, Texas 78023 • Phone: (210) 372-1315 • Fax: (210) 372-1318

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www.frostgeosciences.com
TBPE Firm Registration # F-9227
TBPG Firm Registration # 50040

May 9, 2017

ASA Properties, LLC
2021 SH 46, Suite 101
New Braunfels, Texas 78132

Attn: Mr. Max Hartford

Re: Geologic Site Assessment (WPAP)
for Regulated Activities / Development on the
Edwards Aquifer Recharge / Transition Zone
The Veramendi Subdivision
+/- 2,400 Acres
New Braunfels, Texas

Frost GeoSciences, Inc. Control # FGS-E10139

Dear Sir:

Attached is a copy of the Geologic Assessment Report completed for the above referenced project site as it relates to 30 TAC §213.5(b)(3), effective June 1, 1999. Our investigation was conducted and this report was prepared in general accordance with the "Instructions to Geologists", TCEQ-0585-Instructions (Rev. 10-1-04). The results of our investigation, along with any recommendations for Best Management Practices (BMP's), are provided in the following report.

If you have any questions regarding this report, or if Frost GeoSciences, Inc. may be of additional assistance to you on this project, please feel free to call our office. It has been a pleasure to work with you and we wish to thank you for the opportunity to be of service to you on this project. We look forward to being of continued service.

Sincerely,
Frost GeoSciences, Inc.

Steve Frost, C.P.G., P.G.
President, Senior Geologist

Distribution: (1) ASA Properties, LLC
(5) Pape Dawson Engineers

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Plate 5: FEMA Flood Map
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Plate 7: Geologic Map
Plate 8: 2010 Aerial Photograph, 1"=2000'
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B: Site Photographs

C: Site Geologic Map

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

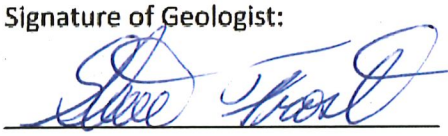
To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

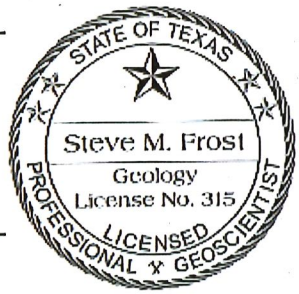
Print Name of Geologist: Steve Frost, C.P.G., P.G. Telephone: (210) 372-1315

Date: May 9, 2017 Fax: (210) 372-1318

Representing: Frost GeoSciences, Inc.

Signature of Geologist:





Regulated Entity Name: The Veramendi Subdivision

Project Information

1. Date(s) Geologic Assessment was performed: June 16 through November 23, 2010
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)
Rumple-Comfort Association Undulating (RUD)	C/D	1 to 2
Comfort Rock Outcrop Complex Undulating (CrD)	D/D	0 to 2
Brackett-Rock Outctop-Comfort Complex Undulating (BtD)	C/D/D	0 to 2
Lewisville Silty Clay, 1 to 3 Percent Slopes (LeB)	B	2+
Medlin-Eckrant Assoc. (MED/MEC)	D	1-2
Orif Soils Frequently Flooded (Or)	A	2+

** Soil Group Definitions (Abbreviated)*

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

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

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

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

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

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

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

   Applicant's Site Plan Scale: 1" = 400 '
   Site Geologic Map Scale: 1" = 400 '
   Site Soils Map Scale (if more than 1 soil type): 1" = 2000 '

9. Method of collecting positional data:

   ☑ Global Positioning System (GPS) technology.
   ☑ Other method(s). Please describe method of data collection: 2010 Aerial Photograph

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 9 (#) 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.
    - ☑ 7 The wells are not in use and will be properly abandoned.
    - ☑ 2 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.

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
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	Porcelaneous 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; *Ilymatogyra arietina*	None	None/primary upper confining unit
Lower Cretaceous	I	Edwards aquifer	Georgetown Formation			Karst AQ; not karst CU	2 – 20	Reddish-brown, gray to light tan marly limestone	Marker fossil; *Waconella wacoensis*	None	Low porosity/low permeability
	II		Edwards Group	Person Formation	Cyclic and marine members, undivided	AQ	80 – 90	Mudstone to packstone; *miliolid* 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			Kainer Formation	Grainstone member	AQ	50 – 60	*Miliolid* 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 ncospar and travertine frame	Probably extensive cave development	Majority fabric/one of the most permeable
	VII				Dolomitic member	AQ	110 – 130	Mudstone to grainstone; crystalline limestone; chert	Massively bedded light gray, *Toucasia* 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 *miliolid* grainstone	Massive, nodular and mottled, *Exogyra texana*	Large lateral caves at surface; a few caves near Cibolo Creek	Fabric; stratigraphically controlled/large conduit flow at surface; no permeability in subsurface
	Lower confining unit		Upper member of the Glen Rose Limestone			CU; evaporite beds AQ	350 – 500	Yellowish tan, thinly bedded limestone and marl	Stair-step topography; alternating limestone and marl	Some surface cave development	Some water production at evaporite beds/relatively impermeable

GEOLOGIC ASSESSMENT TABLE

PROJECT NAME: The Veramendi Subdivision — FGS-E10139

LOCATION			FEATURE CHARACTERISTICS											EVALUATION			PHYSICAL SETTING		
1	2*	3*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11	12
FEATURE	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT³)	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° 43.144'	98° 09.282'	CD	5	Kep	25	60	1.5		-	-	-	F	10	15	15		X		Hillside
S-2	29° 43.193'	98° 09.291'	CD	5	Kep	20	20	1		-	-	-	F	10	15	15		X		Hillside
S-3	29° 43.218'	98° 09.362'	SC	20	Kep	2	3	2		-	-	-	F	12	32	32		X		Hillside
S-4	29° 43.253'	98° 09.412'	MB	30	Kep	3	3	?		-	-	-	X	7	37	37		X		Hillside
S-5	29° 43.635'	98° 08.837'	MB	30	Kep	3	3	?		-	-	-	X	7	37	37			X	Drainage
S-6	29° 43.650'	98° 08.902'	MB	30	Kep	3	3	?		-	-	-	X	7	37	37			X	Drainage
S-7	29° 43.660'	98° 08.978'	MB	30	Kep	3	3	?		-	-	-	X	7	37	37			X	Drainage
S-8	29° 43.600'	98° 09.153'	MB	30	Kep	3	3	?		-	-	-	X	7	37	37		X		Hillside
S-9	29° 43.497'	98° 08.917'	CD	5	Kep	65	200	6+		-	-	-	F	10	15	15			X	Hillside
S-10	29° 43.610'	98° 08.893'	CD	5	Kep	4	4	2		-	-	-	F	10	15	15		X		Hillside
S-11	29° 43.545'	98° 09.052'	MB	30	Kep	3	3	?		-	-	-	X	7	37	37		X		Hillside
S-12	29° 43.298'	98° 09.381'	SC	20	Kep	2	2.5	1.5		-	-	-	O/F	12	32	32		X		Hillside
S-13	29° 43.539'	98° 09.168'	SC	20	Kep	0.25	1	1.5		-	-	-	O/F	10	30	30		X		Hillside
S-14	29° 43.500'	98° 09.079'	CD	5	Kep	4	4	2		-	-	-	X	10	15	15		X		Hillside
S-15	29° 43.497'	98° 09.096'	MB	30	Kep	3	3	?		-	-	-	X	7	37	37		X		Hillside
S-16	29° 43.464'	98° 09.138'	MB	30	Kep	3	3	?		-	-	-	X	7	37	37		X		Hillside
S-17	29° 43.449'	98° 09.174'	MB	30	Kep	3	3	?		-	-	-	X	7	37	37		X		Hillside
S-18	29° 43.424'	98° 09.245'	MB	30	Kep	3	3	?		-	-	-	X	7	37	37		X		Hillside
S-19	29° 43.371'	98° 09.270'	MB	30	Kep	3	3	?		-	-	-	X	7	37	37		X		Hillside
S-20	29° 43.339'	98° 09.324'	MB	30	Kep	3	3	?		-	-	-	X	7	37	37		X		Hillside
S-21	29° 43.298'	98° 09.381'	MB	30	Kep	3	3	?		-	-	-	X	7	37	37		X		Hillside
S-22	29° 43.708'	98° 09.881'	CD	5	Kep	40	50	1.5		-	-	-	C/F	10	15	15		X		Hillside
S-23	29° 43.750'	98° 09.884'	SC	20	Kep	1.5	2	2		-	-	-	O/F	12	32	32		X		Hillside
S-24	29° 44.199'	98° 09.510'	MB	30	Kep	3	3	?		-	-	-	X	7	37	37			X	Floodplain
S-25	29° 44.247'	98° 09.560'	MB	30	Kep	3	3	?		-	-	-	X	7	37	37			X	Floodplain

* DATUM 1927 North American Datum (NAD27) Date May 9, 2017 Sheet 1 of 7

GEOLOGIC ASSESSMENT TABLE — PROJECT NAME: The Veramendi Subdivision — FGS-E10139

LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1	2*	3*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT³)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						< 40	≥ 40	<1.6	≥1.6	
S-26	29° 44.148'	98° 09.382'	MB	30	Kep	3	3	?		-	-	-	X	7	37	37			X	Floodplain
S-27	29° 43.909'	98° 09.970'	SC	20	Kep	0.5	1	3		-	-	-	O/F	12	32	32		X		Hillside
S-28	29° 44.178'	98° 09.317'	MB	30	Kep	03	3	?		-	-	-	X	7	37	37			X	Floodplain
S-29	29° 44.163'	98° 09.493'	MB	30	Kep	0.75	0.75	?		-	-	-	N	35	65		65	X		Hillside
S-30	29° 44.160'	98° 09.483'	CD	5	Kep	55	55	4		-	-	-	O/F	10	15	15			X	Hillside
S-31	29° 43.939'	98° 10.082'	SC	20	Kep	2	3	3.5		-	-	-	O/F	12	32	32		X		Hillside
S-32	29° 44.000'	98° 10.049'	MB	30	Kep	3	3	?		-	-	-	X	7	37	37		X		Hillside
S-33	29° 44.056'	98° 09.963'	MB	30	Kep	3	3	?		-	-	-	X	7	37	37		X		Hillside
S-34	29° 44.107'	98° 09.888'	MB	30	Kep	3	3	?		-	-	-	X	7	37	37		X		Hillside
S-35	29° 44.147'	98° 09.825'	MB	30	Kep	3	3	?		-	-	-	X	7	37	37		X		Hillside
S-36	29° 44.184'	98° 09.671'	MB	30	Kep	3	3	?		-	-	-	X	7	37	37			X	Floodplain
S-37	29° 44.118'	98° 09.782'	MB	30	Kep	3	3	?		-	-	-	X	7	37	37			X	Floodplain
S-38	29° 44.222'	98° 09.450'	SCZ	30	Kep	500	800	-		-	-	-	N/C	20	50		50		X	Floodplain
S-39	29° 44.121'	98° 09.285'	MB	30	Kep	150	225	-		-	-	-	N	4	34	34		X		Hillside
S-40	29° 43.882'	98° 09.046'	MB	30	Kep	0.75	0.75	?		-	-	-	N	35	65		65	X		Hilltop
S-41	29° 43.857'	98° 08.925'	MB	30	Kep	0.75	0.75	?		-	-	-	N	35	65		65	X		Hillside
S-42	29° 43.845'	98° 08.907'	CD	5	Kep	100	140	5		-	-	-	F	10	15	15		X		Hillside
S-43	29° 43.657'	98° 08.735'	MB	30	Kep	3	3	?		-	-	-	X	7	37	37		X		Hillside
S-44	29° 43.656'	98° 08.736'	SC	20	Kep	1	1	2		-	-	-	O/F	12	32	32		X		Hillside
S-45	29° 43.680'	98° 08.719'	MB	30	Kep	30	75	-		-	-	-	C	7	37	37		X		Hillside
S-46	29° 43.693'	98° 08.7138'	MB	30	Kep	20	20	-		-	-	-	F	7	37	37		X		Hillside
S-47	29° 43.692'	98° 08.737'	MB	30	Kep	3	3	?		-	-	-	X	7	37	37		X		Hillside
S-48	29° 43.718'	98° 08.743'	MB	30	Kep	3	3	?		-	-	-	X	7	37	37			X	Drainage
S-49	29° 43.766'	98° 08.678'	O^{FR}	5	Kep	10	20	-	N 40°	10	1 / 2	0.08	C/F	20	35	35			X	Drainage
S-50	29° 43.770'	98° 08.672'	MB	30	Kep	3	3	?		-	-	-	X	7	37	37			X	Drainage

* DATUM 1927 North American Datum (NAD27) Date May 9, 2017 Sheet 2 of 7

GEOLOGIC ASSESSMENT TABLE — PROJECT NAME: The Veramendi Subdivision — FGS-E10139

LOCATION			FEATURE CHARACTERISTICS											EVALUATION			PHYSICAL SETTING		
1	2*	3*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT²)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						< 40	≥ 40	<1.6	≥1.6	
S-51	29° 43.771'	98° 08.654'	MB	30	Kep	3	20	3		-	-	-	C	25	55		55		X	Drainage
S-52	29° 43.773'	98° 08.625'	OFR	5	Kep	10	15	-	N 115°	-	1 / 1.5	0.08	C/F	25	30	30			X	Drainage
S-53	29° 43.775'	98° 08.617'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37			X	Drainage
S-54	29° 43.818'	98° 08.588'	SCZ	30	Kep	10	100	-	-	-	-	-	O/F	7	37	37		X		Hillside
S-55	29° 43.883'	98° 08.597'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37			X	Drainage
S-56	29° 43.937'	98° 08.605'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37			X	Drainage
S-57	29° 43.925'	98° 08.452'	CD	5	Kep	10	15	1.5	-	-	-	-	F	10	15	15		X		Hillside
S-58	29° 43.939'	98° 08.372'	CD	5	Kep	30	40	2	-	-	-	-	F	10	15	15		X		Hillside
S-59	29° 43.975'	98° 08.580'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37			X	Drainage
S-60	29° 44.029'	98° 08.493'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37			X	Streambed
S-61	29° 44.044'	98° 08.428'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37			X	Streambed
S-62	29° 44.005'	98° 08.297'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37			X	Streambed
S-63	29° 44.012'	98° 08.195'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37			X	Floodplain
S-64	29° 43.956'	98° 08.983'	C	30	Kep	2	3	5+	-	-	-	-	N	30	60		60	X		Hillside
S-65	29° 43.958'	98° 08.095'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37			X	Floodplain
S-66	29° 43.897'	98° 08.002'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37			X	Floodplain
S-67	29° 43.882'	98° 07.978'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37			X	Streambed
S-68	29° 43.818'	98° 07.985'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37			X	Streambed
S-69	29° 43.768'	98° 07.996'	SC	20	Kep	10+	20	0.75	-	-	-	-	N	9	29	29			X	Floodplain
S-70	29° 43.775'	98° 07.961'	OVR	5	Kep	3	15	2	-	-	3 / 1	0.06	N	9	14	14			X	Floodplain
S-71	29° 43.758'	98° 07.937'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37			X	Streambed
S-72	29° 43.782'	98° 07.870'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37			X	Streambed
S-73	29° 43.755'	98° 07.905'	SC	20	Kep	1	1.5	6+	-	-	-	-	N	9	29	29		X		Cliff
S-74	29° 43.782'	98° 07.855'	SCZ	30	Kep	30	600	-	-	-	-	-	N/O/F	9	39	39			X	Floodplain
S-75	29° 43.830'	98° 07.785'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37			X	Streambed

* DATUM 1927 North American Datum (NAD27) Date May 9, 2017 Sheet 3 of 7

GEOLOGIC ASSESSMENT TABLE | PROJECT NAME: The Veramendi Subdivision | FGS-E10139

LOCATION			FEATURE CHARACTERISTICS											EVALUATION			PHYSICAL SETTING		
1	2*	3*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11	12
FEATURE	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT³)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)	TOPOGRAPHY
						X	Y	Z		10						< 40	≥ 40	<1.6	≥1.6	
S-76	29° 43.882'	98° 07.978'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37			X	Streambed
S-77	29° 43.748'	98° 08.053'	CZ/SHZ	30	Kep	100	100	-	-	-	-	-	O/F	35	65		65	X		Hilltop
S-78	29° 43.876'	98° 08.041'	MB	30	Kep	0.75	0.75	?	-	-	-	-	N	35	65		65	X		Hillside
S-79	29° 43.868'	98° 08.030'	CD	5	Kep	100	100	4	-	-	-	-	F	10	15	15			X	Hillside
S-80	29° 44.001'	98° 07.965'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37			X	Floodplain
S-81	29° 44.079'	98° 07.992'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37			X	Floodplain
S-82	29° 44.158'	98° 08.022'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37			X	Floodplain
S-83	29° 44.232'	98° 08.069'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37			X	Floodplain
S-84	29° 44.305'	98° 08.113'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37			X	Floodplain
S-85	29° 44.385'	98° 08.165'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37			X	Streambed
S-86	29° 44.434'	98° 08.303'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37			X	Floodplain
S-87	29° 43.614'	98° 08.322'	CD	5	Kep	5	8	1	-	-	-	-	F	10	15	15		X		Hillside
S-88	29° 43.943'	98° 08.271'	SC	20	Kep	2	2.5	1	-	-	-	-	F	12	32	32		X		Hillside
S-89	29° 43.984'	98° 08.235'	SCZ	20	Kep	30	120	-	-	-	-	-	N/O	10	30	30		X		Hillside
S-90	29° 44.169'	98° 08.185'	CD	5	Kep	4	6	1	-	-	-	-	F	10	15	15		X		Hillside
S-91	29° 44.009'	98° 08.301'	O^{FR}	5	Kep	12	150	-	N 140°	-	1 / 2	0.08	C/F	25	30	30			X	Floodplain
S-92	29° 44.060'	98° 08.378'	SH	20	Kep	30	60	3	-	-	-	-	F	19	39	39		X		Hillside
S-93	29° 44.217'	98° 07.989'	CD	5	Kep	2	2.5	0.5	-	-	-	-	F	10	15	15		X		Hillside
S-94	29° 44.051'	98° 07.985'	CD	5	Kep	50	150	5	-	-	-	-	N/F	10	15	15			X	Floodplain
S-95	29° 44.456'	98° 08.434'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37			X	Floodplain
S-96	29° 44.476'	98° 08.563'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37			X	Floodplain
S-97	29° 44.538'	98° 08.649'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37			X	Streambed
S-98	29° 44.540'	98° 08.710'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37			X	Streambed
S-99	29° 44.506'	98° 08.731'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37			X	Streambed
S-100	29° 44.416'	98° 08.732'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37			X	Streambed

* DATUM 1927 North American Datum (NAD27) Date May 9, 2017 Sheet 4 of 7

GEOLOGIC ASSESSMENT TABLE — PROJECT NAME: The Veramendi Subdivision — FGS-E10139

LOCATION			FEATURE CHARACTERISTICS											EVALUATION			PHYSICAL SETTING		
1	2*	3*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT³)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						< 40	≥ 40	<1.6	≥1.6	
S-101	29° 44.416'	98° 08.732'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37			X	Streambed
S-102	29° 44.230'	98° 08.773'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37			X	Streambed
S-103	29° 44.188'	98° 08.802'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37			X	Streambed
S-104	29° 44.167'	98° 08.857'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37			X	Streambed
S-105	29° 44.162'	98° 08.946'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37			X	Streambed
S-106	29° 44.156'	98° 09.033'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37			X	Streambed
S-107	29° 44.152'	98° 09.118'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37			X	Streambed
S-108	29° 44.185'	98° 09.217'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37			X	Streambed
S-109	29° 44.449'	98° 09.285'	SH	20	Kep	5	10	1	-	-	-	-	F	12	32	32		X		Hillside
S-110	29° 44.393'	98° 09.229'	O^{FR}	5	Kep	20	40	-	N 45°	10	1 / 1	0.08	N/C	25	40		40		X	Streambed
S-111	29° 44.391'	98° 09.183'	O^{FR}	5	Kep	20	150	-	N 40°	10	1 / 1	0.08	N/C	25	40		40		X	Streambed
S-112	29° 44.388'	98° 09.129'	O^{VR}	5	Kep	4	300	-	-	-	3 / 1	0.06	N/C	20	25	25			X	Floodplain
S-113	29° 44.425'	98° 09.202'	SC	20	Kep	0.75	1	2.5	-	-	-	-	O/F	15	35	35		X		Hillside
S-114	29° 44.409'	98° 08.986'	SH	20	Kep	10	12	1	-	-	-	-	F	12	32	32		X		Hillside
S-115	29° 44.570'	98° 09.098'	MB	30	Kep	0.75	0.75	?	-	-	-	-	N	35	65		65	X		Hillside
S-116	29° 44.270'	98° 09.232'	SC^{H}	20	Kep	1	1	3	-	-	-	-	F	12	32	32		X		Hillside
S-117	29° 44.351'	98° 09.339'	MB	30	Kep	30	50	6	-	-	-	-	N	15	45		45		X	Streambed
S-118	29° 44.265'	98° 09.030'	CDZ	5	Kep	300	1000	-	-	-	-	-	F	10	15	15			X	Floodplain
S-119	29° 44.168'	98° 09.619'	MB	30	Kep	3	75	3	-	-	-	-	C	15	45		45		X	Streambed
S-120	29° 44.242'	98° 08.913'	O^{FR}	5	Kep	40	350	-	N 50°	10	1 / 2	0.08	C	25	40		40		X	Streambed
S-121	29° 44.629'	98° 09.090'	SC	20	Kep	2	2	1.5	-	-	-	-	F	12	32	32		X		Hillside
S-122	29° 44.743'	98° 08.887'	CD	5	Kep	30	70	4	-	-	-	-	F	10	15	15			X	Drainage
S-123	29° 44.660'	98° 08.712'	O^{FR}	5	Kep	50	150	-	N 70°	-	1 / 2	0.08	F	20	25	25			X	Streambed
S-124	29° 44.675'	98° 08.695'	CD	5	Kep	80	170	8	-	-	-	-	F	10	15	15			X	Hillside
S-125	29° 44.127'	98° 09.046'	SC	20	Kep	2	3	1	-	-	-	-	F	12	32	32			X	Floodplain

* DATUM 1927 North American Datum (NAD27) Date May 9, 2017 Sheet 5 of 7

GEOLOGIC ASSESSMENT TABLE — PROJECT NAME: The Veramendi Subdivision — FGS-E10139

LOCATION			FEATURE CHARACTERISTICS											EVALUATION			PHYSICAL SETTING		
1	2*	3*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT²)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						< 40	> 40	<1.6	>1.6	
S-126	29° 44.557'	98° 08.645'	SCZ	20	Kep	30	600	-	-	-	-	-	C/N	15	35	35			X	Floodplain
S-127	29° 44.821'	98° 08.588'	MB	30	Kep	0.75	0.75	?	-	-	-	-	N	35	65		65	X	X	Hilltop
S-128	29° 44.670'	98° 08.013'	CD	5	Kep	60	65	4	-	-	-	-	F	10	15	15			X	Hillside
S-129	29° 44.659'	98° 07.996'	MB	30	Kep	0.75	0.75	?	-	-	-	-	N	35	65		65	X		Hilltop
S-130	29° 44.656'	98° 07.991'	MB	30	Kep	0.75	0.75	?	-	-	-	-	N	35	65		65	X		Hilltop
S-131	29° 44.338'	98° 07.805'	CD	5	Kep	70	90	3	-	-	-	-	F	10	15	15			X	Hillside
S-132	29° 44.382'	98° 07.502'	CD	5	Kep	20	70	3	-	-	-	-	F	10	15	15			X	Hillside
S-133	29° 45.186'	98° 08.255'	OFR	5	Kep	40	100	-	N 65°	-	1 / 2	0.08	N	20	25	25			X	Drainage
S-134	29° 44.881'	98° 07.761'	OFR	5	Kep	30	100	-	N 40°	10	1 / 2	0.08	N	20	35	35			X	Drainage
S-135	29° 44.916'	98° 07.704'	OFR	5	Kep	40	60	-	N 140°	-	1 / 2	0.08	N	20	25	25			X	Drainage
S-136	29° 44.580'	98° 07.125'	OFR	5	Kep	15	20	-	N 7°	-	1 / 2	0.08	N	20	25	25			X	Drainage
S-137	29° 44.336'	98° 07.793'	MB	30	Kep	0.75	0.75	?	-	-	-	-	N	35	65		65	X		Hillside

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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 213.

STATE OF TEXAS — Steve M. Frost — Geology License No. 315 — LICENSED PROFESSIONAL GEOSCIENTIST

Signature Steve Frost Date May 9, 2017 Sheet 6 of 7

GEOLOGIC ASSESSMENT TABLE — PROJECT NAME: The Veramendi Subdivision — FGS-E10139

LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1	2*	3*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT²)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						< 40	> 40	<1.6	>1.6	
S-138	29° 44.382'	98° 07.687'	SH	20	Kep	30	40	2		-	-	-	F	15	35	35		X		Hillside
S-139	29° 44.661'	98° 07.779'	O[FR]	5	Kep	8	10	-	N 70°	-	1 / 2	0.08	C/F	15	20	20		X		Hillside
S-140	29° 45.001'	98° 08.094'	SC	20	Kep	2	4	2	-	-	-	-	O/F	12	32	32		X		Hillside
S-141	29° 45.176'	98° 08.164'	SC	20	Kep	0.25	2.5	2	-	-	-	-	O/F	12	32	32		X		Hillside
S-142	29° 43.319'	98° 09.171'	SH	20	Kep	100	150	4	-	-	-	-	F	15	35	35			X	Hillside
S-143	29° 44.622'	98° 07.369'	SCZ	20	Kep	30	2,800	-	-	-	-	-	N/O	12	32	32			X	Cliff
S-144	29° 45.163'	98° 08.014'	SCZ	20	Kep	30	3,600	-	-	-	-	-	N/O	12	32	32			X	Cliff
S-145	29° 44.287'	98° 09.495'	CDZ	30	Kep	600	1,000	-	-	-	-	-	O/F	30	60		60		X	Streambed
S-146	29° 44.969'	98° 08.534'	F	20	Kep	-	-	-	N 55°	-	-	-	-	15	35	35			X	Hillside
S-147	29° 45.017'	98° 08.031'	F	20	Kep	-	-	-	N 45°	-	-	-	-	15	35	35			X	Hillside
S-148	29° 43.175'	98° 09.430'	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37		X		Hillside

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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 213.

STATE OF TEXAS — Steve M. Frost — Geology — License No. 315 — LICENSED PROFESSIONAL GEOSCIENTIST

Signature _____ Date May 9, 2017 Sheet 7 of 7

LOCATION

The project site consists of approximately 2,400 acres of land located along and north of Loop 337 and east and west of River Road in New Braunfels, Texas. An overall view of the area is shown on copies of the site plan, a street map, the USGS Topographic Map, the Edwards Aquifer Recharge Zone Map, the Flood Insurance Rate Map (FIRM), a 1973 aerial photograph from the USDA at a scale of 1"=2000', a geologic map, a 2010 aerial photograph at a scale of 1"=2000', and a 2010 aerial photograph at a scale of 1"=500M, Plates 1 through 9 in Appendix A.

METHODOLOGY

The Geologic Assessment was performed by Mr. Steve Frost, C.P.G., President and Senior Geologist with Frost GeoSciences, Inc and several employees of Frost GeoSciences, Inc. including Ms. TG Bey, Biologist, Mr. Reza Eshmaly, Geologist, James Akers, and Spencer Templen. Mr. Frost is a Licensed Professional Geoscientist in the State of Texas (License # 315) and is a Certified Professional Geologist with the American Institute of Professional Geologist (Certification # 10176).

Frost GeoSciences, Inc. researched the geology of the area in the immediate vicinity of the project site. The research included, but was not limited to, the Geologic Atlas of Texas, San Antonio Sheet, FIRM maps, Edwards Aquifer Recharge Zone Maps, USGS 7.5 Minute Quadrangle Maps, the Geologic Map of the New Braunfels, Texas 30 X 60 Minute Quadrangle, the USGS Water-Resources Investigations Report 94-4117, and the USDA Soil Survey of Comal & Hays County, Texas.

After reviewing the available information, a field investigation was performed to identify any geologic or man-made potential recharge features. A transect spacing of approximately 50 feet or less, depending on vegetation thickness, was used to inspect the project site. A 2010 aerial photograph, in conjunction with a hand held Garmin eTrex Summit Global Positioning System with an Estimated Potential Error ranging from 7 to 12 feet, was used to navigate around the property and identify the locations of potential recharge features, as recommended in the "Instructions to Geologists", TCEQ-0585-Instructions (Rev. 10-1-04). The locations of any potential

recharge features noted in the field were identified on the Site Geologic Map in Appendix C of this report. A copy of a 2010 aerial photograph at an approximate scale of 1"=500M, indicating the locations of the potential recharge features, is included on Plate 9 in Appendix A. The Geologic Assessment Form (Rev. 2-11-15), Stratigraphic Column, and the Geologic Assessment Table have been filled with the appropriate information for this project site and are included on pages 1-11 of this report.

RESEARCH & OBSERVATIONS

7.5 Minute Quadrangle Map Review

According to the USGS 7.5 Minute Quadrangle Maps, New Braunfels West, Texas Sheet (1988), New Braunfels East, Texas Sheet (1994), Sattler, Texas Sheet (1994), and Hunter, Texas Sheet (1994), the elevation of the project site ranges from 630 feet at the eastern corner of the project site within the River Pasture along the Guadalupe River to 845 feet along the western property lines of Pastures 1 and 3. These elevations are calculated above mean sea level (AMSL). A landing strip and a stock pond are noted within Pasture 1. A residential structure and several associated barns and sheds are visible near the northern limits of Pasture 1. Two stock ponds were noted within Pasture 2. One stock pond and a spillway for a flood control dam was noted within Pasture 3. The surface runoff from the project site flows into unnamed tributaries of Blieders Creek, Blieders Creek, unnamed tributaries of the Guadalupe River, and the Guadalupe River. State Highway 46 (Loop 337) is located immediately south of the project site. River Road separates Pastures 2 and 4 to the west from the River Pasture to the east. A copy of the above referenced USGS 7.5 Minute Quadrangle Map , indicating the location of the project site, is included in this report on Plate 3 in Appendix A.

Recharge / Transition Zone

According to Official Edwards Aquifer Recharge Zone Map, New Braunfels West, Texas Sheet, New Braunfels East, Texas Sheet, Sattler, Texas Sheet, and Hunter, Texas Sheet, (1996),

the project site is located within the Recharge Zone of the Edwards Aquifer. A copy of the Official Edwards Aquifer Recharge Zone Map, indicating the location of the project site, is included on Plate 4 in Appendix A.

100-Year Floodplain

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map for Comal County, Texas, Community Panel Numbers 48091C0270F, 48091C0290F, 48091C0435F, & 48029C0455F (Revised 9/02/09) were reviewed to determine if the project site is located in areas prone to flooding. A review of the above-mentioned panels indicate that portions of the project site is located within the 100 year floodplain. The project site is located within Zone AE, Zone A, Zone X Shaded, and Zone X.

According to the panel legend, Zone AE represents areas within the 100 year floodplain where base flood elevations have been determined. The areas of the property within Zone AE are generally located along Blieders Creek and the Guadalupe River.

Zone A represents areas within the 100 year flooplain where base flood elevations have not been determined. The areas of the property within Zone A are generally areas along tributaries immediately upgradient of areas determined to be within Zone AE.

Zone X shaded represents areas of 0.2% annual chance of flooding, areas of 1% annual chance of flooding with average depths of less than 1 foot or with drainage areas less than 1 square mile, and areas protected by levees from 1% annual chance of flooding. The areas of the property with Zone X Shaded are generally narrow bands located immediately adjacent to areas determined to be within Zone AE.

Zone X represents areas determined to be outside the 0.2% annual chance floodplain. A copy of the Comal County, Texas, FIRM maps, indicating the location of the project site, is included in this report on Plate 5 in Appendix A.

Soils

According to the United States Department of Agriculture, Soil Conservation Service, Soil Survey of Comal & Hays County, Texas (1982), the project site is located on the Rumple-Comfort Association (RUD), the Comfort - Rock Outcrop Complex, Undulating (CrD), the Brackett - Rock Outcrop - Comfort Complex, Undulating (BtD), the Lewisville Silty Clay, 1 to 3 percent slopes (LeB), the Medlin-Eckrant Association (MEC/MED), and the Orif Soils, Frequently Flooded (Or). A copy of the 1973 aerial photograph (approximate scale: 1"=2000') from the USDA Soil Survey of Comal & Hays County, Texas (1982) indicating the location of the project site and the soil types is included on Plate 6 in Appendix A.

The Rumple-Comfort Association (RuD) consists of shallow and moderately deep soils on uplands in the Edwards Plateau Land Resource Area. The surface layer of the Rumple Soil is dark reddish brown very cherty clay loam about 10 inches thick. Rounded chert and limestone cobbles and gravel cover about 20 percent of the surface. The subsoil to a depth of 14 inches is dark reddish-brown very cherty clay, and to a depth of 28 inches it is dark reddish-brown extremely stony clay. The underlying material is indurated fractured limestone. The Comfort Soil is dark brown, neutral, extremely stony clay about 7 inches thick. The subsoil to a depth of 12 inches is dark reddish-brown, mildly alkaline, extremely stony clay. The underlying material is indurated fractured limestone. The soil is noncalcareous throughout. The soils in this association are well drained. Surface runoff is medium, but varies due to the occurrence of caves, fracture zones, and sinks. Permeability is moderately slow. Water erosion is a moderate hazard.

The Comfort-Rock Outcrop Complex consists of shallow, clayey soils and Rock Outcrop on side slopes and on hilltops and ridgetops on uplands in the Edwards Plateau Land Resource Area. The Comfort Extremely Stony Clay makes up 49 to more than 95 percent of the complex, but on the average it makes up 70 percent. Rock Outcrop and areas of soil less than 4 inches deep make up 5 to 36 percent, but the average is 15 percent. Typically, the surface layer of the Comfort soil is dark brown extremely stony clay about 6 inches thick. Cobbles and stones as much as 4 feet across cover about 45 percent of the surface. The subsoil extends to a depth of 13

inches. It is dark reddish brown extremely stony clay. The underlying material is indurated fractured limestone. The soil is mildly alkaline and noncalcareous throughout. The Comfort Soil is well drained. Surface runoff is slow to medium. Permeability is slow, and the available water capacity is very low. Water erosion is a slight hazard. This soil has a USDA Texture Classification of extremely stony clay, stony clay, very stony clay, and weathered bedrock. The Unified Classification is CH, GC, CL, or SC. The AASHO Classification is A-2-7, and A-7-6. This soil has an average permeability from 0.6 to 0.2 inches/hour.

The Brackett-Rock Outcrop-Comfort Complex consists of shallow, loamy and clayey soils and rock outcrops on uplands in the Edwards Plateau Land Resource Area. The Brackett Soil makes up 30 to 60 percent of the complex, but on the average it makes up 50 percent. Rock Outcrops make up 10 to 40 percent of the complex, but the average is 20 percent. The Comfort Soil makes up 10 to 20 percent, but the average is 15 percent. Typically, the surface layer of the Brackett Soil is grayish brown gravelly clay loam about 6 inches thick. The subsoil extends to a depth of 17 inches. It is very pale brown and pale yellow gravelly clay loam. The underlying material is weakly cemented limestone interbedded with thin layers of indurated limestone. The soil is moderately alkaline and calcareous throughout. Typically, the areas of Rock Outcrop consist of exposures of limestone bedrock. There is some soil material in the narrow fractures in the rock. In some areas, however, the rock is flat and is covered by soil material as much as 3 inches thick. Typically, the surface layer of the Comfort Soil is dark brown extremely stony clay about 4 inches thick. The subsoil extends to a depth of 11 inches. It is dark reddish brown extremely stony clay. The underlying material is indurated fractured limestone. The soil is moderately alkaline and noncalcareous throughout. The soils in this complex are well drained. Surface runoff is medium to rapid. Permeability is moderately slow in the Brackett Soil and slow in the Comfort Soil. The available water capacity is very low. Water erosion is a severe hazard.

The Lewisville Silty Clay consists of deep, gently sloping soil on stream terraces. Typically, the surface layer is dark grayish brown silty clay about 15 inches thick. The subsoil to a depth of 33 inches

is light brown silty clay, and to a depth of 63 inches is reddish yellow silty clay. The soil is moderately alkaline and calcareous throughout. This soil is well drained, surface runoff is medium, and permeability is moderate.

The Medlin-Eckrant Association consists of very shallow to shallow and deep soils on uplands in the Edwards Plateau Land Resource Area. There are narrow limestone ledges at the top of some slopes. The Medlin and Eckrant soils each make up 20 to 80 of a mapped area. Together, on the average, they make up about 95 percent of the mapped area. A typical area is 50 percent Medlin soil and 45 percent Eckrant soil. Typically, the Medlin soil has a grayish brown surface layer about 11 inches thick that is stony clay in the upper part and clay in the lower part. The subsoil, from 11 to 50 inches, is light yellowish brown clay that has yellowish brown and olive yellow mottles. The underlying material to a depth of 80 inches is light gray shaly clay that has yellow and olive yellow mottles. The soil is moderately alkaline and calcareous throughout. The Medlin soils is well drained. Surface runoff is rapid. Permeability is very slow. Water enters rapidly when the soil is dry and cracked and very slow when it is wet. Water erosion is a severe hazard. Typically, the surface layer of the Eckrant soil is very dark gray extremely stony clay about 16 inches thick. The underlying material is fractured limestone bedrock. The soil is moderately alkaline and noncalcareous throughout. The Eckrant soil is well drained. Surface runoff is rapid. Permeability is moderately slow. Water erosion is a severe hazard.

The Orif Soils, Frequently Flooded consist of deep nearly level soils on flood plains of large creeks and rivers. These soils are adjacent to the stream channels. Typically, the surface layer is grayish brown moderately alkaline gravelly loamy sand about 20 inches thick. The underlying layer to a depth of 60 inches is very gravelly loamy sand stratified with very gravelly sand, very gravelly sandy loam, and loam. These soils are well drained. Flooding occurs several times in most years and is of very brief duration. Floodwaters are swift and destructive. Surface runoff is slow, permeability is rapid.

Narrative Description of the Site Geology

The project site consists of approximately 2,400 acres of land located along and north of Loop 337 and east and west of River Road in New Braunfels, Texas. An overall view of the area is shown on Plates 1 through 9 in Appendix A. The project site exists as ranch land used to graze cattle and is the main ranching operation for the Word-Borchers Ranch. The project site has a very well developed soil layer on the property giving way to relatively few rock outcrops and dense stands of native grasses. Frost GeoSciences, Inc. after finding large piles of bulldozed rubble within 40 year old stands of trees, researched historic aerial photography and made note that the property appears to have undergone numerous episodes of land clearing dating back at least 40 to 50 years. These historic land clearing operations appear to have culled much of the rock rubble from the surface. The majority (80+%) of the 2,400 acre ranch appears to have been bulldozed at some point with many areas having been cleared repeatedly. This clearing process has produced many small non karst closed depressions resulting from pulling trees out and plucking boulders. There are so many of these across the property that it is not practical to itemize them within this report. The areas that have not been cleared historically appear to be along steep slopes and cliffs, and within major drainage areas. The majority of the site appears to support a thick soil cover and as a result very few potential recharge features were encountered when compared to the size of the property.

The variations in the vegetative cover across the project site are visible in the 2010 aerial photographs on Plates 8 and 9 in Appendix A and in the site visit photographs included in Appendix B. One hundred and forty eight Potential Recharge Features (PRF's) were identified during our site inspection. Nineteen of these are considered sensitive by Frost GeoSciences, Inc. The sensitive features are highlighted on the Geologic Assessment Tables on pages 4 through 10.

Non-Karst Closed Depressions (CD)

Potential Recharge Features S-1, S-2, S-10, S-14, S-22, S-57, S-58, S-87, S-90, S-93, and S-118, consist of notable non-karst closed depressions created by historic bulldozing on the property, These

features are typical of the thousands of similar features and appear to have been created by either the removal of trees or the plucking of boulders. Typically these feature are relatively small (less than 10 feet in any dimension and usually only a foot or two deep. Potential Recharge Features S-9, S-30, S-42, S-79, S-122, S-124, S-128, S-131, and S-132 are non-karst closed depressions consisting of excavated stock ponds used to water livestock, These features vary greatly in both size and shape, however, all of these features show evidence of ponding water for prolonged periods of time. PRF's S-9 and S-124 were holding water at the time of our site inspections. Potential Recharge Feature S-94 is a non-karst closed depression consisting of a stream scour adjacent to Blieders Creek. The bottoms of all of these features are lined with clay and show evidence of holding water. These 22 features are not considered sensitive by FGS. These features score a 15 on the Geologic Assessment Table.

Potential Recharge Feature S-145 consists of large non-karst closed depression created behind the Flood Control Dam within Pasture 3. This non-karst closed depression showed evidence of rapid infiltration into the subsurface after several heavy rainfall events during June and September. Due to the overall size of this feature and the rate that the feature drains into the subsurface, additional points were added for a ZONE rating. This feature is considered sensitive by FGS. This feature scores a 60 on the Geologic Assessment Table.

Manmade Features in Bedrock (MB)

Potential Recharge Features S-4 through S-8, S-11, S-15 through S-21, S-24 through S-26, S-28, S-32 through S-37, S-43, S47, S-48, S-50, S-53, S-55, S-56, S-59 through S-63, S-65 through S-68, S-71, S-72, S-75, S-76, S-80 through S-86, S-95 through S-108, and S-148 are manmade features in bedrock consisting of sanitary sewer manholes along two sewer outfall lines. The two sewer outfall lines combine within Blieders Creek at Potential Recharge Feature S-67. These 64 features are not considered sensitive by FGS. These features score a 37 on the Geologic Assessment Table.

Potential Recharge Features S-29, S-40, S-41, S-78, S-115, S-127, S-129, S-130, and S-137

consist of existing or recently drilled water wells. PRF's S-40 and S-127 are operational and in use at this time. PRF's S-29, S-78, and S-129 are wells associated with old windmills and do not appear to be operational at this time. The remaining PRF's are recently drilled wells consisting of open holes with no casing. These appear to be associated with either testing the groundwater availability or are planned as future water supply wells for livestock. These 9 features are considered sensitive by FGS. These features score a 65 on the Geologic Assessment Table.

Potential Recharge Feature S-39 consists of an area that had been excavated down to bedrock and used as quarry materials for roads on the ranch. This feature is not considered sensitive by FGS. This feature scores a 34 on the Geologic Assessment Table.

Potential Recharge Feature S-45 consists of an area of limestone cobbles and boulders. It is believed that the cobbles and boulders were the left over spoils from the excavation of a nearby sanitary sewer lift station. This feature is not considered sensitive by FGS. This feature scores a 37 on the Geologic Assessment Table.

Potential Recharge Feature S-46 consists of an old abandoned sanitary sewer lift station. The lift station was abandoned after the remaining sewer outfall line was constructed. This feature is not considered sensitive by FGS. This feature scores a 37 on the Geologic Assessment Table.

Potential Recharge Features S-51 and S-119 consist of areas along existing sewer lines that occur within stream channels where the scour of the stream has eroded compacted material out of the sewer trench. The scour at PRF S-51 also occurs in conjunction with an area of highly weathered and altered limestone increasing the probability of rapid infiltration into the subsurface. These 2 features are considered sensitive by FGS. These features score a 45 and 55 respectively on the Geologic Assessment Table.

Potential Recharge Feature S-117 consists of a large erosion scour located at the discharge pipe for the flood control dam along Blieders Creek. This feature was inspected after heavy rains in September and did not show evidence of standing water. This feature is considered sensitive by FGS. This feature scores a 45 on the Geologic Assessment Table.

Cave (C)

Potential Recharge Feature S-64 consists of a relatively small cave located near a hilltop in Pasture 2. The cave opening is approximately 2 feet wide and 3 feet long and has an initial drop of approximately 5 feet. An area of stressed vegetation around the cave opening indicated that the air inside the cave may not be suitable for long term or even short term occupation so no attempt was made to investigate the interior of the cave beyond what could be seen from the surface. A deflated area approximately 30 feet wide, 50 feet long and 3 feet deep was noted around the cave entrance. This is likely the result of soil erosion into the cave. This feature is considered sensitive by FGS. This feature scores a 60 on the Geologic Assessment Table.

Solution Cavity (SC)

Potential Recharge Features S-3, S-12, S-13, S-23, S-27, S-31, S-44, S-69, S-73, S-74, S-88, S-113, S-116, S-121, S-125, S-140, and S-141 consist of solution cavities of various dimensions. A machete was used to probe the depth of the features and determine the nature of the infilling. These cavities all contained a hard clay plug preventing rapid infiltration of water into the subsurface. This was somewhat expected given the extensive soil development across the property. These 17 features are not considered sensitive by FGS. These features score a 29 to 35 on the Geologic Assessment Table.

Potential Recharge Feature S-38 consists of an area of dissolved and scoured limestone outcrop associated with the spillway for the flood control dam. Some of the scours and dissolved limestone extended 3 to 4 feet down and none were noted holding water, even after periods of heavy rains, indicating rapid infiltration into the subsurface. This feature is considered sensitive by FGS. This feature scores a 50 on the Geologic Assessment Table.

Potential Recharge Features S-54, S-126, S-143, and S-144 consists of zones of solution cavities within cliff faces. These represent horizontal features that trend upgradient as they extend into the bedrock cliff. FGS is of the opinion that these features represent discharge features associated with the outlets of subsurface bedding plain features. These 4 features are not considered sensitive by FGS. These features score between a 32 and 37 on the Geologic Assessment Table.

Sinkhole (SH)

Potential Recharge Features S-77 consists of three small closed depressions (sinkholes) likely resulting from soil deflation within a 100 X 100 foot area and two caves approximately 100 feet apart within the same area. The depressions were infilled with loose soil and leaves, rock rubble and some hard packed clay in areas. Evidence of rapid infiltration into the subsurface was noted in some areas. These features are considered sensitive by FGS. These features score a 65 on the Geologic Assessment Table.

Potential Recharge Features S-92, S-109, S-114, S-138, and S-142 consists of areas believed to be the result of soil deflation into the subsurface creating karst formed closed depressions or sinkholes. For these purposes, it is not believed by FGS that these are sinkholes in the classic sense that a collapse has occurred creating a depression. Rather, FGS believes these features are purely the result of erosion of surface soils into subsurface features. These features all contained small areas in the bottoms with no grasses indicating that water ponds for prolonged periods of time. As a result, it did not appear that these features provide rapid infiltration into the subsurface. These 5 features are not considered sensitive by FGS. These features score a 32 to 39 on the Geologic Assessment Table.

Fault (F)

Potential Recharge Features S-146 and S-147 consist of faults noted on the Bureau of Economic Geology, Geologic Map of the New Braunfels, Texas 30 X 60 Minute Quadrangle (2000). Evidence of PRF S-146 was somewhat confirmed in the field with fractures noted at PRF S-133, however, the bearings of the fractures were not the same as the strike of the proposed fault. No fractures or other field evidence associated with PRF S-147 were noted in the field at the time of the on-site inspection. These 2 features are not considered sensitive by FGS. These features score a 35 on the Geologic Assessment Table.

Other Natural Bedrock Feature (O)

Potential Recharge Features S-49, S-52, S-70, S-91, S-112, S-123, S-133, S-134, S-135, S-136, and S-139 consist of natural rock outcrops with either vuggy limestone (O^{VR}) or fractured bedrock (O^{FR}). The

sizes of these outcrops and the strike of the fractures varied greatly. These 11 features are not considered sensitive by FGS. These features score a 14 to 35 on the Geologic Assessment Table.

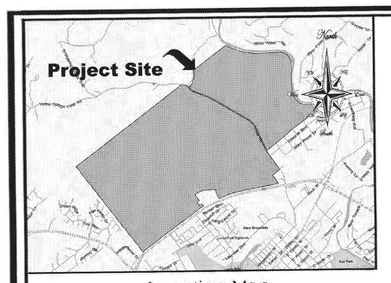
Potential Recharge Features S-110, S-111, and S-120 consist of natural rock outcrops with fractured bedrock (O^{FR}). The sizes of these outcrops and the strike of the fractures varied greatly. These 3 features are considered sensitive by FGS. These features score a 40 on the Geologic Assessment Table.

According to the USGS 7.5 Minute Quadrangle Maps, New Braunfels West, Texas Sheet (1988), New Braunfels East, Texas Sheet (1994), Sattler, Texas Sheet (1994), and Hunter, Texas Sheet (1994), the elevation of the project site ranges from 630 feet at the eastern corner of the project site within the River Pasture along the Guadalupe River to 845 feet along the western property lines of Pastures 1 and 3. These elevations are calculated above mean sea level (AMSL). According to topographic data obtained from Pape Dawson Engineers, the elevations on the project site range from 625 feet at the eastern corner of the project site to 845 feet along the western property lines of Pastures 1 and 3. A copy of the site plan, indicating the boundary of the project site and the elevations, is included on Plate 1 in Appendix A and on the Site Geologic Map in Appendix C of this report.

According to the Bureau of Economic Geology, Geologic Map of the New Braunfels, Texas 30 X 60 Minute Quadrangle (2000), the project site is covered by the Cretaceous Edwards Person Limestone.

The Cyclic and Marine Member of the Cretaceous Edwards Person Limestone consists of mudstone to packstone and miliolid grainstone with chert. The member is characterized by massive beds of limestone to relatively thin beds of limestone with some crossbedding. The Cyclic and Marine Member forms a few caves some that are laterally extensive. Overall thickness ranges from 80 to 90 feet thick.

The Leached and Collapsed Member of the Edwards Person Limestone consists of crystalline limestone, mudstone to grainstone with chert, and collapsed breccia. This member



Location Map

HUECO SPRINGS LOOP RD.

RIVER

WHITE WATER RD.

GUADALUPE RIVER

EDWARDS FIELD

LOOP 337

HWY 46

HIGH WATER MARK - 665.92'

Zone AE

Zone X

Zone A

Kep

S-1 S-2 S-3 S-4 S-5 S-6 S-7 S-8 S-9 S-10 S-11 S-12 S-13 S-14 S-15 S-16 S-17 S-18 S-19 S-20 S-21 S-22 S-23 S-24 S-25 S-26 S-27 S-28 S-29 S-30 S-31 S-32 S-33 S-34 S-35 S-36 S-37 S-38 S-39 S-40 S-41 S-42 S-43 S-44 S-45 S-46 S-47 S-48 S-49 S-50 S-51 S-52 S-53 S-54 S-55 S-56 S-57 S-58 S-59 S-60 S-61 S-62 S-63 S-64 S-65 S-66 S-67 S-68 S-69 S-70 S-71 S-72 S-73 S-74 S-75 S-76 S-77 S-78 S-79 S-80 S-81 S-82 S-83 S-84 S-85 S-86 S-87 S-88 S-89 S-90 S-91 S-92 S-93 S-94 S-95 S-96 S-97 S-98 S-99 S-100 S-101 S-102 S-103 S-104 S-105 S-106 S-107 S-108 S-109 S-110 S-111 S-112 S-113 S-114 S-115 S-116 S-117 S-118 S-119 S-120 S-121 S-122 S-123 S-124 S-125 S-126 S-127 S-128 S-129 S-130 S-131 S-132 S-133 S-134 S-135 S-136 S-137 S-138 S-139 S-140 S-141 S-142 S-143 S-144 S-145 S-146 S-147

Frost GeoSciences

Construction Materials ▪ Forensics
Environmental ▪ Geotechnical

Site Geologic Map

Geologic Site Assessment (WPAP)
for Regulated Activities / Development on the
Edwards Aquifer Recharge / Transition Zone
for the
The Veramendi Subdivision
+/- 2,400 Acres
New Braunfels, Texas

Frost GeoSciences, Inc. Control # FGS-E10139

Legend

- Fill - Fill Material
- Qal - Alluvium
- Kau - Austin Chalk
- Kef - Eagle Ford Shale
- Kbu - Buda Limestone
- Kdr - Del Rio Clay
- Kgt - Georgetown Limestone
- Kep - Edwards Person Limestone
- Kek - Edwards Kainer Limestone
- Kgr - Glen Rose Formation

- S-# - Potential Recharge Feature (PRF)
- Formation Contact
- 100-Year Floodplain - Zone A
- 100-Year Floodplain - Zone AE
- Other Flood Hazard Area - Zone X (shaded)

Floodplain Information Obtained From
FIRM: Flood Insurance Rate Map
Comal County, Texas: Panel # 48091C0270F, Revised 9/02/09
Comal County, Texas: Panel # 48091C0290F, Revised 9/02/09
Comal County, Texas: Panel # 48091C0435F, Revised 9/02/09
Comal County, Texas: Panel # 48091C0455F, Revised 9/02/09

Fault Information Obtained From:
Bureau of Economic Geology, Geologic Atlas of Texas, San Antonio Sheet (1983)
U.S. Geological Survey, Water Resources Investigations Report 94-4117 (1994)
Geologic Map of the New Braunfels, Texas 30 X 60 Minute Quadrangle (2000)

North
West East
South

Graphic Scale
400 0 200 400 800
(In Feet)

1 inch = 400 feet
Representative Fraction 1:4800

Contour Interval - 5 feet

STATE OF TEXAS
Steve M. Frost
Geology
License No. 315
LICENSED
PROFESSIONAL GEOSCIENTIST
5-9-17

Signature of Texas Licensed Geoscientist
Steve Frost, TPG# 315, AIPG # 10176

WATER POLLUTION ABATEMENT PLAN APPLICATION FORM (TCEQ-0584)

Water Pollution Abatement Plan Application

Texas Commission on Environmental Quality

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

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

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

Signature

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

Print Name of Customer/Agent: Jocelyn Perez, P.E.

Date: 8/8/2024

Signature of Customer/Agent:

Regulated Entity Name: Veramendi Roadway C Phase 1 and Precinct 11A

Regulated Entity Information

1. The type of project is:

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

2. Total site acreage (size of property):39.69

3. Estimated projected population:N/A

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

Table 1 - Impervious Cover Table

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	0	÷ 43,560 =	0
Parking	0	÷ 43,560 =	0
Other paved surfaces	122,404	÷ 43,560 =	2.81
Total Impervious Cover	122,404	÷ 43,560 =	2.81

Total Impervious Cover 2.81 **÷ Total Acreage** 39.69 **X 100 =** 7.08**% Impervious Cover**

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

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

For Road Projects Only

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

7. Type of project:

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

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

   ☐ Concrete
   ☐ Asphaltic concrete pavement
   ☐ Other: _____

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

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

10. Length of pavement area: _____ feet.

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

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

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

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

Stormwater to be generated by the Proposed Project

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

Wastewater to be generated by the Proposed Project

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

_____% Domestic	_____Gallons/day
_____% Industrial	_____Gallons/day
_____% Commingled	_____Gallons/day
TOTAL gallons/day _____	

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" = 400'.

18. 100-year floodplain boundaries:

☒ Some part(s) of the project site is located within the 100-year floodplain. The floodplain is shown and labeled.
☐ No part of the project site is located within the 100-year floodplain.
The 100-year floodplain boundaries are based on the following specific (including date of material) sources(s): DFIRM Panel No. 48091C0435F, Dated 09/02/2009

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

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

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

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

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

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

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

☐ All sensitive geologic or manmade features identified in the Geologic Assessment are shown and labeled.
☒ No sensitive geologic or manmade features were identified in the Geologic Assessment.
☐ **Attachment D - Exception to the Required Geologic Assessment**. A request and justification for an exception to a portion of the Geologic Assessment is attached.

22. ☒ The drainage patterns and approximate slopes anticipated after major grading activities.

23. ☒ Areas of soil disturbance and areas which will not be disturbed.

24. ☒ Locations of major structural and nonstructural controls. These are the temporary and permanent best management practices.

25. ☒ Locations where soil stabilization practices are expected to occur.

26. ☐ Surface waters (including wetlands).

    ☒ N/A

27. ☐ Locations where stormwater discharges to surface water or sensitive features are to occur.

    ☒ There will be no discharges to surface water or sensitive features.

28. ☒ Legal boundaries of the site are shown.

Administrative Information

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

30. ☒ Any modification of this WPAP will require Executive Director approval, prior to construction, and may require submission of a revised application, with appropriate fees.

ATTACHMENT A

Attachment A – Factors Affecting Water Quality

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

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

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

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

ATTACHMENT B

Attachment B – Volume and Character of Stormwater

Stormwater runoff will increase as a result of this development. For a 25-year storm event, the overall project will generate approximately 172 cfs an increase from 138 cfs before development. The runoff coefficient for the site changes from approximately 0.42 before development to 0.71 after development. Values are based on the Rational Method using runoff coefficients per the City of New Braunfels Drainage Manual.

TEMPORARY STORMWATER SECTION (TCEQ-0602)

Temporary Stormwater Section

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(b)(4)(A), (B), (D)(I) and (G); Effective June 1, 1999

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

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

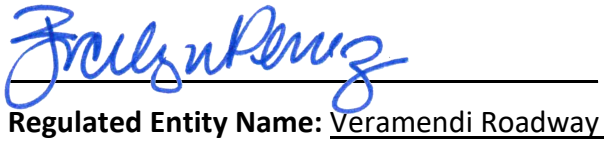
Signature

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

Print Name of Customer/Agent: Jocelyn Perez, P.E.

Date: 8/8/2024

Signature of Customer/Agent:



Regulated Entity Name: Veramendi Roadway C Phase 1 & Precinct 11A

Project Information

Potential Sources of Contamination

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

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

   ☒ The following fuels and/or hazardous substances will be stored on the site: Construction staging area

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

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

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

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

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

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

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

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

Sequence of Construction

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

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

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

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

Temporary Best Management Practices (TBMPs)

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

☒ N/A

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

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

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

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

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

Soil Stabilization Practices

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

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

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

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

Administrative Information

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

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

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

ATTACHMENT A

Attachment A – Spill Response Actions

In the event of an accidental leak or spill:

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

In the event of an accidental significant or hazardous spill:

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

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

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

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

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

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

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

ATTACHMENT B

Attachment B – Potential Sources of Contamination

Other potential sources of contamination during construction include:

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

ATTACHMENT C

Attachment C – Sequence of Major Activities

The sequence of major activities which disturb soil during construction on this site will be divided into two stages. The first is site preparation that will include installation of TBMPs as illustrated on Exhibit 1, clearing and grubbing of vegetation where applicable, and mass grading and stockpiling of soils. This will disturb approximately 39.69 acres. The second is construction that will include construction of one (1) the batch detention basin, a 4-lane collector roadway, associated utilities, landscaping and site cleanup. This will disturb approximately 39.69 acres.

ATTACHMENT D

Attachment D – Temporary Best Management Practices and Measures

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.

No upgradient water will cross the site. Upgradient water will be intercepted through earthen channels around the site. All TBMPs are adequate for the drainage areas they serve.

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

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

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

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

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

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

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

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

ATTACHMENT F

Attachment F – Structural Practices

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

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

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

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

ATTACHMENT G

Attachment G – Drainage Area Map

No more than ten (10) acres will be disturbed within a common drainage area at one time. All TBMPs utilized are adequate for the drainage areas served.

ATTACHMENT I

INSPECTIONS

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

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

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

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

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

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

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

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

PROJECT MILESTONE DATES

Date when major site grading activities begin:

Construction Activity	Date
Installation of BMPs	

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

Construction Activity	Date

Dates when stabilization measures are initiated:

Stabilization Activity	Date
Removal of BMPs	

ATTACHMENT J

Attachment J - Schedule of Interim and Permanent Soil Stabilization Practices

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

Stabilization measures will be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, and except as provided below, will be initiated no more than fourteen (14) days after the construction activity in that portion of the site has temporarily or permanently ceased. Where construction activity on a portion of the site is temporarily ceased, and earth disturbing activities will be resumed within twenty-one (21) days, temporary stabilization measures do not have to be initiated on that portion of site. In areas experiencing droughts where the initiation of stabilization measures by the 14th day after construction activity has temporarily or permanently ceased is precluded by seasonably arid conditions, stabilization measures must be initiated as soon as practicable.

PERMANENT STORMWATER SECTION (TCEQ-0600)

Permanent Stormwater Section

Texas Commission on Environmental Quality

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

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

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

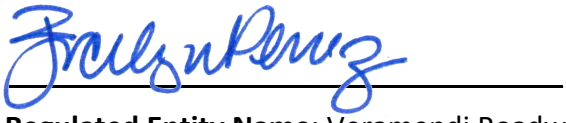
Signature

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

Print Name of Customer/Agent: Jocelyn Perez, P.E.

Date: 8/8/2024

Signature of Customer/Agent



Regulated Entity Name: Veramendi Roadway C Phase 1 & Precinct 11A

Permanent Best Management Practices (BMPs)

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

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

   ☐ N/A

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

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

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

☐ N/A

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

   ☐ N/A

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

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

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

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

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

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

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

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

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

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

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

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

☒ N/A

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

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

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

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

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

☐ N/A

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

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

    ☐ N/A

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

    ☒ N/A

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

    ☒ N/A

Responsibility for Maintenance of Permanent BMP(s)

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

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

    ☐ N/A

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

    ☐ N/A

ATTACHMENT B

Attachment B – BMPs for Upgradient Stormwater

No upgradient water will cross the site.

The proposed Permanent Best Management Practices (PBMPs) for stormwater treatment is one (1) existing sand filter basin (EAPP ID No 13000418), one (1) proposed batch detention basin and one (1) interim vegetative filter strip which are designed in accordance with the TCEQ's Technical Guidance Manual (TGM) RG-348 (2005) to remove 80% of the increase in Total Suspended Solids (TSS) from the site.

ATTACHMENT C

Attachment C – BMPs for On-Site Stormwater

The proposed Permanent Best Management Practices (PBMPs) for stormwater treatment is one (1) existing sand filter basin (EAPP ID No 13000418), one (1) proposed batch detention basin and one (1) interim vegetative filter strip which are designed in accordance with the TCEQ's Technical Guidance Manual (TGM) RG-348 (2005) to remove 80% of the increase in Total Suspended Solids (TSS) from the site.

ATTACHMENT D

Attachment D – BMPs for Surface Streams

There are no surface streams on, or near, the project site. The proposed Permanent Best Management Practices (PBMPs) for stormwater treatment is one (1) existing sand filter basin (EAPP ID No 13000418), one (1) proposed batch detention basin and one (1) interim vegetative filter strip which are designed in accordance with the TCEQ's Technical Guidance Manual (TGM) RG-348 (2005) to remove 80% of the increase in Total Suspended Solids (TSS) from the site.

ATTACHMENT F

Attachment F – Construction Plans

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

ATTACHMENT G

PERMANENT POLLUTION ABATEMENT MEASURES
MAINTENANCE SCHEDULE AND MAINTENANCE PROCEDURES

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

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

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

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

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

Garrett Mechler – VP, Operations
Veramendi PE – Cairns, LLC

6-29-2024
Date

INSPECTION AND MAINTENANCE SCHEDULE
FOR
PERMANENT POLLUTION ABATEMENT MEASURES

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

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

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

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

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

MAINTENANCE PROCEDURES FOR PERMANENT POLLUTION ABATEMENT MEASURES

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

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

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

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

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

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

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

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

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

7. Discharge Pipe. The basin discharge pipe shall be checked for accumulation of silt, debris or other obstructions which could block flow. Soil accumulations, vegetative overgrowth and other blockages should be cleared from the pipe discharge point. Erosion at the point of discharge shall be monitored. If erosion occurs, the addition of rock rubble to disperse the flow should be accomplished. *A written record should be kept of inspection results and corrective measures taken*

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

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

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

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

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

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

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

ATTACHMENT I

Attachment I – Measures for Minimizing Surface Stream Contamination

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

AGENT AUTHORIZATION FORM (TCEQ-0599)

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

I Garrett Mechler,
Print Name

VP, Operations,
Title - Owner/President/Other

of Veramendi PE – Cairns, LLC,
Corporation/Partnership/Entity Name

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

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

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

I also understand that:

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

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

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

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

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

SIGNATURE PAGE:

Applicant's Signature

5/20/2024
Date

THE STATE OF Texas §

County of Comal §

ALEX HARDEMAN
Notary Public, State of Texas
Comm. Expires 05-20-2028
Notary ID 130670969

BEFORE ME, the undersigned authority, on this day personally appeared Garrett Mechler 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 20 day of May 2024.

NOTARY PUBLIC

Alex Hardeman
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 5/20/2028

APPLICATION FEE FORM (TCEQ-0574)

Application Fee Form

Texas Commission on Environmental Quality

Name of Proposed Regulated Entity: Veramendi Roadway C Phase 1 & Precinct 11A

Regulated Entity Location: Approximately 0.26 miles NW of TX-46/TX-337 and Borchers Blvd intersection New Braunfels, TX

Name of Customer: Veramendi PE - Cairns

Contact Person: Garrett Mechler Phone: 830-643-1338

Customer Reference Number (if issued):CN _____

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

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

☐ San Antonio Regional Office

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

Site Location (Check All That Apply):

☒ Recharge Zone ☐ Contributing Zone ☐ Transition Zone

Type of Plan	***Size***	***Fee Due***
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	39.69 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: 8/8/2024

Application Fee Schedule

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

Water Pollution Abatement Plans and Modifications

Contributing Zone Plans and Modifications

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

Organized Sewage Collection Systems and Modifications

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

Underground and Aboveground Storage Tank System Facility Plans and Modifications

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

Exception Requests

Project	*Fee*
Exception Request	$500

Extension of Time Requests

Project	*Fee*

Project	***Fee***
Extension of Time Request	$150

CORE DATA FORM
(TCEQ-10400)

TCEQ Use Only

TCEQ Core Data Form

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

SECTION I: General Information

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

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

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

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

SECTION II: Customer Information

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

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

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

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

VERAMENDI PE - CAIRNS LLC

7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number (if applicable)
0802990846	32066872188	30-1085059	

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

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

13. Independently Owned and Operated?
☒ Yes ☐ No

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

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

15. Mailing Address: 2168 Oak Run Pkwy STE 101

City	New Braunfels	State	TX	ZIP	78132	ZIP + 4	

16. Country Mailing Information (if outside USA)	17. E-Mail Address (if applicable)
	garrett.mechler@asaproperties.us.com

18. Telephone Number	19. Extension or Code	20. Fax Number (if applicable)
(830) 643-1338		( ) -

SECTION III: Regulated Entity Information

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

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

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

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

Veramendi Roadway C Phase 1 and Precinct 11A

23. Street Address of the Regulated Entity: *(No PO Boxes)*							
	City		**State**	TX	**ZIP**	78132	**ZIP + 4**
24. County	Comal						

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:	0.26 mi NW of Borcher Blvd and TX-46/TX-337 Intersection				
26. Nearest City			**State**	**Nearest ZIP Code**	
New Braunfels			TX	78132	
27. Latitude (N) In Decimal:	29.7212		**28. Longitude (W) In Decimal:**	-98.1554	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
29	43	16.3	98	9	19.5

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)
1611	1623	237310	237110

33. What is the Primary Business of this entity? *(Do not repeat the SIC or NAICS description.)*

Roadway and Sewer

34. Mailing Address:							
	City	**New Braunfels**	**State**	**TX**	**ZIP**	**78131**	**ZIP + 4**
35. E-Mail Address:							

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(830) 643-1338		**( ) -**

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

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

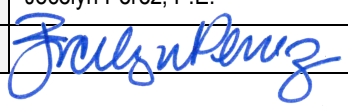
SECTION IV: Preparer Information

40. Name:	Greg Latimer, P.E.	**41. Title:**	Project Manager

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(830) 632-5633		( ) -	glatimer@pape-dawson.com

SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	Pape-Dawson Consulting Engineers LLC	**Job Title:**	Vice President
Name *(In Print):*	Jocelyn Perez, P.E.	**Phone:**	(830) 632- **5633**
Signature:		**Date:**	8/8/2024

POLLUTANT LOAD AND REMOVAL CALCULATIONS

VERAMENDI ROADWAY C PHASE 1 AND PRECINCT 11A

Treatment Summary by Watershed

Watershed	Total Watershed Area (ac.)	Proposed Impervious Cover to Treat (ac.)	PBMP	Required TSS Removal Annually (lbs)	TSS Removed Annually (lbs)
A	19.07	1.37	Proposed Batch Detention Basin Roadway C Phase 1	1,230	1,548
B	18.17	-	CLEARING & GRADING	-	-
C	2.12	-	CLEARING & GRADING	-	-
D	3.99	0.77	INTERIM VFS	691	691
UNCAPTURED	0.80	0.67	OVERTREATMENT BY EXISTING BASIN 8 OF VERAMENDI 1A-1	601	283 *See Note 1
TOTAL	44.15	**2.81**	---	2,522	**2,522**

Note 1: The design of Existing Basin 8 (TCEQ WPAP Approval ID No. 13000418) was intentially oversized for in anticipation for overtreament resulting in a max annual TSS removal capacity of 4173 lbs. The appoved conditions require a TSS removal of 3860lbs yielding an extra capacity of 313lbs. The extra capacity of Basin 8 thus provides treatment for the reamaining required TSS removal of 283lbs for the project.

Water Quality Basin Summary

Basin	Designed Capture Volume (cf)	Required Volume (cf)	Excess Volume Capacity (cf)
Proposed Batch Detention Basin Roadway C Phase 1	14,334	13,957	377

Veramendi 1A-1 Basin 8 (EAA ID No. 13000418)	Designed Capture Volume (cf)	Required Volume (cf)	Excess Volume Capacity (cf)	Designed Sand Area (SF)	Required Sand Area (SF)	Excess Sand Area (SF)
Approved Conditions	34,752	18,891	15,861	3,200	1,889	1,311
Proposed Conditions	34,752	31,484	3,268	3,200	3,149	51

Veramendi 1A-1 Basin 8 (EAA ID No. 13000418)	Watershed (ac.)	Impervious Cover (ac.)	Required TSS Removal Annually (lbs)	TSS Removed Annually (lbs)
Approved Condition	7.24	4.30	3,860	3,860
Proposed Conditions	7.24	4.30	3,860	4,173

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
WATER POLLUTION ABATEMENT PLAN
GENERAL CONSTRUCTION NOTES

1. WRITTEN CONSTRUCTION NOTIFICATION MUST BE GIVEN TO THE APPROPRIATE TCEQ REGIONAL OFFICE NO LATER THAN 48 HOURS PRIOR TO COMMENCEMENT OF THE REGULATED ACTIVITY. INFORMATION MUST INCLUDE THE DATE ON WHICH THE REGULATED ACTIVITY WILL COMMENCE, THE NAME OF THE APPROVED PLAN FOR THE REGULATED ACTIVITY, AND THE NAME OF THE PRIME CONTRACTOR AND THE NAME AND TELEPHONE NUMBER OF THE CONTACT PERSON.

2. ALL CONTRACTORS CONDUCTING REGULATED ACTIVITIES ASSOCIATED WITH THIS PROJECT MUST BE PROVIDED WITH COMPLETE COPIES OF THE APPROVED WATER POLLUTION ABATEMENT PLAN AND THE TCEQ LETTER INDICATING THE SPECIFIC CONDITIONS OF ITS APPROVAL. DURING THE COURSE OF THESE REGULATED ACTIVITIES, THE CONTRACTORS ARE REQUIRED TO KEEP ON-SITE COPIES OF THE APPROVED PLAN AND APPROVAL LETTER.

3. IF ANY SENSITIVE FEATURE IS DISCOVERED DURING CONSTRUCTION, ALL REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MUST BE SUSPENDED IMMEDIATELY. THE APPROPRIATE TCEQ REGIONAL OFFICE MUST BE IMMEDIATELY NOTIFIED OF ANY SENSITIVE FEATURES ENCOUNTERED DURING CONSTRUCTION. THE REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MAY NOT PROCEED UNTIL THE TCEQ HAS REVIEWED AND APPROVED THE METHODS PROPOSED TO PROTECT THE SENSITIVE FEATURE AND THE EDWARDS AQUIFER FROM ANY POTENTIALLY ADVERSE IMPACTS TO WATER QUALITY.

4. NO TEMPORARY ABOVEGROUND HYDROCARBON AND HAZARDOUS SUBSTANCE STORAGE TANK SYSTEM MAY BE INSTALLED WITHIN 150 FEET OF A DOMESTIC, INDUSTRIAL, IRRIGATION, OR PUBLIC WATER SUPPLY WELL, OR OTHER SENSITIVE FEATURE.

5. PRIOR TO COMMENCEMENT OF CONSTRUCTION, ALL TEMPORARY EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES MUST BE PROPERLY SELECTED, INSTALLED, AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS AND GOOD ENGINEERING PRACTICES. CONTROLS SPECIFIED IN THE TEMPORARY STORM WATER SECTION OF THE APPROVED EDWARDS AQUIFER PROTECTION PLAN ARE REQUIRED DURING CONSTRUCTION. IF INSPECTIONS INDICATE A CONTROL HAS BEEN USED INAPPROPRIATELY, OR INCORRECTLY, THE APPLICANT MUST REPLACE OR MODIFY THE CONTROL FOR SITE SITUATIONS. THE CONTROLS MUST REMAIN IN PLACE UNTIL DISTURBED AREAS ARE REVEGETATED AND THE AREAS HAVE BECOME PERMANENTLY STABILIZED.

6. IF SEDIMENT ESCAPES THE CONSTRUCTION SITE, OFF-SITE ACCUMULATIONS OF SEDIMENT MUST BE REMOVED AT A FREQUENCY SUFFICIENT TO MINIMIZE OFF-SITE IMPACTS TO WATER QUALITY (E.G., FUGITIVE SEDIMENT IN STREET BEING WASHED INTO SURFACE STREAMS OR SENSITIVE FEATURES BY THE NEXT RAIN).

7. SEDIMENT MUST BE REMOVED FROM SEDIMENT TRAPS OR SEDIMENTATION PONDS NOT LATER THAN WHEN DESIGN CAPACITY HAS BEEN REDUCED BY 50%. A PERMANENT STAKE MUST BE PROVIDED THAT CAN INDICATE WHEN THE SEDIMENT OCCUPIES 50% OF THE BASIN VOLUME.

8. 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).

9. ALL SPOILS (EXCAVATED MATERIAL) GENERATED FROM THE PROJECT SITE MUST BE STORED ON SITE WITH PROPER E&S CONTROLS. FOR STORAGE OR DISPOSAL OF SPOILS AT ANOTHER SITE ON THE EDWARDS AQUIFER RECHARGE ZONE, THE OWNER OF THE SITE MUST RECEIVE APPROVAL OF A WATER POLLUTION ABATEMENT PLAN FOR THE PLACEMENT OF FILL MATERIAL OR MASS GRADING PRIOR TO THE PLACEMENT OF SPOILS AT THE OTHER SITE.

10. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. WHERE THE INITIATION OF STABILIZATION MEASURES BY THE 14TH DAY AFTER CONSTRUCTION ACTIVITY TEMPORARY OR PERMANENTLY CEASE IS PRECLUDED BY WEATHER CONDITIONS, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE. WHERE CONSTRUCTION ACTIVITY ON A PORTION OF THE SITE IS TEMPORARILY CEASED, AND EARTH DISTURBING ACTIVITIES WILL BE RESUMED WITHIN 21 DAYS, TEMPORARY STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF SITE. IN AREAS EXPERIENCING DROUGHTS WHERE THE INITIATION OF STABILIZATION MEASURES BY THE 14TH DAY AFTER CONSTRUCTION ACTIVITY HAS TEMPORARILY OR PERMANENTLY CEASED IS PRECLUDED BY SEASONAL ARID CONDITIONS, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE.

11. THE FOLLOWING RECORDS SHALL BE MAINTAINED AND MADE AVAILABLE TO THE TCEQ UPON REQUEST: THE DATES WHEN MAJOR GRADING ACTIVITIES OCCUR; THE DATES WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE; AND THE DATES WHEN STABILIZATION MEASURES ARE INITIATED.

12. THE HOLDER OF ANY APPROVED EDWARDS AQUIFER PROTECTION PLAN MUST NOTIFY THE APPROPRIATE REGIONAL OFFICE IN WRITING AND OBTAIN APPROVAL FROM THE EXECUTIVE DIRECTOR PRIOR TO INITIATING ANY OF THE FOLLOWING:

A. ANY PHYSICAL OR OPERATIONAL MODIFICATION OF ANY WATER POLLUTION ABATEMENT STRUCTURE(S), INCLUDING BUT NOT LIMITED TO PONDS, DAMS, BERMS, SEWAGE TREATMENT PLANTS, AND DIVERSIONARY STRUCTURES;

B. ANY CHANGE IN THE NATURE OR CHARACTER OF THE REGULATED ACTIVITY FROM THAT WHICH WAS ORIGINALLY APPROVED OR A CHANGE WHICH WOULD SIGNIFICANTLY IMPACT THE ABILITY OF THE PLAN TO PREVENT POLLUTION OF THE EDWARDS AQUIFER;

C. ANY DEVELOPMENT OF LAND PREVIOUSLY IDENTIFIED AS UNDEVELOPED IN THE ORIGINAL WATER POLLUTION ABATEMENT PLAN.

SAN ANTONIO REGIONAL OFFICE
14250 JUDSON RD.
SAN ANTONIO, TEXAS 78233-4480
PHONE: (210) 490-3096
FAX: (210) 545-4329

PERMANENT POLLUTION ABATEMENT MEASURES:

1. SILT FENCING AND BERMS, WHERE APPROPRIATE, WILL BE MAINTAINED UNTIL THE SITE IMPROVEMENTS ARE COMPLETED AND SUFFICIENT VEGETATION HAS BEEN ESTABLISHED IN ACCORDANCE WITH APPLICABLE PROJECT SPECIFICATIONS.

2. STORMWATER RUNOFF FROM WITHIN THIS DEVELOPMENT WILL BE DISCHARGED TO A PROPOSED STORMFILTER SYSTEM FOR TREATMENT. THIS SYSTEM HAS BEEN DESIGNED TO REMOVE AT LEAST 80% OF THE INCREASED TOTAL SUSPENDED SOLIDS (TSS) FOR THE PROPOSED IMPROVEMENTS IN ACCORDANCE WITH THE TCEQ'S TECHNICAL GUIDANCE MANUAL (TGM) RG-348 (2005).

3. DURING CONSTRUCTION, TO THE EXTENT PRACTICAL, CONTRACTOR SHALL MINIMIZE THE AREA OF SOIL DISTURBANCE. AREAS OF DISTURBED SOLID SHALL BE REVEGETATED TO STABILIZE SOIL USING SOLID SOD IN A STAGGERED PATTERN. REFER TO SECTION 1.3.11 IN TCEQ'S TECHNICAL GUIDANCE MANUAL RG-348 (2005). SOD SHOULD BE USED IN CHANNELS AND ON SLOPES >15%. THE CONTRACTOR MAY SUBSTITUTE THE USE OF SOD WITH THE PLACEMENT OF TOP SOIL AND A FRIABLE SEED BED WITH A PROTECTIVE MATTING OR HYDRAULIC MULCH ALONG WITH WATERING UNTIL VEGETATION IS ESTABLISHED. APPLICATIONS AND PRODUCTS SHALL BE THOSE APPROVED BY TXDOT AS OF FEBRUARY 2001 AND IN COMPLIANCE WITH THE TGM RG-348 (2005). SEED MIXTURE AND/OR GRASS TYPE TO BE DETERMINED BY OWNER AND SHOULD BE IN COMPLIANCE WITH TGM RG-348 (2005) GUIDELINES. IRRIGATION MAY BE REQUIRED IN ORDER TO ESTABLISH SUFFICIENT VEGETATION.

4. FOR DISTURBED AREAS WHERE INSUFFICIENT SOIL EXISTS TO ESTABLISH VEGETATION, CONTRACTOR SHALL PLACE A MINIMUM OF 6" TOPSOIL PRIOR TO REVEGETATION.

5. SLOPES ON SITE VARY FROM APPROXIMATELY 1.0% TO 33%.

6. ENERGY DISSIPATERS (TO HELP REDUCE EROSION) WILL BE PROVIDED AT POINTS CONCENTRATED DISCHARGE WHERE EXCESSIVE VELOCITIES MAY ENCOUNTERED.

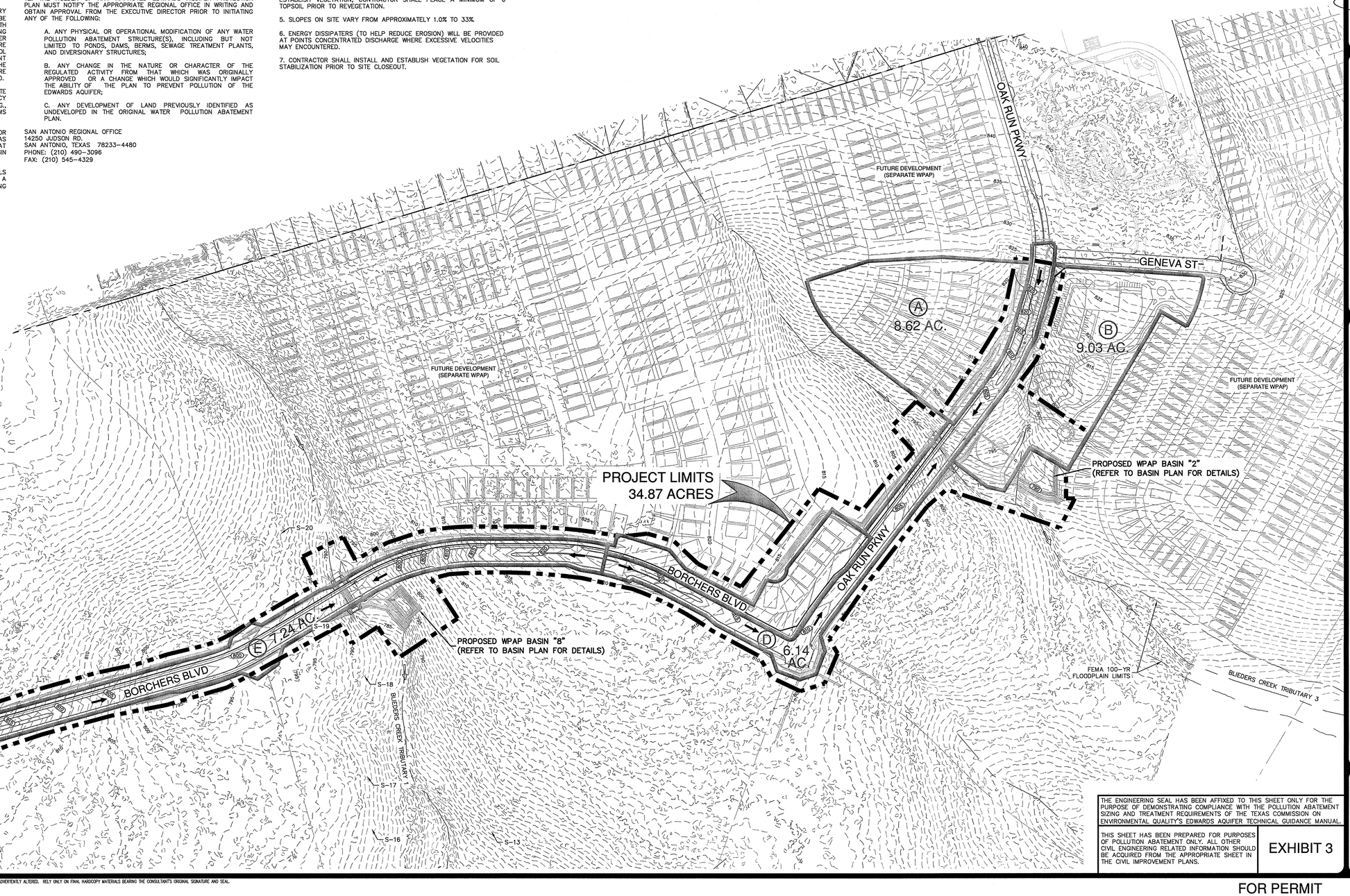
7. CONTRACTOR SHALL INSTALL AND ESTABLISH VEGETATION FOR SOIL STABILIZATION PRIOR TO SITE CLOSEOUT.

Watershed	Total Watershed Area (ac.)	Watershed Use	Proposed Impervious Cover (ac.)	PBMP	Required TSS Removal Annually (lbs)	TSS Removed Annually (lbs)
A	8.62	RESIDENTIAL		Water Quality Basin "2"	0	0
B	9.03	COMMERCIAL		Water Quality Basin "2"	0	0
C	3.66	RESIDENTIAL		Water Quality Basin "2"	0	0
D	6.14	ROAD	4.75	Water Quality Basin "2"	4,264	4,264
E	7.24	ROAD	4.30	Water Quality Basin "8"	3,860	3,860
F	0.03	ROAD	0.03	15' Engineered VFS	27	27
G	0.15	ROAD	0.15	15' Engineered VFS	135	135
TOTAL	**34.87**		**9.23**	---	**8,285**	**8,285**

LEGEND

- PROPERTY LINE
- PROJECT LIMITS
- 800 EXISTING CONTOUR
- 800 PROPOSED CONTOUR
- FLOW ARROW (EXISTING)
- FLOW ARROW (PROPOSED)
- WATERSHED BOUNDARY
- (A) WATERSHED DESIGNATION
- S-19 GA FEATURE

SCALE: 1"= 200'
0' 200' 400' 600'



THE ENGINEERING SEAL HAS BEEN AFFIXED TO THIS SHEET ONLY FOR THE PURPOSE OF DEMONSTRATING COMPLIANCE WITH THE POLLUTION ABATEMENT SIZING AND TREATMENT REQUIREMENTS OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY'S EDWARDS AQUIFER TECHNICAL GUIDANCE MANUAL.

THIS SHEET HAS BEEN PREPARED FOR PURPOSES OF POLLUTION ABATEMENT ONLY. ALL OTHER CIVIL ENGINEERING RELATED INFORMATION SHOULD BE ACQUIRED FROM THE APPROPRIATE SHEET IN THE CIVIL IMPROVEMENT PLANS.

EXHIBIT 3

FOR PERMIT

DATE | REVISION | NO.

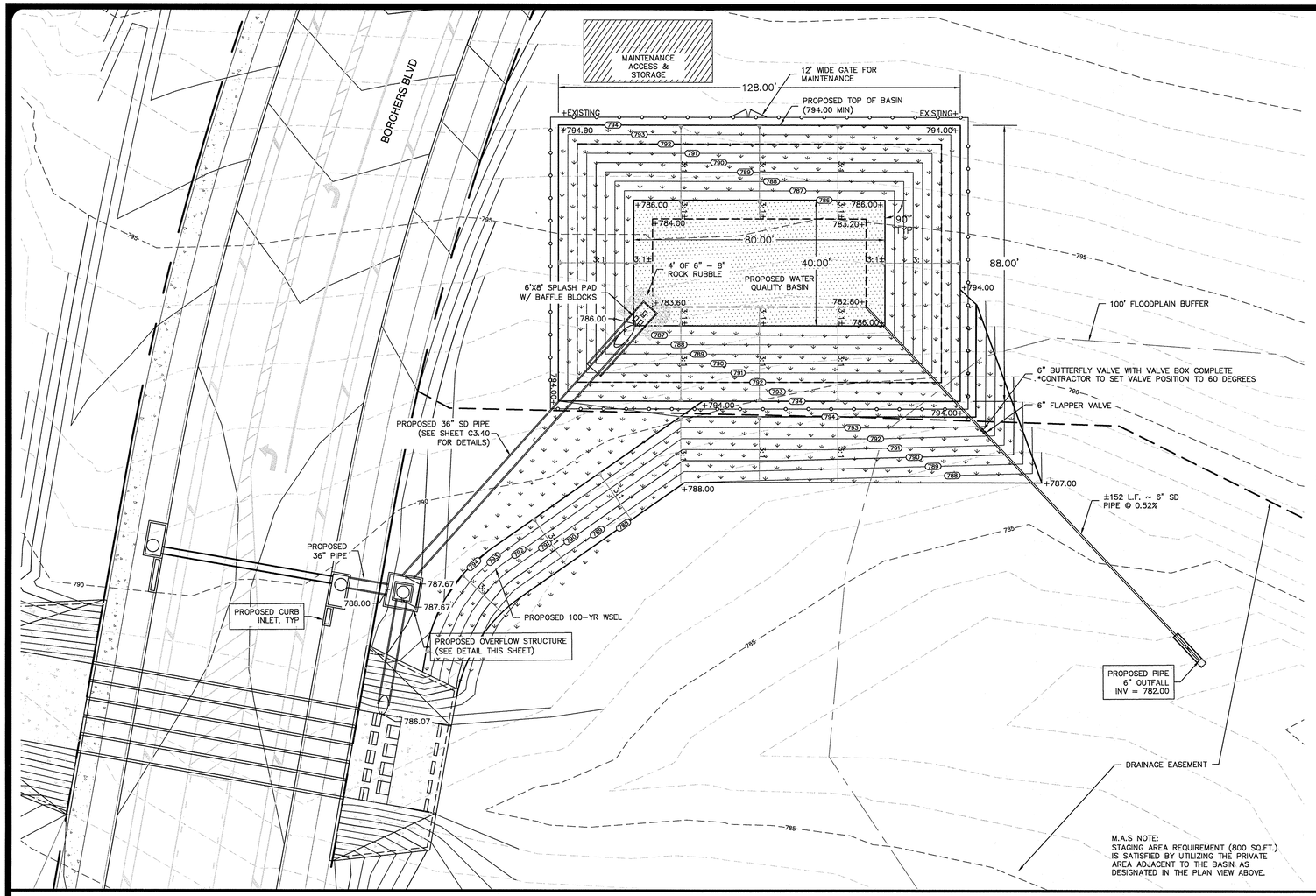
5-1-17
STATE OF TEXAS
DENNIS R. RION
67109
LICENSED PROFESSIONAL ENGINEER

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX. 78213 | 210.375.9000
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #100288-00

VERAMENDI 1A-1
NEW BRAUNFELS, TEXAS
PERMANENT POLLUTION ABATEMENT PLAN

PLAT NO.
JOB NO. 7620-37
DATE APRIL 2017
DESIGNER BES
CHECKED DRAWN AW/DD
SHEET 1 OF 1

Date: May 11, 2017, 3:36pm User ID: ROlivarez
File: P:\7620\07\Design\Civil\WPAP\7620079PM.dwg



PLAN VIEW

SCALE: 1"=20'

NOTES

1. CONTRACTOR SHALL ENGAGE A TEXAS LICENSED STRUCTURAL ENGINEER TO PROVIDE A SIGNED AND SEALED SET OF STRUCTURAL PLANS, DETAILS AND SPECIFICATION FOR THE STRUCTURAL COMPONENTS OF THE POLLUTION ABATEMENT BASIN INCLUDING INLET DISCHARGE AND BYPASS COMPONENTS. CONTRACTOR SHALL ALSO PROVIDE FOR STRUCTURAL ENGINEER'S INSPECTION DURING BASIN CONSTRUCTION AND STRUCTURAL ENGINEER'S CONSTRUCTION CERTIFICATION UPON COMPLETION OF BASIN.

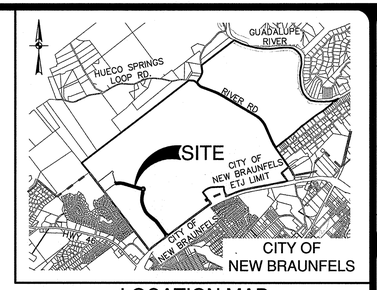
2. UPON COMPLETION OF CONSTRUCTION, AND IN ACCORDANCE WITH TCEQ REGULATIONS, ALL PERMANENT BMP'S MUST BE CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER.

3. ALL AREAS DISTURBED AS PART OF CONSTRUCTION OF BASIN SHALL BE REVEGETATED PRIOR TO COMPLETION.

4. BASIN HAS BEEN DESIGNED USING TSS REMOVAL AND BMP SIZING CALCULATIONS AS PER THE TCEQ TGM RG-348 (2005).

5. BASIN PLAN DEPICTS MINIMUM INTERIOR DIMENSIONS (LENGTH, WIDTH & HEIGHT FOR TCEQ REVIEW & APPROVAL. ACTUAL STRUCTURAL PLANS FOR CONSTRUCTION TO BE DESIGNED BY STRUCTURAL ENGINEER AT A LATER DATE.

6. BASIN DRAWDOWN IS CONTROLLED BY THE PIPE. BASIN DRAWDOWN WILL OCCUR IN APPROXIMATELY 24 HOURS.

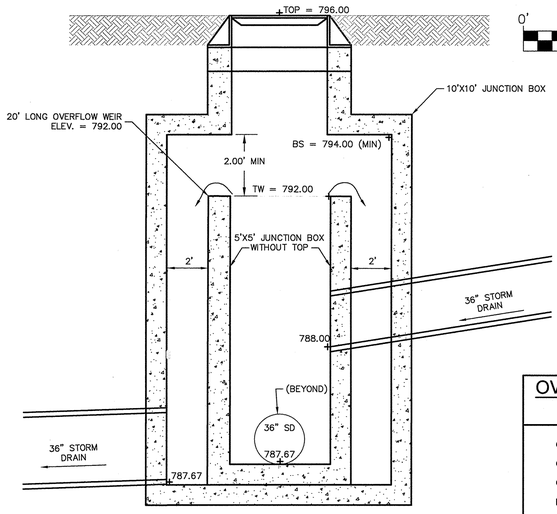


LOCATION MAP

NOT-TO-SCALE

SCALE: 1"= 20'

0' 20' 40' 60'

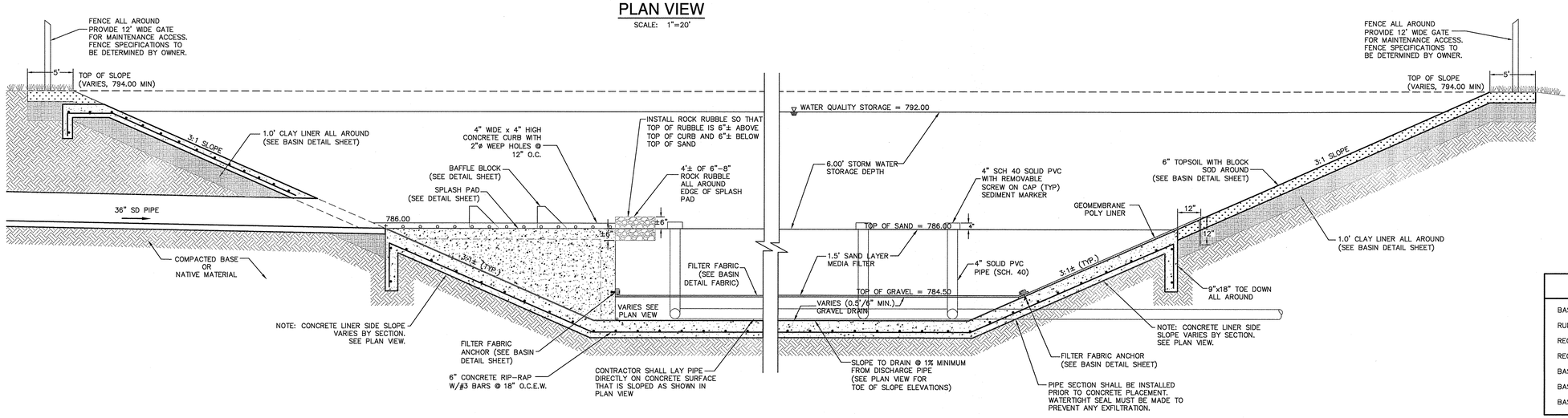


OVERFLOW STRUCTURE DETAIL

NOT-TO-SCALE

OVERFLOW STRUCTURE CALCULATIONS

Q_{25}	=	$(cw)(L)(h)^{3/2}$
Q_{25}	=	40.74 CFS
C	=	3.087
L	=	20 FT
40.74	=	$(3.087)(20)(h)^{3/2}$
h	=	0.76 FT



SECTION A-A

NOT TO SCALE

BASIN DESIGN DATA

BASIN WATERSHED AREA	=	315,374 SF (7.24 AC.)
RUN OFF DEPTH	=	1.4 INCH
REQUIRED CAPTURE VOLUME	=	18,891 CF
REQUIRED SAND AREA	=	1,574 SF
BASIN STORM WATER DEPTH	=	6 FT
BASIN CAPTURE VOLUME	=	34,752 CF
BASIN SAND AREA	=	3,200 SF

THE ENGINEERING SEAL HAS BEEN AFFIXED TO THIS SHEET ONLY FOR THE PURPOSE OF DEMONSTRATING COMPLIANCE WITH THE POLLUTION ABATEMENT SIZING AND TREATMENT REQUIREMENTS OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY'S EDWARDS AQUIFER TECHNICAL GUIDANCE MANUAL.

THIS SHEET HAS BEEN PREPARED FOR PURPOSES OF POLLUTION ABATEMENT ONLY. ALL OTHER CIVIL ENGINEERING RELATED INFORMATION SHOULD BE ACQUIRED FROM THE APPROPRIATE SHEET IN THE CIVIL IMPROVEMENT PLANS.

EXHIBIT 5

FOR PERMIT

NO. | REVISION | DATE

5·10·17

STATE OF TEXAS
DENNIS R. RION
67109
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800

VERAMENDI 1A-1
NEW BRAUNFELS, TEXAS

BASIN "8" PLAN

PLAT NO.
JOB NO. 7620-37
DATE APRIL 2017
DESIGNER BES
CHECKED DRAWN AW/DD
SHEET C6.10

Date: May 02, 2017, 11:30am User ID: ROlivarez
File: P:\76\20\37\Design\Environmental\WPAP\BA-8_762037.dwg

EXHIBITS

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: RDWY C
Date Prepared: 8/6/2024

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

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

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

where:

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 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 =	Comal	
Total project area included in plan * =	39.69	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	2.81	acres
Total post-development impervious cover fraction * =	0.07	
P =	33	inches

$L_{M\ TOTAL\ PROJECT}$ = **2522** lbs.

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

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

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

Drainage Basin/Outfall Area No. = Batch Detention Basin Roadway C Phase 1

Total drainage basin/outfall area =	19.07	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	1.37	acres
Post-development impervious fraction within drainage basin/outfall area =	0.07	
$L_{M\ THIS\ BASIN}$ =	1230	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Extended Detention
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 = (BMP efficiency) x P x (A_I x 34.6 + A_P x 0.54)

where:

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

A_C =	19.07	acres
A_I =	1.37	acres
A_P =	17.70	acres
L_R =	1711	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	1548	lbs.
F =	0.90	

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

Rainfall Depth =	1.70	inches
Post Development Runoff Coefficient =	0.10	
On-site Water Quality Volume =	11631	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 =	2326	
Total Capture Volume (required water quality volume(s) x 1.20) =	13957	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.

8/8/2024

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Veramendi Roadway C & Precinct 11A

Date Prepared: 8/6/2024

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

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

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

where:

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 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 =	Comal	
Total project area included in plan * =	39.69	acres
Predevelopment impervious area within the limits of the plan* =	0.00	acres
Total post-development impervious area within the limits of the plan* =	2.81	acres
Total post-development impervious cover fraction * =	0.07	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	**2522**	lbs.

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

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

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

Drainage Basin/Outfall Area No. = EX Basin 8

Total drainage basin/outfall area =	7.24	acres
Predevelopment impervious area within drainage basin/outfall area=	0.00	acres
Post-development impervious area within drainage basin/outfall area=	4.30	acres
Post-development impervious fraction within drainage basin/outfall area=	0.59	
$L_{M\ THIS\ BASIN}$ =	3860	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	Sand Filter	
Removal efficiency =	89	percent

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

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

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

where:

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

A_C =	7.24	acres
A_I =	4.30	acres
A_P =	2.94	acres
L_R =	4416	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	4173	lbs.
F =	0.94	

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 =	2.40	inches
Post Development Runoff Coefficient =	0.42	
On-site Water Quality Volume =	26237	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 =	5247	
Total Capture Volume (required water quality volume(s) x 1.20) =	31484	cubic feet

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

7. Retention/Irrigation System Designed as Required in RG-348 Pages 3-42 to 3-46

Required Water Quality Volume for retention basin =	NA	cubic feet

Irrigation Area Calculations:

Soil infiltration/permeability rate =	0.1	in/hr	**Enter determined permeability rate or assumed value of 0.1**
Irrigation area =	NA	square feet	
	NA	acres	

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

Required Water Quality Volume for extended detention basin = **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 = **31484** cubic feet

Minimum filter basin area = **1458** square feet

Maximum sedimentation basin area = **13118** square feet **For minimum water depth of 2 feet**
Minimum sedimentation basin area = **3280** square feet **For maximum water depth of 8 feet**

9B. Partial Sedimentation and Filtration System

Water Quality Volume for combined basins = **31484** cubic feet

Minimum filter basin area = **2624** square feet 3148.422746

Maximum sedimentation basin area = **10495** square feet **For minimum water depth of 2 feet**
Minimum sedimentation basin area = **656** 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

11. Wet Basins — Designed as Required in RG-348 — Pages 3-66 to 3-71

Required capacity of Permanent Pool = **NA** cubic feet **Permanent Pool Capacity is 1.20 times the WQV**
Required capacity at WQV Elevation = **NA** cubic feet **Total Capacity should be the Permanent Pool Capacity plus a second WQV.**

12. Constructed Wetlands — Designed as Required in RG-348 — Pages 3-71 to 3-73

Required Water Quality Volume for Constructed Wetlands = **NA** cubic feet

13. AquaLogic™ Cartridge System — Designed as Required in RG-348 — Pages 3-74 to 3-78

**** 2005 Technical Guidance Manual (RG-348) does not exempt the required 20% increase with maintenance contract with AquaLogic™.**

Required Sedimentation chamber capacity = **NA** cubic feet
Filter canisters (FCs) to treat WQV = **NA** cartridges
Filter basin area (RIA_F) = **NA** square feet

14. Stormwater Management StormFilter® by CONTECH

Required Water Quality Volume for Contech StormFilter System = **NA** cubic feet

THE SIZING REQUIREMENTS FOR THE FOLLOWING BMPs / LOAD REMOVALS ARE BASED UPON FLOW RATES - NOT CALCULATED WATER QUALITY VOLUMES

15. Grassy Swales — Designed as Required in RG-348 — Pages 3-51 to 3-54

Design parameters for the swale:

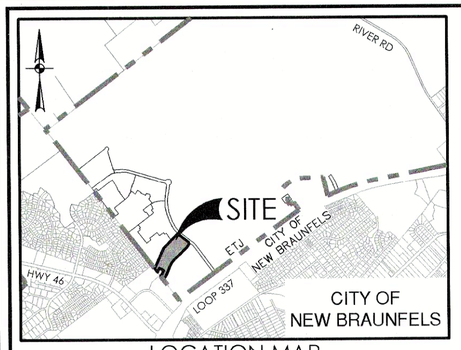
Drainage Area to be Treated by the Swale = A = 2.46 acres
Impervious Cover in Drainage Area = 1.60 acres
Rainfall intensity = i = 1.1 in/hr
Swale Slope = 0.025 ft/ft
Side Slope (z) = 5
Design Water Depth = y = 0.33 ft
Weighted Runoff Coefficient = C = 0.60

A_{CS} = cross-sectional area of flow in Swale = 2.86 sf
P_W = Wetted Perimeter = 10.30 feet
R_H = hydraulic radius of flow cross-section = A_{CS}/P_W = 0.28 feet
n = Manning's roughness coefficient = 0.2

8/8/2024

15A. Using the Method Described in the RG-348

Manning's Equation: $Q = \frac{1.49}{n} A_{CS} R_H^{2/3} S^{0.5}$



LOCATION MAP

NOT-TO-SCALE

SUBDIVISION PLAT OF VERAMENDI PRECINCT 11B

BEING 15.759 ACRES OF LAND, COMPRISED OF A PORTION OF THE 48.237 ACRE TRACT DESCRIBED IN DOCUMENT NO. 201906036476 IN THE OFFICIAL PUBLIC RECORDS OF COMAL COUNTY, TEXAS AND A PORTION OF THE 255.715 ACRE TRACT DESCRIBED IN DOCUMENT NO. 201706013192 IN SAID OFFICIAL PUBLIC RECORDS, IN THE JUAN MARTIN DE VERAMENDI SURVEY NO. 2, ABSTRACT 3, COMAL COUNTY, TEXAS.

NBU NOTES:

1. MAINTENANCE OF DEDICATED UTILITY EASEMENTS IS THE RESPONSIBILITY OF THE PROPERTY OWNER. ANY USE OF AN EASEMENT, OR ANY PORTION OF IT, INCLUDING LANDSCAPING OF DRAINAGE FEATURES, IS SUBJECT TO AND SHALL NOT CONFLICT WITH THE TERMS AND CONDITIONS IN THE EASEMENT, MUST NOT ENDANGER OR INTERFERE WITH THE RIGHTS GRANTED BY THE EASEMENT TO NEW BRAUNFELS UTILITIES, ITS SUCCESSORS AND ASSIGNS, AND SHALL BE SUBJECT TO APPLICABLE PERMIT REQUIREMENTS OF THE CITY OF NEW BRAUNFELS OR ANY OTHER GOVERNING BODY. THE PROPERTY OWNER MUST OBTAIN, IN ADVANCE, WRITTEN AGREEMENT WITH THE UTILITIES TO UTILIZE THE EASEMENT, OR ANY PART OF IT.
2. UTILITIES WILL POSSESS A 5' WIDE SERVICE EASEMENT TO THE BUILDING STRUCTURE ALONG THE SERVICE LINE TO THE SERVICE ENTRANCE. THIS EASEMENT WILL VARY DEPENDING UPON LOCATION OF DWELLING AND SERVICE.
3. UTILITIES SHALL HAVE ACCESS TO THE METER LOCATIONS FROM THE FRONT YARD AND METER LOCATIONS SHALL NOT BE LOCATED WITHIN A FENCED AREA.
4. EACH LOT MUST HAVE ITS OWN WATER AND SEWER SERVICE AT THE OWNER/DEVELOPERS EXPENSE.
5. DO NOT COMBINE ANY NEW UTILITY EASEMENTS (UE) WITH DRAINAGE EASEMENTS (DE) OR MAKE CHANGES IN GRADE WITHIN THE UTILITY EASEMENTS (UE) WITHOUT WRITTEN APPROVAL FROM NEW BRAUNFELS UTILITIES.
6. NBU IS NOT RESPONSIBLE FOR LANDSCAPING OR IRRIGATION IN UE/LE.

FLOOD ZONE NOTE:

NO PORTION OF ANY LOT ON THIS PLAT IS WITHIN AN INDICATED SPECIAL FLOOD HAZARD ZONE ACCORDING TO THE FEMA FIRM MAP NO 48091C0435F EFFECTIVE DATE 9/2/2009.

UTILITY PROVIDER NOTE:

THE PROPERTY WILL BE SERVED BY THE FOLLOWING:
NEW BRAUNFELS UTILITIES (WATER, SEWER, ELECTRIC)
AT&T (TELECOMMUNICATIONS)
SPECTRUM (TELECOMMUNICATIONS)

DRAINAGE EASEMENT NOTES:

1. DRAINAGE EASEMENTS SHALL "REMAIN FREE OF ALL OBSTRUCTIONS."
2. MAINTENANCE OF DRAINAGE EASEMENT SHOWN OUTSIDE OF LOT LINES SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNERS, OR THE PROPERTY OWNER'S ASSOCIATION, OR ITS SUCCESSORS OR ASSIGNS AND NOT THE RESPONSIBILITY OF THE CITY OF NEW BRAUNFELS OR COMAL COUNTY.
3. NO STRUCTURES, WALLS OR OTHER OBSTRUCTIONS OF ANY KIND SHALL BE PLACED WITHIN THE LIMITS OF DRAINAGE EASEMENTS SHOWN ON THIS PLAT. NO LANDSCAPING, FENCES, OR OTHER TYPE OF MODIFICATIONS WHICH ALTER THE CROSS SECTIONS OF THE DRAINAGE EASEMENTS OR DECREASES THE HYDRAULIC CAPACITY OF THE EASEMENT, AS APPROVED, SHALL BE ALLOWED WITHOUT THE APPROVAL OF THE CITY ENGINEER. THE CITY OF NEW BRAUNFELS AND COMAL COUNTY SHALL HAVE THE RIGHT OF INGRESS AND EGRESS OVER GRANTORS ADJACENT PROPERTY TO REMOVE ANY OBSTRUCTIONS PLACED WITHIN THE LIMITS OF SAID DRAINAGE EASEMENTS AND TO MAKE ANY MODIFICATIONS OR IMPROVEMENTS WITHIN SAID DRAINAGE EASEMENTS.

SIDEWALK NOTES:

1. SIX (6) FOOT WIDE SIDEWALKS WILL BE CONSTRUCTED BY THE SITE BUILDER PER CITY STANDARDS AT THE TIME OF BUILDING CONSTRUCTION ALONG:
   a. BORCHERS BLVD - LOT 109, BLOCK 19
2. SIX (6) FOOT WIDE SIDEWALK WILL BE CONSTRUCTED DURING THE LATTER OF BUILDING PERMIT OR STREET CONSTRUCITON ALONG:
   a. FUTURE ROADWAY

PLAT NOTES:

1. THIS PLAT IS SUBJECT TO THE REQUIREMENTS AND REGULATIONS OF THE WORD-BORCHERS RANCH JOINT VENTURE DEVELOPMENT AGREEMENT (VERAMENDI), RECORDED AS DOCUMENT NO 201506029547 AND AS AMENDED.
2. THIS PLAT IS LOCATED WITHIN THE MIXED USE EMPLOYMENT PLANNING SUB AREA.
3. STANDARDS FOR PLANT MATERIALS SHALL CONFORM TO THE STANDARDS OF THE LATEST EDITION OF THE *AMERICAN NATIONAL STANDARD A300 PLANTING AND TRANSPLANTING NURSERY STOCK* PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
4. TREE REPLACEMENT SHALL OCCUR WITHIN 12 MONTHS OF REMOVAL OF THE HIGH VALUE TREE UNLESS DEFERRED TO AN ADJACENT UNIT. WHERE A REPLACEMENT TREE DOES NOT SURVIVE FOR A PERIOD OF AT LEAST 24 MONTHS, THE ORIGINAL APPLICANT OR CURRENT LANDOWNER SHALL REPLACE THE TREE, PREFERABLY DURING OCTOBER - FEBRUARY, UNTIL THE TREE SURVIVES A 12-MONTH PERIOD.
5. SHOULD ANY TREE DESIGNATED FOR RETENTION IN AN APPROVED TREE PROTECTION PLAN DIE PRIOR TO, OR WITHIN 12 MONTHS OF THE COMPLETION OF CONSTRUCTION WORKS, THE APPLICANT SHALL REPLACE THE DEAD TREE WITH A REPLACEMENT TREE/S EQUAL TO THE TOTAL CALIPER INCHES OF THE DEAD TREE. NO GRADING, TRENCHING OR EQUIPMENT SHALL BE CONDUCTED IN THE AREA IDENTIFIED IN THE ROOT PROTECTION ZONE. ALL WORK TO BE PERFORMED BY HAND OR UNDER THE SUPERVISION OF A CERTIFIED ARBORIST.
6. DURING CONSTRUCTION, THE CLEANING OF EQUIPMENT OR MATERIALS AND/OR THE DISPOSAL OF ANY WASTE MATERIAL, INCLUDING, BUT NOT LIMITED TO PAINT, OIL, SOLVENTS, ASPHALT, CONCRETE, MORTAR, ETC., UNDER THE CANOPY OR DRIP LINE OF ANY HIGH VALUE TREE SHALL BE PROHIBITED. NO GRADING, TRENCHING OR EQUIPMENT SHALL BE CONDUCTED OR USED IN THE AREA IDENTIFIED IN THE ROOT PROTECTION ZONE. ALL WORK SHALL BE PERFORMED BY HAND OR UNDER THE SUPERVISION OF A CERTIFIED ARBORIST. NO ATTACHMENTS OR WIRES OF ANY KIND, OTHER THAN THOSE OF A PROTECTIVE NATURE, SHALL BE ATTACHED TO ANY HIGH VALUE TREE.
7. ROADS, FACILITIES, STRUCTURES AND IMPROVEMENTS SUCH AS SIDEWALKS, PATHS, TRAILS, TRAILHEADS, PARK IDENTIFICATION AND WAY FINDING SIGNAGE,SEATING, PICNIC TABLES, DRINKING FOUNTAINS, PET DRINKING FOUNTAINS, TRASH RECEPTACLES, PET WASTE RECEPTACLES, SHADE STRUCTURES, OUTLOOKS, RETAINING WALL, PUBLIC UTILITIES, STORMWATER MANAGEMENT FACILITIES, WATER QUALITY MEASURES AND SIGNAGE ARE PERMITTED WITHIN LOT 901, BLOCK 35. ALL OTHER DEVELOPMENT SHALL BE PROHIBITED WITHIN LOT 901, BLOCK 35.
8. LOTS TO BE HELD IN COMMON PROPERTY BY A HOMEOWNERS' OR PROPERTY OWNERS' ASSOCIATION SHALL BE SHOWN ON THE PLAT AS A SEPARATE LOT.
9. NO BUILDING SHALL BE SITED WITHIN THE EXTENT OF A SENSITIVE FEATURE AND ASSOCIATED BUFFER. FOR ANY LOT WHICH CONTAINS A HIGH VALUE TREE, AND A BUILDING ENVELOPE WAS NOT APPROVED AS PART OF A FINAL PLAT, THE LOCATION OF A BUILDING ENVELOPE SHALL BE APPROVED BY THE PLANNING DIRECTOR PRIOR TO A BUILDING PERMIT BEING ISSUED.
10. FUTURE DEVELOPMENT IS SUBJECT TO CHAPTER 114 (STREETS, SIDEWALKS AND OTHER PUBLIC SPACES) OF THE NEW BRAUNFELS CODE OF ORDINANCES.
11. IMPERVIOUS COVER PER SECTION 3.4 OF THE DEVELOPMENT AGREEMENT, THE MAXIMUM CUMULATIVE IMPERVIOUS COVER PERCENTAGE FOR THE PROPERTY AS A WHOLE AND FOR EACH SECTOR PLAN SHALL NOT EXCEED SIXTY-FIVE PERCENT (65%).
12. AMENDMENTS TO THE PARK PROGRAMMING SCHEDULE, INCLUDING BUT NOT LIMITED TO THE PROVISION OF ADDITIONAL IMPROVEMENTS OR SUBSTITUTING IMPROVEMENTS, SHALL BE ADMINISTRATIVELY APPROVED BY THE PARKS DIRECTOR.
13. THIS PLAT WILL COMPLY WITH LOCATION AND AMENITY STANDARDS FOR TRAILS AS SHOWN IN THE SECTOR PLAN.
14. TOTAL NUMBER OF LOTS = 2.

SCHOOL DISTRICT NOTE:

REFERENCED PROPERTY LIES WITHIN THE NEW BRAUNFELS INDEPENDENT SCHOOL DISTRICT.

COMMON SPACE NOTE:

LOT 900, BLOCK 19 IS A VARIABLE WIDTH DRAINAGE, LANDSCAPE, PEDESTRIAN AND PRIVATE SANITARY SEWER EASEMENT TO THE BENEFIT OF LOT 109, BLOCK 19.

CERTIFICATE OF APPROVAL

APPROVED THIS THE _____ DAY OF _____, 20 ____, BY THE PLANNING COMMISSION OF THE CITY OF NEW BRAUNFELS, TEXAS.

_____
PLANNING COMMISSION CHAIRPERSON

APPROVED FOR ACCEPTANCE

_____ _____
DATE DIRECTOR OF PLANNING

_____ _____
DATE CITY ENGINEER

_____ _____
DATE NEW BRAUNFELS UTILITIES

SURVEYOR'S NOTES:

1. MONUMENTS WERE FOUND OR SET AT EACH CORNER OF THE SURVEY BOUNDARY OF THE SUBDIVISION AS NOTED. MONUMENTS AND LOT MARKERS WILL BE SET WITH ½" IRON ROD WITH CAP MARKED "PAPE-DAWSON" OR MAG NAIL WITH DISK MARKED "PAPE-DAWSON" AFTER COMPLETION OF UTILITY INSTALLATION AND STREET CONSTRUCTION UNLESS NOTED OTHERWISE.
2. COORDINATES SHOWN ARE BASED ON THE NORTH AMERICAN DATUM OF 1983 NAD83 (NA2011) FROM THE TEXAS COORDINATE SYSTEM ESTABLISHED FOR THE SOUTH CENTRAL ZONE DISPLAYED IN GRID VALUES DERIVED FROM THE NGS COOPERATIVE CORS NETWORK.
3. DIMENSIONS SHOWN ARE SURFACE (SCALE FACTOR = 0.9998600196)
4. BEARINGS ARE BASED ON THE NORTH AMERICAN DATUM OF 1983 NAD83 (NA2011) EPOCH 2010.00, FROM THE TEXAS COORDINATE SYSTEM ESTABLISHED FOR THE SOUTH CENTRAL ZONE.

KNOW ALL MEN BY THESE PRESENTS

I, THE UNDERSIGNED DAVID A. CASANOVA, A REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF TEXAS, HEREBY CERTIFY THAT THIS PLAT IS TRUE AND CORRECTLY MADE UNDER MY SUPERVISION AND IN COMPLIANCE WITH CITY AND STATE SURVEY REGULATIONS AND LAWS AND MADE ON THE GROUND AND THAT THE CORNER MONUMENTS WERE PROPERLY PLACED UNDER MY SUPERVISION.

DAVID A. CASANOVA
REGISTERED PROFESSIONAL LAND SURVEYOR #4251
PAPE-DAWSON ENGINEERS, INC.
2000 NW LOOP 410
SAN ANTONIO, TEXAS 78213

STATE OF TEXAS
REGISTERED
DAVID A. CASANOVA
4251
PROFESSIONAL
LAND SURVEYOR

PAPE-DAWSON ENGINEERS

NEW BRAUNFELS | SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800

DATE OF PREPARATION: November 28, 2022

STATE OF TEXAS
COUNTY OF COMAL

I (WE), THE UNDERSIGNED OWNER(S) OF THE LAND SHOWN ON THIS PLAT, AND DESIGNATED HEREIN AS THE VERAMENDI PRECINCT 11B SUBDIVISION TO THE CITY OF NEW BRAUNFELS, COUNTY OF COMAL, TEXAS, AND WHOSE NAME IS SUBSCRIBED HERETO, DO HEREBY SUBDIVIDE SUCH PROPERTY AND DEDICATE TO THE USE OF THE PUBLIC ALL STREETS, ALLEYS, PARKS, DRAINS, EASEMENTS, AND PUBLIC PLACES THEREON SHOWN FOR THE PURPOSES AND CONSIDERATION THEREIN EXPRESSED.

12/9/22
OWNER/DEVELOPER: PETER JAMES DATE
VERAMENDI PE - CAIRNS, LLC
387 W. MILL STREET, SUITE 200
NEW BRAUNFELS, TEXAS 78130

STATE OF TEXAS
COUNTY OF COMAL

THIS INSTRUMENT WAS ACKNOWLEDGED BEFORE ME ON THIS 9 DAY OF December, 20 22, BY Peter James.

ALEX RUE
Notary Public
State of Texas
ID # 13067096-9
My Comm. Expires 05-20-2024

NOTARY PUBLIC
STATE OF TEXAS

MY COMMISSION EXPIRES: 5/20/2024

STATE OF TEXAS
COUNTY OF COMAL

I (WE), THE UNDERSIGNED OWNER(S) OF THE LAND SHOWN ON THIS PLAT, AND DESIGNATED HEREIN AS THE VERAMENDI PRECINCT 11B SUBDIVISION TO THE CITY OF NEW BRAUNFELS, COUNTY OF COMAL, TEXAS, AND WHOSE NAME IS SUBSCRIBED HERETO, DO HEREBY SUBDIVIDE SUCH PROPERTY AND DEDICATE TO THE USE OF THE PUBLIC ALL STREETS, ALLEYS, PARKS, DRAINS, EASEMENTS, AND PUBLIC PLACES THEREON SHOWN FOR THE PURPOSES AND CONSIDERATION THEREIN EXPRESSED.

12/9/22
OWNER/DEVELOPER: PETER JAMES DATE
VERAMENDI PE - BRISBANE, LLC
387 W. MILL STREET, SUITE 200
NEW BRAUNFELS, TEXAS 78130

STATE OF TEXAS
COUNTY OF COMAL

THIS INSTRUMENT WAS ACKNOWLEDGED BEFORE ME ON THIS 9 DAY OF December, 20 22, BY Peter James.

ALEX RUE
Notary Public
State of Texas
ID # 13067096-9
My Comm. Expires 05-20-2024

NOTARY PUBLIC
STATE OF TEXAS

MY COMMISSION EXPIRES: 5/20/2024

STATE OF TEXAS
COUNTY OF COMAL

I (WE), THE UNDERSIGNED OWNER(S) OF THE LAND SHOWN ON THIS PLAT, AND DESIGNATED HEREIN AS THE VERAMENDI PRECINCT 11B SUBDIVISION TO THE CITY OF NEW BRAUNFELS, COUNTY OF COMAL, TEXAS, AND WHOSE NAME IS SUBSCRIBED HERETO, DO HEREBY SUBDIVIDE SUCH PROPERTY AND DEDICATE TO THE USE OF THE PUBLIC ALL STREETS, ALLEYS, PARKS, DRAINS, EASEMENTS, AND PUBLIC PLACES THEREON SHOWN FOR THE PURPOSES AND CONSIDERATION THEREIN EXPRESSED.

12/7/22
OWNER/DEVELOPER: DATE
COMAL COUNTY WCID 1A
1108 LAVACA, SUITE 510
AUSTIN, TX 78701

STATE OF TEXAS
COUNTY OF COMAL

THIS INSTRUMENT WAS ACKNOWLEDGED BEFORE ME ON THIS 7th DAY OF December, 20 22, BY _____.

NOTARY PUBLIC
STATE OF TEXAS

MY COMMISSION EXPIRES: 07/23/2024

SUSAN MARY BLANCHARD
Notary Public, State of Texas
Comm. Expires 07-23-2024
Notary ID 132585406

STATE OF TEXAS
COUNTY OF COMAL

I, _____, DO HEREBY CERTIFY THAT THE FOREGOING INSTRUMENT WAS FILED FOR RECORD IN THE MAP AND PLAT RECORDS, DOC #_____ OF COMAL COUNTY ON THE _____ DAY OF _____, 20_____, AT _____ M.

WITNESS MY HAND OFFICIAL SEAL, THIS THE _____ DAY OF _____, 20_____.

COUNTY CLERK, COMAL COUNTY, TEXAS

BY: _____, DEPUTY

PLAT NOTES APPLY TO EVERY PAGE OF THIS MULTIPLE PAGE PLAT

CURVE AND LINE DATA ON SHEET 2 OF 3

SHEET 1 OF 2

VERAMENDI PRECINCT 11B

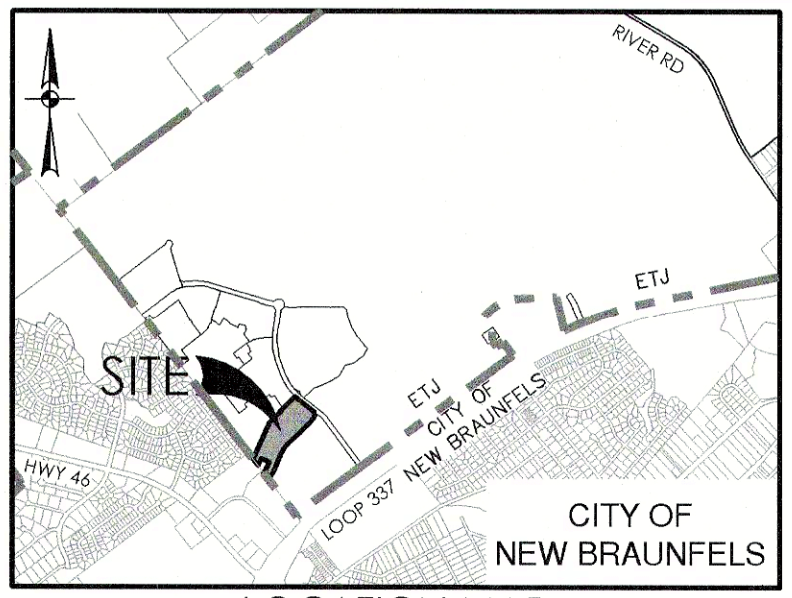
Civil Job No. 30001-60; Survey Job No. 30001-60

Date: Nov 2, 2022, 2:56 PM – User ID: corcher File: P:\30001\01\06\Design\Civil\Plat\VP-30001B0-FINAL.dwg

SUBDIVISION
PLAT OF

VERAMENDI PRECINCT 11B

BEING 15.759 ACRES OF LAND, COMPRISED OF A PORTION OF THE 48.237 ACRE TRACT DESCRIBED IN DOCUMENT NO. 201906036476 IN THE OFFICIAL PUBLIC RECORDS OF COMAL COUNTY, TEXAS AND A PORTION OF THE 255.715 ACRE TRACT DESCRIBED IN DOCUMENT NO. 201706013192 IN SAID OFFICIAL PUBLIC RECORDS, IN THE JUAN MARTIN DE VERAMENDI SURVEY NO. 2, ABSTRACT 3, COMAL COUNTY, TEXAS.



LOCATION MAP
NOT-TO-SCALE

LINE TABLE

LINE #	BEARING	LENGTH
L1	N52°25'48"E	62.57'

CURVE TABLE

CURVE #	RADIUS	DELTA	CHORD BEARING	CHORD	LENGTH
C1	943.00'	3°45'23"	S49°49'14"E	61.81'	61.83'
C2	1957.00'	9°16'50"	S43°39'46"W	316.65'	316.99'
C3	643.00'	25°56'16"	S35°20'03"W	288.61'	291.09'
C4	557.00'	22°47'56"	S33°45'53"W	220.18'	221.64'

LEGEND

AC ACRE(S)
BLK BLOCK
DED DEDICATION
DOC DOCUMENT NUMBER
DR DEED RECORDS OF COMAL COUNTY, TEXAS
ESMT EASEMENT
ETJ EXTRATERRITORIAL JURISDICTION
MPR MAP AND PLAT RECORDS OF COMAL COUNTY, TEXAS
OPR OFFICIAL PUBLIC RECORDS OF COMAL COUNTY, TEXAS
VOL VOLUME
PG PAGE(S)
ROW RIGHT-OF-WAY
SD STORM DRAINAGE
SS SANITARY SEWER
VAR WID VARIABLE WIDTH
● (SURVEYOR) FOUND 1/2" IRON ROD (UNLESS NOTED OTHERWISE)
○ SET 1/2" IRON ROD (PD)
○ SET 1/2" IRON ROD (PD)-ROW

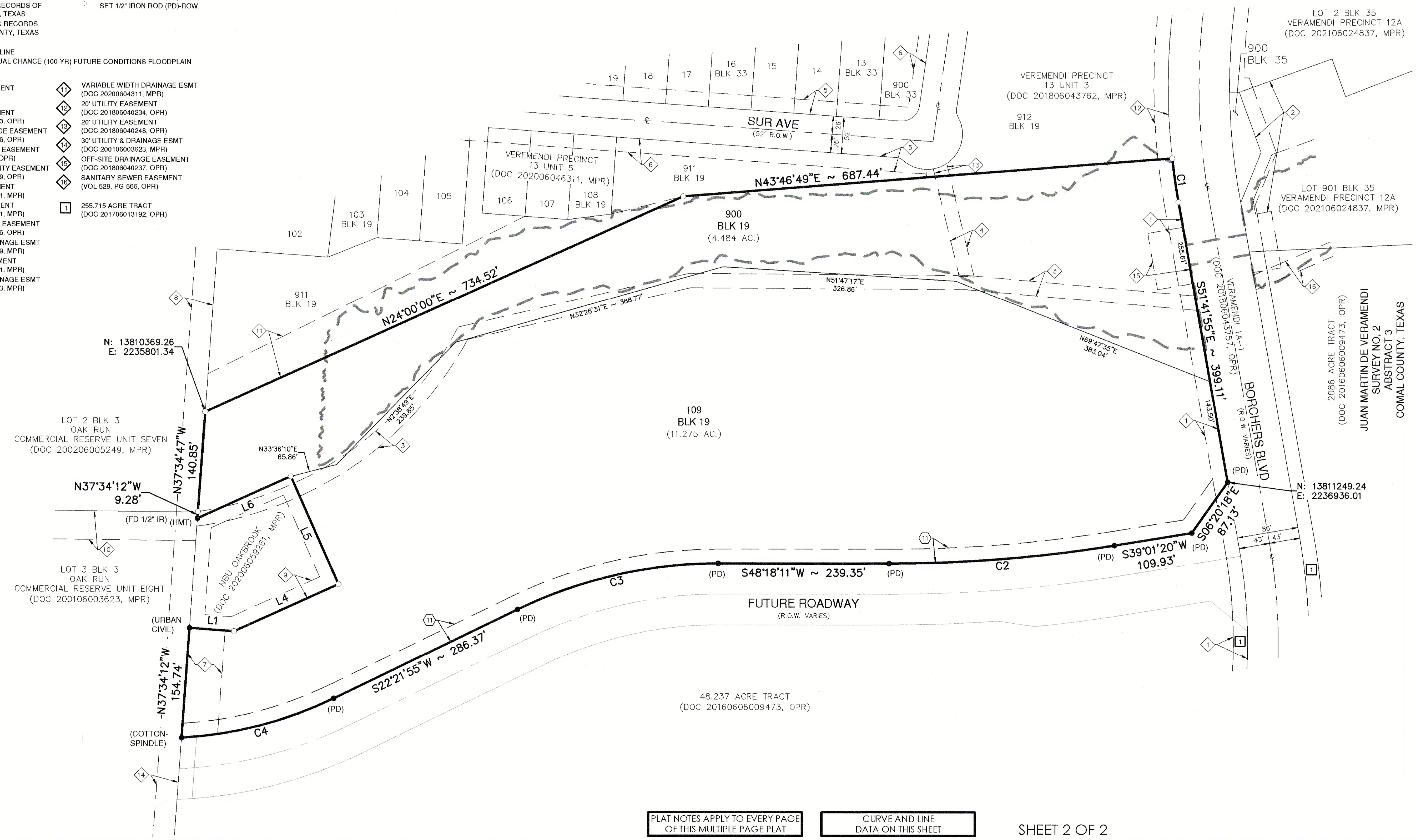
CENTERLINE
1% ANNUAL CHANCE (100-YR) FUTURE CONDITIONS FLOODPLAIN

(11) 20' UTILITY EASEMENT
(1) 20' UTILITY EASEMENT (DOC 201806040233, OPR)
(2) OFF-SITE DRAINAGE EASEMENT (DOC 201806040236, OPR)
(3) 3.24 ACRE SEWER EASEMENT (VOL 529, PG 566, OPR)
(4) 20' OFF-SITE UTILITY EASEMENT (DOC 201806040249, OPR)
(5) 20' UTILITY EASEMENT (DOC 202006046311, MPR)
(6) 15' UTILITY EASEMENT (DOC 202006046311, MPR)
(7) UTILITY & ACCESS EASEMENT (DOC 202006023866, OPR)
(8) 30' UTILITY & DRAINAGE ESMT (DOC 200206005249, MPR)
(9) 20' UTILITY EASEMENT (DOC 202006059261, MPR)
(10) 40' UTILITY & DRAINAGE ESMT (DOC 200106003623, MPR)
(11) VARIABLE WIDTH DRAINAGE ESMT (DOC 20200604311, MPR)
(12) 20' UTILITY EASEMENT (DOC 201806040234, OPR)
(13) 20' UTILITY EASEMENT (DOC 201806040248, OPR)
(14) 30' UTILITY & DRAINAGE ESMT (DOC 200106003623, MPR)
(15) OFF-SITE DRAINAGE EASEMENT (DOC 201806040237, OPR)
(16) SANITARY SEWER EASEMENT (VOL 529, PG 566, OPR)
[1] 255.715 ACRE TRACT (DOC 201706013192, OPR)

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

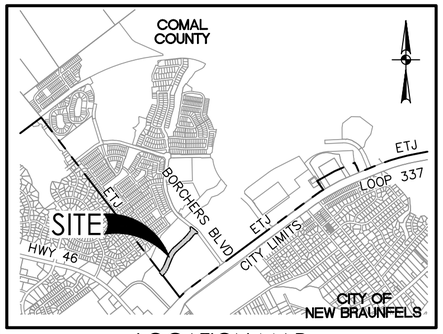
PAPE-DAWSON ENGINEERS
NEW BRAUNFELS | SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800

DATE OF PREPARATION: November 28, 2022



PLAT NOTES APPLY TO EVERY PAGE OF THIS MULTIPLE PAGE PLAT

CURVE AND LINE DATA ON THIS SHEET



LOCATION MAP

NOT TO SCALE

CERTIFICATE OF APPROVAL

APPROVED THIS THE _____ DAY OF _____, 20 ____, BY THE PLANNING COMMISSION OF THE CITY OF NEW BRAUNFELS, TEXAS.

_____
PLANNING COMMISSION CHAIRPERSON

APPROVED FOR ACCEPTANCE

_____ _____
DATE DIRECTOR OF PLANNING

_____ _____
DATE CITY ENGINEER

_____ _____
DATE NEW BRAUNFELS UTILITIES

SURVEYOR'S NOTES:

1. MONUMENTS WERE FOUND OR SET AT EACH CORNER OF THE SURVEY BOUNDARY OF THE SUBDIVISION AS NOTED. MONUMENTS AND LOT MARKERS WILL BE SET WITH ½" IRON ROD WITH CAP MARKED "PAPE-DAWSON" OR MAG NAIL WITH DISK MARKED "PAPE-DAWSON" AFTER THE COMPLETION OF UTILITY INSTALLATION AND STREET CONSTRUCTION UNLESS NOTED OTHERWISE.
2. COORDINATES SHOWN ARE BASED ON THE NORTH AMERICAN DATUM OF 1983 NAD83 (NA2011) EPOCH 2010.00 FROM THE TEXAS COORDINATE SYSTEM ESTABLISHED FOR THE SOUTH CENTRAL ZONE, U.S. SURVEY FEET, DISPLAYED IN GRID VALUES DERIVED FROM THE NGS COOPERATIVE CORS NETWORK.
3. DIMENSIONS SHOWN ARE SURFACE (SURFACE ADJUSTMENT FACTOR = 1.00014)
4. BEARINGS ARE BASED ON THE NORTH AMERICAN DATUM OF 1983 NAD83 (NA2011) EPOCH 2010.00, FROM THE TEXAS COORDINATE SYSTEM ESTABLISHED FOR THE SOUTH CENTRAL ZONE.

STATE OF TEXAS
COUNTY OF COMAL

I, THE UNDERSIGNED KEITH W. WOOLEY, A REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF TEXAS, HEREBY CERTIFY THAT THIS PLAT IS TRUE AND CORRECTLY MADE UNDER MY SUPERVISION AND IN COMPLIANCE WITH CITY AND STATE SURVEY REGULATIONS AND LAWS AND MADE ON THE GROUND AND THAT THE CORNER MONUMENTS WERE PROPERLY PLACED UNDER MY SUPERVISION.

PRELIMINARY, THIS DOCUMENT SHALL NOT BE RECORDED FOR ANY PURPOSE AND SHALL NOT BE USED OR VIEWED OR RELIED UPON AS A FINAL SURVEY DOCUMENT.

KEITH W. WOOLEY
REGISTERED PROFESSIONAL LAND SURVEYOR #5463
PAPE-DAWSON ENGINEERS, INC.

NBU NOTES:

1. MAINTENANCE OF DEDICATED UTILITY EASEMENTS IS THE RESPONSIBILITY OF THE PROPERTY OWNER. ANY USE OF AN EASEMENT, OR ANY PORTION OF IT, INCLUDING LANDSCAPING OF DRAINAGE FEATURES, IS SUBJECT TO AND SHALL NOT CONFLICT WITH THE TERMS AND CONDITIONS IN THE EASEMENT, MUST NOT ENDANGER OR INTERFERE WITH THE RIGHTS GRANTED BY THE EASEMENT TO NEW BRAUNFELS UTILITIES, ITS SUCCESSORS AND ASSIGNS, AND SHALL BE SUBJECT TO APPLICABLE PERMIT REQUIREMENTS OF THE CITY OF NEW BRAUNFELS OR ANY OTHER GOVERNING BODY. THE PROPERTY OWNER MUST OBTAIN, IN ADVANCE, WRITTEN AGREEMENT WITH THE UTILITIES TO UTILIZE THE EASEMENT, OR ANY PART OF IT.
2. UTILITIES WILL POSSESS A 5' WIDE SERVICE EASEMENT TO THE BUILDING STRUCTURE ALONG THE SERVICE LINE TO THE SERVICE ENTRANCE. THIS EASEMENT WILL VARY DEPENDING UPON LOCATION OF DWELLING AND SERVICE.
3. UTILITIES SHALL HAVE ACCESS TO THE METER LOCATIONS FROM THE FRONT YARD AND METER LOCATIONS SHALL NOT BE LOCATED WITHIN A FENCED AREA.
4. EACH LOT MUST HAVE ITS OWN WATER AND SEWER SERVICE AT THE OWNER/DEVELOPERS EXPENSE.
5. DO NOT COMBINE ANY NEW UTILITY EASEMENTS (UE) WITH DRAINAGE EASEMENTS (DE) OR MAKE CHANGES IN GRADE WITHIN THE UTILITY EASEMENTS (UE) WITHOUT WRITTEN APPROVAL FROM NEW BRAUNFELS UTILITIES.
6. NBU IS NOT RESPONSIBLE FOR LANDSCAPING OR IRRIGATION IN UE/LE.

FLOOD ZONE NOTE:

NO PORTION OF THE SUBDIVISION IS LOCATED WITHIN ANY SPECIAL FLOOD HAZARD AREA (100 YR. FLOOD), AS DEFINED BY THE COMAL COUNTY, TEXAS, FLOOD INSURANCE RATE MAP NO. 48091C0435F EFFECTIVE DATE 9/2/2009 AS PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.

UTILITY PROVIDER NOTE:

THE PROPERTY WILL BE SERVED BY THE FOLLOWING:
NEW BRAUNFELS UTILITIES (WATER, SEWER, ELECTRIC)
AT&T (TELECOMMUNICATIONS)
SPECTRUM (TELECOMMUNICATIONS)

DRAINAGE EASEMENT NOTES:

1. DRAINAGE EASEMENTS SHALL "REMAIN FREE OF ALL OBSTRUCTIONS."
2. MAINTENANCE OF DRAINAGE EASEMENT SHOWN OUTSIDE OF LOT LINES SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNERS, OR THE PROPERTY OWNER'S ASSOCIATION, OR ITS SUCCESSORS OR ASSIGNS AND NOT THE RESPONSIBILITY OF THE CITY OF NEW BRAUNFELS OR COMAL COUNTY.
3. NO STRUCTURES, WALLS OR OTHER OBSTRUCTIONS OF ANY KIND SHALL BE PLACED WITHIN THE LIMITS OF DRAINAGE EASEMENTS SHOWN ON THIS PLAT. NO LANDSCAPING, FENCES, OR OTHER TYPE OF MODIFICATIONS WHICH ALTER THE CROSS SECTIONS OF THE DRAINAGE EASEMENTS OR DECREASES THE HYDRAULIC CAPACITY OF THE EASEMENT, AS APPROVED, SHALL BE ALLOWED WITHOUT THE APPROVAL OF THE CITY ENGINEER. THE CITY OF NEW BRAUNFELS AND COMAL COUNTY SHALL HAVE THE RIGHT OF INGRESS AND EGRESS OVER GRANTORS ADJACENT PROPERTY TO REMOVE ANY OBSTRUCTIONS PLACED WITHIN THE LIMITS OF SAID DRAINAGE EASEMENTS AND TO MAKE ANY MODIFICATIONS OR IMPROVEMENTS WITHIN SAID DRAINAGE EASEMENTS.

SIDEWALK NOTES:

SIDEWALKS ON BOTH SIDES OF THE RIGHT-OF-WAY SHALL BE 6' WIDE AND CONSTRUCTED AT THE TIME OF BUILDING PERMIT WITH ADJACENT DEVELOPMENT. THE SIDEWALKS MAY MEANDER WITHIN BOTH THE STREET RIGHT-OF-WAY AND/OR FUTURE ADJACENT PEDESTRIAN EASEMENTS.

SUBDIVISION PLAT OF VERAMENDI - RDWY C PHASE 1

BEING 3.219 ACRES OF LAND, OUT OF THE 48.237 ACRE TRACT DESCRIBED IN DOCUMENT NO. 20160606009473, IN THE OFFICIAL PUBLIC RECORDS OF COMAL COUNTY, TEXAS, IN THE JAN MARTIN VERAMENDI SURVEY NO. 2, ABSTRACT 3, COMAL COUNTY, TEXAS.

PLAT NOTES:

1. THIS PLAT IS SUBJECT TO THE REQUIREMENTS AND REGULATIONS OF THE VERAMENDI DEVELOPMENT COMPANY DEVELOPMENT AGREEMENT, RECORDED AS DOCUMENT NO. 201506029547 AND AS AMENDED.
2. THIS PLAT IS LOCATED WITHIN THE MIXED USE EMPLOYMENT PLANNING AREA.
3. STANDARDS FOR PLANT MATERIALS SHALL CONFORM TO THE STANDARDS OF THE LATEST EDITION OF THE *AMERICAN NATIONAL STANDARD A300 PLANTING AND TRANSPLANTING NURSERY STOCK* PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
4. TREE REPLACEMENT SHALL OCCUR WITHIN 12 MONTHS OF REMOVAL OF THE HIGH VALUE TREE UNLESS DEFERRED TO AN ADJACENT UNIT. WHERE A REPLACEMENT TREE DOES NOT SURVIVE FOR A PERIOD OF AT LEAST 24 MONTHS, THE ORIGINAL APPLICANT OR CURRENT LANDOWNER SHALL REPLACE THE TREE, PREFERABLY DURING OCTOBER - FEBRUARY, UNTIL THE TREE SURVIVES A 12-MONTH PERIOD.
5. SHOULD ANY TREE DESIGNATED FOR RETENTION IN AN APPROVED TREE PROTECTION PLAN DIE PRIOR TO, OR WITHIN 12 MONTHS OF THE COMPLETION OF CONSTRUCTION WORKS, THE APPLICANT SHALL REPLACE THE DEAD TREE WITH A REPLACEMENT TREE/S EQUAL TO THE TOTAL CALIPER INCHES OF THE DEAD TREE. NO GRADING, TRENCHING OR EQUIPMENT SHALL BE CONDUCTED IN THE AREA IDENTIFIED IN THE ROOT PROTECTION ZONE. ALL WORK TO BE PERFORMED BY HAND OR UNDER THE SUPERVISION OF A CERTIFIED ARBORIST.
6. DURING CONSTRUCTION, THE CLEANING OF EQUIPMENT OR MATERIALS AND/OR THE DISPOSAL OF ANY WASTE MATERIAL, INCLUDING, BUT NOT LIMITED TO PAINT, OIL, SOLVENTS, ASPHALT, CONCRETE, MORTAR, ETC., UNDER THE CANOPY OR DRIP LINE OF ANY HIGH VALUE TREE SHALL BE PROHIBITED. NO GRADING, TRENCHING OR EQUIPMENT SHALL BE CONDUCTED OR USED IN THE AREA IDENTIFIED IN THE ROOT PROTECTION ZONE. ALL WORK SHALL BE PERFORMED BY HAND OR UNDER THE SUPERVISION OF A CERTIFIED ARBORIST. NO ATTACHMENTS OR WIRES OF ANY KIND, OTHER THAN THOSE OF A PROTECTIVE NATURE, SHALL BE ATTACHED TO ANY HIGH VALUE TREE.
7. LOTS TO BE HELD IN COMMON PROPERTY BY A HOMEOWNERS' OR PROPERTY OWNERS' ASSOCIATION SHALL BE SHOWN ON THE PLAT AS A SEPARATE LOT.
8. NO BUILDING SHALL BE SITED WITHIN THE EXTENT OF A SENSITIVE FEATURE AND ASSOCIATED BUFFER. FOR ANY LOT WHICH CONTAINS A HIGH VALUE TREE, AND A BUILDING ENVELOPE WAS NOT APPROVED AS PART OF A FINAL PLAT, THE LOCATION OF A BUILDING ENVELOPE SHALL BE APPROVED BY THE PLANNING DIRECTOR PRIOR TO A BUILDING PERMIT BEING ISSUED.
9. FUTURE DEVELOPMENT IS SUBJECT TO CHAPTER 114 (STREETS, SIDEWALKS AND OTHER PUBLIC SPACES) OF THE NEW BRAUNFELS CODE OF ORDINANCES.
10. IMPERVIOUS COVER THE MAXIMUM CUMULATIVE IMPERVIOUS COVER PERCENTAGE FOR THE PROPERTY AS A WHOLE AND FOR EACH SECTOR PLAN SHALL NOT EXCEED SIXTY-FIVE PERCENT (65%).
11. AMENDMENTS TO THE PARK PROGRAMMING SCHEDULE, INCLUDING BUT NOT LIMITED TO THE PROVISION OF ADDITIONAL IMPROVEMENTS OR SUBSTITUTING IMPROVEMENTS, SHALL BE ADMINISTRATIVELY APPROVED BY THE PARKS DIRECTOR.
12. THIS PLAT WILL COMPLY WITH LOCATION AND AMENITY STANDARDS FOR TRAILS AS SHOWN IN THE SECTOR PLAN.
13. TOTAL NUMBER OF LOTS = 0.

SCHOOL DISTRICT NOTE:

REFERENCED PROPERTY LIES WITHIN THE NEW BRAUNFELS INDEPENDENT SCHOOL DISTRICT.

PLAT NOTES APPLY TO EVERY PAGE OF THIS MULTIPLE PAGE PLAT

CURVE DATA ON SHEET 2 OF 2

PAPE-DAWSON ENGINEERS
1672 INDEPENDENCE DR, STE 102 I NEW BRAUNFELS, TX 78132 I 830.632.5633
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

DATE OF PREPARATION: July 3, 2024

STATE OF TEXAS
COUNTY OF COMAL

I (WE), THE UNDERSIGNED OWNER(S) OF THE LAND SHOWN ON THIS PLAT, AND DESIGNATED HEREIN AS THE VERAMENDI - RDWY C PHASE 1 SUBDIVISION TO THE CITY OF NEW BRAUNFELS, COUNTY OF COMAL, TEXAS, AND WHOSE NAME IS SUBSCRIBED HERETO, DO HEREBY SUBDIVIDE SUCH PROPERTY AND DEDICATE TO THE USE OF THE PUBLIC ALL STREETS, ALLEYS, PARKS, DRAINS, EASEMENTS, AND PUBLIC PLACES THEREON SHOWN FOR THE PURPOSES AND CONSIDERATION THEREIN EXPRESSED.

_____
OWNER/DEVELOPER: GARRETT MECHLER
VERAMENDI PE-CAIRNS, LLC
2168 OAK RUN PKWY
NEW BRAUNFELS, TEXAS 78132

STATE OF TEXAS
COUNTY OF COMAL
THIS INSTRUMENT WAS ACKNOWLEDGED BEFORE ME ON THIS _____ DAY OF _____, 20_____, BY _____.

_____
NOTARY PUBLIC
STATE OF TEXAS

MY COMMISSION EXPIRES: _____

STATE OF TEXAS
COUNTY OF COMAL

I (WE), THE UNDERSIGNED OWNER(S) OF THE LAND SHOWN ON THIS PLAT, AND DESIGNATED HEREIN AS THE VERAMENDI - RDWY C PHASE 1 SUBDIVISION TO THE CITY OF NEW BRAUNFELS, COUNTY OF COMAL, TEXAS, AND WHOSE NAME IS SUBSCRIBED HERETO, DO HEREBY SUBDIVIDE SUCH PROPERTY AND DEDICATE TO THE USE OF THE PUBLIC ALL STREETS, ALLEYS, PARKS, DRAINS, EASEMENTS, AND PUBLIC PLACES THEREON SHOWN FOR THE PURPOSES AND CONSIDERATION THEREIN EXPRESSED.

_____
OWNER/DEVELOPER: GARRETT MECHLER
VERAMENDI PE-BRISBANE, LLC
2168 OAK RUN PKWY
NEW BRAUNFELS, TEXAS 78132

STATE OF TEXAS
COUNTY OF COMAL
THIS INSTRUMENT WAS ACKNOWLEDGED BEFORE ME ON THIS _____ DAY OF _____, 20_____, BY _____.

_____
NOTARY PUBLIC
STATE OF TEXAS

MY COMMISSION EXPIRES: _____

STATE OF TEXAS
COUNTY OF COMAL

I (WE), THE UNDERSIGNED OWNER(S) OF THE LAND SHOWN ON THIS PLAT, AND DESIGNATED HEREIN AS VERAMENDI - RDWY C PHASE 1 SUBDIVISION TO THE CITY OF NEW BRAUNFELS, COUNTY OF COMAL, TEXAS, AND WHOSE NAME IS SUBSCRIBED HERETO, DO HEREBY SUBDIVIDE SUCH PROPERTY AND DEDICATE TO THE USE OF THE PUBLIC ALL STREETS, ALLEYS, PARKS, DRAINS, EASEMENTS, AND PUBLIC PLACES THEREON SHOWN FOR THE PURPOSES AND CONSIDERATION THEREIN EXPRESSED.

_____
OWNER/DEVELOPER: DATE

COMAL COUNTY WCID 1A
1108 LAVACA, SUITE 510
AUSTIN, TX 78701

STATE OF TEXAS
COUNTY OF COMAL
THIS INSTRUMENT WAS ACKNOWLEDGED BEFORE ME ON THIS _____ DAY OF _____, 20_____, BY _____.

_____
NOTARY PUBLIC
STATE OF TEXAS

MY COMMISSION EXPIRES: _____

I, _____, DO HEREBY CERTIFY THAT THE FOREGOING INSTRUMENT WAS FILED FOR RECORD IN THE MAP AND PLAT RECORDS,

DOC # _____ OF COMAL COUNTY ON

THE _____ DAY OF _____, 20_____, AT_____M.

WITNESS MY HAND OFFICIAL SEAL, THIS THE _____ DAY OF _____, 20_____.

_____
COUNTY CLERK, COMAL COUNTY, TEXAS

_____
DEPUTY

VERAMENDI - RDWY C PHASE 1
Civil Job No. 30001-51; Survey Job No. 9191-19

Date: Jan 28, 2025, 2:41 PM - User ID: cbonnet
File: P:\300\01\01\Design\Civil\Plat\PS-30001-51-PRELIM.dwg

SUBDIVISION PLAT
OF
VERAMENDI - RDWY C PHASE 1

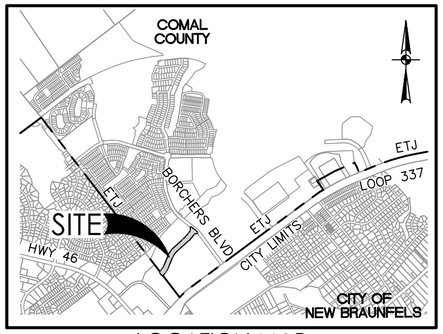
BEING 3.219 ACRES OF LAND, OUT OF THE 48.237 ACRE TRACT DESCRIBED IN DOCUMENT NO. 20160606009473, IN THE OFFICIAL PUBLIC RECORDS OF COMAL COUNTY, TEXAS, IN THE JAN MARTIN VERAMENDI SURVEY NO. 2, ABSTRACT 3, COMAL COUNTY, TEXAS.

SCALE: 1"= 100'

0' 100' 200' 300'

PAPE-DAWSON ENGINEERS
1672 INDEPENDENCE DR, STE 102 I NEW BRAUNFELS, TX 78132 I 830.632.5633
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

DATE OF PREPARATION: July 3, 2024



LOCATION MAP

NOT TO SCALE

LEGEND

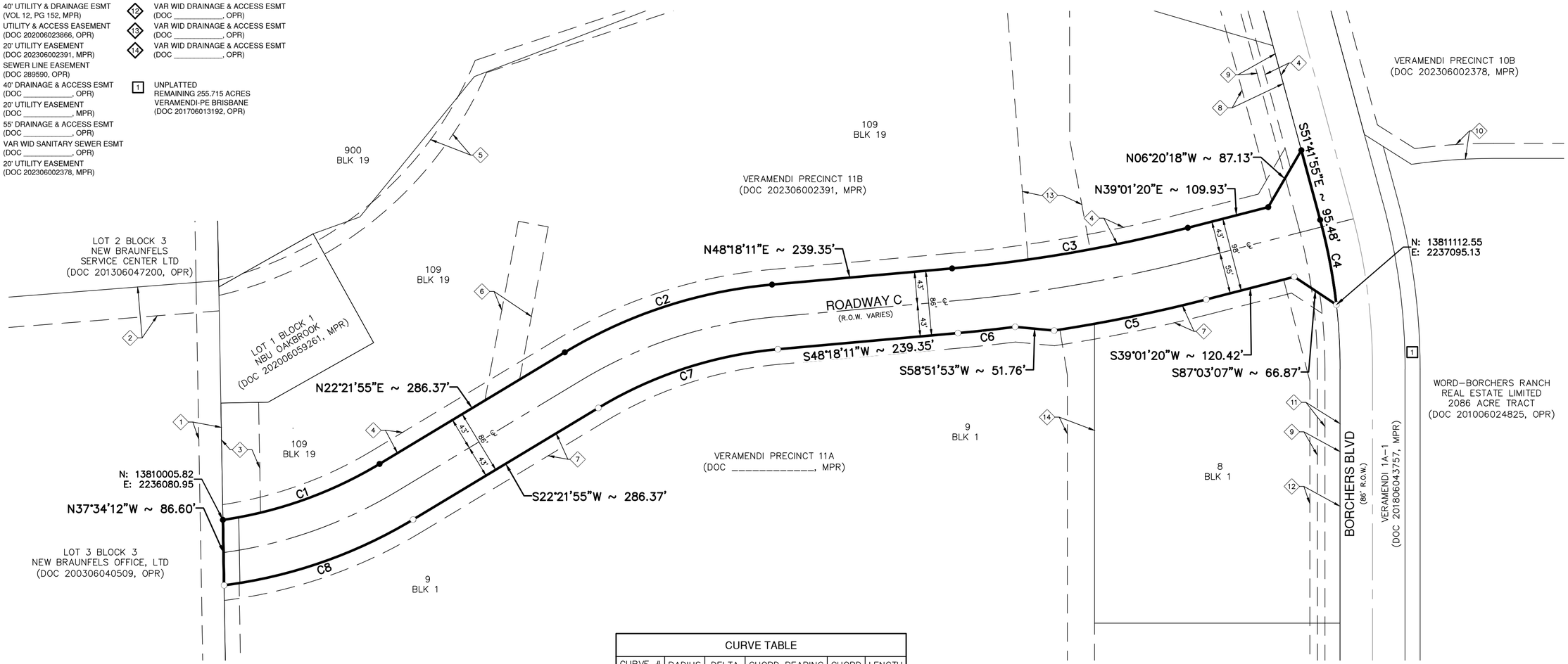
AC	ACRE(S)	VOL	VOLUME
CV	CLEAR VISION	PG	PAGE(S)
DED	DEDICATION	ROW	RIGHT-OF-WAY
DOC	DOCUMENT NUMBER	SS	SANITARY SEWER
ESMT	EASEMENT	VAR WID	VARIABLE WIDTH
ETJ	EXTRATERRITORIAL JURISDICTION	VNAE	VEHICULAR NON-ACCESS EASEMENT (NOT-TO-SCALE)
ML	MATCHLINE (SURVEYOR)	●	FOUND 1/2" IRON ROD (UNLESS NOTED OTHERWISE)
MPR	MAP AND PLAT RECORDS OF COMAL COUNTY, TEXAS	○	SET 1/2" IRON ROD (PD)
OPR	OFFICIAL PUBLIC RECORDS OF COMAL COUNTY, TEXAS	○	SET 1/2" IRON ROD (PD)-ROW
TEMP	TEMPORARY		

CITY OF NEW BRAUNFELS EXTRATERRITORIAL JURISDICTION

℄ CENTERLINE

1. 30' UTILITY & DRAINAGE ESMT (VOL 13, PG 343, MPR)
2. 40' UTILITY & DRAINAGE ESMT (VOL 12, PG 152, MPR)
3. UTILITY & ACCESS EASEMENT (DOC 202006023866, OPR)
4. 20' UTILITY EASEMENT (DOC 202306002391, MPR)
5. SEWER LINE EASEMENT (DOC 289590, OPR)
6. 40' DRAINAGE & ACCESS ESMT (DOC _____, OPR)
7. 20' UTILITY EASEMENT (DOC _____, MPR)
8. 55' DRAINAGE & ACCESS ESMT (DOC _____, OPR)
9. VAR WID SANITARY SEWER ESMT (DOC _____, OPR)
10. 20' UTILITY EASEMENT (DOC 202306002378, MPR)
11. 20' UTILITY EASEMENT (DOC _____, MPR)
12. VAR WID DRAINAGE & ACCESS ESMT (DOC _____, OPR)
13. VAR WID DRAINAGE & ACCESS ESMT (DOC _____, OPR)
14. VAR WID DRAINAGE & ACCESS ESMT (DOC _____, OPR)

1. UNPLATTED REMAINING 255.715 ACRES VERAMENDI-PE BRISBANE (DOC 201706013192, OPR)



CURVE TABLE					
CURVE #	RADIUS	DELTA	CHORD BEARING	CHORD	LENGTH
C1	557.00'	22°47'56"	N33°45'53"E	220.18'	221.64'
C2	643.00'	25°56'16"	N35°20'03"E	288.61'	291.09'
C3	1957.00'	9°16'50"	N43°39'46"E	316.65'	316.99'
C4	757.00'	8°40'22"	S47°21'45"E	114.47'	114.58'
C5	2055.00'	5°43'59"	S41°53'20"W	205.54'	205.62'
C6	2043.00'	2°08'23"	S47°13'59"W	76.29'	76.30'
C7	557.00'	25°56'16"	S35°20'03"W	250.01'	252.15'
C8	643.00'	23°46'30"	S34°15'10"W	264.90'	266.81'

VERAMENDI - RDWY C PHASE 1

Civil Job No. 30001-51; Survey Job No. 9191-19

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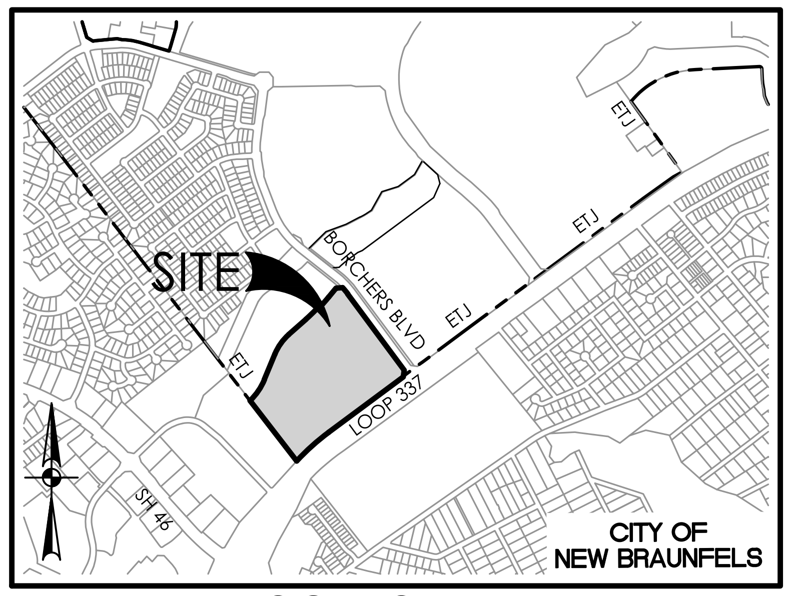


LOCATION MAP

NOT-TO-SCALE

SUBDIVISION PLAT OF VERAMENDI PRECINCT 11A

BEING 34.171 ACRES OF LAND, A PORTION OUT OF THE 48.237 ACRE TRACT DESCRIBED IN DOCUMENT NO. 20160606009473, AND A PORTION OUT OF THE 255.715 ACRE TRACT DESCRIBED IN DOCUMENT NO. 201706013192, BOTH IN THE OFFICIAL PUBLIC RECORDS OF COMAL COUNTY TEXAS, IN THE JUAN MARTIN DE VERAMENDI SURVEY NO. 2, ABSTRACT 3, COMAL COUNTY, TEXAS.

NBU NOTES:

1. MAINTENANCE OF DEDICATED UTILITY EASEMENTS IS THE RESPONSIBILITY OF THE PROPERTY OWNER. ANY USE OF AN EASEMENT, OR ANY PORTION OF IT, INCLUDING LANDSCAPING OF DRAINAGE FEATURES, IS SUBJECT TO AND SHALL NOT CONFLICT WITH THE TERMS AND CONDITIONS IN THE EASEMENT, MUST NOT ENDANGER OR INTERFERE WITH THE RIGHTS GRANTED BY THE EASEMENT TO NEW BRAUNFELS UTILITIES, ITS SUCCESSORS AND ASSIGNS, AND SHALL BE SUBJECT TO APPLICABLE PERMIT REQUIREMENTS OF THE CITY OF NEW BRAUNFELS OR ANY OTHER GOVERNING BODY. THE PROPERTY OWNER MUST OBTAIN, IN ADVANCE, WRITTEN AGREEMENT WITH THE UTILITIES TO UTILIZE THE EASEMENT, OR ANY PART OF IT.
2. UTILITIES WILL POSSESS A 5' WIDE SERVICE EASEMENT TO THE BUILDING STRUCTURE ALONG THE SERVICE LINE TO THE SERVICE ENTRANCE. THIS EASEMENT WILL VARY DEPENDING UPON LOCATION OF DWELLING AND SERVICE.
3. UTILITIES SHALL HAVE ACCESS TO THE METER LOCATIONS FROM THE FRONT YARD AND METER LOCATIONS SHALL NOT BE LOCATED WITHIN A FENCED AREA.
4. EACH LOT MUST HAVE ITS OWN WATER AND SEWER SERVICE AT THE OWNER/DEVELOPERS EXPENSE.
5. DO NOT COMBINE ANY NEW UTILITY EASEMENTS (UE) WITH DRAINAGE EASEMENTS (DE) OR MAKE CHANGES IN GRADE WITHIN THE UTILITY EASEMENTS (UE) WITHOUT WRITTEN APPROVAL FROM NEW BRAUNFELS UTILITIES.
6. NBU IS NOT RESPONSIBLE FOR LANDSCAPING OR IRRIGATION IN UE/LE.

FLOOD ZONE NOTE:

NO PORTION OF THE SUBDIVISION IS LOCATED WITHIN ANY SPECIAL FLOOD HAZARD AREA (100 YR. FLOOD), AS DEFINED BY THE COMAL COUNTY, TEXAS, FLOOD INSURANCE RATE MAP NO. 48091C0435F EFFECTIVE DATE 9/2/2009 AS PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.

UTILITY PROVIDER NOTE:

THE PROPERTY WILL BE SERVED BY THE FOLLOWING:

- NEW BRAUNFELS UTILITIES (WATER, SEWER, ELECTRIC)
- AT&T (TELECOMMUNICATIONS)
- SPECTRUM (TELECOMMUNICATIONS)

DRAINAGE EASEMENT NOTES:

1. DRAINAGE EASEMENTS SHALL "REMAIN FREE OF ALL OBSTRUCTIONS."
2. MAINTENANCE OF DRAINAGE EASEMENT SHOWN OUTSIDE OF LOT LINES SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNERS, OR THE PROPERTY OWNER'S ASSOCIATION, OR ITS SUCCESSORS OR ASSIGNS AND NOT THE RESPONSIBILITY OF THE CITY OF NEW BRAUNFELS OR COMAL COUNTY.
3. NO STRUCTURES, WALLS OR OTHER OBSTRUCTIONS OF ANY KIND SHALL BE PLACED WITHIN THE LIMITS OF DRAINAGE EASEMENTS SHOWN ON THIS PLAT. NO LANDSCAPING, FENCES, OR OTHER TYPE OF MODIFICATIONS WHICH ALTER THE CROSS SECTIONS OF THE DRAINAGE EASEMENTS OR DECREASES THE HYDRAULIC CAPACITY OF THE EASEMENT, AS APPROVED, SHALL BE ALLOWED WITHOUT THE APPROVAL OF THE CITY ENGINEER. THE CITY OF NEW BRAUNFELS AND COMAL COUNTY SHALL HAVE THE RIGHT OF INGRESS AND EGRESS OVER GRANTORS ADJACENT PROPERTY TO REMOVE ANY OBSTRUCTIONS PLACED WITHIN THE LIMITS OF SAID DRAINAGE EASEMENTS AND TO MAKE ANY MODIFICATIONS OR IMPROVEMENTS WITHIN SAID DRAINAGE EASEMENTS.

SIDEWALK AND ACCESS WAY NOTES:

1. SIX (6) FOOT WIDE SIDEWALKS WILL BE CONSTRUCTED BY SITE BUILDER PER CITY STANDARDS AT THE TIME OF BUILDING CONSTRUCTION ALONG BORCHERS BLVD
2. SIX (6) FOOT WIDE SIDEWALKS WILL BE CONSTRUCTED DURING THE LATTER OF BUILDING PERMIT OR STREET CONSTRUCTION ALONG:
   a. FUTURE ROADWAY
3. TEN (10) FOOT WIDE MULTI-USE TRAIL WILL BE CONSTRUCTED BY THE SITE BUILDER PER CITY STANDARDS AT THE TIME OF BUILDING CONSTRUCTION WITHIN THE LANDSCAPE AND PEDESTRIAN EASEMENT.

TxDOT NOTES:

1. FOR RESIDENTIAL DEVELOPMENT DIRECTLY ADJACENT TO STATE RIGHT-OF-WAY, THE PROPERTY OWNER SHALL BE RESPONSIBLE FOR ADEQUATE SET-BACK AND/OR SOUND ABATEMENT MEASURES FOR FUTURE NOISE MITIGATION.
2. OWNER/ DEVELOPER IS RESPONSIBLE FOR PREVENTING ANY ADVERSE IMPACT TO THE EXISTING DRAINAGE SYSTEM WITHIN THE HIGHWAY RIGHT-OF-WAY.
3. MAXIMUM ACCESS POINTS TO STATE HIGHWAY FROM THIS PROPERTY WILL BE REGULATED AS DIRECTED BY TxDOT'S "ACCESS MANAGEMENT MANUAL". THE PROPERTY IS ELIGIBLE FOR A MAXIMUM COMBINED TOTAL OF 2 (TWO) ACCESS POINT, BASED ON OVERALL PLATTED HIGHWAY FRONTAGE OF 1,415.92 FT. WHERE TOPOGRAPHY, ESTABLISHED PROPERTY OWNERSHIPS, UNIQUE PHYSICAL LIMITATIONS, AND/OR PHYSICAL DESIGN CONSTRAINTS. THE SELECTED LOCATION SHOULD SERVE AS MANY PROPERTIES AND INTERESTS AS POSSIBLE TO REDUCE THE NEED FOR ADDITIONAL DIRECT ACCESS TO THE HIGHWAY. IN SELECTING LOCATIONS FOR FULL MOVEMENT INTERSECTIONS, PREFERENCE WILL BE GIVEN TO PUBLIC ROADWAYS THAT ARE ON LOCAL THOROUGHFARE PLANS.
4. IF SIDEWALKS ARE REQUIRED BY APPROPRIATE CITY ORDINANCE, A SIDEWALK PERMIT MUST BE APPROVED BY TxDOT, PRIOR TO CONSTRUCTION WITHIN STATE RIGHT-OF-WAY. LOCATIONS OF SIDEWALKS WITHIN STATE RIGHT-OF-WAY SHALL BE DIRECTED BY TxDOT.
5. ANY TRAFFIC CONTROL MEASURES (LEFT-TURN LANE, RIGHT-TURN LANE SIGNAL, ETC.) FOR ANY ACCESS FRONTING A STATE MAINTAINED ROADWAY SHALL BE THE RESPONSIBILITY OF THE DEVELOPER/ OWNER.

PLAT NOTES:

1. THIS PLAT IS SUBJECT TO THE REQUIREMENTS AND REGULATIONS OF THE VERAMENDI DEVELOPMENT COMPANY DEVELOPMENT AGREEMENT, RECORDED AS DOCUMENT NO. 201506029547 AND AS AMENDED.
2. THIS PLAT IS LOCATED WITHIN THE LARGE FORMAT RETAIL PLANNING SUB AREA.
3. STANDARDS FOR PLANT MATERIALS SHALL CONFORM TO THE STANDARDS OF THE LATEST EDITION OF THE *AMERICAN NATIONAL STANDARD A300 PLANTING AND TRANSPLANTING NURSERY STOCK* PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
4. TREE REPLACEMENT SHALL OCCUR WITHIN 12 MONTHS OF REMOVAL OF THE HIGH VALUE TREE UNLESS DEFERRED TO AN ADJACENT UNIT. WHERE A REPLACEMENT TREE DOES NOT SURVIVE FOR A PERIOD OF AT LEAST 24 MONTHS, THE ORIGINAL APPLICANT OR CURRENT LANDOWNER SHALL REPLACE THE TREE, PREFERABLY DURING OCTOBER - FEBRUARY, UNTIL THE TREE SURVIVES A 12-MONTH PERIOD.
5. SHOULD ANY TREE DESIGNATED FOR RETENTION IN AN APPROVED TREE PROTECTION PLAN DIE PRIOR TO, OR WITHIN 12 MONTHS OF THE COMPLETION OF CONSTRUCTION WORKS, THE APPLICANT SHALL REPLACE THE DEAD TREE WITH A REPLACEMENT TREE/S EQUAL TO THE TOTAL CALIPER INCHES OF THE DEAD TREE. NO GRADING, TRENCHING OR EQUIPMENT SHALL BE CONDUCTED IN THE AREA IDENTIFIED IN THE ROOT PROTECTION ZONE. ALL WORK TO BE PERFORMED BY HAND OR UNDER THE SUPERVISION OF A CERTIFIED ARBORIST.
6. DURING CONSTRUCTION, THE CLEANING OF EQUIPMENT OR MATERIALS AND/OR THE DISPOSAL OF ANY WASTE MATERIAL, INCLUDING, BUT NOT LIMITED TO PAINT, OIL, SOLVENTS, ASPHALT, CONCRETE, MORTAR, ETC., UNDER THE CANOPY OR DRIP LINE OF ANY HIGH VALUE TREE SHALL BE PROHIBITED. NO GRADING, TRENCHING OR EQUIPMENT SHALL BE CONDUCTED OR USED IN THE AREA IDENTIFIED IN THE ROOT PROTECTION ZONE. ALL WORK SHALL BE PERFORMED BY HAND OR UNDER THE SUPERVISION OF A CERTIFIED ARBORIST. NO ATTACHMENTS OR WIRES OF ANY KIND, OTHER THAN THOSE OF A PROTECTIVE NATURE, SHALL BE ATTACHED TO ANY HIGH VALUE TREE.
7. LOTS TO BE HELD IN COMMON PROPERTY BY A HOMEOWNERS' OR PROPERTY OWNERS' ASSOCIATION SHALL BE SHOWN ON THE PLAT AS A SEPARATE LOT.
8. NO BUILDING SHALL BE SITED WITHIN THE EXTENT OF A SENSITIVE FEATURE AND ASSOCIATED BUFFER. FOR ANY LOT WHICH CONTAINS A HIGH VALUE TREE, AND A BUILDING ENVELOPE WAS NOT APPROVED AS PART OF A FINAL PLAT, THE LOCATION OF A BUILDING ENVELOPE SHALL BE APPROVED BY THE PLANNING DIRECTOR PRIOR TO A BUILDING PERMIT BEING ISSUED.
9. FUTURE DEVELOPMENT IS SUBJECT TO CHAPTER 114 (STREETS, SIDEWALKS AND OTHER PUBLIC SPACES) OF THE NEW BRAUNFELS CODE OF ORDINANCES.
10. IMPERVIOUS COVER THE MAXIMUM CUMULATIVE IMPERVIOUS COVER PERCENTAGE FOR THE PROPERTY AS A WHOLE AND FOR EACH SECTOR PLAN SHALL NOT EXCEED SIXTY-FIVE PERCENT (65%).
11. AMENDMENTS TO THE PARK PROGRAMMING SCHEDULE, INCLUDING BUT NOT LIMITED TO THE PROVISION OF ADDITIONAL IMPROVEMENTS OR SUBSTITUTING IMPROVEMENTS, SHALL BE ADMINISTRATIVELY APPROVED BY THE PARKS DIRECTOR.
12. THIS PLAT WILL COMPLY WITH LOCATION AND AMENITY STANDARDS FOR TRAILS AS SHOWN IN THE SECTOR PLAN.
13. TOTAL NUMBER OF LOTS = 9.
14. ROADS, FACILITIES, STRUCTURES AND IMPROVEMENTS SUCH AS SIDEWALKS, PATHS, TRAILS, TRAILHEADS, PARK IDENTIFICATION AND WAY FINDING SIGNAGE, SEATING, PICNIC TABLES, DRINKING FOUNTAINS, PET DRINKING FOUNTAINS, TRASH RECEPTACLES, PET WASTE RECEPTACLES, SHADE STRUCTURES, OUTLOOKS, RETAINING WALL, PUBLIC UTILITIES, STORMWATER MANAGEMENT FACILITIES, WATER QUALITY MEASURES AND SIGNAGE ARE PERMITTED WITHIN THE GREEN RIBBON, ALL OTHER DEVELOPMENT SHALL BE PROHIBITED WITHIN THE GREEN RIBBON.

PAPE-DAWSON ENGINEERS

1672 INDEPENDENCE DR, STE 102 I NEW BRAUNFELS, TX 78132 I 830.632.5633

TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

DATE OF PREPARATION: July 25, 2024

STATE OF TEXAS
COUNTY OF COMAL

I (WE), THE UNDERSIGNED OWNER(S) OF THE LAND SHOWN ON THIS PLAT, AND DESIGNATED HEREIN AS THE VERAMENDI PRECINCT 11A SUBDIVISION TO THE CITY OF NEW BRAUNFELS, COUNTY OF COMAL, TEXAS, AND WHOSE NAME IS SUBSCRIBED HERETO, DO HEREBY SUBDIVIDE SUCH PROPERTY AND DEDICATE TO THE USE OF THE PUBLIC ALL STREETS, ALLEYS, PARKS, DRAINS, EASEMENTS, AND PUBLIC PLACES THEREON SHOWN FOR THE PURPOSES AND CONSIDERATION THEREIN EXPRESSED.

OWNER/DEVELOPER: PETER JAMES — DATE
VERAMENDI PE-CAIRNS, LLC
2168 OAK RUN PKWY
NEW BRAUNFELS, TEXAS 78132

STATE OF TEXAS
COUNTY OF COMAL

THIS INSTRUMENT WAS ACKNOWLEDGED BEFORE ME ON THIS _______ DAY OF ___________, 20___, BY _______.

NOTARY PUBLIC

STATE OF _____________

MY COMMISSION EXPIRES: _____________

STATE OF TEXAS
COUNTY OF COMAL

I (WE), THE UNDERSIGNED OWNER(S) OF THE LAND SHOWN ON THIS PLAT, AND DESIGNATED HEREIN AS THE VERAMENDI PRECINCT 11A SUBDIVISION TO THE CITY OF NEW BRAUNFELS, COUNTY OF COMAL, TEXAS, AND WHOSE NAME IS SUBSCRIBED HERETO, DO HEREBY SUBDIVIDE SUCH PROPERTY AND DEDICATE TO THE USE OF THE PUBLIC ALL STREETS, ALLEYS, PARKS, DRAINS, EASEMENTS, AND PUBLIC PLACES THEREON SHOWN FOR THE PURPOSES AND CONSIDERATION THEREIN EXPRESSED.

OWNER/DEVELOPER: PETER JAMES — DATE
VERAMENDI PE-CAIRNS, LLC
2168 OAK RUN PKWY
NEW BRAUNFELS, TEXAS 78132

STATE OF TEXAS
COUNTY OF COMAL

THIS INSTRUMENT WAS ACKNOWLEDGED BEFORE ME ON THIS _______ DAY OF ___________, 20___, BY _______.

NOTARY PUBLIC

STATE OF _____________

MY COMMISSION EXPIRES: _____________

STATE OF TEXAS
COUNTY OF COMAL

I (WE), THE UNDERSIGNED OWNER(S) OF THE LAND SHOWN ON THIS PLAT, AND DESIGNATED HEREIN AS VERAMENDI PRECINCT 11A SUBDIVISION TO THE CITY OF NEW BRAUNFELS, COUNTY OF COMAL, TEXAS, AND WHOSE NAME IS SUBSCRIBED HERETO, DO HEREBY SUBDIVIDE SUCH PROPERTY AND DEDICATE TO THE USE OF THE PUBLIC ALL STREETS, ALLEYS, PARKS, DRAINS, EASEMENTS, AND PUBLIC PLACES THEREON SHOWN FOR THE PURPOSES AND CONSIDERATION THEREIN EXPRESSED.

OWNER/DEVELOPER: — DATE

COMAL COUNTY WCID 1A
1108 LAVACA, SUITE 510
AUSTIN, TX 78701

STATE OF TEXAS
COUNTY OF COMAL

THIS INSTRUMENT WAS ACKNOWLEDGED BEFORE ME ON THIS _______ DAY OF ___________, 20___, BY _______.

NOTARY PUBLIC

STATE OF _____________

MY COMMISSION EXPIRES: _____________

STATE OF TEXAS

COUNTY OF COMAL

I, ______________________________, DO HEREBY CERTIFY THAT THE FOREGOING INSTRUMENT WAS FILED FOR RECORD IN THE MAP AND PLAT RECORDS, DOC #__________________________ OF COMAL COUNTY ON THE _________ DAY OF _________, 20_____, AT _____ M.

WITNESS MY HAND OFFICIAL SEAL, THIS THE ______________DAY OF _______, 20_______.

COUNTY CLERK, COMAL COUNTY, TEXAS

DEPUTY

CERTIFICATE OF APPROVAL

APPROVED THIS THE _______ DAY OF _______________, 20 _____, BY THE PLANNING COMMISSION OF THE CITY OF NEW BRAUNFELS, TEXAS.

PLANNING COMMISSION CHAIRPERSON

APPROVED FOR ACCEPTANCE

DATE — DIRECTOR OF PLANNING

DATE — CITY ENGINEER

DATE — NEW BRAUNFELS UTILITIES

SURVEYOR'S NOTES:

1. MONUMENTS WERE FOUND OR SET AT EACH CORNER OF THE SURVEY BOUNDARY OF THE SUBDIVISION AS NOTED. MONUMENTS AND LOT MARKERS WILL BE SET WITH $\frac{1}{2}$" IRON ROD WITH CAP MARKED "PAPE-DAWSON" OR MAG NAIL WITH DISK MARKED "PAPE-DAWSON" AFTER COMPLETION OF UTILITY INSTALLATION AND STREET CONSTRUCTION UNLESS NOTED OTHERWISE.
2. COORDINATES SHOWN ARE BASED ON THE NORTH AMERICAN DATUM OF 1983 NAD83 (NA2011) FROM THE TEXAS COORDINATE SYSTEM ESTABLISHED FOR THE SOUTH CENTRAL ZONE DISPLAYED IN GRID VALUES DERIVED FROM THE NGS COOPERATIVE CORS NETWORK.
3. DIMENSIONS SHOWN ARE SURFACE (SCALE FACTOR = 0.9998600196)
4. BEARINGS ARE BASED ON THE NORTH AMERICAN DATUM OF 1983 NAD83 (NA2011) EPOCH 2010.00, FROM THE TEXAS COORDINATE SYSTEM ESTABLISHED FOR THE SOUTH CENTRAL ZONE.

KNOW ALL MEN BY THESE PRESENTS

I, THE UNDERSIGNED KEITH W. WOOLEY, A REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF TEXAS, HEREBY CERTIFY THAT THIS PLAT IS TRUE AND CORRECTLY MADE UNDER MY SUPERVISION AND IN COMPLIANCE WITH CITY AND STATE SURVEY REGULATIONS AND LAWS AND MADE ON THE GROUND AND THAT THE CORNER MONUMENTS WERE PROPERLY PLACED UNDER MY SUPERVISION.

PRELIMINARY, THIS DOCUMENT SHALL NOT BE RECORDED FOR ANY PURPOSE AND SHALL NOT BE USED OR VIEWED OR RELIED UPON AS A FINAL SURVEY DOCUMENT.

KEITH W. WOOLEY
REGISTERED PROFESSIONAL LAND SURVEYOR #5463
PAPE-DAWSON ENGINEERS, INC.

PLAT NOTES APPLY TO EVERY PAGE OF THIS MULTIPLE PAGE PLAT

CURVE AND LINE DATA ON SHEET 2 OF 2

SUBDIVISION PLAT
OF
VERAMENDI PRECINCT 11A

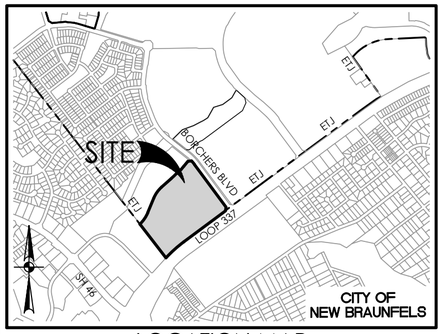
BEING 34.171 ACRES OF LAND, A PORTION OUT OF THE 48.237 ACRE TRACT DESCRIBED IN DOCUMENT NO. 20160606009473, AND A PORTION OUT OF THE 255.715 ACRE TRACT DESCRIBED IN DOCUMENT NO. 201706013192, BOTH IN THE OFFICIAL PUBLIC RECORDS OF COMAL COUNTY TEXAS, IN THE JUAN MARTIN DE VERAMENDI SURVEY NO. 2, ABSTRACT 3, COMAL COUNTY, TEXAS.

SCALE: 1"= 200'

0' 200' 400' 600'

PAPE-DAWSON ENGINEERS
1672 INDEPENDENCE DR, STE 102 | NEW BRAUNFELS, TX 78132 | 830.632.5633
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

DATE OF PREPARATION: July 25, 2024



LOCATION MAP
NOT-TO-SCALE

LEGEND

AC	ACRE(S)
BLK	BLOCK
DOC	DOCUMENT NUMBER
DRCC	DEED RECORDS OF COMAL COUNTY, TEXAS
ELEC	ELECTRICAL
ESMT	EASEMENT
ETJ	EXTRATERRITORIAL JURISDICTION
MPR	MAP AND PLAT RECORDS OF COMAL COUNTY, TEXAS
OPR	OFFICIAL PUBLIC RECORDS OF COMAL COUNTY, TEXAS
VOL	VOLUME
PG	PAGE(S)
ROW	RIGHT-OF-WAY
VAR WID	VARIABLE WIDTH
● (SURVEYOR)	FOUND 1/2" IRON ROD (UNLESS NOTED OTHERWISE)
○	SET 1/2" IRON ROD (PD)
○	SET 1/2" IRON ROD (PD)-ROW

1% ANNUAL CHANCE (100-YR) FUTURE CONDITIONS FLOODPLAIN
CENTERLINE

1. 20' UTILITY EASEMENT
2. 85' ACCESS EASEMENT
3. 30' LANDSCAPE & PEDESTRIAN EASEMENT
4. VAR WID SANITARY SEWER EASEMENT
6. 3.24 ACRE SEWER EASEMENT (DOC 289590, OPR)
7. 20' UTILITY EASEMENT (DOC 201806040233, OPR)

1. 40' UTILITY & DRAINAGE ESMT (DOC 200106003623, MPR)
2. 30' UTILITY AND DRAINAGE ESMT (DOC 200106003623, MPR)
3. UTILITY & ACCESS EASEMENT (DOC 20006023866, OPR)
4. 10' SANITARY SEWER ESMT (DOC _____, OPR)
5. 20' UTILITY EASEMENT (DOC 202306002391, MPR)

1. NBU OAKBROOK (DOC 202006059261, MPR)
2. VERAMENDI 1A-1 (DOC 201806043757, OPR)
3. VERAMENDI PRECINCT 10B (DOC 202306002378, MPR)
4. 255.715 ACRE TRACT VERAMENDI PE-BRISBANE, LLC. (DOC 201806013192, OPR)
5. REMAINDER OF 48.237 ACRE TRACT VERAMENDI PE-CAIRNS, LLC. (DOC 201906036476, OPR)

CURVE TABLE					
CURVE #	RADIUS	DELTA	CHORD BEARING	CHORD	LENGTH
C1	643.00'	23°46'30"	N34°15'10"E	264.90'	266.81'
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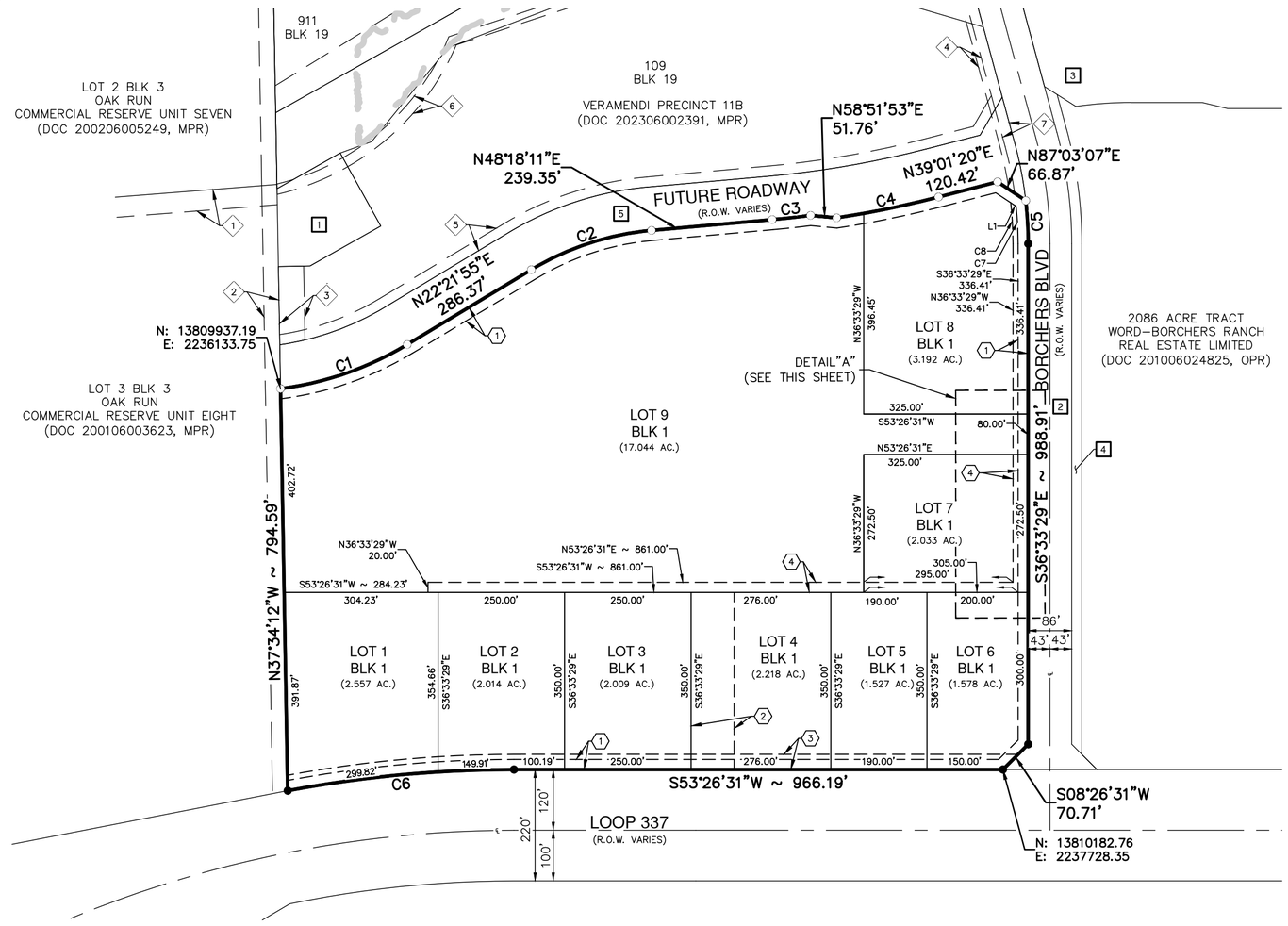
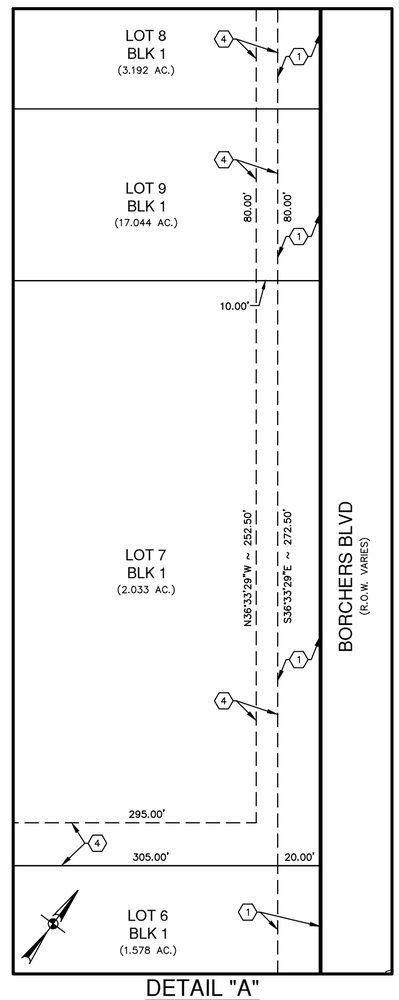
C4	2055.00'	5°43'59"	N41°53'20"E	205.54'	205.62'
C5	757.00'	6°28'04"	S39°47'32"E	85.41'	85.45'
C6	2412.00'	10°40'59"	S48°06'01"W	449.08'	449.73'
C7	737.00'	5°44'53"	S39°25'56"E	73.91'	73.94'
C8	727.00'	6°23'51"	N39°45'25"W	81.13'	81.17'

LINE TABLE		
LINE #	BEARING	LENGTH
L1	N87°03'07"E	12.99'





DETAIL "A"
NOT-TO-SCALE

PLAT NOTES APPLY TO EVERY PAGE OF THIS MULTIPLE PAGE PLAT

CURVE AND LINE DATA ON THIS SHEET

VERAMENDI PRECINCT 11A

Civil Job No. 30001-81; Survey Job No. 9230-19

Date: JUL 3, 2024, 11:40 AM User ID: MDocarme
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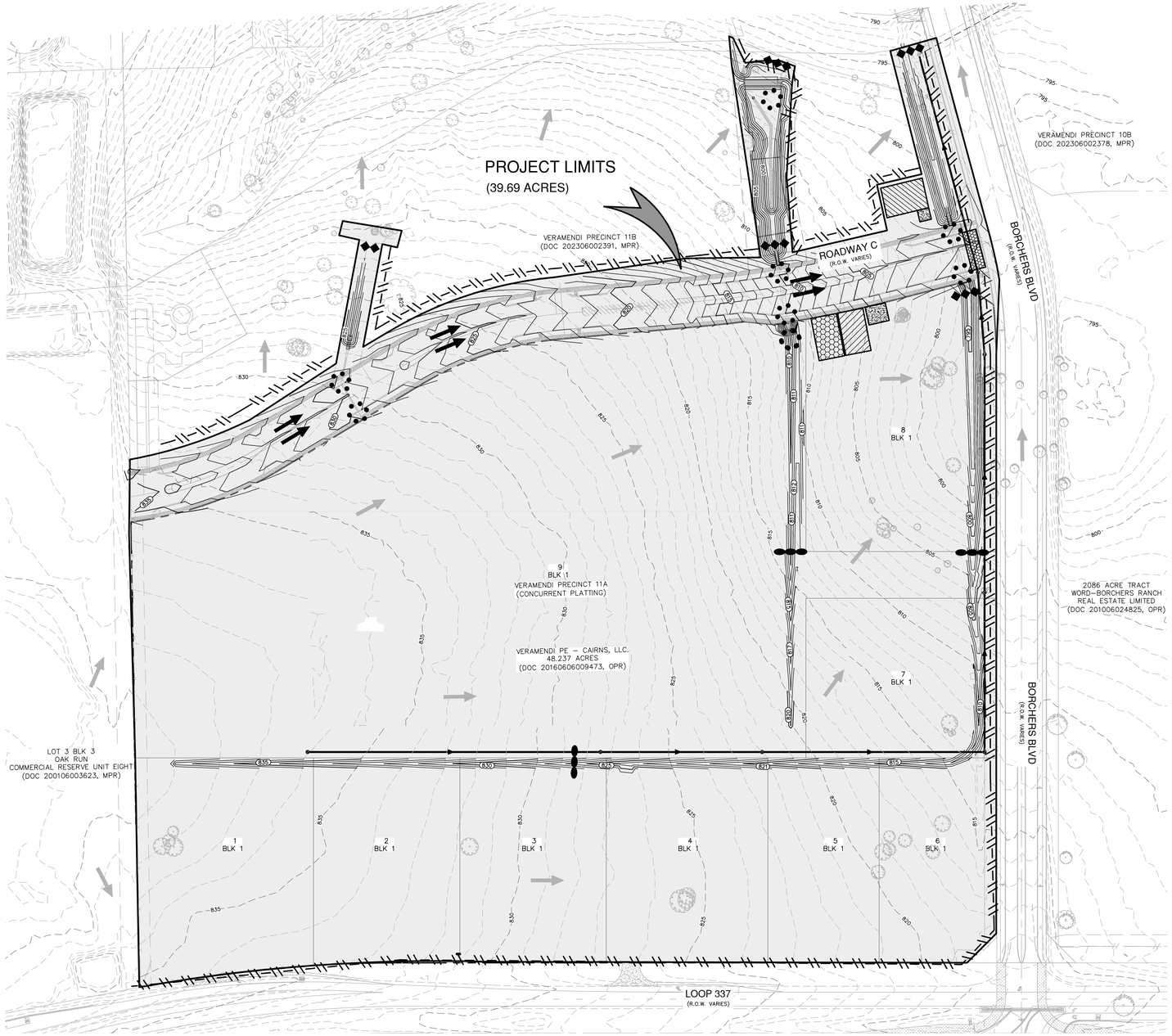
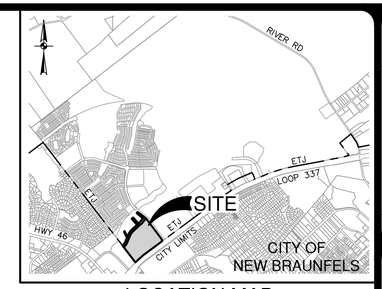


TCEQ WATER POLLUTION ABATEMENT PLAN GENERAL CONSTRUCTION NOTES

1. A WRITTEN NOTICE OF CONSTRUCTION MUST BE SUBMITTED TO THE TCEQ REGIONAL OFFICE AT LEAST 48 HOURS PRIOR TO THE START OF CONSTRUCTION OF ANY REGULATED ACTIVITIES. THIS NOTICE MUST INCLUDE:
   - THE NAME OF THE APPROVED PROJECT;
   - THE ACTIVITY START DATE; AND
   - THE CONTACT INFORMATION OF THE PRIME CONTRACTOR.
2. ALL CONTRACTORS CONDUCTING REGULATED ACTIVITIES ASSOCIATED WITH THIS PROJECT MUST BE PROVIDED WITH COMPLETE COPIES OF THE APPROVED WATER POLLUTION ABATEMENT PLAN (WPAP) AND THE TCEQ LETTER INDICATING THE SPECIFIC CONDITIONS OF ITS APPROVAL. DURING THE COURSE OF THESE REGULATED ACTIVITIES, THE CONTRACTORS ARE REQUIRED TO KEEP ON-SITE COPIES OF THE APPROVED PLAN AND APPROVAL LETTER.
3. IF ANY SENSITIVE FEATURE(S) (CAVES, SOLUTION CAVITY, SINK HOLE, ETC.) IS DISCOVERED DURING CONSTRUCTION, ALL REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MUST BE SUSPENDED IMMEDIATELY. THE APPROPRIATE TCEQ REGIONAL OFFICE MUST BE IMMEDIATELY NOTIFIED OF ANY SENSITIVE FEATURES ENCOUNTERED DURING CONSTRUCTION. CONSTRUCTION ACTIVITIES MAY NOT BE RESUMED UNTIL THE TCEQ HAS REVIEWED AND APPROVED THE APPROPRIATE PROTECTIVE MEASURES IN ORDER TO PROTECT ANY SENSITIVE FEATURE AND THE EDWARDS AQUIFER FROM POTENTIALLY ADVERSE IMPACTS TO WATER QUALITY.
4. NO TEMPORARY OR PERMANENT HAZARDOUS SUBSTANCE STORAGE TANK SHALL BE INSTALLED WITHIN 150 FEET OF A WATER SUPPLY SOURCE, DISTRIBUTION SYSTEM, WELL, OR SENSITIVE FEATURE.
5. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY, ALL TEMPORARY EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES MUST BE PROPERLY INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE APPROVED PLANS AND MANUFACTURERS SPECIFICATIONS. IF INSPECTIONS INDICATE A CONTROL HAS BEEN USED INAPPROPRIATELY, OR INCORRECTLY, THE APPLICANT MUST REPLACE OR MODIFY THE CONTROL FOR THE SITE SITUATIONS. THESE CONTROLS MUST REMAIN IN PLACE UNTIL THE DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED.
6. ANY SEDIMENT THAT ESCAPES THE CONSTRUCTION SITE MUST BE COLLECTED AND PROPERLY DISPOSED OF BEFORE THE NEXT RAIN EVENT TO ENSURE IT IS NOT WASHED INTO SURFACE STREAMS, SENSITIVE FEATURES, ETC.
7. SEDIMENT MUST BE REMOVED FROM THE SEDIMENT TRAPS OR SEDIMENT BASINS NOT LATER THAN WHEN IT OCCUPIES 50% OF THE BASIN'S DESIGN CAPACITY.
8. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS EXPOSED TO STORMWATER SHALL BE PREVENTED FROM BEING DISCHARGED OFFSITE. .CHROME
9. ALL SPOILS (EXCAVATED MATERIAL) GENERATED FORM THE PROJECT SITE MUST BE STORED ON-SITE WITH PROPER E&S CONTROLS. FOR STORAGE OR DISPOSAL OF SPOILS AT ANOTHER SITE ON THE EDWARDS AQUIFER RECHARGE ZONE, THE OWNER OF THE SITE MUST RECEIVE APPROVAL OF A WATER POLLUTION ABATEMENT PLAN FOR THE PLACEMENT OF FILL MATERIAL OR MASS GRADING PRIOR TO THE PLACEMENT OF SPOILS AT THE OTHER SITE.
10. IF PORTIONS OF THE SITE WILL HAVE A TEMPORARY OR PERMANENT CEASE IN CONSTRUCTION ACTIVITY LASTING LONGER THAN 14 DAYS, SOIL STABILIZATION IN THOSE AREAS SHALL BE INITIATED AS SOON AS POSSIBLE PRIOR TO THE 14TH DAY OF INACTIVITY. IF ACTIVITY WILL RESUME PRIOR TO THE 21ST DAY, STABILIZATION MEASURES ARE NOT REQUIRED. IF DROUGHT CONDITIONS OR INCLEMENT WEATHER PREVENT ACTION BY THE 14TH DAY, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS POSSIBLE.
11. THE FOLLOWING RECORDS SHALL BE MAINTAINED AND MADE AVAILABLE TO THE TCEQ UPON REQUEST:
   - THE DATES WHEN MAJOR GRADING ACTIVITIES OCCUR;
   - THE DATES WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE; AND
   - THE DATES WHEN STABILIZATION MEASURES ARE INITIATED.
12. THE HOLDER OF ANY APPROVED EDWARD QUIFER PROTECTION PLAN MUST NOTIFY THE APPROPRIATE REGIONAL OFFICE IN WRITING AND OBTAIN APPROVAL FROM THE EXECUTIVE DIRECTOR PRIOR TO INITIATING ANY OF THE FOLLOWING:
   A. ANY PHYSICAL OR OPERATIONAL MODIFICATION OF ANY WATER POLLUTION ABATEMENT STRUCTURE(S), INCLUDING BUT NOT LIMITED TO PONDS, DAMS, BERMS, SEWAGE TREATMENT PLANTS, AND DIVERSIONARY STRUCTURES;
   B. ANY CHANGE IN THE NATURE OR CHARACTER OF THE REGULATED ACTIVITY FROM THAT WHICH WAS ORIGINALLY APPROVED OR A CHANGE WHICH WOULD SIGNIFICANTLY IMPACT THE ABILITY OF THE PLAN TO PREVENT POLLUTION OF THE EDWARDS AQUIFER;
   C. ANY DEVELOPMENT OF LAND PREVIOUSLY IDENTIFIED AS UNDEVELOPED IN THE ORIGINAL WATER POLLUTION ABATEMENT PLAN

SAN ANTONIO REGIONAL OFFICE
14250 JUDSON ROAD
SAN ANTONIO TEXAS 78233-4480
PHONE (210) 490-3096
FAX (210) 545-4329



LOCATION MAP
NOT-TO-SCALE

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

LEGEND

- PROJECT LIMITS
- EXISTING CONTOUR — 976
- PROPOSED CONTOUR — 970
- FLOW ARROW (EXISTING)
- FLOW ARROW (PROPOSED)
- SILT FENCE
- ROCK BERM
- GRAVEL FILTER BAGS
- GRATE INLET PROTECTION
- 50' SEWER BUFFER
- LIMITS OF DISTURBED AREA
- STABILIZED CONSTRUCTION ENTRANCE/EXIT (FIELD LOCATE)
- CONSTRUCTION EQUIPMENT, VEHICLE & MATERIALS STORAGE AREA (FIELD LOCATE)
- CONCRETE TRUCK WASH-OUT PIT (FIELD LOCATE)
- POTENTIAL RECHARGE FEATURE — S-#
- EXISTING TREE

GENERAL NOTES

1. DO NOT DISTURB VEGETATED AREAS (TREES, GRASS, WEEDS, BRUSH, ETC.) ANY MORE THAN NECESSARY FOR CONSTRUCTION.
2. CONSTRUCTION ENTRANCE/EXIT LOCATION, CONCRETE WASH-OUT PIT, AND CONSTRUCTION EQUIPMENT AND MATERIAL STORAGE YARD TO BE DETERMINED IN THE FIELD.
3. STORM WATER POLLUTION PREVENTION CONTROLS MAY NEED TO BE MODIFIED IN THE FIELD TO ACCOMPLISH THE DESIRED EFFECT. ALL MODIFICATIONS ARE TO BE NOTED ON THIS EXHIBIT AND SIGNED AND DATED BY THE RESPONSIBLE PARTY.
4. RESTRICT ENTRY/EXIT TO THE PROJECT SITE TO DESIGNATED LOCATIONS BY USE OF ADEQUATE FENCING, IF NECESSARY.
5. ALL STORM WATER POLLUTION PREVENTION CONTROLS ARE TO BE MAINTAINED AND IN WORKING CONDITIONS AT ALL TIMES.
6. FOR A COMPLETE LISTING OF TEMPORARY STORM WATER POLLUTION PREVENTION CONTROLS REFER TO THE TPDES STORM WATER POLLUTION PREVENTION PLAN.
7. STORM WATER POLLUTION PREVENTION STRUCTURES SHOULD BE CONSTRUCTED WITHIN THE SITE BOUNDARIES. SOME OF THESE FEATURES MAY BE SHOWN OUTSIDE THE SITE BOUNDARIES ON THIS PLAN FOR VISUAL CLARITY.
8. AS SOON AS PRACTICAL, ALL DISTURBED SOIL THAT WILL NOT BE COVERED BY IMPERVIOUS COVER SUCH AS PARKWAY AREAS, EASEMENT AREAS, EMBANKMENT SLOPES, ETC. WILL BE STABILIZED PER APPLICABLE PROJECT SPECIFICATIONS.
9. BEST MANAGEMENT PRACTICES MAY BE INSTALLED IN STAGES TO COINCIDE WITH THE DISTURBANCE OF UPGRADIENT AREAS.
10. BEST MANAGEMENT PRACTICES MAY BE REMOVED IN STAGES ONCE THE WATERSHED FOR THAT PORTION CONTROLLED BY THE BEST MANAGEMENT PRACTICES HAS BEEN STABILIZED IN ACCORDANCE WITH TPDES REQUIREMENTS.
11. UPON COMPLETION OF THE PROJECT, INCLUDING SITE STABILIZATION, AND BEFORE FINAL PAYMENT IS ISSUED, CONTRACTOR SHALL REMOVE ALL SEDIMENT AND EROSION CONTROL MEASURES, PAYING SPECIAL ATTENTION TO ROCK BERMS IN DRAINAGE FEATURES.
12. WHERE VEGETATED FILTER STRIPS ARE INDICATED, CONTRACTOR SHALL VERIFY THAT SUFFICIENT VEGETATION EXISTS, OTHERWISE CONTRACTOR SHALL PLACE SILT FENCING IN LIEU OF VEGETATED FILTER STRIP.
13. SHADED AREA [ ] DENOTES LIMITS OF DISTURBED AREAS. OTHER AREAS WITHIN THE PROJECT LIMITS, WITH THE EXCEPTION OF A CONSTRUCTION EQUIPMENT AND MATERIAL STORAGE YARD, ARE NOT A PART OF THIS TPDES STORM WATER POLLUTION PREVENTION PLAN (SWP3) AND WILL NOT BE DISTURBED BY CIVIL CONSTRUCTION ACTIVITIES.
14. PRIOR TO BEGINNING CONSTRUCTION, CONTRACTOR SHALL COORDINATE PLACEMENT OF TEMPORARY BEST MANAGEMENT PRACTICES WITHIN TXDOT RIGHT-OF-WAY WITH TXDOT.
15. NBU WILL FUNCTION AS A SECONDARY OPERATOR ON THIS PROJECT AND WILL BE INSTALLING ELECTRIC UTILITIES FOR ON-SITE CONSTRUCTION AND OFF-SITE FEED TO THE PROJECT.
16. PER TPDES REQUIREMENTS, DISTURBED AREAS ON WHICH CONSTRUCTION ACTIVITIES HAVE CEASED (TEMPORARILY OR PERMANENTLY) SHALL BE STABILIZED WITHIN 14 DAYS UNLESS ACTIVITY RESUMES WITHIN 21 DAYS. SEEDING DOES NOT CONSTITUTE AS STABILIZATION.

TEMPORARY BMP MODIFICATIONS

DATE	SIGNATURE	DESCRIPTION

THE ENGINEERING SEAL HAS BEEN AFFIXED TO THIS SHEET ONLY FOR THE PURPOSE OF DEMONSTRATING COMPLIANCE WITH THE WATER POLLUTION ABATEMENT PLANS (WPAP) REGULATIONS.

THIS SHEET HAS BEEN PREPARED FOR PURPOSES OF THE WPAP ONLY. ALL OTHER CIVIL ENGINEERING RELATED INFORMATION SHOULD BE ACQUIRED FROM THE APPROPRIATE SHEET IN THE CIVIL IMPROVEMENT PLANS.

EXHIBIT 1

FOR PERMIT

NO.	REVISION	DATE

STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED
PROFESSIONAL ENGINEER
8-7-2024

PAPE-DAWSON ENGINEERS
NEW BRAUNFELS | SAN ANTONIO | AUSTIN | HOUSTON | FT WORTH | DALLAS
1672 INDEPENDENCE DR, STE 102 | NEW BRAUNFELS, TX 78132 | 830.632.5533
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

VERAMENDI - RDWY C PHASE 1 AND PRECINCT 11A
NEW BRAUNFELS, TEXAS
WATER POLLUTION ABATEMENT PLAN
TEMPORARY POLLUTION ABATEMENT PLAN

PLAT NO.
JOB NO. 30001-51
DATE JULY 2024
DESIGNER GDL
CHECKED DRAWN
SHEET 1 OF 1

Date: Aug 07, 2024, 11:30am User ID: Dlynch
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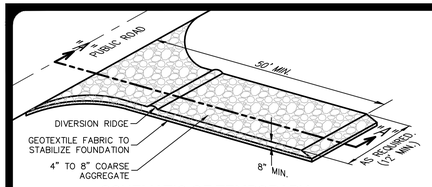
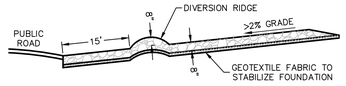


SCHEMATIC OF TEMPORARY CONSTRUCTION ENTRANCE/EXIT



SECTION "A-A" OF A CONSTRUCTION ENTRANCE/EXIT

MATERIALS

1. THE AGGREGATE SHOULD CONSIST OF 4–INCH TO 8–INCH WASHED STONE OVER A STABLE FOUNDATION AS SPECIFIED IN THE PLAN.

2. THE AGGREGATE SHOULD BE PLACED WITH A MINIMUM THICKNESS OF 8–INCHES.

3. THE GEOTEXTILE FABRIC SHOULD BE DESIGNED SPECIFICALLY FOR USE AS A SOIL FILTRATION MEDIA WITH AN APPROXIMATE WEIGHT OF 6 OZ/YD^2, A MULLEN BURST RATING OF 140 LB/IN^2, AND AN EQUIVALENT OPENING SIZE GREATER THAN A NUMBER 50 SIEVE.

4. IF A WASHING FACILITY IS REQUIRED, A LEVEL AREA WITH A MINIMUM OF 4–INCH DIAMETER WASHED STONE OR COMMERCIAL ROCK SHOULD BE INCLUDED IN THE PLANS. DIVERT WASTEWATER TO A SEDIMENT TRAP OR BASIN.

INSTALLATION

1. AVOID CURVES ON PUBLIC ROADS AND STEEP SLOPES. REMOVE VEGETATION AND OTHER OBJECTIONABLE MATERIAL FROM THE FOUNDATION AREA. GRADE CROWN FOUNDATION FOR POSITIVE DRAINAGE.

2. THE MINIMUM WIDTH OF THE ENTRANCE/EXIT SHOULD BE 12 FEET OR THE FULL WIDTH OF EXIT ROADWAY, WHICHEVER IS GREATER.

3. THE CONSTRUCTION ENTRANCE SHOULD BE AT LEAST 50 FEET LONG.

4. IF THE SLOPE TOWARD THE ROAD EXCEEDS 2%, CONSTRUCT A RIDGE, 6–INCHES TO 8–INCHES HIGH WITH 3:1 (H:V) SIDE SLOPES, ACROSS THE FOUNDATION APPROXIMATELY 15 FEET FROM THE ENTRANCE TO DIVERT RUNOFF AWAY FROM THE PUBLIC ROAD.

5. PLACE GEOTEXTILE FABRIC AND GRADE FOUNDATION TO IMPROVE STABILITY, ESPECIALLY WHERE WET CONDITIONS ARE ANTICIPATED.

6. PLACE STONE TO DIMENSIONS AND GRADE SHOWN ON PLANS. LEAVE SURFACE SMOOTH AND SLOPE FOR DRAINAGE.

7. DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE STONE PAD TO A SEDIMENT TRAP OR BASIN.

8. INSTALL PIPE UNDER PAD AS NEEDED TO MAINTAIN PROPER PUBLIC ROAD DRAINAGE.

COMMON TROUBLE POINTS

1. INADEQUATE RUNOFF CONTROL–SEDIMENT WASHES ONTO PUBLIC ROAD.

2. STONE TOO SMALL OR GEOTEXTILE FABRIC ABSENT, RESULTS IN MUDDY CONDITION AS STONE IS PRESSED INTO SOIL.

3. PAD TOO SHORT FOR HEAVY CONSTRUCTION TRAFFIC–EXTEND PAD BEYOND THE MINIMUM 50–FOOT LENGTH AS NECESSARY.

4. PAD NOT FLARED SUFFICIENTLY AT ROAD SURFACE, RESULTS IN MUD BEING TRACKED ON TO ROAD AND POSSIBLE DAMAGE TO ROAD.

5. UNSTABLE FOUNDATION – USE GEOTEXTILE FABRIC UNDER PAD AND/OR IMPROVE FOUNDATION DRAINAGE.

INSPECTION AND MAINTENANCE GUIDELINES

1. THE ENTRANCE SHOULD BE MAINTAINED IN A CONDITION, WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

2. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS–OF–WAY SHOULD BE REMOVED IMMEDIATELY BY CONTRACTOR.

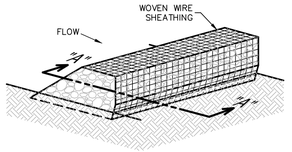
3. WHEN NECESSARY, WHEELS SHOULD BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT–OF–WAY.

4. WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

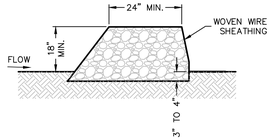
5. ALL SEDIMENT SHOULD BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATER COURSE BY USING APPROVED METHODS.

STABILIZED CONSTRUCTION ENTRANCE/EXIT DETAIL

NOT–TO–SCALE



ISOMETRIC PLAN VIEW



SECTION "A-A"

ROCK BERMS

THE PURPOSE OF A ROCK BERM IS TO SERVE AS A CHECK DAM IN AREAS OF CONCENTRATED FLOW, TO INTERCEPT SEDIMENT–LADEN RUNOFF, DETAIN THE SEDIMENT AND RELEASE THE WATER IN SHEET FLOW. THE ROCK BERM SHOULD BE USED WHEN THE CONTRIBUTING DRAINAGE AREA IS LESS THAN 5 ACRES. ROCK BERMS ARE USED IN AREAS WHERE THE VOLUME OF RUNOFF IS TOO GREAT FOR A SILT FENCE TO CONTAIN. THEY ARE LESS EFFECTIVE FOR SEDIMENT REMOVAL THAN SILT FENCES, PARTICULARLY FOR FINE PARTICLES, BUT ARE ABLE TO WITHSTAND HIGHER FLOWS THAN A SILT FENCE. AS SUCH, ROCK BERMS ARE OFTEN USED IN AREAS OF CHANNEL FLOWS (DITCHES, GULLIES, ETC.). ROCK BERMS ARE MOST EFFECTIVE AT REDUCING BED LOAD IN CHANNELS AND SHOULD NOT BE SUBSTITUTED FOR OTHER EROSION AND SEDIMENT CONTROL MEASURES FARTHER UP THE WATERSHED.

INSPECTION AND MAINTENANCE GUIDELINES

1. INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL BY THE RESPONSIBLE PARTY. FOR INSTALLATIONS IN STREAMBEDS, ADDITIONAL DAILY INSPECTIONS SHOULD BE MADE.

2. REMOVE SEDIMENT AND OTHER DEBRIS WHEN BUILDUP REACHES 6 INCHES AND DISPOSE OF THE ACCUMULATED SILT IN AN APPROVED MANNER THAT WILL NOT CAUSE ANY ADDITIONAL SILTATION.

3. REPAIR ANY LOOSE WIRE SHEATHING.

4. THE BERM SHOULD BE RESHAPED AS NEEDED DURING INSPECTION.

5. THE BERM SHOULD BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.

6. THE ROCK BERM SHOULD BE LEFT IN PLACE UNTIL ALL UPSTREAM AREAS ARE STABILIZED AND ACCUMULATED SILT REMOVED.

MATERIALS

1. THE BERM STRUCTURE SHOULD BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM OPENING OF 1 INCH AND A MINIMUM WIRE DIAMETER OF 20 GAUGE GALVANIZED AND SHOULD BE SECURED WITH SHOAT RINGS.

2. CLEAN, OPEN GRADED 3–INCH TO 5–INCH DIAMETER ROCK SHOULD BE USED, EXCEPT IN AREAS WHERE HIGH VELOCITIES OR LARGE VOLUMES OF FLOW ARE EXPECTED, WHERE 5–INCH TO 8–INCH DIAMETER ROCKS MAY BE USED.

INSTALLATION

1. LAY OUT THE WOVEN WIRE SHEATHING PERPENDICULAR TO THE FLOW LINE. THE SHEATHING SHOULD BE 20 GAUGE WOVEN WIRE MESH WITH 1 INCH OPENINGS.

2. BERM SHOULD HAVE A TOP WIDTH OF 2 FEET MINIMUM WITH SIDE SLOPES BEING 2:1 (H:V) OR FLATTER.

3. PLACE THE ROCK ALONG THE SHEATHING AS SHOWN IN THE DIAGRAM TO A HEIGHT NOT LESS THAN 18".

4. WRAP THE WIRE SHEATHING AROUND THE ROCK AND SECURE WITH TIE WIRE SO THAT THE ENDS OF THE SHEATHING OVERLAP AT LEAST 2 INCHES, AND THE BERM RETAINS ITS SHAPE WHEN WALKED UPON.

5. BERM SHOULD BE BUILT ALONG THE CONTOUR AT ZERO PERCENT GRADE OR AS NEAR AS POSSIBLE.

6. THE ENDS OF THE BERM SHOULD BE TIED INTO EXISTING UPSLOPE GRADE AND THE BERM SHOULD BE BURIED IN A TRENCH APPROXIMATELY 3 TO 4 INCHES DEEP TO PREVENT FAILURE OF THE CONTROL.

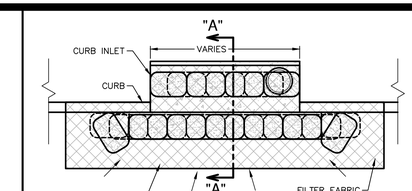
COMMON TROUBLE POINTS

1. INSUFFICIENT BERM HEIGHT OR LENGTH (RUNOFF QUICKLY ESCAPES OVER THE TOP OR AROUND THE SIDES OF BERM).

2. BERM NOT INSTALLED PERPENDICULAR TO FLOW LINE (RUNOFF ESCAPING AROUND ONE SIDE).

ROCK BERM DETAIL

NOT–TO–SCALE



GENERAL NOTES

1. CONTRACTOR TO INSTALL 2"x4"–W1.4xW1.4 WIRE MESH SUPPORTING FILTER FABRIC OVER THE INLET OPENING. FABRIC MUST BE SECURED TO WIRE BACKING WITH CLIPS OR WIRE TIES AT THIS LOCATION. SAND BAGS FILLED WITH WASHED PEA GRAVEL SHOULD BE PLACED ON TOP OF WIRE MESH ON TOP OF THE INLET AS SHOWN ON THIS DETAIL TO HOLD WIRE MESH IN PLACE. SANDBAGS FILLED WITH WASHED PEA GRAVEL SHOULD ALSO BE PLACED ALONG THE GUTTER AS SHOWN ON THIS DETAIL TO HOLD WIRE MESH IN PLACE. SAND BAGS TO BE STACKED TO FORM A CONTINUOUS BARRIER AROUND INLETS.

2. THE BAGS SHOULD BE TIGHTLY ABUTTED AGAINST EACH OTHER TO PREVENT RUNOFF FROM FLOWING BETWEEN THE BAGS.

INSPECTION AND MAINTENANCE GUIDELINES

1. INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL. REPAIR OR REPLACEMENT SHOULD BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.

2. REMOVE SEDIMENT WHEN BUILDUP REACHES A DEPTH OF 3 INCHES. REMOVED SEDIMENT SHOULD BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.

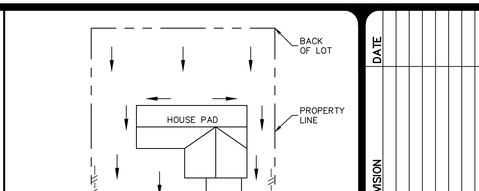
3. CHECK PLACEMENT OF DEVICE TO PREVENT GAPS BETWEEN DEVICE AND CURB.

4. INSPECT FILTER FABRIC AND PATCH OR REPLACE IF TORN OR MISSING.

5. STRUCTURES SHOULD BE REMOVED AND THE AREA STABILIZED ONLY AFTER THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

BAGGED GRAVEL CURB INLET PROTECTION DETAIL

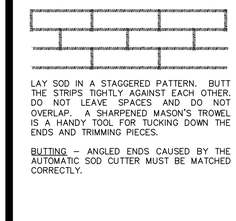
NOT–TO–SCALE



NOTE: SILT FENCE TO BE INSTALLED PER THESE DETAILS AND LOCATED ON THE DOWNGRADIENT SIDE OF EACH LOT LINE OR LIMITS OF CLEARING AS GENERALLY SHOWN ON THE OVERALL SITE PLAN.

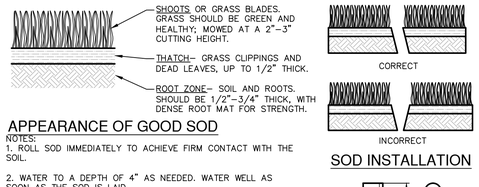
TYPICAL HOUSE LOT LAYOUTS

NOT–TO–SCALE



LAY SOD IN A STAGGERED PATTERN. BUTT THE STRIPS TIGHTLY AGAINST EACH OTHER. DO NOT LEAVE SPACES AND DO NOT OVERLAP. A SHARPENED MASON'S TROWEL IS A HANDY TOOL FOR TUCKING DOWN THE ENDS AND TRIMMING PIECES.

BUTTING – ANGLED ENDS CAUSED BY THE AUTOMATIC SOD CUTTER MUST BE MATCHED CORRECTLY.



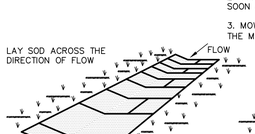
APPEARANCE OF GOOD SOD

NOTES:
1. ROLL SOD IMMEDIATELY TO ACHIEVE FIRM CONTACT WITH THE SOIL.

2. WATER TO A DEPTH OF 4" AS NEEDED. WATER WELL AS SOON AS THE SOD IS LAID.

3. MOW WHEN THE SOD IS ESTABLISHED – IN 2–3 WEEKS. SET THE MOWER HIGH (2"–3").

SOD INSTALLATION



IN CRITICAL AREAS, SECURE SOD WITH NETTING. USE STAPLES.

USE PEGS OR STAPLES TO FASTEN SOD FIRMLY – AT THE ENDS OF STRIPS AND IN THE CENTER, OR EVERY 3–4 FEET IF THE STRIPS ARE LONG. WHEN READY TO MOW, DRIVE PEGS OR STAPLES FLUSH WITH THE GROUND.

MATERIALS

1. SOD SHOULD BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4" INCH (± 1/4" INCH) AT THE TIME OF CUTTING. THIS THICKNESS SHOULD EXCLUDE SHOOT GROWTH AND THATCH.

2. PIECES OF SOD SHOULD BE CUT TO THE SUPPLIER'S STANDARD WIDTH AND LENGTH, WITH A MAXIMUM ALLOWABLE DEVIATION IN ANY DIMENSION OF 5%. TORN OR UNEVEN PADS SHOULD NOT BE ACCEPTABLE.

3. STANDARD SIZE SECTIONS OF SOD SHOULD BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED FROM A FIRM GRASP ON ONE END OF THE SECTION.

4. SOD SHOULD BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS.

SITE PREPARATION

1. PRIOR TO SOIL PREPARATION, AREAS TO BE SODDED SHOULD BE BROUGHT TO FINAL GRADE IN ACCORDANCE WITH THE APPROVED PLAN.

2. THE SURFACE SHOULD BE CLEARED OF ALL TRASH, DEBRIS AND OF ALL ROOTS, BRUSH, WIRE, GRADE STAKES AND OTHER OBJECTS THAT WOULD INTERFERE WITH PLANTING, FERTILIZING OR MAINTENANCE OPERATIONS.

3. FERTILIZE ACCORDING TO SOIL TESTS. FERTILIZER NEEDS CAN BE DETERMINED BY A SOIL TESTING LABORATORY OR REGIONAL RECOMMENDATIONS CAN BE MADE BY COUNTY AGRICULTURAL EXTENSION AGENTS. FERTILIZER SHOULD BE WORKED INTO THE SOIL TO A DEPTH OF 3 INCHES WITH A DISC, SPRINGTOOTH HARROW OR OTHER SUITABLE EQUIPMENT. ON SLOPING LAND, THE FINAL HARROWING OR DISCING OPERATION SHOULD BE ON THE CONTOUR.

INSTALLATION IN CHANNELS

1. SOD STRIPS IN WATERWAYS SHOULD BE LAID PERPENDICULAR TO THE DIRECTION OF FLOW. CARE SHOULD BE TAKEN TO BUTT ENDS OF STRIPS TIGHTLY (SEE FIGURE ABOVE).

2. AFTER ROLLING OR TAMPING, SOD SHOULD BE PEGGED OR STAPLED TO RESIST WASHOUT DURING THE ESTABLISHMENT PERIOD. MESH OR OTHER NETTING MAY BE PEGGED OVER THE SOD FOR EXTRA PROTECTION IN CRITICAL AREAS.

GENERAL INSTALLATION (VA. DEPT. OF CONSERVATION, 1992)

1. SOD SHOULD NOT BE CUT OR LAID IN EXCESSIVELY WET OR DRY WEATHER. SOD ALSO SHOULD NOT BE LAID ON SOIL SURFACES THAT ARE FROZEN.

2. DURING PERIODS OF HIGH TEMPERATURE, THE SOIL SHOULD BE LIGHTLY IRRIGATED IMMEDIATELY PRIOR TO LAYING THE SOD, TO COOL THE SOIL AND REDUCE ROOT BURNING AND DIEBACK.

3. THE FIRST ROW OF SOD SHOULD BE LAID IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO AND BUTTING TIGHTLY AGAINST EACH OTHER. LATERAL JOINTS SHOULD BE STAGGERED TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. CARE SHOULD BE EXERCISED TO ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE DRYING OF THE ROOTS (SEE FIGURE ABOVE).

4. ON SLOPES 3:1 OR GREATER, OR WHEREVER EROSION MAY BE A PROBLEM, SOD SHOULD BE LAID WITH STAGGERED JOINTS AND SECURED BY STAPLING OR OTHER APPROVED METHODS. SOD SHOULD BE INSTALLED WITH THE LENGTH PERPENDICULAR TO THE SLOPE (ON CONTOUR).

5. AS SODDING OF CLEARLY DEFINED AREAS IS COMPLETED, SOD SHOULD BE ROLLED OR TAMPED TO PROVIDE FIRM CONTACT BETWEEN ROOTS AND SOIL.

6. AFTER ROLLING, SOD SHOULD BE IRRIGATED TO A DEPTH SUFFICIENT THAT THE UNDERSIDE OF THE SOD PAD AND THE SOIL 4 INCHES BELOW THE SOD IS THOROUGHLY WET.

7. UNTIL SUCH TIME A GOOD ROOT SYSTEM BECOMES DEVELOPED, IN THE ABSENCE OF ADEQUATE RAINFALL, WATERING SHOULD BE PERFORMED AS OFTEN AS NECESSARY TO MAINTAIN MOIST SOIL TO A DEPTH OF AT LEAST 4 INCHES.

8. THE FIRST MOWING SHOULD NOT BE ATTEMPTED UNTIL THE SOD IS FIRMLY ROOTED, USUALLY 2–3 WEEKS. NOT MORE THAN ONE THIRD OF THE GRASS LEAF SHOULD BE REMOVED AT ANY ONE CUTTING.

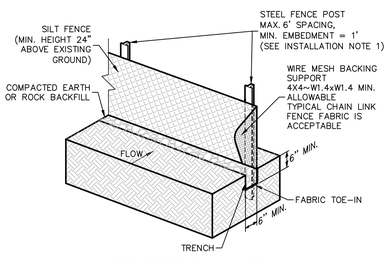
INSPECTION AND MAINTENANCE GUIDELINES

1. SOD SHOULD BE INSPECTED WEEKLY AND AFTER EACH RAIN EVENT TO LOCATE AND REPAIR ANY DAMAGE.

2. DAMAGE FROM STORMS OR NORMAL CONSTRUCTION ACTIVITIES SUCH AS TIRE RUTS OR DISTURBANCE OF SWALE STABILIZATION SHOULD BE REPAIRED AS SOON AS PRACTICAL.

SOD INSTALLATION DETAIL

NOT–TO–SCALE



ISOMETRIC PLAN VIEW

SILT FENCE

A SILT FENCE IS A BARRIER CONSISTING OF GEOTEXTILE FABRIC SUPPORTED BY METAL POSTS TO PREVENT SOIL AND SEDIMENT LOSS FROM A SITE. WHEN PROPERLY USED, SILT FENCES CAN BE HIGHLY EFFECTIVE AT CONTROLLING SEDIMENT FROM DISTURBED AREAS. THEY CAUSE RUNOFF TO POND, ALLOWING HEAVIER SOLIDS TO SETTLE OUT. IF NOT PROPERLY INSTALLED, SILT FENCES ARE NOT LIKELY TO BE EFFECTIVE.

THE PURPOSE OF A SILT FENCE IS TO INTERCEPT AND DETAIN WATER–BORN SEDIMENT FROM UNPROTECTED AREAS OF A LIMITED EXTENT. SILT FENCE IS USED DURING THE PERIOD OF CONSTRUCTION NEAR THE PERIMETER OF A DISTURBED AREA TO INTERCEPT SEDIMENT WHILE ALLOWING WATER TO PERCOLATE THROUGH. THIS FENCE SHOULD REMAIN IN PLACE UNTIL THE DISTURBED AREA IS PERMANENTLY STABILIZED. SILT FENCE SHOULD NOT BE USED WHERE THERE IS A CONCENTRATION OF WATER IN A CHANNEL OR DRAINAGE WAY. IF CONCENTRATED FLOW OCCURS AFTER INSTALLATION, CORRECTIVE ACTION MUST BE TAKEN SUCH AS PLACING A ROCK BERM IN THE AREAS OF CONCENTRATED FLOW.

SILT FENCING WITHIN THE SITE MAY BE TEMPORARILY MOVED DURING THE DAY TO ALLOW CONSTRUCTION ACTIVITY PROVIDED IT IS REPLACED AND PROPERLY ANCHORED TO THE GROUND AT THE END OF THE DAY. SILT FENCES ON THE PERIMETER OF THE SITE OR AROUND DRAINAGE WAYS SHOULD NOT BE MOVED AT ANY TIME.

MATERIALS

1. SILT FENCE MATERIAL SHOULD BE POLYPROPYLENE, POLYETHYLENE, OR POLYAMIDE WOVEN OR NONWOVEN FABRIC. THE FABRIC SHOULD BE 36 INCHES, WITH A MINIMUM UNIT WEIGHT OF 4.5 OZ./YD, MULLEN BURST STRENGTH EXCEEDING 190 LB/IN2, ULTRAVIOLET STABILITY EXCEEDING 70%, AND MINIMUM APPARENT OPENING SIZE OF U.S. SIEVE NUMBER 30.

2. FENCE POSTS SHOULD BE MADE OF HOT ROLLED STEEL, AT LEAST 4 FEET LONG WITH TEE OR Y–BAR CROSS SECTION, SURFACE PAINTED OR GALVANIZED, MINIMUM WEIGHT 1.25 LB/FT, AND BRINDELL HARDNESS EXCEEDING 140.

3. WOVEN WIRE BACKING TO SUPPORT THE FABRIC SHOULD BE GALVANIZED 2" X 4" WELDED WIRE, 12 GAUGE MINIMUM.

INSTALLATION

1. STEEL POSTS, WHICH SUPPORT THE SILT FENCE, SHOULD BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POSTS MUST BE EMBEDDED A MINIMUM OF 1–FOOT DEEP AND SPACED NOT MORE THAN 8 FEET ON CENTER. WHERE WATER CONCENTRATES, THE MAXIMUM SPACING SHOULD BE 6 FEET.

2. LAY OUT FENCING DOWN–SLOPE OF DISTURBED AREA, FOLLOWING THE CONTOUR AS CLOSELY AS POSSIBLE. THE FENCE SHOULD BE SITED SO THAT THE MAXIMUM DRAINAGE AREA IS ¼ ACRE/100 FEET OF FENCE.

3. THE TOE OF THE SILT FENCE SHOULD BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWN–SLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN (E.G., PAVEMENT OR ROCK OUTCROP), WEIGHT FABRIC FLAP WITH 3 INCHES OF PEA GRAVEL ON UPHILL SIDE TO PREVENT FLOW FROM SEEPING UNDER FENCE.

4. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.

5. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE STEEL FENCE POST. THERE SHOULD BE A 3–FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.

6. SILT FENCE SHOULD BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

COMMON TROUBLE POINTS

1. FENCE NOT INSTALLED ALONG THE CONTOUR CAUSING WATER TO CONCENTRATE AND FLOW OVER THE FENCE.

2. FABRIC NOT SEATED SECURELY TO GROUND (RUNOFF PASSING UNDER FENCE).

3. FENCE NOT INSTALLED PERPENDICULAR TO FLOW LINE (RUNOFF ESCAPING AROUND SIDES).

4. FENCE TREATING TOO LARGE AN AREA, OR EXCESSIVE CHANNEL FLOW (RUNOFF OVERTOPS OR COLLAPSES FENCE).

INSPECTION AND MAINTENANCE GUIDELINES

1. INSPECT ALL FENCING WEEKLY, AND AFTER RAINFALL.

2. REMOVE SEDIMENT WHEN BUILDUP REACHES 6 INCHES.

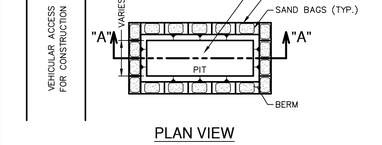
3. REPLACE TORN FABRIC OR INSTALL A SECOND LINE OF FENCING PARALLEL TO THE TORN SECTION.

4. REPLACE OR REPAIR SECTIONS CRUSHED OR COLLAPSED IN THE COURSE OF CONSTRUCTION ACTIVITY. IF A SECTION OF FENCE IS OBSTRUCTING VEHICULAR ACCESS, CONSIDER RELOCATING IT TO A SPOT WHERE IT WILL PROVIDE EQUAL PROTECTION, BUT WILL NOT OBSTRUCT VEHICLES. A TRIANGULAR FILTER DIKE MAY BE PREFERABLE TO A SILT FENCE AT COMMON VEHICLE ACCESS POINTS.

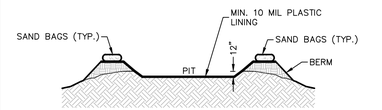
5. WHEN CONSTRUCTION IS COMPLETE, THE SEDIMENT SHOULD BE DISPOSED OF IN A MANNER THAT WILL NOT CAUSE ADDITIONAL SILTATION AND THE PRIOR LOCATION OF THE SILT FENCE SHOULD BE REVEGETATED. THE FENCE ITSELF SHOULD BE DISPOSED OF IN AN APPROVED LANDFILL.

SILT FENCE DETAIL

NOT–TO–SCALE



PLAN VIEW



SECTION "A-A"

GENERAL NOTES

1. DETAIL ABOVE ILLUSTRATES MINIMUM DIMENSIONS. PIT CAN BE INCREASED IN SIZE DEPENDING ON EXPECTED FREQUENCY OF USE.

2. WASHOUT PIT SHALL BE LOCATED IN AN AREA EASILY ACCESSIBLE TO CONSTRUCTION TRAFFIC.

3. WASHOUT PIT SHALL NOT BE LOCATED IN AREAS SUBJECT TO INUNDATION FROM STORM WATER RUNOFF.

4. LOCATE WASHOUT AREA AT LEAST 50 FEET FROM SENSITIVE FEATURES, STORM DRAINS, OPEN DITCHES OR WATER BODIES.

5. TEMPORARY CONCRETE WASHOUT FACILITY SHOULD BE CONSTRUCTED WITH SUFFICIENT QUANTITY AND VOLUME TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS.

MATERIALS

PLASTIC LINING MATERIAL SHOULD BE A MINIMUM OF 10 MIL IN POLYETHYLENE SHEETING AND SHOULD BE FREE OF HOLES, TEARS, OR OTHER DEFECTS THAT COMPROMISE THE IMPERMEABILITY OF THE MATERIAL.

MAINTENANCE

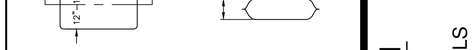
1. WHEN TEMPORARY CONCRETE WASHOUT FACILITIES ARE NO LONGER REQUIRED FOR THE WORK, THE HARDENED CONCRETE SHOULD BE REMOVED AND DISPOSED OF.

2. MATERIALS USED TO CONSTRUCT TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE REMOVED FROM THE SITE OF THE WORK AND DISPOSED OF.

3. HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCES CAUSED BY THE REMOVAL OF THE TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE BACKFILLED AND REPAIRED.

CONCRETE TRUCK WASHOUT PIT DETAIL

NOT–TO–SCALE



PLAN VIEW

SECTION "A-A"

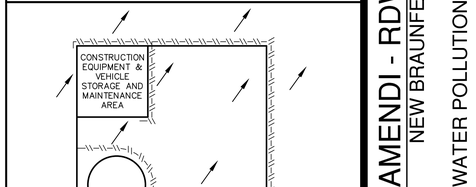
NOTES:
1. THE FILTER BAG MATERIAL SHALL BE MADE OF POLYPROPYLENE, POLYETHYLENE OR POLYAMIDE WOVEN FABRIC, MIN. UNIT WEIGHT OF 4 OUNCES/SY, HAVE A MULLEN BURST STRENGTH EXCEEDING 300 PSI AND ULTRAVIOLET STABILITY EXCEEDING 70%.

2. THE FILTER BAG SHALL BE FILLED WITH CLEAN, MEDIUM WASHED PEA GRAVEL TO COARSE GRAVEL (0.31 TO 0.75 INCH DIAMETER).

3. SAND SHALL NOT BE USED TO FILL THE FILTER BAGS.

GRAVEL FILTER BAG DETAIL

NOT–TO–SCALE



CONSTRUCTION STAGING AREA

NOT–TO–SCALE

THE ENGINEERING SEAL HAS BEEN AFFIXED TO THIS SHEET ONLY FOR THE PURPOSE OF DEMONSTRATING COMPLIANCE WITH THE TPDES–STORM WATER POLLUTION PREVENTION PLAN (SWP3) REGULATIONS.

THIS SHEET HAS BEEN PREPARED FOR PURPOSES OF THE SWP3 ONLY. ALL OTHER CIVIL ENGINEERING RELATED INFORMATION SHOULD BE ACQUIRED FROM THE APPROPRIATE SHEET IN THE CIVIL IMPROVEMENT PLANS.

EXHIBIT 3

NO.	REVISION	DATE

STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED
PROFESSIONAL ENGINEER
8–7–2024

PAPE-DAWSON ENGINEERS
NEW BRAUNFELS | SAN ANTONIO | AUSTIN | HOUSTON | FT WORTH | DALLAS
1672 INDEPENDENCE DR, STE 102 | NEW BRAUNFELS, TX 78132 | 830.632.5533
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

VERAMENDI - RDWY C PHASE 1
NEW BRAUNFELS, TEXAS
STORM WATER POLLUTION PREVENTION DETAILS

PLAT NO. _____
JOB NO. 30001–51
DATE JULY 2024
DESIGNER GDL
CHECKED _____ DRAWN CA
SHEET C8.10

FOR PERMIT

Date: Aug 07, 2024, 11:40am User ID: DLynch
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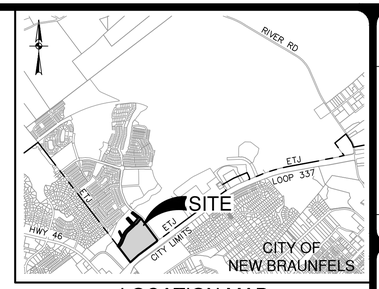


LOCATION MAP

NOT-TO-SCALE

SCALE: 1"= 100'

0' 100' 200' 300'

LEGEND

- DISTURBED AREA
- EXISTING CONTOUR — 690
- PROPOSED CONTOUR — 670
- 100 YR FLOODPLAIN
- DRAINAGE AREA BOUNDARY
- FHA LOT GRADING TYPE — A,B,C
- DIRECTION OF FLOW
- WATERSHED — A
- VEGETATIVE FILTER STRIPS
- UNCAPTURED IMPERVIOUS COVER
- POTENTIAL RECHARGE FEATURE — S–#

Treatment Summary by Watershed

Watershed	Total Watershed Area (ac.)	Proposed Impervious Cover to Treat (ac.)	PBMP	Required TSS Removal Annually (lbs)	TSS Removed Annually (lbs)
A	19.07	1.37	Proposed Batch Detention Basin Roadway C Phase 1	1,230	1,548
B	18.17	-	CLEARING & GRADING	-	-
C	2.12	-	CLEARING & GRADING	-	-
D	3.99	0.77	INTERIM VFS	691	691
UNCAPTURED	0.80	0.67	OVERTREATMENT BY EXISTING BASIN 8 OF VERAMENDI 1A-1	601	283 *See Note 1
TOTAL	44.15	**2.81**	---	2,522	**2,522**

Note 1: The design of Existing Basin 8 (TCEQ WPAP Approval ID No. 13000418) was intentially oversized for in anticipation for overtreament resulting in a max annual TSS removal capacity of 4173 lbs. The appoved conditions require a TSS removal of 3860lbs yielding an extra capacity of 313lbs. The extra capacity of Basin 8 thus provides treatment for the reamaining required TSS removal of 283lbs for the project.

SUMMARY OF PERMANENT POLLUTION ABATEMENT MEASURES

1.) TEMPORARY BMP'S WILL BE MAINTAINED UNTIL THE SITE IMPROVEMENTS ARE COMPLETED AND THE SITE HAS BEEN STABILIZED, INCLUDING SUFFICIENT VEGETATION BEING ESTABLISHED.

2.) DURING CONSTRUCTION, TO THE EXTENT PRACTICAL, CONTRACTOR SHALL MINIMIZE THE AREA OF SOIL DISTURBANCE. AREAS OF DISTURBED SOIL SHALL BE REVEGETATED TO STABILIZE SOIL USING SOLID SOD IN A STAGGERED PATTERN. SEE DETAIL ON TEMPORARY POLLUTION ABATEMENT DETAIL SHEET AND REFER TO SECTION 1.3.11 IN TCEQ'S TECHNICAL GUIDANCE MANUAL RG–348 (2005). SOD SHOULD BE USED IN CHANNELS AND ON SLOPES > 15%. THE CONTRACTOR MAY SUBSTITUTE THE USE OF SOD WITH THE PLACEMENT OF TOP SOIL AND A FRIABLE SEED BED WITH A PROTECTIVE MATTING OR HYDRAULIC MULCH ALONG WITH WATERING UNTIL VEGETATION IS ESTABLISHED. APPLICATIONS AND PRODUCTS SHALL BE THOSE APPROVED BY TXDOT AS OF FEBRUARY 2001 AND IN COMPLIANCE WITH THE TGM RG–348 (2005). SEED MIXTURE AND/OR GRASS TYPE TO BE DETERMINED BY OWNER AND SHOULD BE IN COMPLIANCE WITH TGM RG–348 (2005) GUIDELINES. IRRIGATION MAY BE REQUIRED IN ORDER TO ESTABLISH SUFFICIENT VEGETATION.

3.) FOR DISTURBED AREAS WHERE INSUFFICIENT SOIL EXISTS TO ESTABLISH VEGETATION, CONTRACTOR SHALL PLACE A MINIMUM OF 6" OF TOPSOIL PRIOR TO REVEGETATION.

4.) PERMANENT BMPS FOR THIS SITE INCLUDE ONE (1) BATCH DETENTION BASIN AND ONE (1) INTERIM VEGETATIVE FILTER STRIP (VFS). THESE PERMANENT BMPS HAVE BEEN DESIGNED TO REMOVE AT LEAST 80% OF THE INCREASED TOTAL SUSPENDED SOLIDS (TSS) FOR THE SITE IN ACCORDANCE WITH THE TCEQ'S TECHNICAL GUIDANCE MANUAL (TGM) RG–348 (2005).

PERMANENT POLLUTION ABATEMENT MEASURES

1.) SILT FENCING AND ROCK BERMS, WHERE APPROPRIATE, WILL BE MAINTAINED UNTIL THE ROADWAY, UTILITY, DRAINAGE IMPROVEMENTS, AND BUILDING CONSTRUCTION ARE COMPLETED.

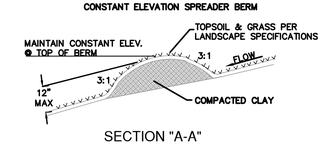
2.) ONE (1) BATCH DETENTION BASIN AND ONE (1) VEGETATIVE FILTER STRIP (VFS) WILL SERVE AS THE PERMANENT BEST MANAGEMENT PRACTICE (BMP) FOR THE AREA.

3.) ENERGY DISSIPATORS (TO HELP REDUCE EROSION) WILL BE PROVIDED AT POINTS OF CONCENTRATED DISCHARGE WHERE EXCESSIVE VELOCITIES MAY BE ENCOUNTERED.

NOTES:

1.) CONTRACTOR SHALL INSTALL AND ESTABLISH VEGETATION FOR SOIL STABILIZATION PRIOR TO SITE CLOSEOUT.

2.) ALL PERMANENT BMP'S MUST BE CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER.



SECTION "A-A"

LEVEL SPREADER/EARTHEN BERM

N.T.S.

CLAY SPECIFICATIONS

PROPERTY	TEST METHOD	SPECIFICATION
PERMEABILITY (CM/SEC)	ASTM D 2434	1 X 10^{-6}
PLASTICITY INDEX OF CLAY (%)	ASTM D 423/D 424	NOT LESS THAN 15
LIQUID LIMIT OF CLAY (%)	ASTM D 2216	NOT LESS THAN 30
CLAY PARTICLES PASSING (%)	ASTM D 422	NOT LESS THAN 30
CLAY COMPACTION (%)	ASTM D 2216	95% OF STANDARD PROCTOR DENSITY

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EXHIBIT 3

FOR PERMIT

NO.	REVISION	DATE

STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED
PROFESSIONAL ENGINEER
8–7–2024

PAPE-DAWSON ENGINEERS
NEW BRAUNFELS | SAN ANTONIO | AUSTIN | HOUSTON | FT WORTH | DALLAS
1672 INDEPENDENCE DR, STE 102 | NEW BRAUNFELS, TX 78132 | 830.632.5633
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

VERAMENDI - RDWY C PHASE 1 AND PRECINCT 11A
NEW BRAUNFELS, TEXAS
WATER POLLUTION ABATEMENT PLAN
PERMANENT POLLUTION ABATEMENT PLAN

PLAT NO.
JOB NO. 30001–51
DATE JULY 2024
DESIGNER GDL
CHECKED DRAWN
SHEET 1 OF 1

Date: Aug 07, 2024, 11:23am User ID: DLynch
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DRAINAGE & GRADING NOTES:

1. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY SIZE, GRADE, AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR, AT HIS EXPENSE.
2. ALL CONCRETE FOR TXDOT DRAINAGE STRUCTURES SHALL MEET TXDOT SPECIFICATIONS. ALL OTHER CONCRETE SHALL BE CLASS "A" 3000 PSI CYLINDER STRENGTH IN 28 DAYS.
3. REFERENCE DRAINAGE DETAILS FOR PIPE TRENCH DETAILS, BOX CULVERT, HEADWALL, AND WINGWALL CONSTRUCTION DETAILS, AND BOX CULVERT BEDDING AND EXCAVATION LIMITS.
4. CONTRACTOR SHALL GROUT ALL CURB INLETS AND JUNCTION BOXES TO PROVIDE FOR POSITIVE DRAINAGE.
5. EARTHEN CHANNELS WILL BE VEGETATED BY SEEDING OR SODDING. 85% OF THE CHANNEL SURFACE MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF NEW BRAUNFELS WILL ACCEPT.
6. CONTRACTOR SHALL MATCH TOP OF CHANNEL TO NATURAL GROUND AND MAINTAIN A MINIMUM CHANNEL DEPTH OF "D" AS SHOWN IN THE PROFILE.
7. ALL RCP SHALL BE AASHTO M170 CLASS III RCP.

CAUTION!!

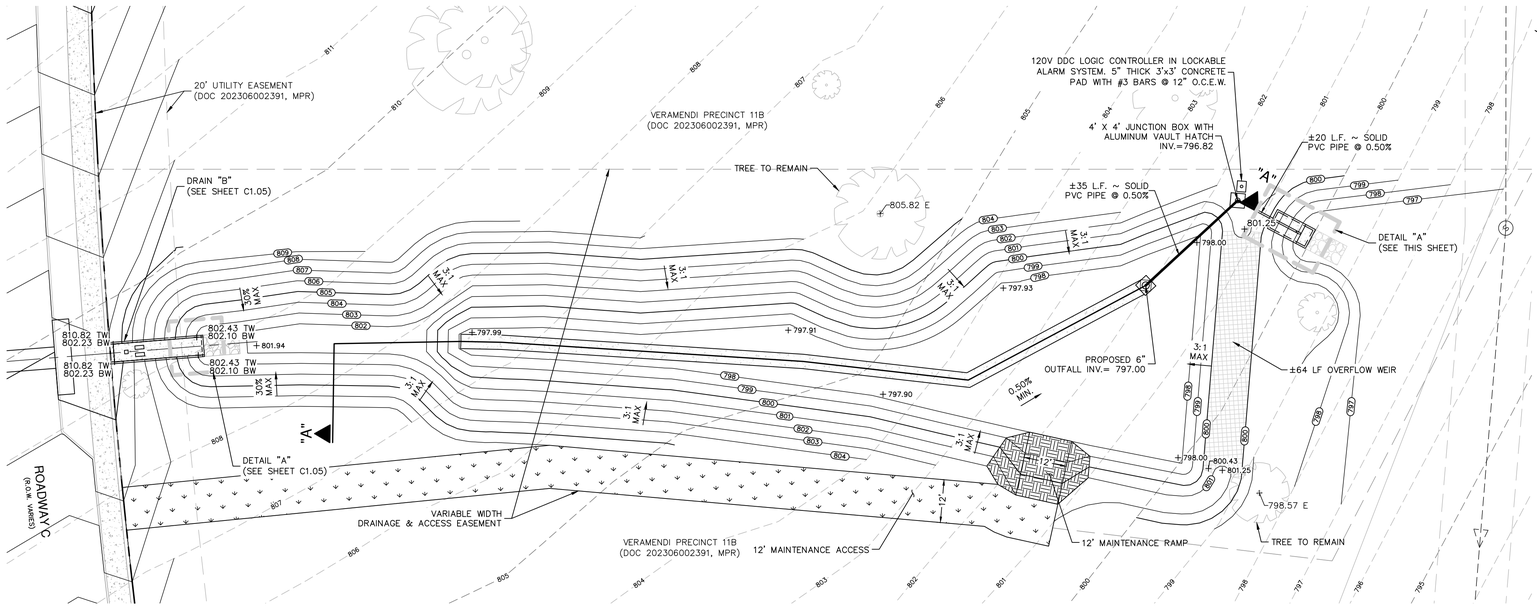
CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT "TEXAS 811" 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.

TRENCH EXCAVATION SAFETY PROTECTION:

CONTRACTOR AND/ OR CONTRACTOR'S 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 /OR 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.

BASIN DESIGN DATA

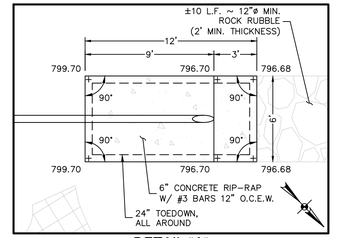
BASIN WATERSHED AREA	=	830,689 SF (19.07AC.)
RUN OFF DEPTH	=	1.60 IN
REQUIRED CAPTURE VOLUME	=	13,957 CF
BASIN STORM WATER DEPTH	=	3.00 FT
BASIN CAPTURE VOLUME	=	14,334 CF
APPROX DRAWDOWN TIME	=	7.27 hrs



SCALE: 1"= 20'
0' 20' 40' 60'

DRAINAGE LEGEND

- PROJECT LIMITS
- 100 YR FLOODPLAIN
- EXISTING CONTOUR — 690 —
- PROPOSED CONTOUR — 690 —
- EXISTING FIRE HYDRANT
- EXISTING WATER — W —
- EXISTING UNDERGROUND ELECTRIC — UGE —
- EXISTING GAS — G —
- EXISTING SEWER — SS —
- PROPOSED SEWER — SS — MANHOLE
- PROPOSED WATER — W — FIRE HYDRANT
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- PROPOSED GAS — G —
- PROPOSED UNDERGROUND ELECTRIC — UGE —
- FLOW ARROW
- CURLEX SINGLE NET EROSION CONTROL BLANKETS



DETAIL "A"
NOT-TO-SCALE

OVERFLOW WEIR CALCULATIONS

$Q_{25} = (Cw)(L)(h)^{3/2}$

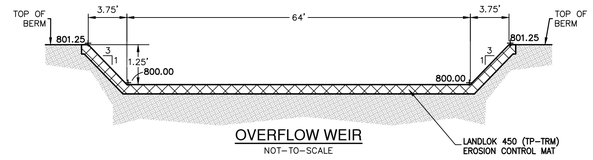
$Q_{25} = 119$ cfs

$C = 2.60$

$L = 64$ ft

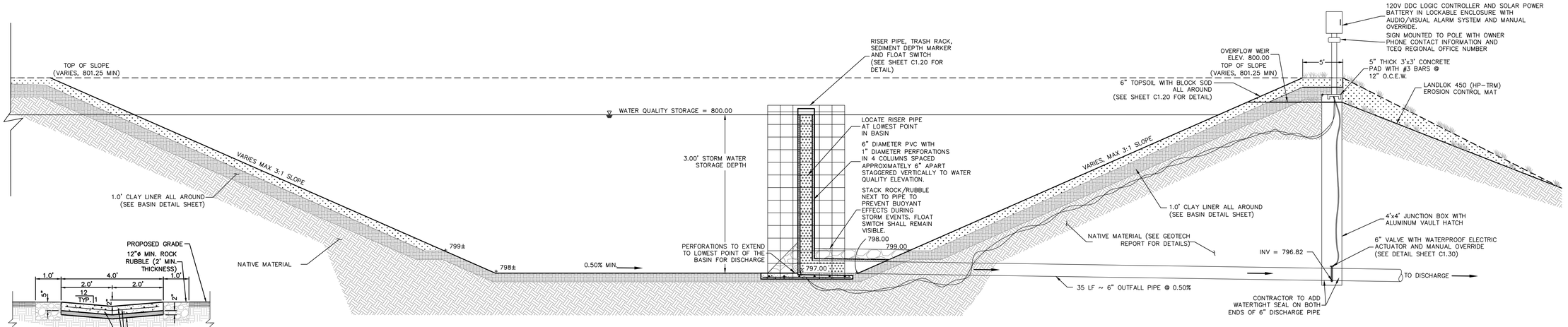
$116 = (2.60)(64)(h)^{3/2}$

$h = 0.80$ ft



OVERFLOW WEIR
NOT-TO-SCALE

M.A.S NOTE:
STAGING AREA REQUIREMENT (800 SQ.FT.) IS SATISFIED BY UTILIZING THE PRIVATE AREA ADJACENT TO THE BASIN AS DESIGNATED IN THE PLAN VIEW ABOVE.



SECTION "A-A"
N.T.S.

CONCRETE V-SWALE
NOT TO SCALE

THE ENGINEERING SEAL HAS BEEN AFFIXED TO THIS SHEET ONLY FOR THE PURPOSE OF DEMONSTRATING COMPLIANCE WITH THE POLLUTION ABATEMENT SIZING AND TREATMENT REQUIREMENTS OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY'S EDWARDS AQUIFER TECHNICAL GUIDANCE MANUAL.

THIS SHEET HAS BEEN PREPARED FOR PURPOSES OF POLLUTION ABATEMENT ONLY. ALL OTHER CIVIL ENGINEERING RELATED INFORMATION SHOULD BE ACQUIRED FROM THE APPROPRIATE SHEET IN THE CIVIL IMPROVEMENT PLANS.

EXHIBIT 5

FOR PERMIT

NO.	REVISION	DATE

STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED
PROFESSIONAL ENGINEER
8-7-2024

PAPE-DAWSON ENGINEERS
NEW BRAUNFELS | SAN ANTONIO | AUSTIN | HOUSTON | FT WORTH | DALLAS
1672 INDEPENDENCE DR, STE 102 | NEW BRAUNFELS, TX 78132 | 830.632.5533
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

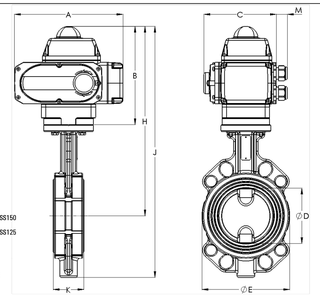
VERAMENDI - RDWY C PHASE 1
NEW BRAUNFELS, TEXAS
WATER QUALITY BASIN PLAN

PLAT NO.
JOB NO. 30001-51
DATE JULY 2024
DESIGNER GDL
CHECKED ____ DRAWN CA
SHEET C1.20

Valworx

SERIES 5670

Dimensions:



Suitable between flanges:

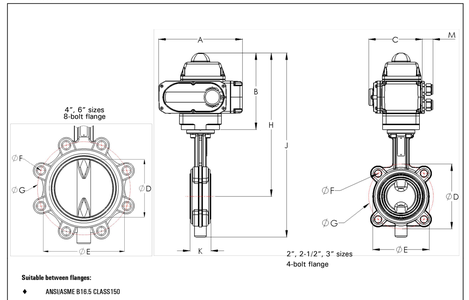
- ANSI/ASME B16.5 CLASS150
- ANSI/ASME B16.1 CLASS125
- EN1092 PN10, PN16
- JIS B 2239 10K, 16K
- BS 10 Table D, Table E

Pipe Size		A	B	C	D	E	H	J	K	M	Weight (AC/DC)
2	inch	6.34	7.09	4.65	1.97	3.90	12.05	15.04	1.81	0.98	10.5/9.3 lb
DN50	mm	161	180	118	50	99	306	382	46	25	4.8/4.3 kg
2-1/2	inch	6.34	7.09	4.65	2.56	4.46	12.36	15.59	1.93	0.98	11.6/10.6 lb
DN65	mm	161	180	118	65	113	314	396	49	25	5.3/4.8 kg
3	inch	6.34	7.09	4.65	3.15	5.07	13.27	17.03	1.93	0.98	13.4/12.4 lb
DN80	mm	161	180	118	80	129	337	432.5	49	25	6.1/5.6 kg
4	inch	6.34	7.09	4.65	3.94	6.17	13.66	18.54	2.20	0.98	17.0/16.0 lb
DN100	mm	161	180	118	100	157	347	471	56	25	7.7/7.3 kg
6	inch	10.08	8.50	6.30	5.91	8.39	16.50	22.24	2.32	0.98	37.2/38.2 lb
DN150	mm	256	216	160	150	213	419	565	59	25	16.9/17.3 kg
8	inch	10.08	8.50	6.30	7.87	10.67	17.48	24.25	2.36	0.98	48.9 lb
DN200	mm	256	216	160	200	271	444	616	60	25	22.2 kg
12	inch	10.08	8.50	6.30	11.81	15.0	19.9	29.4	3.07	0.98	79.4 lb
DN300	mm	256	216	160	300	381	505	747	78	25	36 kg

Valworx

SERIES 5673

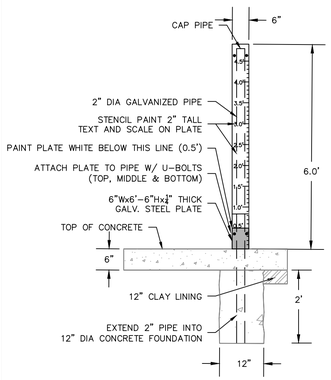
Dimensions:



Suitable between flanges:

- ANSI/ASME B16.5 CLASS150
- ANSI/ASME B16.1 CLASS125

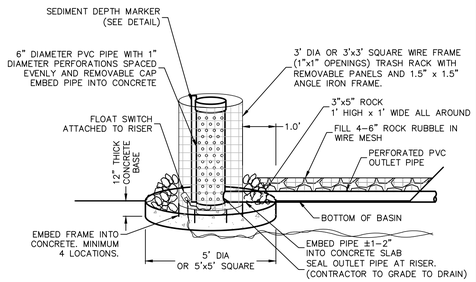
Pipe Size		A	B	C	D	E	F	G	H	J	K	M	ISO	Weight (AC/DC)
2	inch	6.34	7.09	4.65	1.97	3.74	4| 5/8-11	4.74	12.05	15.04	1.81	0.98	F05	12.7 / 13.3 lb
	mm	161	180	118	50	95	--	120.5	306	382	46	25			5.8 / 6.0 kg
2-1/2	inch	6.34	7.09	4.65	2.56	4.13	4| 5/8-11	5.50	12.36	15.59	1.93	0.98	F05	14.5 / 15.0 lb
	mm	161	180	118	65	105	--	139.7	314	396	49	25			6.6 / 6.8 kg
3	inch	6.34	7.09	4.65	3.15	4.72	4| 5/8-11	6.00	13.27	17.03	1.93	0.98	F05	17.3 / 17.8 lb
	mm	161	180	118	80	120	--	152.4	337	432.5	49	25			7.8 / 8.1 kg
4	inch	6.34	7.09	4.65	3.94	5.79	8| 5/8-11	7.50	11.97	18.46	2.20	0.98	F05/F07	22.1 / 22.6 lb
	mm	161	180	118	100	147	--	190.5	304	418	56	25			10.0 / 10.3 kg
6	inch	10.08	8.50	6.30	5.91	8.07	8| 3/4-10	9.50	16.50	22.24	2.32	0.98	F07	50.0 / 51.0 lb
	mm	256	216	160	150	205	--	241.3	419	565	59	25			22.7 / 23.1 kg



SEDIMENT DEPTH MARKER

NOT TO SCALE

NOTE: ONCE SEDIMENT IS ABOVE THE 6" DESIGNATION, THE BASIN MUST BE CLEANED OUT TO DESIGN ELEVATIONS AND VOLUMES PER PLAN.

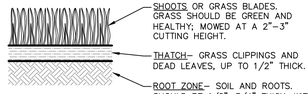


OUTLET STRUCTURE DETAIL WITH SURFACE OUTFALL PIPE

NOT-TO-SCALE

LAY SOD IN A STAGGERED PATTERN. BUTT THE STRIPS TIGHTLY AGAINST EACH OTHER. DO NOT LEAVE SPACES AND DO NOT OVERLAP. A SHARPENED MASON'S TROWEL IS A HANDY TOOL FOR TUCKING DOWN THE ENDS AND TRIMMING PIECES.

BUTTING – ANGLED ENDS CAUSED BY THE AUTOMATIC SOD CUTTER MUST BE MATCHED CORRECTLY.

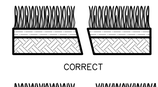


APPEARANCE OF GOOD SOD

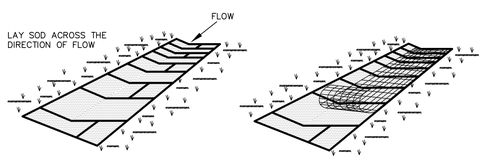
NOTES:
1. ROLL SOD IMMEDIATELY TO ACHIEVE FIRM CONTACT WITH THE SOIL.

2. WATER TO A DEPTH OF 4" AS NEEDED. WATER WELL AS SOON AS THE SOD IS LAID.

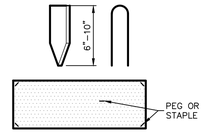
3. MOW WHEN THE SOD IS ESTABLISHED – IN 2-3 WEEKS. SET THE MOWER HIGH (2"-3").



SOD INSTALLATION



IN CRITICAL AREAS, SECURE SOD WITH NETTING. USE STAPLES.



USE PEGS OR STAPLES TO FASTEN SOD FIRMLY – AT THE ENDS OF STRIPS AND IN THE CENTER, OR EVERY 3-4 FEET IF THE STRIPS ARE LONG. WHEN READY TO MOW, DRIVE PEGS OR STAPLES FLUSH WITH THE GROUND.

MATERIALS

1. SOD SHOULD BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4" INCH (± 1/4" INCH) AT THE TIME OF CUTTING. THIS THICKNESS SHOULD EXCLUDE SHOOT GROWTH AND THATCH.

2. PIECES OF SOD SHOULD BE CUT TO THE SUPPLIER'S STANDARD WIDTH AND LENGTH, WITH A MAXIMUM ALLOWABLE DEVIATION IN ANY DIMENSION OF 5%. TORN OR UNEVEN PADS SHOULD NOT BE ACCEPTABLE.

3. STANDARD SIZE SECTIONS OF SOD SHOULD BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED FROM A FIRM GRASP ON ONE END OF THE SECTION.

4. SOD SHOULD BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS.

SITE PREPARATION

1. PRIOR TO SOIL PREPARATION, AREAS TO BE SODDED SHOULD BE BROUGHT TO FINAL GRADE IN ACCORDANCE WITH THE APPROVED PLAN.

2. THE SURFACE SHOULD BE CLEARED OF ALL TRASH, DEBRIS AND OF ALL ROOTS, BRUSH, WIRE, GRADE STAKES AND OTHER OBJECTS THAT WOULD INTERFERE WITH PLANTING, FERTILIZING OR MAINTENANCE OPERATIONS.

3. FERTILIZE ACCORDING TO SOIL TESTS. FERTILIZER NEEDS CAN BE DETERMINED BY A SOIL TESTING LABORATORY OR REGIONAL RECOMMENDATIONS CAN BE MADE BY COUNTY AGRICULTURAL EXTENSION AGENTS. FERTILIZER SHOULD BE WORKED INTO THE SOIL TO A DEPTH OF 3 INCHES WITH A DISC, SPRINGTOOTH HARROW OR OTHER SUITABLE EQUIPMENT. ON SLOPING LAND, THE FINAL HARROWING OR DISCING OPERATION SHOULD BE ON THE CONTOUR.

INSTALLATION IN CHANNELS

1. SOD STRIPS IN WATERWAYS SHOULD BE LAID PERPENDICULAR TO THE DIRECTION OF FLOW. CARE SHOULD BE TAKEN TO BUTT ENDS OF STRIPS TIGHTLY (SEE FIGURE ABOVE).

2. AFTER ROLLING OR TAMPING, SOD SHOULD BE PEGGED OR STAPLED TO RESIST WASHOUT DURING THE ESTABLISHMENT PERIOD. MESH OR OTHER NETTING MAY BE PEGGED OVER THE SOD FOR EXTRA PROTECTION IN CRITICAL AREAS.

GENERAL INSTALLATION (VA. DEPT. OF CONSERVATION, 1992)

1. SOD SHOULD NOT BE CUT OR LAID IN EXCESSIVELY WET OR DRY WEATHER. SOD ALSO SHOULD NOT BE LAID ON SOIL SURFACES THAT ARE FROZEN.

2. DURING PERIODS OF HIGH TEMPERATURE, THE SOIL SHOULD BE LIGHTLY IRRIGATED IMMEDIATELY PRIOR TO LAYING THE SOD, TO COOL THE SOIL AND REDUCE ROOT BURNING AND DIEBACK.

3. THE FIRST ROW OF SOD SHOULD BE LAID IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO AND BUTTING TIGHTLY AGAINST EACH OTHER. LATERAL JOINTS SHOULD BE STAGGERED TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. CARE SHOULD BE EXERCISED TO ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE DRYING OF THE ROOTS (SEE FIGURE ABOVE).

4. ON SLOPES 3:1 OR GREATER, OR WHEREVER EROSION MAY BE A PROBLEM, SOD SHOULD BE LAID WITH STAGGERED JOINTS AND SECURED BY STAPLING OR OTHER APPROVED METHODS. SOD SHOULD BE INSTALLED WITH THE LENGTH PERPENDICULAR TO THE SLOPE (ON CONTOUR).

5. AS SODDING OF CLEARLY DEFINED AREAS IS COMPLETED, SOD SHOULD BE ROLLED OR TAMPED TO PROVIDE FIRM CONTACT BETWEEN ROOTS AND SOIL.

6. AFTER ROLLING, SOD SHOULD BE IRRIGATED TO A DEPTH SUFFICIENT THAT THE UNDERSIDE OF THE SOD PAD AND THE SOIL 4 INCHES BELOW THE SOD IS THOROUGHLY WET.

7. UNTIL SUCH TIME A GOOD ROOT SYSTEM BECOMES DEVELOPED, IN THE ABSENCE OF ADEQUATE RAINFALL, WATERING SHOULD BE PERFORMED AS OFTEN AS NECESSARY TO MAINTAIN MOIST SOIL TO A DEPTH OF AT LEAST 4 INCHES.

8. THE FIRST MOWING SHOULD NOT BE ATTEMPTED UNTIL THE SOD IS FIRMLY ROOTED, USUALLY 2-3 WEEKS. NOT MORE THAN ONE THIRD OF THE GRASS LEAF SHOULD BE REMOVED AT ANY ONE CUTTING.

INSPECTION AND MAINTENANCE GUIDELINES

1. SOD SHOULD BE INSPECTED WEEKLY AND AFTER EACH RAIN EVENT TO LOCATE AND REPAIR ANY DAMAGE.

2. DAMAGE FROM STORMS OR NORMAL CONSTRUCTION ACTIVITIES SUCH AS TIRE RUTS OR DISTURBANCE OF SWALE STABILIZATION SHOULD BE REPAIRED AS SOON AS PRACTICAL.

SOD INSTALLATION DETAIL

NOT-TO-SCALE

NOTES:

1. CONTRACTOR SHALL INSTALL AND ESTABLISH VEGETATION IN BASINS PER BASIN DETAIL SHEET PRIOR TO SITE CLOSEOUT.

2. UPON COMPLETION OF CONSTRUCTION, AND IN ACCORDANCE WITH TCEQ REGULATIONS, ALL PERMANENT BMP'S (FILTERSTRIPS AND BASINS) MUST BE CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER.

3. ALL AREAS DISTURBED AS PART OF CONSTRUCTION OF BASINS SHALL BE REVEGATATED PRIOR TO COMPLETION.

SEQUENCE OF OPERATION

1. UPON ACTIVATION OF FLOAT SWITCH, DDC CONTROLLER TO START DETENTION TIMER #1.
2. DETENTION TIMER #1 TO BE MANUALLY SET TO 12 HOURS AND TO BE USER ADJUSTABLE VALUE.
3. WHEN DETENTION TIMER #1 HAS ELAPSED, A 6" BUTTERFLY VALVE IS TO OPEN AND RELEASE DETAINED WATER BASIN.
4. UPON DEACTIVATION OF FLOAT SWITCH, DDC CONTROL TO START DETENTION TIMER #2.
5. DETENTION TIMER #2 TO BE MANUALLY SET TO 19-48 HOURS AND TO BE USER ADJUSTABLE.
6. WHEN DETENTION TIMER #2 HAS ELAPSED, THE 6" BUTTERFLY VALVE IS TO CLOSE.
7. VALVE TO BE ACTUATED PERIODICALLY TO SHOW ACTIVE REGARDLESS OF FLOAT SWITCH OPERATION.

NOTES TO CONTRACTOR (EACH PHASE OF BASIN CONSTRUCTION)

1. CONTRACTOR IS ADVISED THAT TCEQ DOES NOT ALLOW CHANGES TO PERMANENT POLLUTION ABATEMENT MEASURES WITHOUT THEIR PRIOR APPROVAL.

2. CONTRACTOR SHALL NOTIFY CERTIFYING ENGINEER WHEN BASIN CONSTRUCTION HAS PROGRESSED TO THE FOLLOWING MILESTONES:
   a. REINFORCING STEEL FOR BASIN OVERFLOW WALL OR RIPRAP PILOT CHANNEL HAS BEEN SET, CONCRETE HAS NOT BEEN PLACED AND DRAIN PIPE AND RISER PIPE IS IN PLACE, CONTRACTOR SHALL PROVIDE ENGINEER WITH SURVEY DATA WHICH DEMONSTRATES THE RISER PIPE HAS BEEN SET AT PROPER ELEVATION AND GRADE.
   b. BASIN HAS BEEN COMPLETELY FINISHED INCLUDING SOD OR SEED PLACEMENT ON SIDE SLOPES (WHERE APPLICABLE).

3. WORK SHALL NOT CONTINUE ON THE BASIN UNTIL THE ENGINEER HAS HAD AN OPPORTUNITY TO OBSERVE THE STATUS OF CONSTRUCTION. CONTRACTOR SHALL PROVIDE ENGINEER A MINIMUM OF 24 HOURS ADVANCE NOTICE PRIOR TO TIME THE BASIN WILL BE AT THE REQUIRED STAGE.

4. UPON SUBSTANTIAL COMPLETION, OR AS REQUESTED BY ENGINEER, CONTRACTOR TO PROVIDE CERTIFYING ENGINEER WITH FIELD SHOTS VERIFYING ELEVATIONS OF THE FOLLOWING:

- TOP OF BANK/WALL AT EACH CORNER OF BASIN
- TOE OF SLOPE AT EACH CORNER OF BASIN (INSIDE BASIN TOE)
- SPLASH PAD/INLET PIPES
- OVERFLOW WEIRS

BEFORE FINAL ACCEPTANCE OF CONSTRUCTION BY THE OWNER, THE CONTRACTOR WILL REMOVE ALL TRASH, DEBRIS, AND ACCUMULATED SILT FROM THE BASINS AND REESTABLISH THEM TO THE PROPER OPERATING CONDITION.

CLAY LINER SPECIFICATIONS

PROPERTY	TEST METHOD	SPECIFICATION
PERMEABILITY (CM/SEC)	ASTM D 2434	1×10^{-6}
PLASTICITY INDEX OF CLAY (%)	ASTM D 423/D 424	NOT LESS THAN 15
LIQUID LIMIT OF CLAY (%)	ASTM D 2216	NOT LESS THAN 30
CLAY PARTICLES PASSING (%)	ASTM D 422	NOT LESS THAN 30
CLAY COMPACTION (%)	ASTM D 2216	95% OF STANDARD PROCTOR DENSITY

NOTES:
1. THE CLAY LINER SHALL HAVE A MINIMUM THICKNESS OF TWELVE (12) INCHES.

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EXHIBIT 5

NO.	REVISION	DATE

STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED
PROFESSIONAL ENGINEER
8-7-2024

PAPE-DAWSON ENGINEERS
NEW BRAUNFELS | SAN ANTONIO | AUSTIN | HOUSTON | FT WORTH | DALLAS
1672 INDEPENDENCE DR, STE 102 | NEW BRAUNFELS, TX 78132 | 830.632.5533
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

VERAMENDI - RDWY C PHASE 1
NEW BRAUNFELS, TEXAS

BASIN DETAILS

PLAT NO.
JOB NO. 30001-51
DATE JULY 2024
DESIGNER GDL
CHECKED DRAWN CA
SHEET C1.30

Date: Aug 07, 2024, 11:43am User ID: DLynch
File: P:\300\01\51\Design\Civil\BA-30001-51.dwg

FOR PERMIT