PURLSONG PHASE 1

Water Pollution Abatement Plan

December 2024

PAPE-DAWSON ENGINEERS

Transportation | Water Resources | Land Development | Surveying | Environmental

PURLSONG PHASE 1

Water Pollution Abatement Plan

12/5/2024

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05 December 2024

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

Re: Purlsong Phase 1
Water Pollution Abatement Plan

Dear Ms. Reyes:

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

This Water Pollution Abatement Plan applies to an approximate 135.79 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 ($8,000) and 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
Attachments

P:\300\41\18\Word\Reports\WPAP\2024 - WPAP Cover Letter.docx

12/5/2024

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: Purlsong Phase 1						**2. Regulated Entity No.:**			
3. Customer Name: Chesmar Homes, LLC						**4. Customer No.:** 605592310			
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):**			135.79
9. Application Fee:	$8,000		**10. Permanent BMP(s):**			2xExtended Detention Basins; 3xVFS			
11. SCS (Linear Ft.):			**12. AST/UST (No. Tanks):**						
13. County:	Comal		**14. Watershed:**			Guadalupe River			

Application Distribution

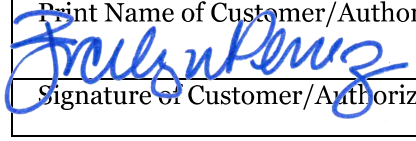
Instructions: Use the table below to determine the number of applications required. One original and one copy of the application, plus additional copies (as needed) for each affected incorporated city, county, and groundwater conservation district are required. Linear projects or large projects, which 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
 12/5/2024 Signature of Customer/Authorized Agent Date

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

GENERAL INFORMATION FORM (TCEQ-0585)

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: 12/5/2024

Signature of Customer/Agent:

Project Information

1. Regulated Entity Name: Purlsong Phase 1
2. County: Comal
3. Stream Basin: Guadalupe River
4. Groundwater Conservation District (If applicable): Edwards Aquifer Authority
5. Edwards Aquifer Zone:

   ☒ Recharge Zone
   ☐ Transition Zone

6. Plan Type:

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

7. Customer (Applicant):

   Contact Person: Colby Mullins
   Entity: Chesmar Homes, LLC
   Mailing Address: 211 N Loop 1604 #175
   City, State: San Antonio, TX Zip: 78323
   Telephone: 713-227-8790 FAX: _____
   Email Address: colby.mullins@chesmar.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, Texas 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 _____.
   ☒ 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 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 2.8 miles to State Highway 46 exit and turn left. Travel approximately 4 miles on State Highway 46 to the project site. The project is located on the left approximately 0.76 mi NW of State Highway 46 and Farm to Market (FM) 2722 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)

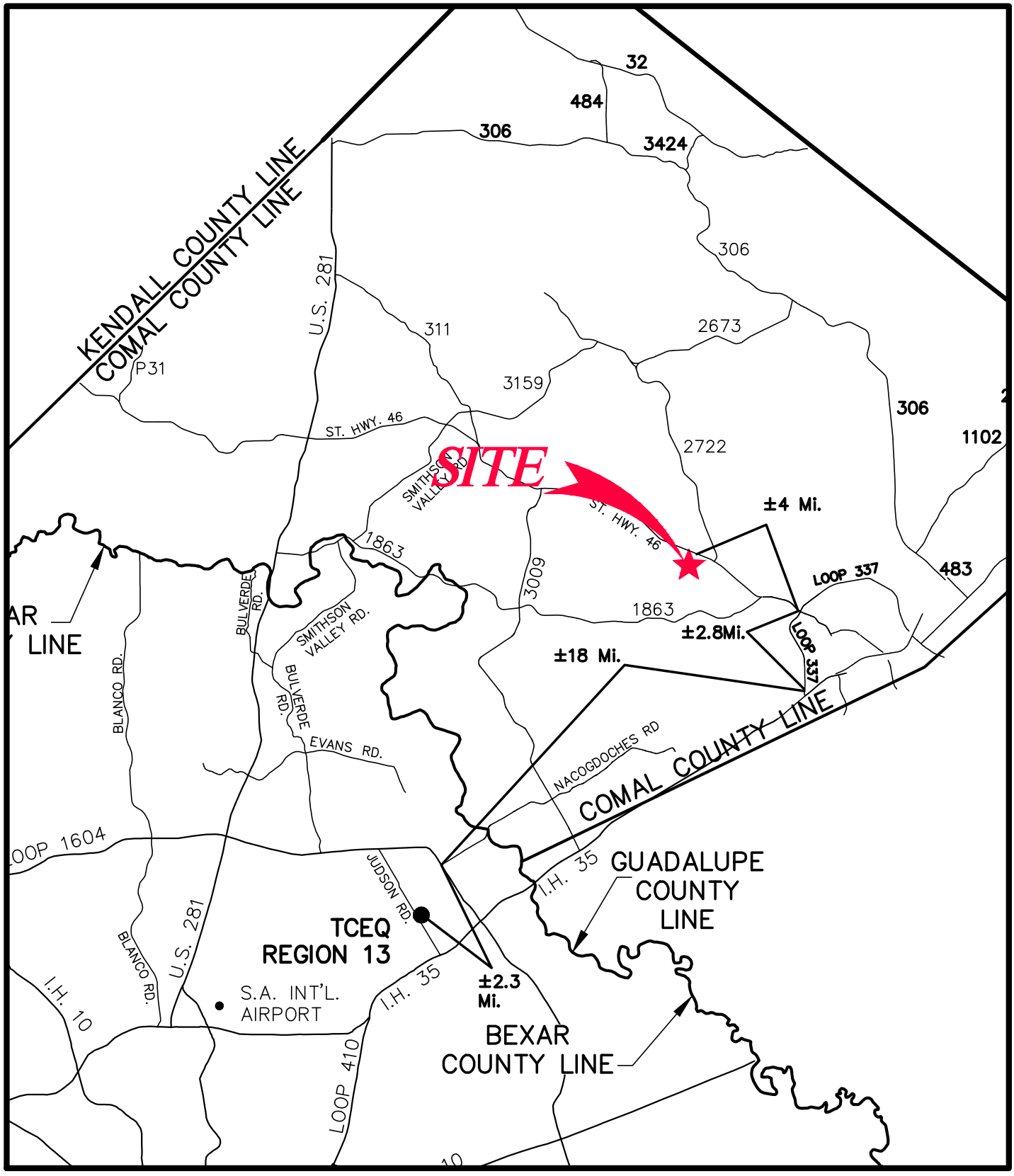
20. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies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

PURLSONG PHASE 1
Water Pollution Abatement Plan

NOT TO SCALE

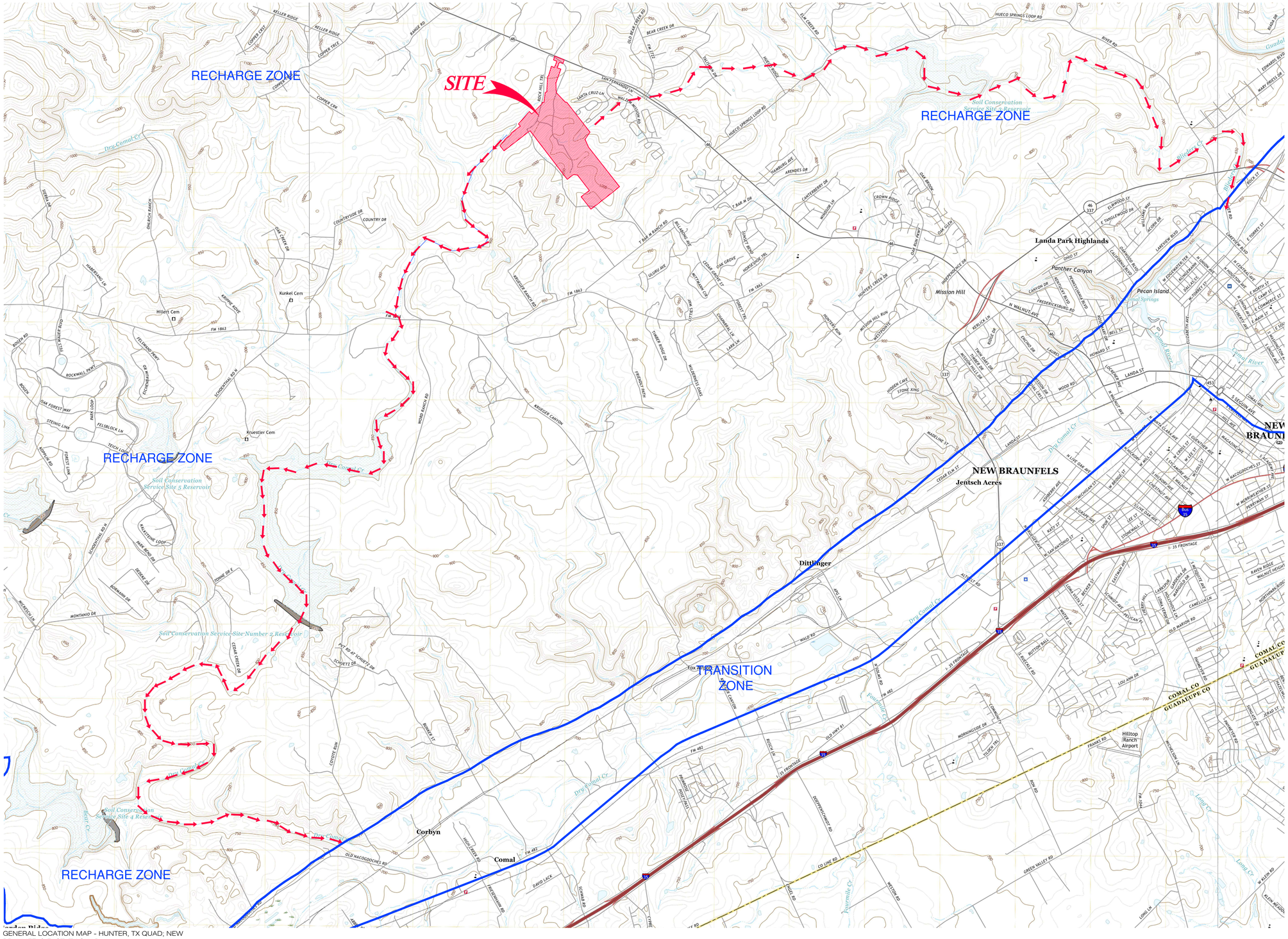


Pape-Dawson Consulting Engineers, LLC.

Date: Oct 30, 2024, 11:33am User ID: DLynch
File: P:\300\41\18\Design\Environmental\RM 3004118.dwg

ATTACHMENT A
Road Map

ATTACHMENT B



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

PURLSONG PHASE 1

WATER POLLUTION ABATEMENT PLAN
USGS/EDWARDS RECHARGE ZONE MAP
ATTACHMENT B

SCALE: 1"= 2,000'
0' 2,000' 4,000' 6,000'

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

Date: October 31, 2024, 10:02 PM - User ID: DLynch
File: P:\300\41\18\Design\Environmental\QD 3004118.dwg

THIS DOCUMENT HAS BEEN PRODUCED FROM MATERIAL THAT WAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED. RELY ONLY ON FINAL HARDCOPY MATERIALS BEARING THE CONSULTANT'S ORIGINAL SIGNATURE AND SEAL. AERIAL IMAGERY PROVIDED BY GOOGLE© UNLESS OTHERWISE NOTED. Imagery © 2016,CAPCOG,Digital Globe,Texas Orthoimagery Program, USDA Farm Service Agency.

ATTACHMENT C

Attachment C – Project Description

Purlsong Phase 1 is a 148 single-family residential and eight (8) single-family condominium lot development part of a planned master development in Comal County, Texas. The site is located approximately 0.76 miles NW of the FM 2722 and State Highway 46 intersection. The property is currently undeveloped, lies within the Guadalupe River watershed, and is within the Edwards Aquifer Recharge Zone. The site does any contain naturally occurring sensitive geological features. Portions of the site lie within the 100-year floodplain.

Regulated activities include clearing, mass grading with stockpiles, grading, excavation, installation of utilities and drainage improvements, construction of two (2) batch detention basins, arterial roadway, eight (8) single-family condominium lots, 148 single family residential homes with associated streets, hardscapes, landscape, and site clean-up. Approximately 52.71 acres of impervious cover, or 38.81% of the 135.79-acre project limits, are proposed for construction in this WPAP. The two (2) proposed batch detention basins, three (3) areas of 15' engineered vegetative filter strips (VFS), and five (5) areas of interim vegetative filter strips are the PBMPs for this development. 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.

This project will result in an estimated additional 211 Living Unit Equivalents (LUEs). The permanent population associated with Purlsong Phase 1 is estimated to be 844 people, based on four (4) persons per residential (148) and per condominium unit (63 units within 8 lots). Approximately 63,300 gallons per day (average flow) of domestic wastewater, based on 300 gpd/LUE, are estimated to be generated by this project.

The sewage flow for the residential lots (approximately 44,400 gpd) will be disposed of by conveyance to the proposed Purlsong Wastewater Treatment Center operated by Guadalupe-Blanco River Authority (GBRA). The sewage flow for the condominium lots (18,900 gpd) will be served by an on-site septic system per lot. Potable water will be supplied by Texas Water Company.

GEOLOGIC ASSESSMENT FORM (TCEQ-0585)

GEOLOGIC ASSESSMENT

For

CHESMAR HOMES TRACT
HIGHWAY 46
NEW BRAUNFELS, COMAL COUNTY, TEXAS

Prepared for
CHESMAR HOMES
211 NORTH LOOP 1604 EAST, SUITE 179
SAN ANTONIO, TX 78232

Prepared by

Professional Service Industries, Inc.
3 Burwood Lane
San Antonio, Texas 78216
Telephone (210) 342-9377

PSI PROJECT NO.: 0435-6189

March 21, 2024

Professional Service Industries, Inc.
3 Burwood Lane, San Antonio, TX 78216
Phone: (210) 342-9377
Fax: (210) 342-9401

March 21, 2024

Chesmar Homes
211 North Loop 1604 East, Suite 179
San Antonio, Texas 78232

Attn: Mr. Carson Trainer
carson.trainer@chesmar.com

RE: Geologic Assessment
Chesmar Homes Tract
State Highway 46, W of F.M. 2722
New Braunfels, Comal County Texas
PSI Project No. 435-6189

Dear Mr. Trainer:

Professional Service Industries, Inc. (PSI) has completed a geologic recharge assessment for the above referenced project in compliance with the Texas Commission on Environmental Quality (TCEQ) requirements for regulated developments located on the Edwards Aquifer Recharge Zone (EARZ). The purpose of this report is to describe surficial geologic units and identify the locations and extent of significant recharge features present in the development area.

AUTHORIZATION

Authorization to perform this assessment was given via a signed copy of PSI Proposal No. 419395 on February 27, 2024.

PROJECT DESCRIPTION

The property consists of an approximate 438-acre tract of land located on the south side of Highway 46 in New Braunfels, Comal County, Texas. The entrance to the site is approximately 0.88 miles west of the intersection of Highway 46 and F.M. 2722. The subject property is located on the Edwards Aquifer Recharge Zone (EARZ), and therefore subject to special rules promulgated by the Texas Commission on Environmental Quality (TCEQ) designed to protect environmentally sensitive areas. The site is currently cultivated agricultural land. The tract is predominantly undeveloped, but a residence and outbuildings are located in the south-central portion of the tract. Vegetation observed included live oak, ashe-juniper, cedar elm, persimmon, mountain laurel, agarita, prickly pear, sotol and other species common to the Edwards/Balcones Fault Zone region. Significant clearing of vegetation took place between 2012 and 2018, with numerous closed depressions from ashe-juniper removal.

REGIONAL GEOLOGY

Physiography

From northwest to southeast, the three physiographic provinces in Comal County are: the Edwards Plateau, the Blackland Prairie, and the West Gulf Coastal Plain. The Edwards Plateau terrain is rugged and hilly, with elevations ranging from 1,100 feet to 1,900 feet above sea level. This area is underlain

by beds of limestone that dip gently to the southeast. South of the Edwards Plateau is the Balcones Fault Zone, which is also the northernmost limit of the Blackland Prairie. The Balcones Fault Zone extends northeast-southwest across Comal County and is composed of fault blocks of limestone, chalk, shale, and marl. The undulating, hilly topography of the Blackland Prairie ranges in elevation from about 700 feet to 1,100 feet above sea level. The faults are predominantly normal, down-to-the Gulf Coast, with near vertical throws. The West Gulf Coastal Plain lies southeast of the Blackland Prairie and is composed of relatively flat-lying beds of marl, clay, and sandy clay According to topographic maps, elevations at the subject site range from approximately 1,072 feet above sea level on the southwest side of the tract, to about 930 feet MSL on the south corner of the square portion of the tract.

Stratigraphy and Structure

According to available information from the U.S. Geologic Survey and the University of Texas Bureau of Economic Geology as well as the site reconnaissance, the underlying stratigraphy consists of the Lower Cretaceous Person and Kainer Formations of the Edwards Group in the northern areas of the site while the remainder of the site is underlain by the Upper Cretaceous Austin Chalk, Eagle Ford Shale, and Buda Limestone. A series of northeast trending faults are mapped across the middle portions of the site. The faults are downthrown to the southeast with the Upper Cretaceous Formations being present in distinct fault blocks. Bedrock outcrops at the site are relatively sparse with most being associated with the Person and Kainer areas along with a few Buda and Austin Chalk bedrock exposures. Limestone boulder float was common in the Person and Kainer areas.

Rocks on the northern portion of the site are members of the Lower Cretaceous Edwards Person Formation. According to "The Geologic Framework and Hydrogeologic Characteristics of the Edwards Aquifer Outcrop, Comal County Texas" written by the USGS, the Person Formation ranges between 180 and 224 feet thick and forms the upper member of the Edwards Group, above the Kainer Formation which compromises the Edwards Aquifer, a federally designated sole source aquifer for the region.

According to the "Geologic Map of the Edwards Aquifer Recharge Zone, South-Central Texas" published by the USGS in 2005, the rocks at the site are the Cyclic and Marine and Leached and Collapsed members of the Person Formation. The Cyclic and Marine member includes chert-bearing mudstone to packstone, miliolid (foraminifera fossil) grainstones, with scattered toucasia (fossil bivalve). The Leached and Collapsed member is a crystalline limestone, ranging from mudstone to grainstone with chert and collapse breccia. It has bioturbated iron-stained beds with very high permeability and cavern development. The Grainstone Member of the Kainer formation occurs in the southwestern portion of the "square" tract. This chert-bearing limestone is a mudstone to wackestone to miliolid (foraminifer microfossil) grainstone. Cavern development is rare to non-existent, and has low permeability due to recrystallization. The thickness of this member is 50-60'.

SITE INVESTIGATION

The site investigation was performed by systematically traversing the subject tract, and mapping fractured or vuggy rock outcrops, closed depressions, sinkholes, caves, or indications of fault/fracture zones. The purpose of the site investigation was to delineate features with recharge potential that may warrant special protection or consideration. The results of the site investigation are included in the attached TCEQ report format.

Feature S-1 and S-2 were fractured rock outcrops on the east side of the site but were not considered sensitive due to a lack of significant interconnection potential with the subsurface. Features S-3 and S-16 were man made water well features located on the south-central and east sides of the tract, respectively. Features S-4 and S-7 were fractured rock outcrop features on uplands, but did not rate as sensitive features. Feature S-5 is a sinkhole in a drainage in the southwestern portion of the "square" part of the site. This feature's location in a drainage, in proximity to a mapped fault, combine to elevate the sensitivity rating. Features S-6, S-18, S-19 and S-20 are the aforementioned mapped faults traversing the site. Thick soil cover precluded obvious indication of the faults in the field, and based on the geologic maps reviewed, the vertical throws of the fault were limited. Feature S-8 is a man-made pond/stock tank in the south-central portion of the site, does not rate as sensitive due to impedance of the vertical flow potential. Feature S-9 is a septic tank associated with the residence in the south-central portion of the site. By design, there is a vertical flow potential, and thus this feature rates as sensitive, but does not warrant protective buffers if the feature will be properly removed and decommissioned as part of site development. Feature S-10 is a cave in the north-central portion of the "square" tract. A rock appears to have been placed over the feature to restrict access, but significant air flow was noted coming out of the cave, suggesting a large feature, and thus rated sensitive. Feature S-11 is a fractured rock outcrop in the southwest flowing drainage on the south side of the "square" tract. Feature S-12 is a small solution cavity on uplands associated with a tributary drainage in the south-central portion of the "square" tract. The limited vertical extent resulted in a non-sensitive designation. Features S-13, S-14 and S-15 were closed depressions that while notable, were all soil filled and likely related to vegetation clearing activities, and not considered sensitive.

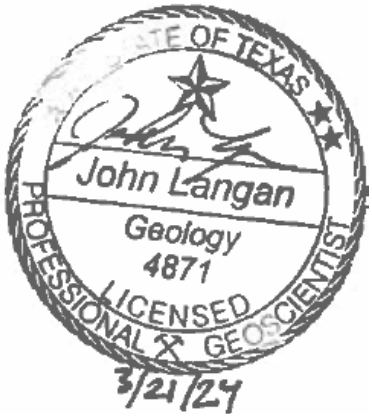
SUMMARY

Three sensitive features were noted on the subject tract, a sinkhole feature in a drainage (S-5), a cave feature S-10, and a man-made septic system feature S-9. Please note that subtle features, buried or obscured from view, may be present on the tract. It is possible that clearing/construction activities will reveal the presence of features currently hidden by thick vegetation and/or soil cover. If caves, sinkholes, or solution cavities are encountered during future clearing/construction activities, please contact our office for additional assistance.

We appreciate this opportunity to be of service to you. If you have any questions, please do not hesitate to contact our office.

Respectfully submitted,
PROFESSIONAL SERVICE INDUSTRIES, INC.

John Langan, P.G.
Environmental Department Manager



WARRANTY

The field observations and research reported herein are considered enough in detail and scope to form a reasonable basis for a general geological recharge assessment of this site. PSI warrants that the findings and conclusions contained herein have been promulgated in accordance with generally accepted geologic methods, only for the site described in this report. These methods have been developed to provide the client with information regarding apparent indications of existing or potential conditions relating to the subject site and are necessarily limited to the conditions observed at the time of the site visit and research. This report is also limited to the information available at the time it was prepared. In the event additional information is provided to PSI following the report, it will be forwarded to the client in the form received for evaluation by the client. There is a possibility that conditions may exist which could not be identified within the scope of the assessment, or which were not apparent during the site visit. PSI believes that the information obtained from others during the review of public information is reliable; however, PSI cannot warrant or guarantee that the information provided by others is complete or accurate.

This report has been prepared for the exclusive use of Chesmar Homes, Inc. for the site discussed herein. Reproductions of this report cannot be made without the expressed approval of Chesmar Homes. The general terms and conditions under which this assessment was prepared apply solely to Chesmar Homes. No other warranties are implied or expressed.

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: John Langan Telephone: 210/342-9377

Date: 03/21/24 Fax: 210/342-9401

Representing: PSI TBPG No. 50128 (Name of Company and TBPG or TBPE registration number)

Signature of Geologist:

Regulated Entity Name: Chesmar Homes Tract

Project Information

1. Date(s) Geologic Assessment was performed: 03/07-19/24
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)
Comfort-Rock outcrop complex, undulating	A	1-2
Medlin-Eckrant association, undulating	B	1-2
Real gravelly loam, 1 to 8 percent slopes	B	1-2
Rumple-Comfort association, undulating (RUD)	B	1-2
Purves Clay 1-4% slopes	B	1-2

** 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" = 1,458'

9. Method of collecting positional data:

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

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

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

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

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

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

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

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

Administrative Information

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

STRATIGRAPHIC COLUMN
Chesmar Homes Tract
Highway 46
New Braunfels, Texas

FORMATION	THICKNESS	LITHOLOGIC DESCRIPTION
Austin Chalk	325-420	Chalk and marl, microgranular calcite with foraminifera microfossils and calcareous nannoplankton; forms ledges, gray to white in color, alternates with marl and bentonitic seams, with pyrite nodules and abundant marine fossils including pelecypods and ammonites
Eagle Ford Group	25-45	Shale and limestone, with silty shale in the upper part, the middle part consists of a silty limestone grading into a calcareous siltstone, flaggy, medium gray, weathering to a pale yellowish brown.
Buda Limestone	45	Fine-grained, massive, poorly bedded to nodular, bioclastic, commonly glauconitic, pyritiferous, weathers to a dark gray to brown, with abundant pelecypods
Del Rio Clay	40-50	Calcareous and gypsiferous, with pyrite common, with a blocky structure that weathers to light gray or yellowish gray. The characteristic marine megafossil, *Ilmatogyra arietina* (formerly *exogyra arietina*) is widespread throughout the formation.
Georgetown Formation	10-40’	Light tan limestone identified by proximity to Del Rio clay and diagnostic marker fossil: *waconella wacoensis* brachiopod; low porosity and permeability development.
Person Formation	180-224’	Limestones and dolomites, extensive porosity development in “honeycomb sections, interbedded with massive, recrystallized limestones with more limited permeabilities (especially Regional Dense Member separating the Person and Kainer Formations.
Kainer Formation	260-310’	Hard, miliolid limestones, overlying calcified dolomites and dolomite. Leached evaporitic “Kirschberg” zone of very porous and permeable collapse breccia formed by the dissolution of gypsum. Overlies the basal nodular (Walnut) bed.
Glen Rose Limestone (upper)	200-400	limestone, dolomite, and marl as alternation resistant and recessive beds forming stairstep topography; limestone, aphanitic to fine grained, hard to soft and marly, light gray to yellowish gray; dolomite, fine grained, porous, yellowish brown; marine megafossils include molluscan steinkerns, rudistids, oysters, and echinoids. Upper part, Kgru, relatively thinner bedded, more dolomitic, and less fossiliferous;

SOILS NARRATIVE

According to the Soil Survey of Comal County, published by the United States Department of Agriculture, Soil Conservation Service, in cooperation with the Texas Agricultural Extension Service, reissued in 1984, the soils beneath the subject property have been classified as Comfort-Rock outcrop complex (CrD), Medlin-Eckrant association, undulating (MEC), Real gravelly loam, 1-8% slopes (RaD) and Rumple-Comfort association, undulating (RUD).

Comfort-Rock outcrop complex, undulating (CrD) – shallow, well drained, moderate permeability, very low available water capacity, moderate hazard of water erosion, chalk fragments.

Medlin-Eckrant association, undulating (MEC) – very shallow, calcareous, moderately alkaline, well drained, rapid surface runoff, moderately to very slow permeability, very low to high water holding capacity, slight to severe hazard of water erosion, overlies limestone.

Real gravelly loam, 1 to 8 percent slopes (RaD) – shallow, well drained, rapid surface runoff, extremely stony, moderate permeability, very low available water capacity, slight hazard of water erosion, overlies platy chalk.

Rumple-Comfort association soils are shallow to moderately deep soils on uplands in the Edwards Plateau. The surface layer is a dark reddish-brown cherty clay loam about 10 inches thick and overlies a subsoil of reddish-brown cherty clay with abundant limestone fragments to a depth of 28 inches. The underlying parent material is an indurated limestone. The soil is well drained, with medium surface runoff, moderately slow permeability, and very low available water capacity. The soil is not suited for cropland, or cultivation, but is used as range land and habitat for wildlife.

SITE GEOLOGIC NARRATIVE

Physiography

From northwest to southeast, the three physiographic provinces in Comal County are: the Edwards Plateau, the Blackland Prairie, and the West Gulf Coastal Plain. The Edwards Plateau terrain is rugged and hilly, with elevations ranging from 1,100 feet to 1,900 feet above sea level. This area is underlain by beds of limestone that dip gently to the southeast. South of the Edwards Plateau is the Balcones Fault Zone, which is also the northernmost limit of the Blackland Prairie. The Balcones Fault Zone extends northeast-southwest across Comal County and is composed of fault blocks of limestone, chalk, shale, and marl. The undulating, hilly topography of the Blackland Prairie ranges in elevation from about 700 feet to 1,100 feet above sea level. The faults are predominantly normal, down-to-the Gulf Coast, with near vertical throws. The West Gulf Coastal Plain lies southeast of the Blackland Prairie and is composed of relatively flat-lying beds of marl, clay, and sandy clay According to topographic maps, elevations at the subject site range from approximately 1,072 feet above sea level on the southwest side of the tract, to about 930 feet MSL on the south corner of the square portion of the tract.

Stratigraphy and Structure

According to available information from the U.S. Geologic Survey and the University of Texas Bureau of Economic Geology as well as the site reconnaissance, the underlying stratigraphy consists of the Lower Cretaceous Person and Kainer Formations of the Edwards Group in the northern areas of the site while the remainder of the site is underlain by the Upper Cretaceous Austin Chalk, Eagle Ford Shale, and Buda Limestone. A series of northeast trending faults are mapped across the middle portions of the site. The faults are downthrown to the southeast with the Upper Cretaceous Formations being present in distinct fault blocks. Bedrock outcrops at the site are relatively sparse with most being associated with the Person and Kainer areas along with a few Buda and Austin Chalk bedrock exposures. Limestone boulder float was common in the Person and Kainer areas.

Rocks on the northern portion of the site are members of the Lower Cretaceous Edwards Person Formation. According to “The Geologic Framework and Hydrogeologic Characteristics of the Edwards Aquifer Outcrop, Comal County Texas” written by the USGS, the Person Formation ranges between 180 and 224 feet thick and forms the upper member of the Edwards Group, above the Kainer Formation which compromises the Edwards Aquifer, a federally designated sole source aquifer for the region.

According to the “Geologic Map of the Edwards Aquifer Recharge Zone, South-Central Texas” published by the USGS in 2005, the rocks at the site are the Cyclic and Marine and Leached and Collapsed members of the Person Formation. The Cyclic and Marine member includes chert-bearing mudstone to packstone, miliolid (foraminifera fossil) grainstones, with scattered toucasia (fossil bivalve). The Leached and Collapsed member is a crystalline limestone, ranging from mudstone to grainstone with chert and collapse breccia. It has bioturbated iron-stained beds with very high permeability and cavern development. The Grainstone Member of the Kainer formation occurs in the

southwestern portion of the “square” tract. This chert-bearing limestone is a mudstone to wackestone to miliolid (foraminifer microfossil) grainstone. Cavern development is rare to non-existent, and has low permeability due to recrystallization. The thickness of this member is 50-60’.

SITE INVESTIGATION

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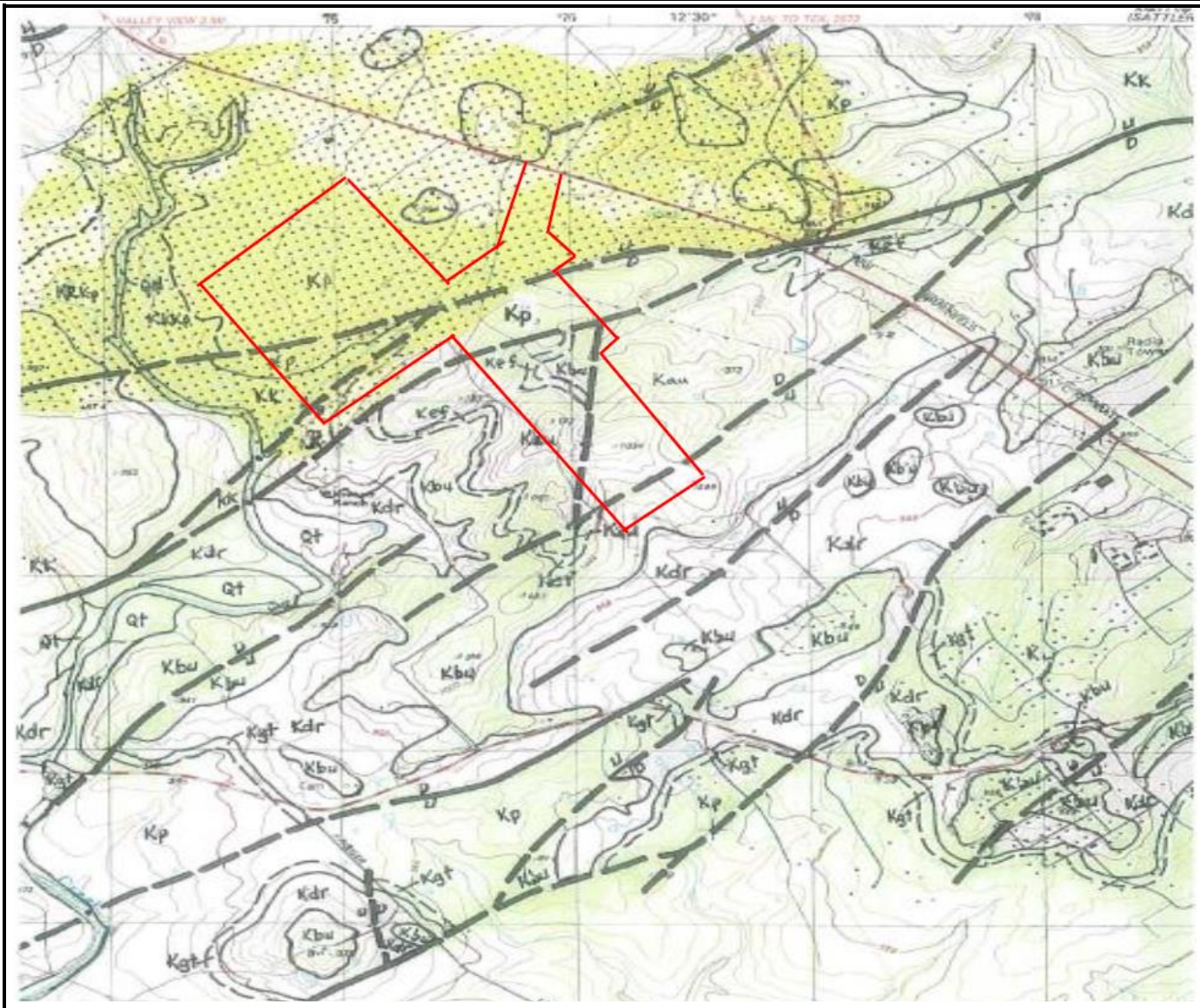

PSI, Inc.
3 Burwood Lane
San Antonio, Texas 78216

PROJECT NAME:
Chesmar Homes Tract
Highway 46
New Braunfels, Texas
PROJECT NO.:435-6189

STATE OF TEXAS
John Langan
Geology
4871
LICENSED
PROFESSIONAL TX GEOSCIENTIST
5/21/24

Geologic Map

From USGS "Geologic Map of the New Braunfels West Quadrangle, Texas (Bureau of Economic Geology-Collins, 1993), modified from King (1957) and Abbott (1973)

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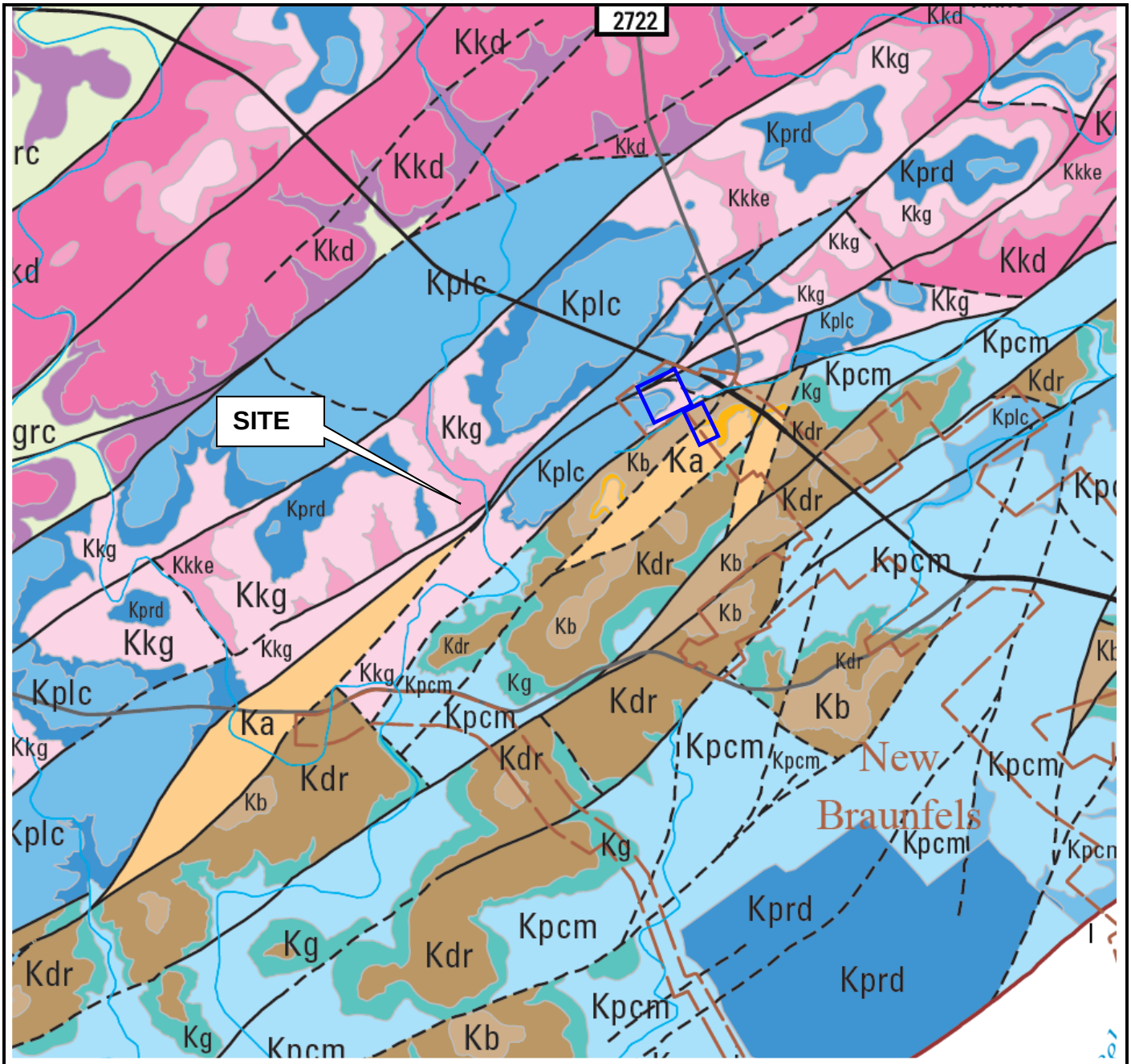

intertek psi

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Geologic Map

From USGS "Geologic Framework and Hydrostratigraphy of the Edwards & Trinity Aquifers Within Northern Bexar & Comal Counties, Scientific Investigations Map 3366 Texas"(Clark, Golab and Morris, 2016)

N

Geologic Framework and Hydrostratigraphy of the Edwards and Trinity Aquifers Within Northern Bexar and Comal Counties, Texas

By

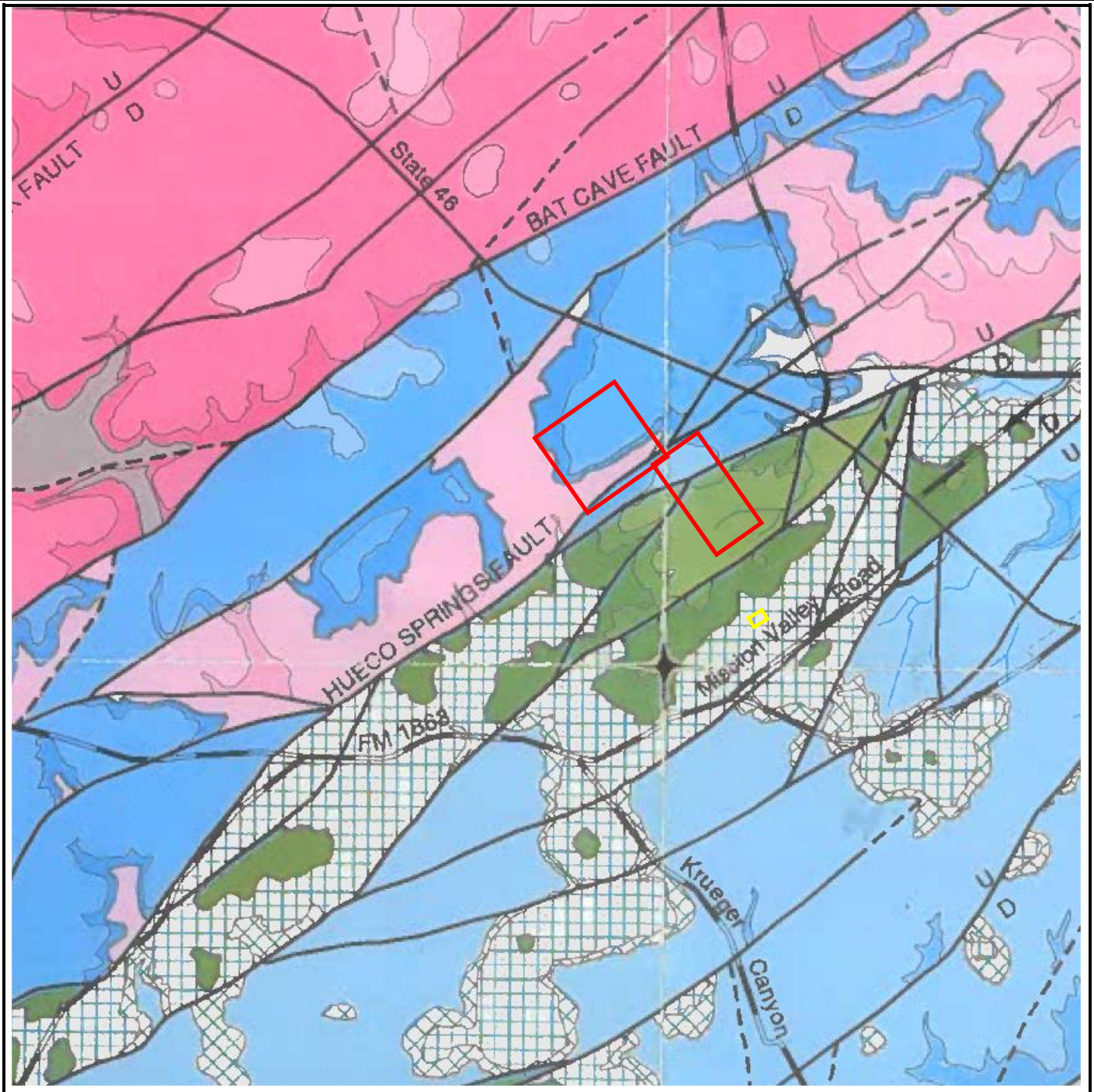
Allan K. Clark, James G. Golab, and Robert R. Morris

2016

Edwards	Person	Cyclic and marine, undivided	Pelletal limestone, mudstone, miliolid grainstone, packstone, chert (bedded and large nodules); caprinids, crossbedded	Kpcm	Edwards aquifer	II	80–90	Aquifer	MO, BU, VUG, BP, FR, CV	Thin graded cycles; massive beds to relatively thin beds; crossbeds, caprinids
		Leached and collapsed, undivided	Recrystallized limestone, mudstone, wackestone, packstone, grainstone; chert (bedded and large nodules); iron stained, stromatolitic, *Toucasia* sp., *Montastrea roemeriana*, oysters	Kplc		III	70–90	Aquifer	BU, VUG, FR, BP, BR, CV	Bioturbated iron-stained beds separated by massive limestone beds; stromatolitic limestone, *Montastrea roemeriana*
		Regional dense	Dense, shaly, mudstone, wackestone, oyster-shell mudstone and wackestone, iron staining, chert	Kprd		IV	20–24	Confining	FR, CV	Wispy iron-oxide stains, thin bedded, often white in aerial photographs
	Kainer	Grainstone	Miliolid, skeletal fragmented grainstone, mudstone, wackestone; chert (beds and nodules); crossbedded and ripple marked	Kkg		V	40–50	Aquifer	IP, IG, BU, FR, BP, CV	Crossbedded, ripple marks, miliolid grainstone
		Kirschberg Evaporite	Highly altered crystalline limestone, chalky mudstone, occasional grainstone associated with tidal channels; chert (beds and nodules), coarse grained spar, breccia, travertine	Kkke		VI	40–50	Aquifer	IG, MO, VUG, FR, BR, CV	Boxwork porosity with neospar and travertine frame
		Dolomitc	Chert (absent in lower 20 ft), dolomitic mudstone, wackestone, packstone, grainstone	Kkd		VII	90–120	Aquifer	IP, IC, IG, MO, BU, VUG, FR, BP, CV	Massively bedded light gray, *Toucasia* sp., abundant
		Basal nodular	Shaly, nodular, burrowed mudstone, wackestone, packstone, miliolid grainstone, dolomite, contains dark, spherical textural features locally known as BRBs; *Ceratostreon texana*, *Caprina* sp., miliolids, and gastropods	Kkbn		VIII	40–50	Aquifer, confining unit in areas without caves	IP, MO, BU, BP, FR, CV	Massive, nodular and mottled limestone, BRBs and orange wisps, *Ceratostreon* [*Exogyra*] *texana*, seeps and springs, ferns growing near contact of underlying unit
		Upper	Evaporites, wackestone, packstone, miliolid grainstone, argillaceous limestone, heavily bioturbated; occasional dinosaur tracks	Kgrc	of the Trinity aquifer	Cavernous	0–120 (absent in northern Comal County)	Aquifer	MO, BR, BP, FR, CV	Heavily bioturbated, evaporite beds, caves
			Alternating beds of burrowed wackestone, packstone, miliolid grainstone, argillaceous limestone	Kgrcb		Camp Bullis (B)	120–230 (thicker in northern Comal County)	Confining	BU, BP, FR, occasional CV	Alternating beds of limestone and argillaceous limestone, fossils rare, stairstep topography
			Dissolved evaporites, highly altered crystalline limestone and chalky mudstone, breccia, boxwork voids	Kgrue		Upper evaporite (C)	0–10	Aquifer	IP, MO, BU, BR	Weathers to an orangish red with a pebbly texture, often has less cedar growth and thicker grasses, boxwork porosity, springs and seeps

EXPLANATION OF HYDROSTRATIGRAPHIC UNITS

Group or Formation	Formal and informal member		Hydrologic unit or Informal hydrostratigraphic unit
Taylor Group (Pecan Gap)		Kpg	Upper Confining Unit (UCU)
Austin Group		Ka	
Eagle Ford Group		Kef	
Buda Limestone		Kb	
Del Rio Clay		Kdr	
Georgetown Formation		Kg	I
Person Formation	Cyclic and marine, undivided	Kpcm	II
	Leached and collapsed	Kplc	III
	Regional dense member	Kprd	IV
Kainer Formation	Grainstone	Kkg	V
	Kirschberg evaporite	Kkke	VI
	Dolomitic	Kkd	VII
	Basal nodular	Kkbn	VIII
Glen Rose Limestone	Upper Glen Rose Limestone	Kgrc	Cavernous
		Kgrcb	Camp Bullis
		Kgrue	Upper evaporite
		Kgruf	Fossiliferous Upper
		Kgrlf	Lower
		Kgrle	Lower evaporite



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Geologic Map

From USGS "Geologic Map of the Edwards Aquifer Recharge Zone, South-Central Texas"

(Blome, Faith, Pedraza, et al, 2005)

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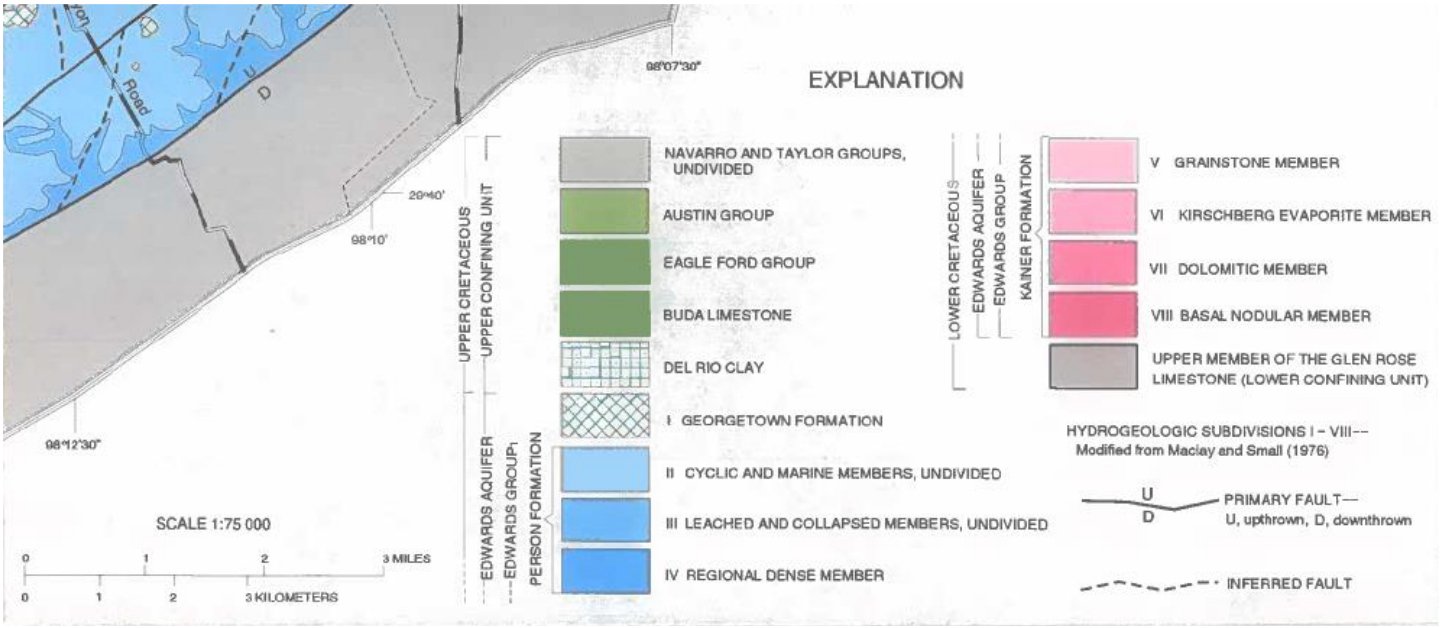
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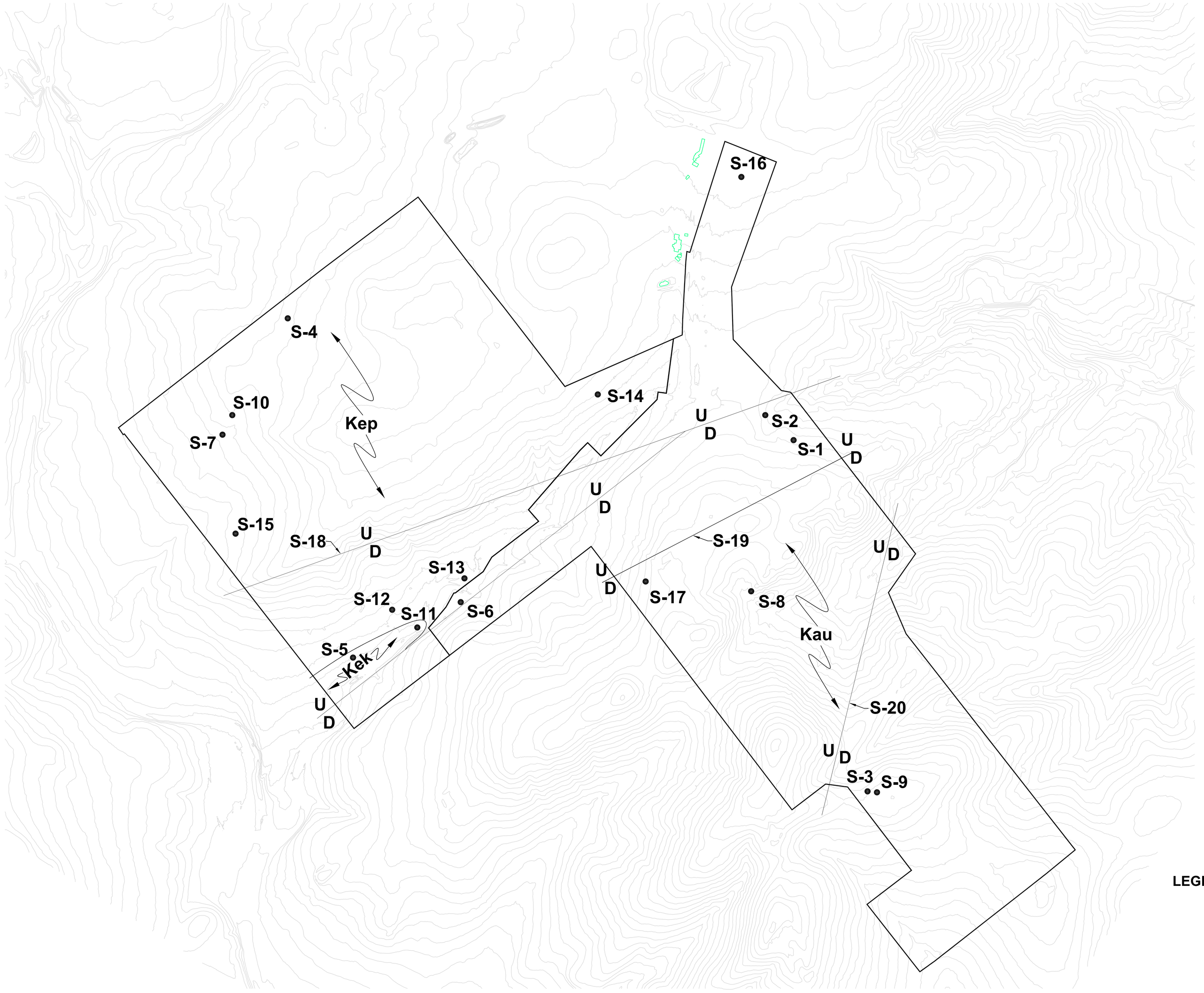
29°40'
98°10'
98°12'30"
SCALE 1:75 000
0 1 2 3 MILES
0 1 2 3 KILOMETERS
EXPLANATION
UPPER CRETACEOUS
UPPER CONFINING UNIT
EDWARDS AQUIFER
EDWARDS GROUP
PERSON FORMATION
NAVARRO AND TAYLOR GROUPS, UNDIVIDED
AUSTIN GROUP
EAGLE FORD GROUP
BUDA LIMESTONE
DEL RIO CLAY
I GEORGETOWN FORMATION
II CYCLIC AND MARINE MEMBERS, UNDIVIDED
III LEACHED AND COLLAPSED MEMBERS, UNDIVIDED
IV REGIONAL DENSE MEMBER
LOWER CRETACEOUS
EDWARDS AQUIFER
EDWARDS GROUP
KAINER FORMATION
V GRAINSTONE MEMBER
VI KIRSCHBERG EVAPORITE MEMBER
VII DOLOMITIC MEMBER
VIII BASAL NODULAR MEMBER
UPPER MEMBER OF THE GLEN ROSE LIMESTONE (LOWER CONFINING UNIT)
HYDROGEOLOGIC SUBDIVISIONS I – VIII--
Modified from Maclay and Small (1976)
U
D
PRIMARY FAULT—
U, upthrown, D, downthrown
INFERRED FAULT



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0' 200' 400' 800'

SCALE IN FEET

LEGEND:

Kau - UPPER CRETACEOUS, AUSTIN CHALK FM

Kep - UPPER CRETACEOUS, EDWARDS PERSON FM

Kek - LOWER CRETACEOUS EDWARDS KAINER FM

S-1 - SITE FEATURE LOCATIONS

GEOLOGIC ASSESSMENT
for
CHESMAR HOMES TRACT
STATE HIGHWAY 46 & FM2722
NEW BRAUNFELS, COMAL COUNTY, TX. 78132

STATE OF TEXAS
John Langan
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psi
Information To Build On
Engineering • Consulting • Testing
THREE BURWOOD LANE
SAN ANTONIO, TEXAS 78216

REVISIONS:

JOB NO. 04356189
FILE: 04356189.01
DATE: 03/21/24
DESIGN: ~
DRAWN: J LEAL
CHECKED:
SHEET 1 OF 1

GEOLOGIC ASSESSMENT TABLE

PROJECT NAME: Chesmar Homes Tract

LOCATION			FEATURE CHARACTERISTICS											EVALUATION			PHYSICAL SETTING		
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						<40	>40	<1.6	>1.6	
S-1	29-44-9.5	98-12-51.5	O	5	Kep	120	60	2			3		F	10	15	X		X		Hillside
S-2	29-44-12.4	98-12-55.3	O	5	Kep	150	150	4			3		F	10	15	X		X		Hillside
S-3	29-43-42.8	98-12-51.7	MB/well	30	Kau	1	1	>200						2	32	X		X		Hillside
S-4	29-44-22.2	98-13-40.9	O	5	Kep	80	40	2			2		F	8	13	X		X		Hillside
S-5	29-43-53.1	98-13-31.4	SH	20	Kek	50	50	5					F	20	40		X		X	Drainage
S-6	29-43-57.1	98-13-26.7	F	20	Kek	>5000	20	>200						15	35	X			X	Drainage
S-7	29-44-12.2	98-13-45.3	O	5	Kep	100	75	2			2		F	10	15	X		X		Hillside
S-8	29-43-58.4	98-13-56.3	MB/pond	30	Kbu	110	75	7					F	3	33	X			X	Hillside
S-9	29-43-42	98-12-51.9	MB/septic	30		15	7	6						20	50		X	X		Hillside
S-10	29-44-14	98-13-44	C	30	Kep	1.5	1	35						20	50		X	X		Hillside
S-11	29-43-59.9	98-13-26.2	O	5	Kep	120	20	4						15	20	X			X	Drainage
S-12	29-44-3.3	98-13-28.3	SC	20	Kep	2	2	1						10	30	X		X		Hillside
S-13	29-44-1.8	98-13-21.4	CD	5	Kep	15	15	3						10	15	X		X		Hillside
S-14	29-44-13.3	98-13-12.6	CD	5	Kep	6	4	2						10	15	X		X		Hillside
S-15	29-44-3.1	98-13-40.8	CD	5	Kep	8	6	2						10	15	X		X		Hillside

* DATUM:_____

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

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

12 TOPOGRAPHY

Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

I have read, I understood, and I have followed the Texas Commission on Environmental Quality's Instructions to Geologists. The information presented here complies with that document and is a true representation of the conditions observed in the field.

My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

_____ _____

Date 3/21/24

Sheet 1 of 1

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

GEOLOGIC ASSESSMENT TABLE

PROJECT NAME: Chesmar Homes Tract

LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOD	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						<40	>40	<1.6	>1.6	
S-16	29-44-32	98-12-51.57.8	MB/well	30	Kep	0.7	0.7	>100					F	3	33	X		X		Hillside
S-17	29-43-57.6	98-13-2.4	MB/exc	30	Kep	130	80	5			3		F	6	36	X		X		Hillside
S-18	29-44-00	98-13-38.5	F	20	Kep	>5000	20	>50						15	35	X			X	Hillside
S-19	29-44-5.3	98-12-57.1	F	20	Kep	>5000	20	>50						15	35	X			X	Hillside
S-20	29-43-50.9	98-12-48.8	F	20	Kau	>3000	20	>50						15	35	X			X	Hillside

* DATUM:_____

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

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

12 TOPOGRAPHY

Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

I have read, I understood, and I have followed the Texas Commission on Environmental Quality's Instructions to Geologists. The information presented here complies with that document and is a true representation of the conditions observed in the field.

My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

___ _____

Date 3/21/24

Sheet 1 of 1

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

1. View of fractured rock outcrop feature S-1, located on the east side of the 438- acre property on Highway 46 in New Braunfels, Texas.

2. View of fractured rock outcrop feature S-2, located on the east side of the 438- acre property on Highway 46 in New Braunfels, Texas.

3. View of water well Feature S-3, located in the southwest portion of the tract.

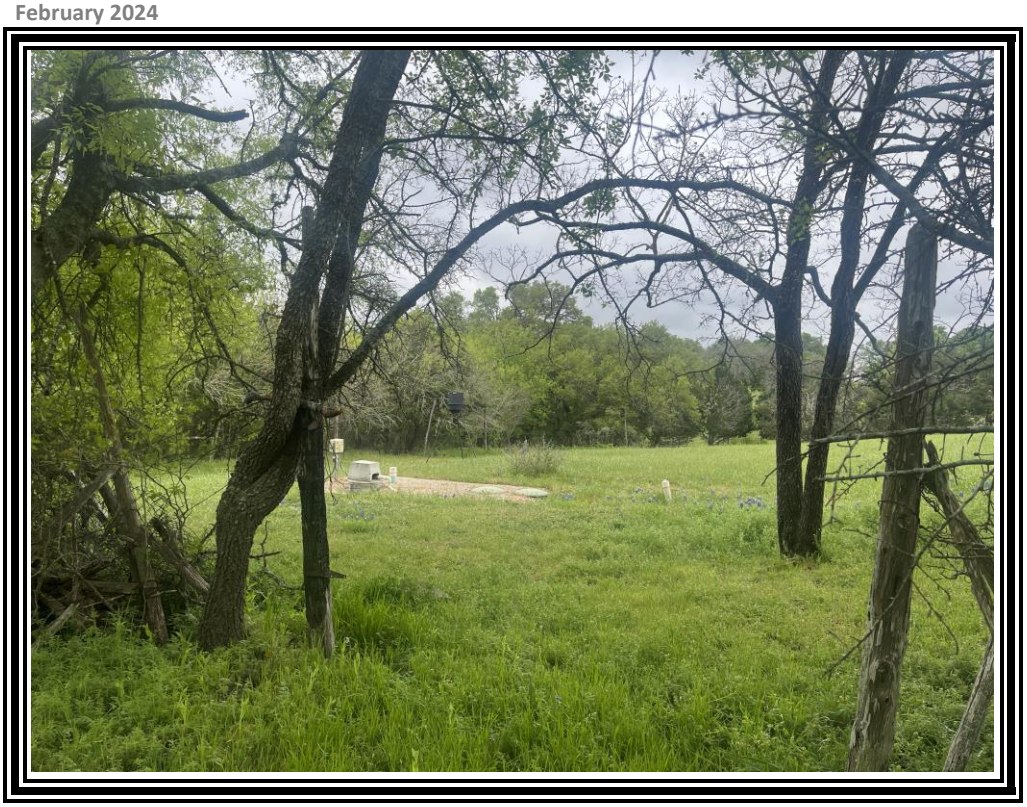
4. View of outcrop Feature (S-4) located in the northern portion of the site.

5. View of sinkhole feature (S-5) located in the southwestern portion of the square tract portion of the 438-acre site at 29-43-53.1; -98-13-31.4

6. Another view of Feature S-5.

7. View of fault line (Feature S-6) on the south side of the Dry Comal Creek tributary on the south side of the square portion of the tract.

8. View of pond (Feature S-8) located on the south-central portion of the tract.



9. View of MM septic tank Feature S-9, in the southwest portion of the site, at 23-41-42; -9812-51.9.

10. View of cave feature S-10 located in the northern portion of the tract. Rock appeared to be placed in opening to restrict access.

11. View inside cave (Feature S-10). Significant air flow was noted at the opening, suggesting an extensive feature.

12. View of fractured rock outcrop feature S-11 located in a drainage along fault line feature S-6.

13. View of solution cavity (Feature S-12) on the south-central portion of the square part of the tract (29-44-3.3; -98-13-28.3).

14. View of closed depression feature S-13 located on the southern portion of the square tract (29-44-1.8; -98-13-21.4). The feature may be from vegetation/tree clearing activities in the area.

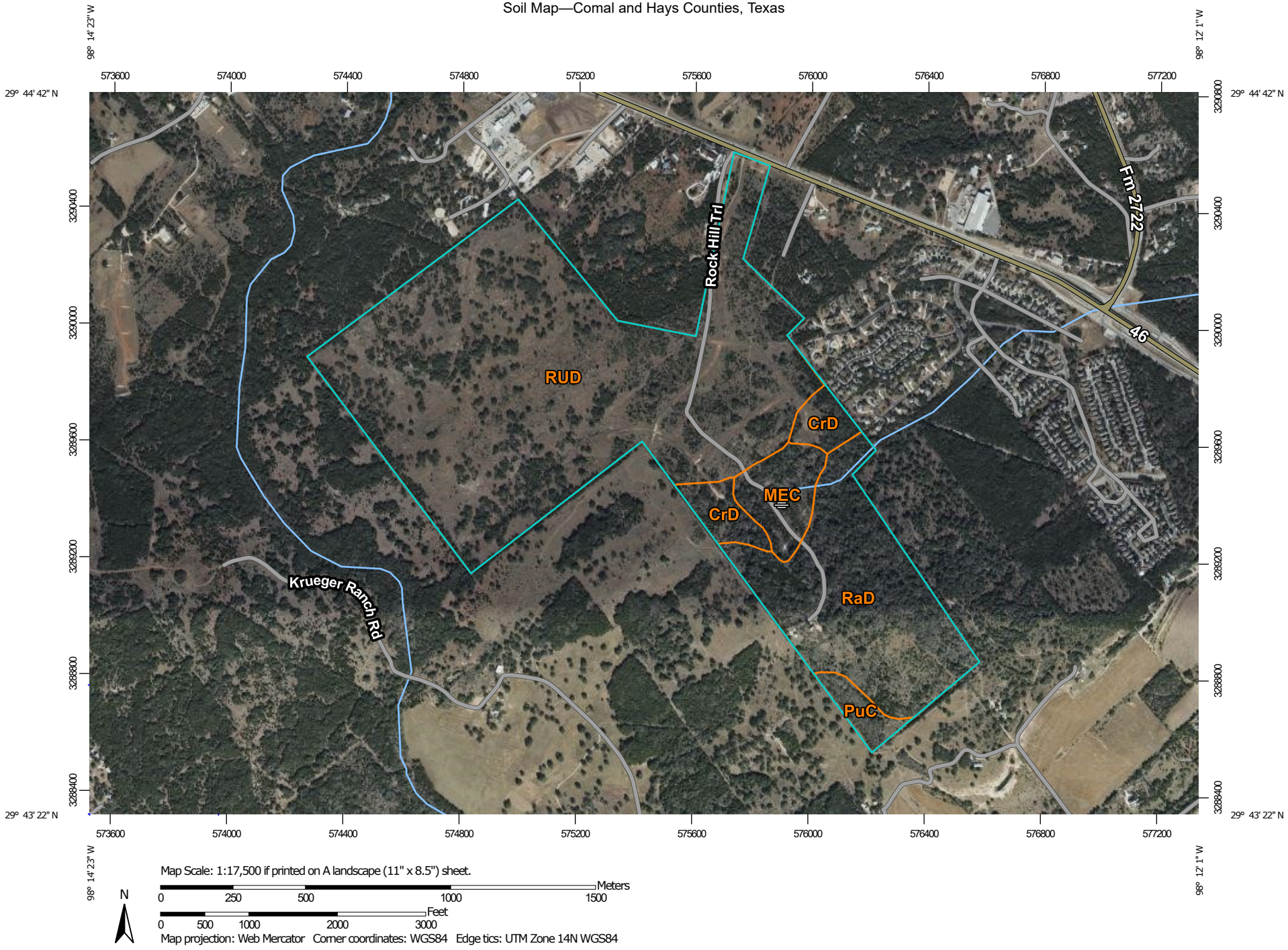
15. View of small closed depression (Feature S-14) on the east side of tract (29-44-13.3; -98-13-12.6).

16. View of small closed depression (Feature S-15) on the west side of tract (29-44-3.1; -98-13-40.8). These c/d features appear to be from vegetation/tree clearing activities throughout the tract.

17. View of capped well (Feature S-16) on the entryway just south of Highway 46 (29-44-32; -98-12-57.8).

18. View of MM excavated Feature S-17 located in the west central portion of the tract.

Soil Map—Comal and Hays Counties, Texas



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Comal and Hays Counties, Texas
Survey Area Data: Version 20, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 10, 2020—Jan 15, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CrD	Comfort-Rock outcrop complex, 1 to 8 percent slopes	18.2	4.2%
MEC	Medlin, warm-Eckrant association, 1 to 8 percent slopes	19.3	4.5%
PuC	Purves clay, 1 to 5 percent slopes	8.0	1.8%
RaD	Real gravelly loam, 1 to 8 percent slopes	92.2	21.2%
RUD	Rumple-Comfort, rubbly association, 1 to 8 percent slopes	296.1	68.3%
Totals for Area of Interest		**433.7**	**100.0%**

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: 12/5/2024

Signature of Customer/Agent:

Regulated Entity Name: Purisong Phase 1

Regulated Entity Information

1. The type of project is:

   ☒ Residential: Number of Lots:155 (148xSignle Family, 8xCondominium Lots w/ 63 units)
   ☒ Residential: Number of Living Unit Equivalents:211
   ☐ Commercial
   ☐ Industrial
   ☐ Other:_____

2. Total site acreage (size of property):132.22

3. Estimated projected population:844 (4x148Single Family + 4x63 Condominum Units)

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	1,036,728	÷ 43,560 =	23.80
Parking	96,703	÷ 43,560 =	2.22
Other paved surfaces	1,206,176	÷ 43,560 =	27.69
Total Impervious Cover	2,339,542	÷ 43,560 =	53.71

Total Impervious Cover 53.71 **÷ Total Acreage** 134.84 **X 100 =** 39.83**% Impervious Cover**

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

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

For Road Projects Only

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

7. Type of project:

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

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

   ☐ Concrete
   ☐ Asphaltic concrete pavement
   ☐ Other: _____

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

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

10. Length of pavement area: _____ feet.

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

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

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

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

Stormwater to be generated by the Proposed Project

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

Wastewater to be generated by the Proposed Project

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

100% Domestic	63,300 Gallons/day
_____% Industrial	_____Gallons/day
_____% Commingled	_____Gallons/day

TOTAL gallons/day 63,300 (211 LUE x 300 gpd/LUE)

15. Wastewater will be disposed of by:

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

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

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

☒ Sewage Collection System (Sewer Lines):

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

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

☐ The SCS was previously submitted on_____.

☐ The SCS was submitted with this application.

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

☒ The sewage collection system will convey the wastewater to the Purlsong Wastewater (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): FEMA FIRM Panel No. 48091C0430F Dated 09/01/2009

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 1 (#) 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 1015 cfs, an increase from 883 cfs prior to development. Measures will be placed to decrease stormwater flows to or below original values. The runoff coefficient for the site changes from approximately 0.42 before development to 0.63 after development. Values are based on the Rational Method using runoff coefficients per the City of New Braunfels Drainage Manual.

ATTACHMENT C

COMAL COUNTY
ENGINEER'S OFFICE

December 2, 2024

Greg Latimer, P.E.
Pape-Dawson Engineers
via e-mail: glatimer@pape-dawson.com

Re: Purlsong Phase 1 WPAP On-Site Sewage Facility Suitability Letter, within Comal County, Texas

Dear Mr. Latimer:

In accordance with TAC §213.5(b)(4)(F)(ii), Comal County has found that the entire referenced site is suitable for the use of private sewage facilities, with the exception of the areas identified below, and will meet the special requirements for on-site sewage facilities located on the Edwards Aquifer recharge zone as specified in TAC §285.40-42 based on the following information submitted to our office on December 2, 2024:

- The Geologic Assessment, prepared by Professional Service Industries, Inc.
- The Water Pollution Abatement Plan prepared by Pape-Dawson Engineers

Areas that are not Suitable:

Feature ID	Latitude	Longitude
S-5	29°43'53.1"	98°13'31.4"
S-9	29°43'42"	98°12'51.9"
S-10	29°44'14"	98°13'44"

In accordance with TAC §285.91, Table X, Minimum Required Separation Distances for soil absorption systems, unlined ET beds, surface application (edge of spray area), and drip irrigation disposal systems are not suitable within 150' of these sensitive features. Furthermore, tanks, lined ET beds and sewer pipe with watertight joints are not allowed within 50' of these sensitive features.

Finally, according to TAC §285.42(a), if any recharge feature is discovered during construction of an OSSF, all regulated activities near the feature shall be suspended immediately. The owner shall immediately notify the TCEQ San Antonio office of the discovery of the feature. All activities regulated under TAC §213 shall not proceed near the feature until Comal County, in conjunction with the TCEQ San Antonio office, has reviewed and approved a plan proposed to protect the feature, the structural integrity of the OSSF, and the water quality of the aquifer. The plan shall be sealed, signed, and dated by a professional engineer.

195 David Jonas Dr, New Braunfels, Texas, 78132 – Phone (830) 608-2090

If you have any questions or need additional information, please do not hesitate to contact our office.

Sincerely,

Robert Boyd, P.E.
Comal County Engineer

cc: Scott Haag, Comal County Commissioner Precinct No. 2

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.

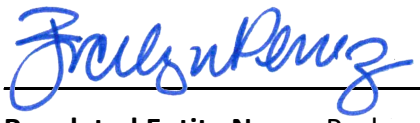
Signature

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: 12/5/2024

Signature of Customer/Agent:



Regulated Entity Name: Purlsong Phase 1

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: Guadalupe River

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 135.79 acres. In this stage there will be excavation of the proposed basins to serve as temporary sediment traps. The second stage will include the construction of the residential homes with associated streets, and arterial roadway, two (2) batch detention basins, construction of new pavement area (roads and sidewalks), utilities, landscaping and site cleanup. This will disturb approximately 135.79 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.

Due to the surrounding topography, there are two areas of upgradient water that will cross the site from the undeveloped adjacent areas. The upgradient water originating from the southeastern adjacent property will be intercepted through earthen channels and routed around the site while the upgradient water from the northeast will be intercepted in Basin 2. 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

More than ten (10) acres will be disturbed within a common drainage area at one time, therefore, a smaller sediment trap will be provided within the basin locations. A combination of TBMPs are to be utilized and are adequate for the drainage areas served.

ATTACHMENT I

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.

PURLSONG PHASE 1
Water Pollution Abatement Plan

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: 12/5/2024

Signature of Customer/Agent

Regulated Entity Name: Purlsong Phase 1

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

Due to the surrounding topography a portion of an undeveloped adjacent property to the southeast will flow across the project limits. These offsite flows are accounted for in watershed "B" and are to be captured by Basin 2. The onsite PBMP has been sized to account for the flows from these areas.

The project's proposed Permanent Best Management Practices (PBMPs) for stormwater treatment are two (2) proposed batch detention basins, three (2) areas of 15' engineered vegetative filter strip areas (VFS), and five (5) areas of interim vegetative filter strips sections 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 two (2) batch detention basins, three (3) areas utilizing fifteen-foot (15') engineered vegetative filter strips, and five areas utilizing interim vegetative filter strips. All PBMPs 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 are two (2) proposed batch detention basins, three (3) areas of 15' engineered vegetative filter strip areas (VFS), and five (5) areas of interim vegetative filter strips all of 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.

Colby M

Colby Mullins,
Chesmar Homes, LLC

12/4/24

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

There are no surface streams on, or near the project site. 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 Carson Trainer,
Print Name

VP-Land,
Title - Owner/President/Other

of Chesmar Homes, 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

12/5/24
Date

THE STATE OF Texas §

County of Bexar §

BEFORE ME, the undersigned authority, on this day personally appeared Carson Trainer 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 5th day of December, 2024.

ALLYSON WALTERS
Notary ID #129531158
My Commission Expires
April 13, 2026

NOTARY PUBLIC

Allyson Walters
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 4-13-26

APPLICATION FEE FORM (TCEQ-0574)

Application Fee Form

Texas Commission on Environmental Quality
Name of Proposed Regulated Entity: Purlsong Phase 1
Regulated Entity Location: 0.76 miles NW of FM 2722 and State HWY 46, New Braunfels, TX
Name of Customer: Chesmar Homes, LLC
Contact Person: Colby Mullins Phone: 713-227-8790
Customer Reference Number (if issued):CN 605592310
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	135.79 Acres	$ 8,000
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	Acres	$
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: 12/5/2024

Application Fee Schedule

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

Water Pollution Abatement Plans and Modifications

Contributing Zone Plans and Modifications

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

Organized Sewage Collection Systems and Modifications

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

Underground and Aboveground Storage Tank System Facility Plans and Modifications

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

Exception Requests

Project	*Fee*
Exception Request	$500

Extension of Time Requests

Project	*Fee*
Extension of Time Request	$150

CORE DATA FORM
(TCEQ-10400)

TCEQ Core Data Form

TCEQ Use Only

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 605592310		RN

SECTION II: Customer Information

4. General Customer Information	5. Effective Date for Customer Information Updates (mm/dd/yyyy)	10/16/2024

☒ 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:*
Chesmar Homes, 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)*
0803161138	32035414203	20-272064	

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:	211 N Loop 1604, Suite175						
	City	San Antonio	State	TX	ZIP	78132	ZIP + 4

16. Country Mailing Information *(if outside USA)*	17. E-Mail Address *(if applicable)*
United States of America	colby.mullins@chasmar.com

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(713) 277-8790		( ) -

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.*)

Purlsong Phase 1

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:	Aapproximately 0.76 miles NW of the FM 2722 and State Highway 46 intersection

26. Nearest City	**State**	**Nearest ZIP Code**
New Braunfels	TX	78132

27. Latitude (N) In Decimal:	29.7343	**28. Longitude (W) In Decimal:**	-98.2188

Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
29	44	3.48	98	12	58.6

29. Primary SIC Code (4 digits)	**30. Secondary SIC Code** (4 digits)	**31. Primary NAICS Code** (5 or 6 digits)	**32. Secondary NAICS Code** (5 or 6 digits)
1521	1611	236115	237310

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

Single Family Residential

34. Mailing Address:	**211 N Loop 1604, STE 175**						
	City	**San Antonio**	**State**	**TX**	**ZIP**	**78232**	**ZIP + 4**
35. E-Mail Address:	**colby.mullins@chesmar.com**						

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

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:	Jocelyn Perez	**Date:**	12/5/2024

POLLUTANT LOAD AND REMOVAL CALCULATIONS

Purlsong Unit 1

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	34.20	18.68	Batch Detention Basin 1	16,767	18,382
B	72.46	25.19	Batch Detention Basin 2	22,611	23,783
C	3.20	2.07	Engineered Vegitative Filter Strips (VFS)	1,858	2,026
D	1.44	1.30	Engineered Vegitative Filter Strips (VFS)	1,167	1,264
E	0.77	0.15	Interim VFS	135	135
F	2.06	0.41	Interim VFS	368	368
G	1.23	0.20	Interim VFS	180	180
H	1.95	0.39	Interim VFS	350	350
I	1.31	0.22	Interim VFS	197	197
J	3.56	2.31	Overtreatment	2,073	0
K	0.77	0.58	Overtreatment	521	0
L	10.03	-	Grading and SCS Installation	-	-
M	1.86	1.21	Engineered Vegitative Filter Strips (VFS)	1,086	1,184
TOTAL	134.84	**52.71**	---	47,312	**47,869**

Water Quality Basin Summary

Basin	Designed Capture Volume (cf)	Required Volume (cf)	Excess Volume Capacity (cf)
Batch Detention Basin 1	129,981	**125,979**	4,002
Batch Detention Basin 2	135,463	**130,919**	4,544

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Pulsong
Date Prepared: ########

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 * =	134.84	acres
Predevelopment impervious area within the limits of the plan* =	0.00	acres
Total post-development impervious area within the limits of the pla* =	52.71	acres
Total post-development impervious cover fraction* =	0.39	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	47312	lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = 2

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

Drainage Basin/Outfall Area No. = A

Total drainage basin/outfall area=	34.20	acres
Predevelopment impervious area within drainage basin/outfall are =	0.00	acres
Post-development impervious area within drainage basin/outfall are =	18.68	acres
Post-development impervious fraction within drainage basin/outfall are =	0.55	
$L_{M\ THIS\ BASIN}$ =	16767	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: $L_R = (\text{BMP efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

where:

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

A_C =	34.20	acres
A_I =	18.68	acres
A_P =	15.52	acres
L_R =	19661	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 18382 lbs.

F = 0.93

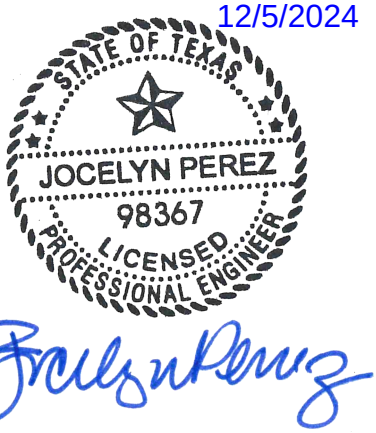
6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth =	2.20	inches
Post Development Runoff Coefficient =	0.38	
On-site Water Quality Volume =	104983	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 =	20997	
Total Capture Volume (required water quality volume(s) x 1.20) =	125979	cubic feet

12/5/2024



Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Pulsong
Date Prepared: ########

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 * =	134.84	acres
Predevelopment impervious area within the limits of the plan* =	0.00	acres
Total post-development impervious area within the limits of the pla* =	52.71	acres
Total post-development impervious cover fraction* =	0.39	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	47312	lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = 2

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

Drainage Basin/Outfall Area No. = B

Total drainage basin/outfall area=	68.43	acres
Predevelopment impervious area within drainage basin/outfall are =	0.00	acres
Post-development impervious area within drainage basin/outfall are =	25.19	acres
Post-development impervious fraction within drainage basin/outfall are =	0.37	
$L_{M\ THIS\ BASIN}$ =	22611	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: $L_R = (\text{BMP efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

where:

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

A_C =	68.43	acres
A_I =	25.19	acres
A_P =	43.24	acres
L_R =	26875	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 23783 lbs.

F = 0.88

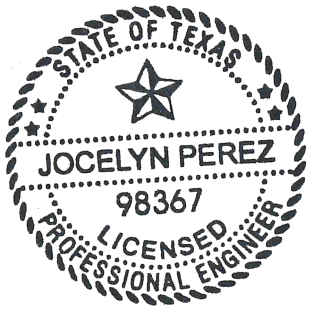
6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth =	1.50	inches
Post Development Runoff Coefficient =	0.29	
On-site Water Quality Volume =	108661	cubic feet

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

Off-site area draining to BMP =	4.03	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0.00	
Off-site Runoff Coefficient =	0.02	
Off-site Water Quality Volume =	439	cubic feet
Storage for Sediment =	21820	
Total Capture Volume (required water quality volume(s) x 1.20) =	130919	cubic feet

12/5/2024



Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Purlsong
Date Prepared: ########

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 * =	134.84	acres
Predevelopment impervious area within the limits of the plan* =	0.00	acres
Total post-development impervious area within the limits of the plan* =	52.71	acres
Total post-development impervious cover fraction * =	0.39	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	47312	lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = 2

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

Drainage Basin/Outfall Area No. = C

Total drainage basin/outfall area =	3.20	acres
Predevelopment impervious area within drainage basin/outfall area=	0.00	acres
Post-development impervious area within drainage basin/outfall area=	2.07	acres
Post-development impervious fraction within drainage basin/outfall area=	0.65	
$L_{M\ THIS\ BASIN}$ =	1858	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Vegetated Filter Strips
Removal efficiency = 85 percent

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

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

RG-348 Page 3-33 Equation 3.7: $L_R = (\text{BMP efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

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

A_C =	3.20	acres
A_I =	2.07	acres
A_P =	1.13	acres
L_R =	2026	lbs

12/5/2024

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

Desired $L_{M\ THIS\ BASIN}$ = 2026 lbs.

F = 1.00

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Purlsong
Date Prepared: ########

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P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Comal	
Total project area included in plan * =	134.84	acres
Predevelopment impervious area within the limits of the plan* =	0.00	acres
Total post-development impervious area within the limits of the plan* =	52.71	acres
Total post-development impervious cover fraction * =	0.39	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	47312	lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = 2

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

Drainage Basin/Outfall Area No. = D

Total drainage basin/outfall area =	1.44	acres
Predevelopment impervious area within drainage basin/outfall area=	0.00	acres
Post-development impervious area within drainage basin/outfall area=	1.30	acres
Post-development impervious fraction within drainage basin/outfall area=	0.90	
$L_{M\ THIS\ BASIN}$ =	1167	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Vegetated Filter Strips
Removal efficiency = 85 percent

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

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

A_C =	1.44	acres
A_I =	1.30	acres
A_P =	0.14	acres
L_R =	1264	lbs

12/5/2024

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

Desired $L_{M\ THIS\ BASIN}$ = 1264 lbs.

F = 1.00

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Purlsong
Date Prepared: ########

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P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

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Predevelopment impervious area within the limits of the plan* =	0.00	acres
Total post-development impervious area within the limits of the plan* =	52.71	acres
Total post-development impervious cover fraction * =	0.39	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	47312	lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = 2

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

Drainage Basin/Outfall Area No. = M

Total drainage basin/outfall area =	1.86	acres
Predevelopment impervious area within drainage basin/outfall area=	0.00	acres
Post-development impervious area within drainage basin/outfall area=	1.21	acres
Post-development impervious fraction within drainage basin/outfall area=	0.65	
$L_{M\ THIS\ BASIN}$ =	1086	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Vegetated Filter Strips
Removal efficiency = 85 percent

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

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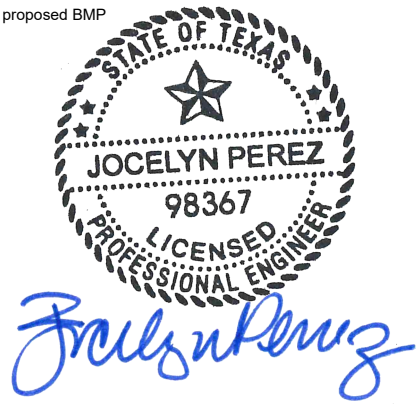
where:

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

A_C =	1.86	acres
A_I =	1.21	acres
A_P =	0.65	acres
L_R =	1184	lbs

12/5/2024

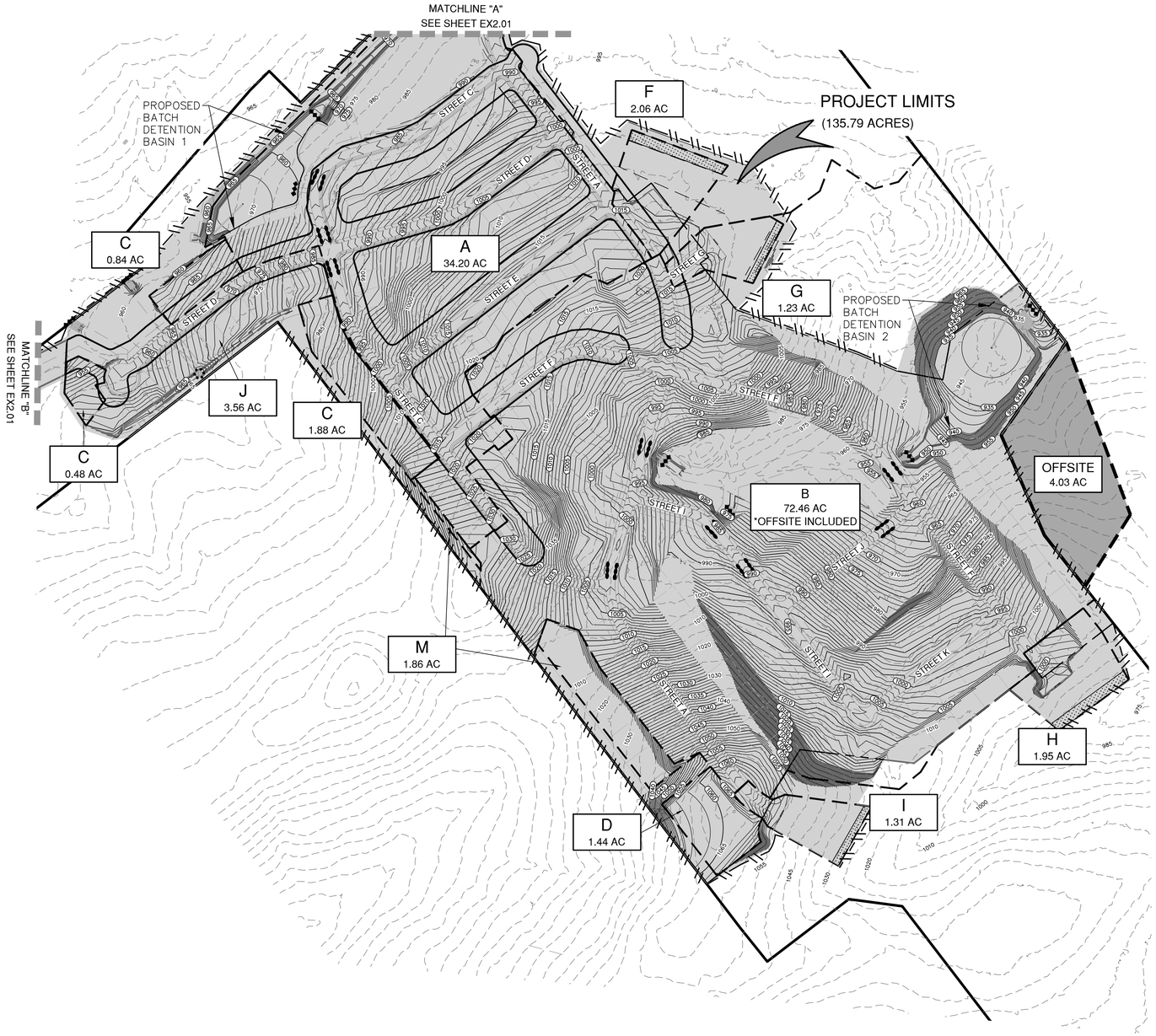


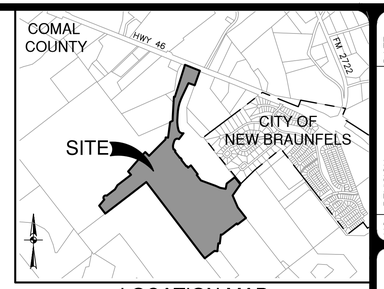
5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M\ THIS\ BASIN}$ = 1184 lbs.

F = 1.00

EXHIBITS





LOCATION MAP
NOT-TO-SCALE

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

SWPPP LEGEND

- PROJECT LIMITS
- EXISTING CONTOUR (976)
- PROPOSED CONTOUR (970)
- 50' SEWER BUFFER
- FLOW ARROW (EXISTING)
- FLOW ARROW (PROPOSED)
- SILT FENCE
- ROCK BERM
- GRAVEL FILTER BAGS
- GRATE INLET PROTECTION
- SEDIMENT CONTROL ROLLS
- 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)

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. HOUSE CONSTRUCTION ACTIVITIES WILL REQUIRE A SEPARATE STORM WATER POLLUTION PREVENTION PLAN.

14. PRIOR TO BEGINNING CONSTRUCTION, CONTRACTOR SHALL COORDINATE PLACEMENT OF TEMPORARY BEST MANAGEMENT PRACTICES WITHIN TXDOT RIGHT-OF-WAY WITH TXDOT.

SWP3 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

12-04-2024

STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED
PROFESSIONAL ENGINEER

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

PURLSONG PHASE 1
COMAL COUNTY, TEXAS

WATER POLLUTION ABATEMENT PLAN
TEMPORARY POLLUTION ABATEMENT PLAN

PLAT NO.
JOB NO. 30041-18
DATE OCTOBER 2024
DESIGNER GDL
CHECKED HF DRAWN
SHEET EX1.00

Date: Dec. 04, 2024, 1:38pm User ID: Dlynch
File: P:\300\41\18\Design\Environmental\TM-300418.dwg

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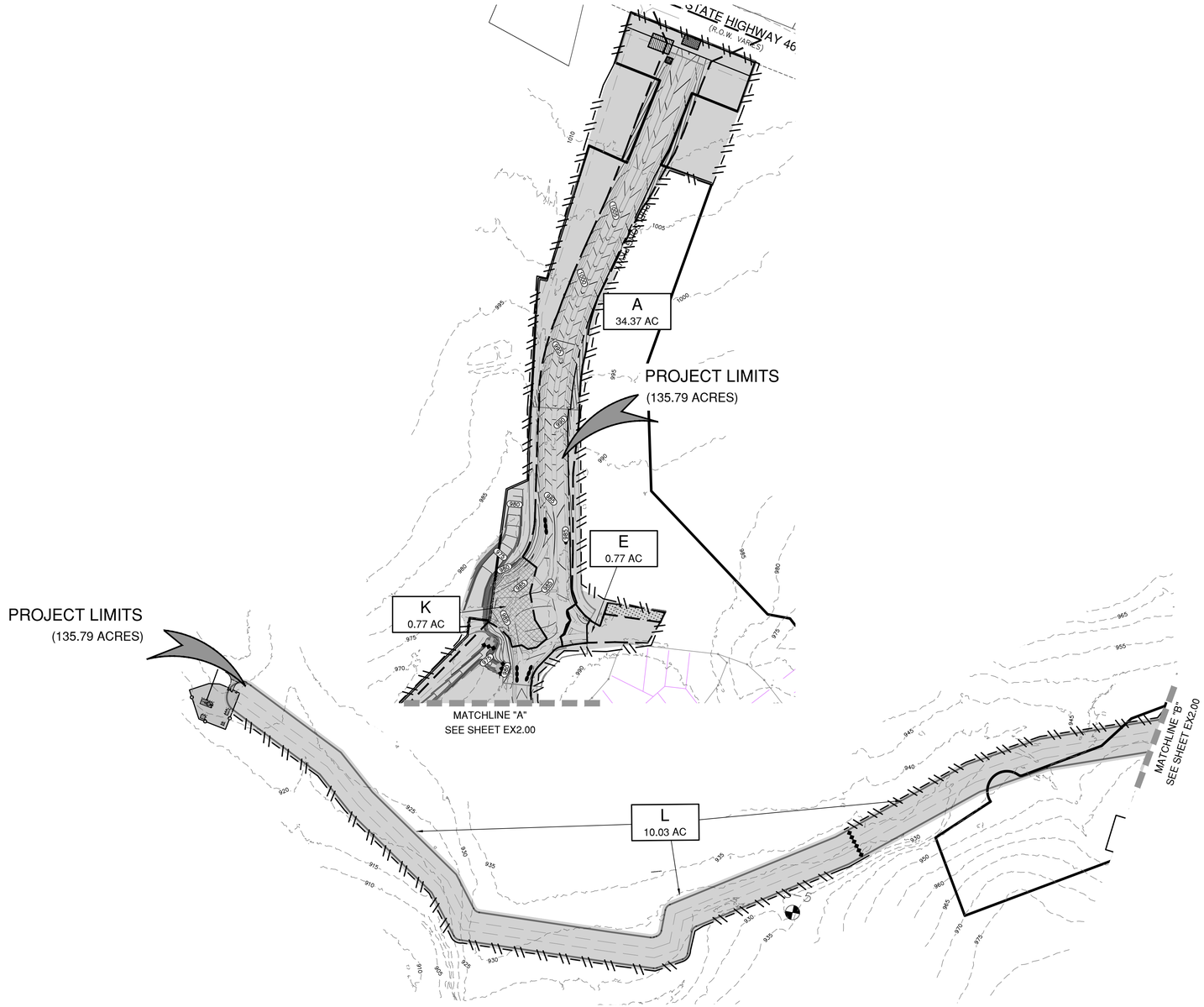

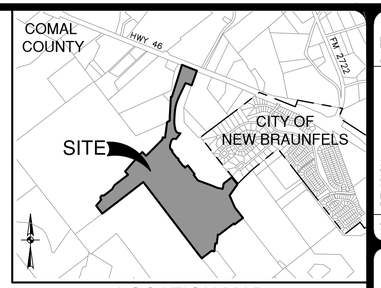

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NOT-TO-SCALE

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

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SWP3 MODIFICATIONS

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NO.	REVISION	DATE

12-04-2024

STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED
PROFESSIONAL ENGINEER

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

PURLSONG PHASE 1
COMAL COUNTY, TEXAS

WATER POLLUTION ABATEMENT PLAN
TEMPORARY POLLUTION ABATEMENT PLAN

PLAT NO.
JOB NO. 30041-18
DATE OCTOBER 2024
DESIGNER GDL
CHECKED HF DRAWN
SHEET EX1.01

Date: Dec 04, 2024, 1:39pm User ID: DLynch
File: P:\3001\41\18\Design\Environmental\TM-3004118.dwg

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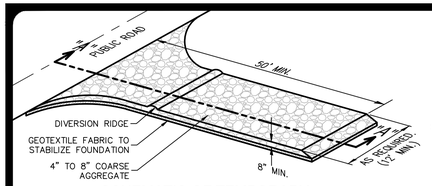
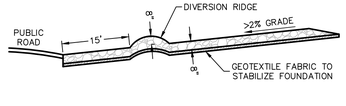


SCHEMATIC OF TEMPORARY CONSTRUCTION ENTRANCE/EXIT



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.

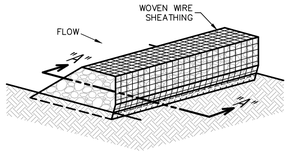
3. WHEN NECESSARY, WHEELS SHOULD BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT–OF–WAY.

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.

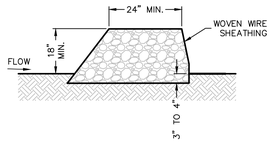
5. ALL SEDIMENT SHOULD BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATER COURSE BY USING APPROVED METHODS.

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).

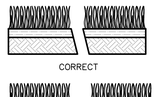
ROCK BERM DETAIL

NOT–TO–SCALE

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

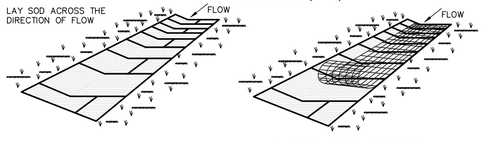


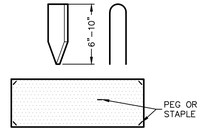
SOD INSTALLATION

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").





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.

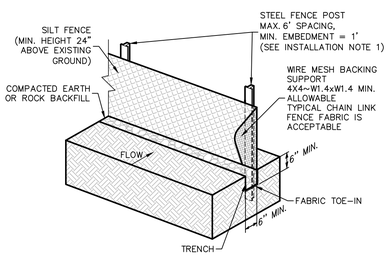
INSPECTION AND MAINTENANCE GUIDELINES

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.

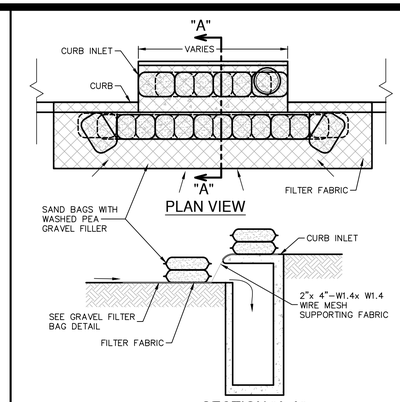
3. REPLACE TORN FABRIC OR INSTALL A SECOND LINE OF FENCING PARALLEL TO THE TORN SECTION.

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. 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.

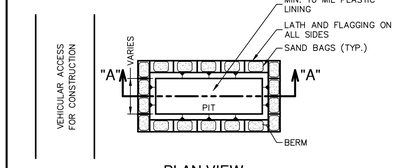
3. CHECK PLACEMENT OF DEVICE TO PREVENT GAPS BETWEEN DEVICE AND CURB.

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

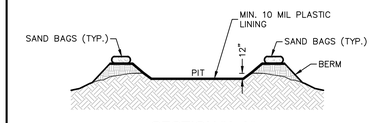
5. STRUCTURES SHOULD BE REMOVED AND THE AREA STABILIZED ONLY AFTER THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

BAGGED GRAVEL CURB INLET PROTECTION DETAIL

NOT–TO–SCALE



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

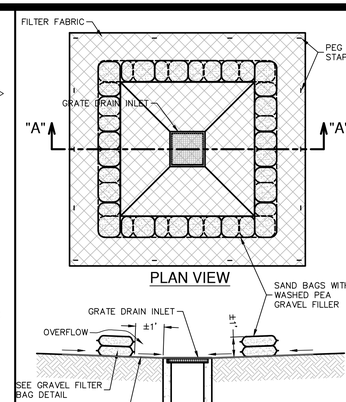
1. WHEN TEMPORARY CONCRETE WASHOUT FACILITIES ARE NO LONGER REQUIRED FOR THE WORK, THE HARDENED CONCRETE SHOULD BE REMOVED AND DISPOSED OF.

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"

GENERAL NOTES

1. THE SANDBAGS SHOULD BE FILLED WITH WASHED PEA GRAVEL AND STACKED TO FORM A CONTINUOUS BARRIER ABOUT 1 FOOT HIGH 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 MATTER THAT IT WILL NOT ERODE.

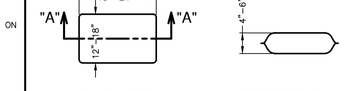
3. CHECK PLACEMENT OF DEVICE TO PREVENT GAPS BETWEEN DEVICE AND CURB.

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 GRATE INLET PROTECTION DETAIL

NOT–TO–SCALE



PLAN VIEW

SECTION "A-A"

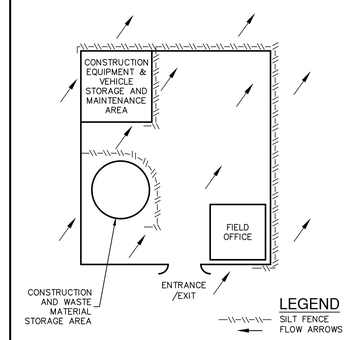
NOTES:
1. THE FILTER BAG MATERIAL SHALL BE MADE OF POLYPROPYLENE, POLYETHYLENE OR POLYAMIDE WOVEN FABRIC, MIN. UNIT WEIGHT OF 4 OUNCES/SY, HAVE A MULLEN BURST STRENGTH EXCEEDING 300 PSI AND ULTRAVIOLET STABILITY EXCEEDING 70%.

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 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 2

NO.	REVISION	DATE

12–04–2024

STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED
PROFESSIONAL ENGINEER

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 #1002800

PURLSONG PHASE 1
COMAL COUNTY, TEXAS

WATER POLLUTION ABATEMENT PLAN
TEMPORARY POLLUTION ABATEMENT PLAN DETAILS

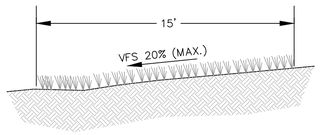
PLAT NO.
JOB NO. 30041–18
DATE OCTOBER 2024
DESIGNER GDL
CHECKED HF DRAWN
SHEET

FOR PERMIT

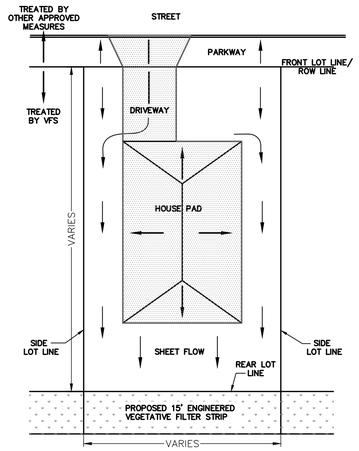
Date: Dec 04, 2024, 2:06pm User ID: Dlynch
File: P:\3001\41\18\

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	34.20	18.68	Batch Detention Basin 1	16,767	18,382
B	72.46	25.19	Batch Detention Basin 2	22,611	23,783
C	3.20	2.07	Engineered Vegitative Filter Strips (VFS)	1,858	2,026
D	1.44	1.30	Engineered Vegitative Filter Strips (VFS)	1,167	1,264
E	0.77	0.15	Interim VFS	135	135
F	2.06	0.41	Interim VFS	368	368
G	1.23	0.20	Interim VFS	180	180
H	1.95	0.39	Interim VFS	350	350
I	1.31	0.22	Interim VFS	197	197
J	3.56	2.31	Overtreatment	2,073	0
K	0.77	0.58	Overtreatment	521	0
L	10.03	-	Grading and SCS Installation	-	-
M	1.86	1.21	Engineered Vegitative Filter Strips (VFS)	1,086	1,184
TOTAL	134.84	52.71	---	47,312	47,869

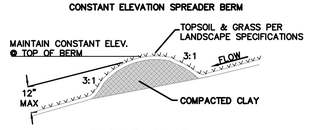


15' WIDE ENGINEERED VEGETATIVE FILTER STRIP DETAIL
N.T.S.



TYPICAL LOT DRAINAGE DETAIL
FOR FHA TYPE C LOTS
Not to Scale

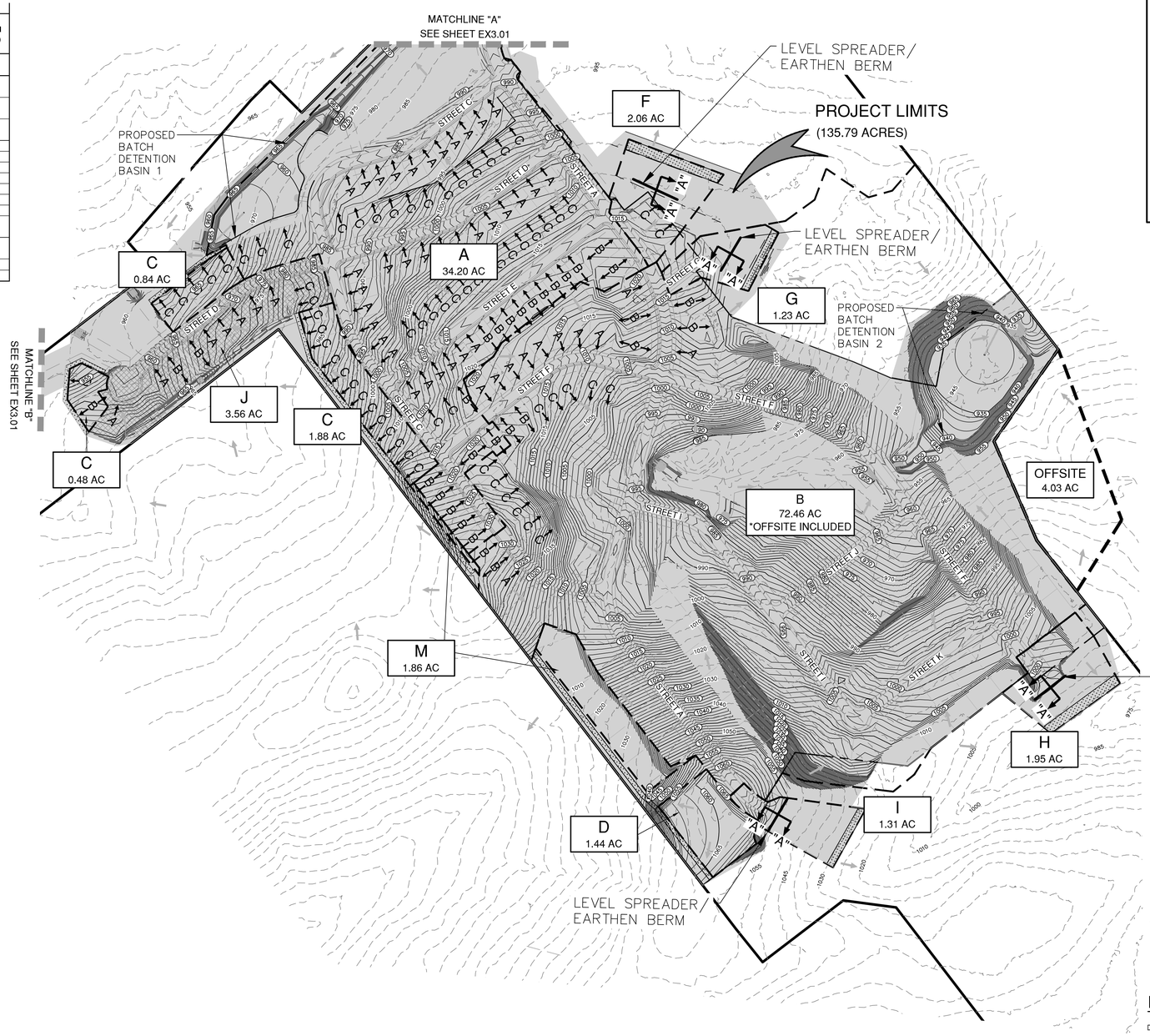
NOTE:
ROOF DRAINAGE PATTERN IS APPROXIMATE AND SUBJECT TO CHANGE BASED ON FINAL HOUSE PAD DESIGN. HOWEVER RUNOFF FROM DRIVEWAY, ROOF OR OTHER IMPERVIOUS SURFACES WITHIN THE LOT WILL NOT FLOW ACROSS MORE THAN 72' OF IMPERVIOUS SURFACE BEFORE REACHING THE PROPOSED 15' ENGINEERED VEGETATIVE FILTER STRIP. FINAL LOT GRADING TO ALLOW FOR SHEET FLOW OVER VEGETATIVE FILTER STRIP.

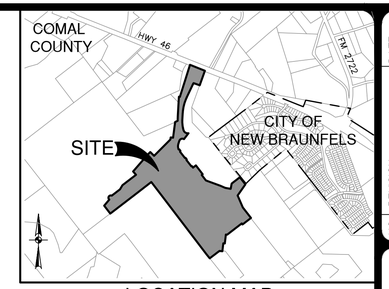


SECTION "A-A"
LEVEL SPREADER/EARTHEN BERM
N.T.S.

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





LOCATION MAP
NOT-TO-SCALE

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

LEGEND

- DISTURBED AREA
- EXISTING CONTOUR — 690
- PROPOSED CONTOUR — 970
- 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-#

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.

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5.) TYPICAL SLOPES ON THIS PROJECT RANGE FROM APPROXIMATELY 2% TO 33%.

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EXHIBIT 3

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12-04-2024
STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON ENGINEERS
NEW BRAUNFELS | SAN ANTONIO | AUSTIN | HOUSTON | FT WORTH | DALLAS
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TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

PURLSONG PHASE 1
COMAL COUNTY, TEXAS

WATER POLLUTION ABATEMENT PLAN
PERMANENT POLLUTION ABATEMENT PLAN

PLAT NO.
JOB NO. 30041-18
DATE OCTOBER 2024
DESIGNER GDL
CHECKED HF DRAWN
SHEET EX3.00

FOR PERMIT

Date: Dec 04, 2024, 2:46pm User ID: Dynch
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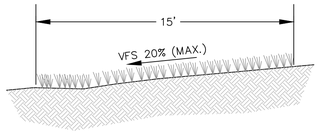

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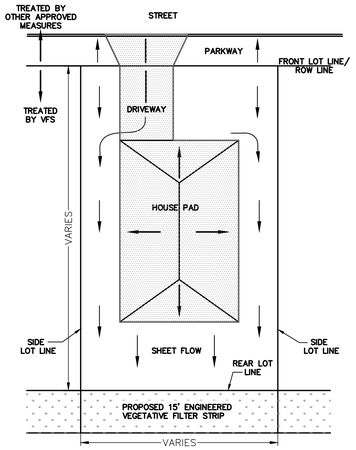

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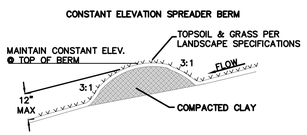
CONSTANT ELEVATION SPREADER BERM



SECTION "A-A"
LEVEL SPREADER/EARTHEN BERM
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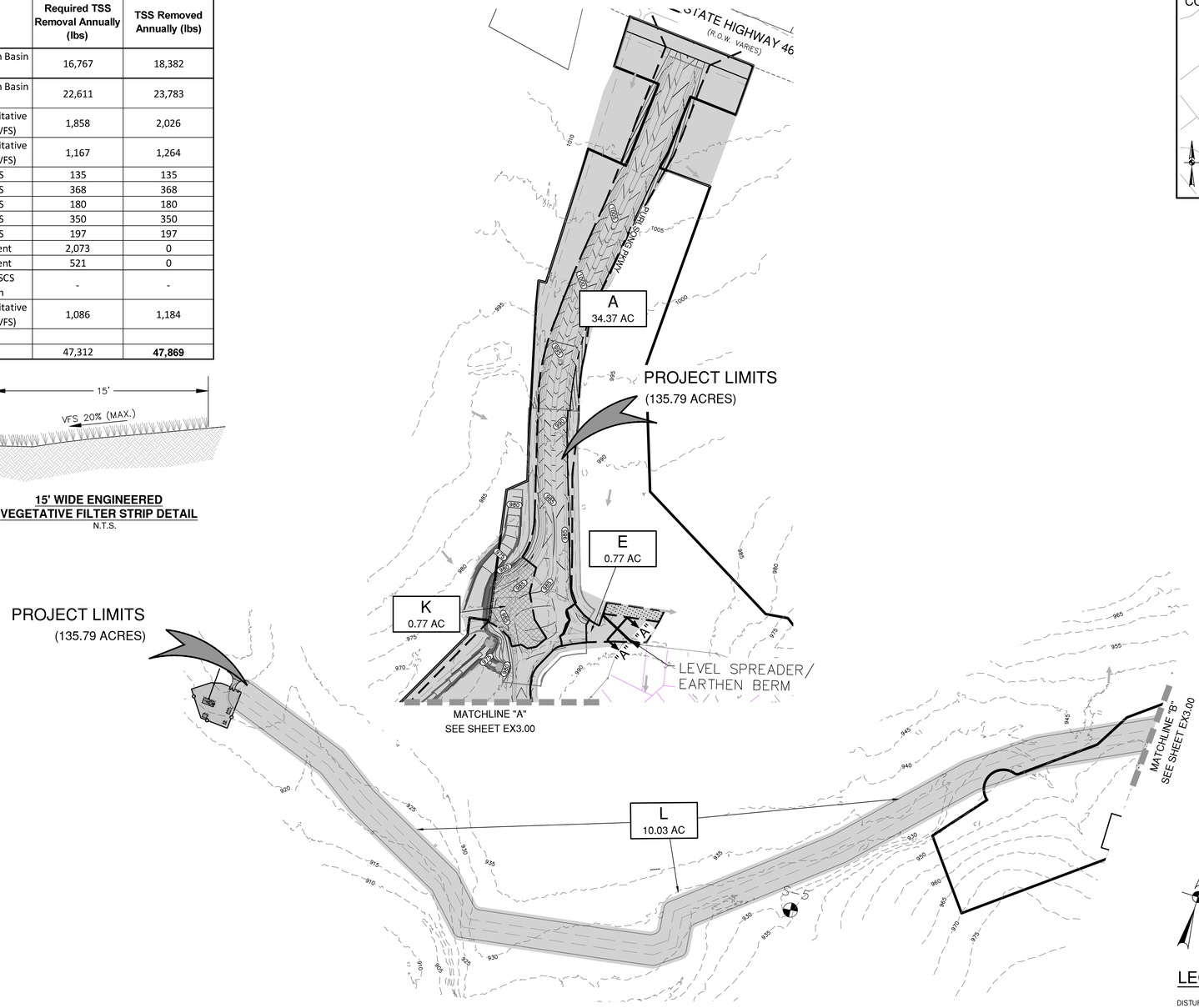

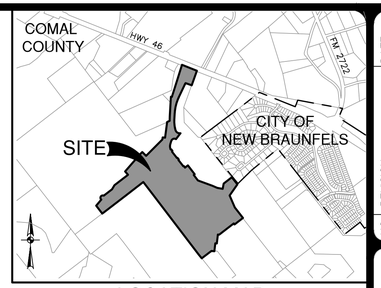

LOCATION MAP
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EXHIBIT 3

FOR PERMIT

NO.	REVISION	DATE

12-04-2024

STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON ENGINEERS
NEW BRAUNFELS | SAN ANTONIO | AUSTIN | HOUSTON | FT WORTH | DALLAS
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PURLSONG PHASE 1
COMAL COUNTY, TEXAS

WATER POLLUTION ABATEMENT PLAN
PERMANENT POLLUTION ABATEMENT PLAN

PLAT NO.
JOB NO. 30041-18
DATE OCTOBER 2024
DESIGNER GDL
CHECKED HF DRAWN
SHEET EX3.01

Date: Dec 04, 2024, 2:47pm User ID: DLynch
File: P:\300\41\18\Design\Environmental\PM-3004118.dwg

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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 COMAL COUNTY 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.

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.

CAUTION!!

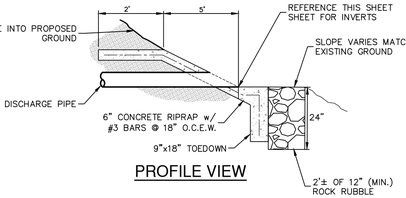
CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE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

NOTES

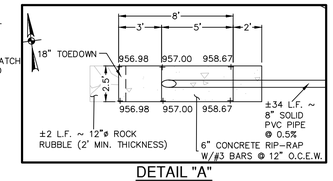
1. UPON COMPLETION OF CONSTRUCTION, AND IN ACCORDANCE WITH TCEQ REGULATIONS, ALL PERMANENT BMP'S MUST BE CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER.
2. ALL AREAS DISTURBED AS PART OF CONSTRUCTION OF BASIN SHALL BE REVEGETATED PRIOR TO COMPLETION.
3. BASIN HAS BEEN DESIGNED USING TSS REMOVAL AND BMP SIZING CALCULATIONS AS PER THE TCEQ TGM RG-348 (2005).
4. BASIN PLAN DEPICTS MINIMUM INTERIOR DIMENSIONS (LENGTH, WIDTH & HEIGHT FOR TCEQ REVIEW & APPROVAL.
5. BASIN DRAWDOWN IS CONTROLLED BY THE 8" PVC PIPE. BASIN DRAWDOWN WILL OCCUR IN APPROXIMATELY 30.59 HOURS.
6. CONTRACTOR TO SET THE VALVE POSITION TO FULLY OPEN.

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 8" BUTTERFLY VALVE IS TO OPEN AND RELEASE DETAINED WATER BASIN.
4. UPON DEACTIVATION OF FLOAT SWITCH, DDC CONTROLLER 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 8" BUTTERFLY VALVE IS TO CLOSE.
7. VALVE TO BE ACTUATED PERIODICALLY TO SHOW ACTIVE REGARDLESS OF FLOAT SWITCH OPERATION.



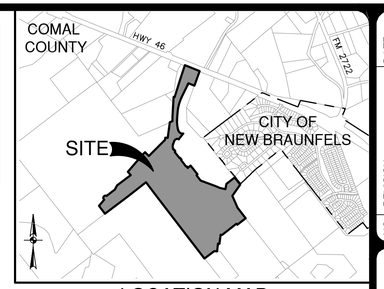
PROFILE VIEW



DETAIL "A"
1" = 5'

DISCHARGE HEADWALL DETAIL

NOT-TO-SCALE



LOCATION MAP

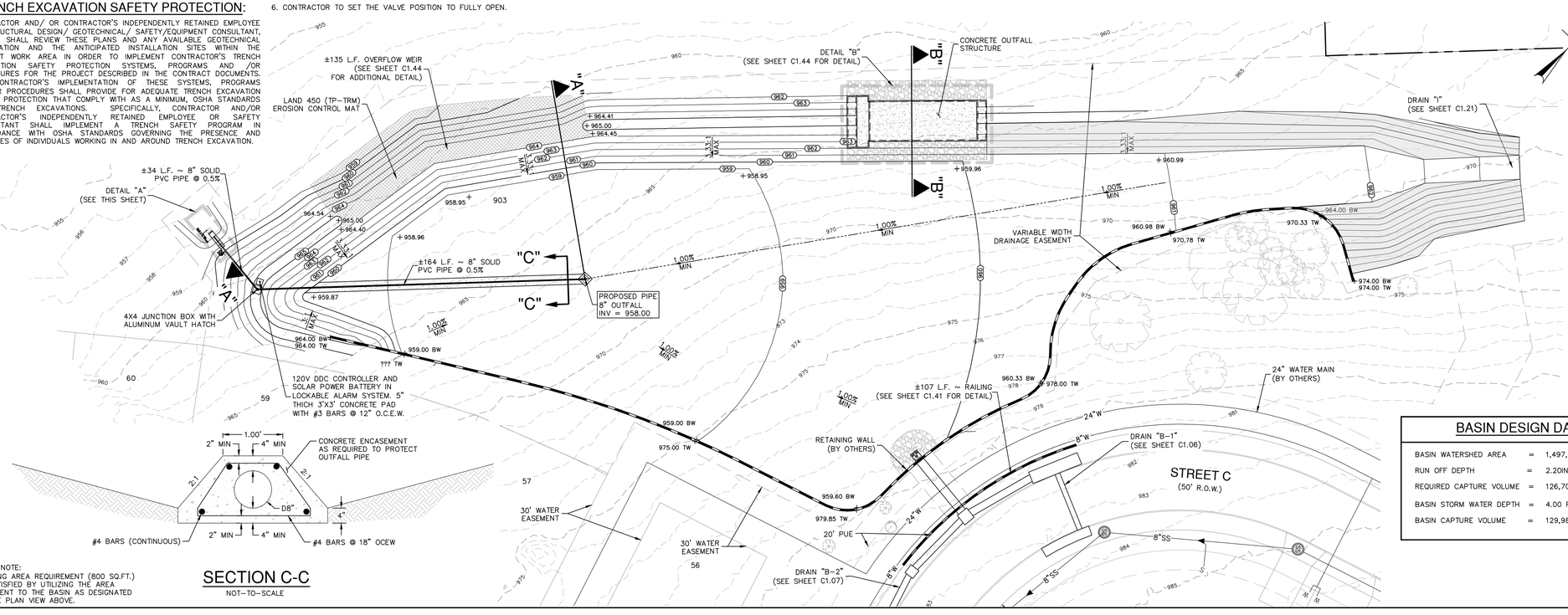
NOT-TO-SCALE
SCALE: 1" = 30'

0' 30' 60' 90'

NO.	REVISION	DATE

STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED PROFESSIONAL ENGINEER
12-5-2024

PAPE-DAWSON ENGINEERS
1672 INDEPENDENCE DR, STE 102 | NEW BRAUNFELS, TX 78132 | 830.632.5633
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #100288-00



SECTION C-C
NOT-TO-SCALE

M.A.S NOTE:
STAGING AREA REQUIREMENT (800 SQ.FT.) IS SATISFIED BY UTILIZING THE AREA ADJACENT TO THE BASIN AS DESIGNATED IN THE PLAN VIEW ABOVE.

DRAINAGE LEGEND

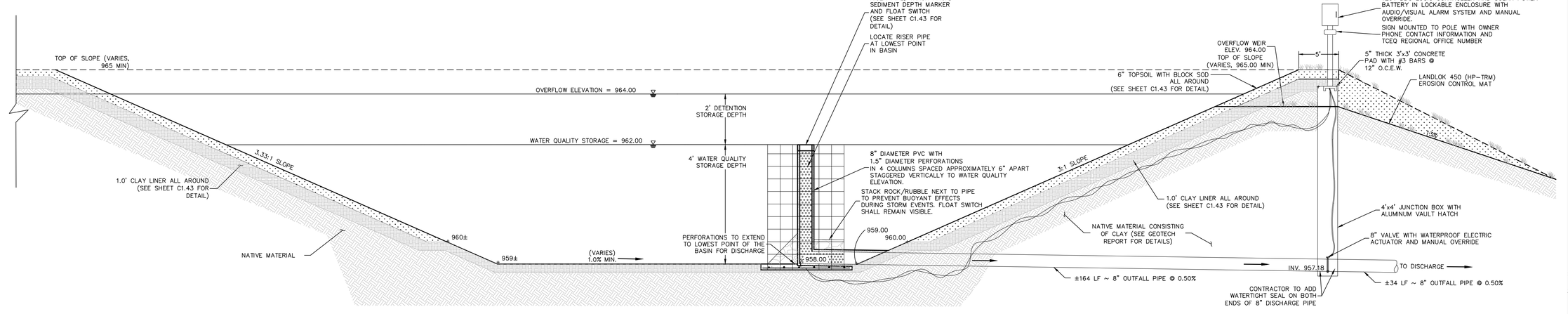
- PROJECT LIMITS
- 100 YR FLOODPLAIN
- EXISTING CONTOUR 690
- PROPOSED CONTOUR 690
- PROPOSED WATER W
- PROPOSED SEWER SS
- PROPOSED STORM DRAIN
- FLOW ARROW
- GAS, ELECTRIC, TELEPHONE & CABLE TELEVISION EASEMENT P.U.E.
- CURLEX SINGLE NET EROSION CONTROL BLANKETS
- LANDLOK 450 EROSION CONTROL MAT
- RETAINING WALL (BY OTHERS)

BASIN DESIGN DATA

BASIN WATERSHED AREA	=	1,497,157 SF (34.37 AC.)
RUN OFF DEPTH	=	2.20IN
REQUIRED CAPTURE VOLUME	=	126,707 CF
BASIN STORM WATER DEPTH	=	4.00 FT
BASIN CAPTURE VOLUME	=	129,981 CF

OVERFLOW WEIR CALCULATIONS

Q_{25}	=	$(Cw)(L)(h)^{3/2}$
Q_{25}	=	243.3 cfs
C	=	2.70
L	=	125 ft
243.3	=	$(2.70)(125)(h)^{3/2}$
h	=	0.80 ft



SECTION "A-A"
N.T.S.

PURLSONG PHASE 1
COMAL COUNTY, TEXAS

BASIN 1

PLAT NO.
JOB NO. 30041-18
DATE SEPTEMBER 2024
DESIGNER GDL
CHECKED GL DRAWN CA
SHEET C1.30

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

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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.

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.

CAUTION!!

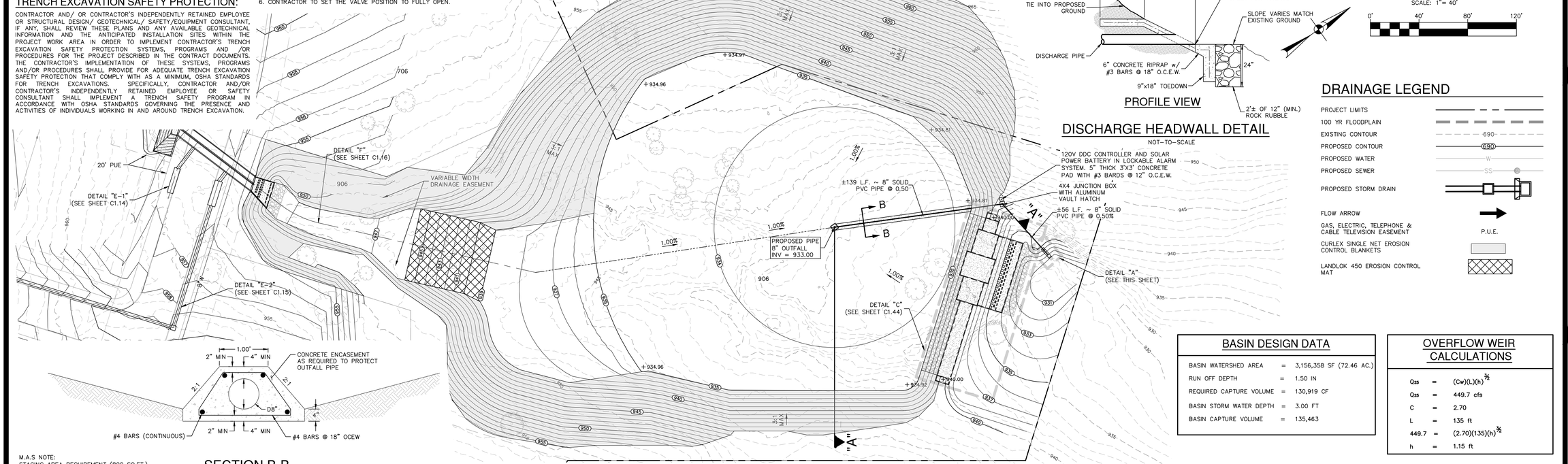
CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE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

NOTES

1. UPON COMPLETION OF CONSTRUCTION, AND IN ACCORDANCE WITH TCEQ REGULATIONS, ALL PERMANENT BMP'S MUST BE CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER.
2. ALL AREAS DISTURBED AS PART OF CONSTRUCTION OF BASIN SHALL BE REVEGETATED PRIOR TO COMPLETION.
3. BASIN HAS BEEN DESIGNED USING TSS REMOVAL AND BMP SIZING CALCULATIONS AS PER THE TCEQ TGM RG-348 (2005).
4. BASIN PLAN DEPICTS MINIMUM INTERIOR DIMENSIONS (LENGTH, WIDTH & HEIGHT FOR TCEQ REVIEW & APPROVAL.
5. BASIN DRAWDOWN IS CONTROLLED BY THE 8" PVC PIPE. BASIN DRAWDOWN WILL OCCUR IN APPROXIMATELY 31.88 HOURS.
6. CONTRACTOR TO SET THE VALVE POSITION TO FULLY OPEN.

SEQUENCE OF OPERATION

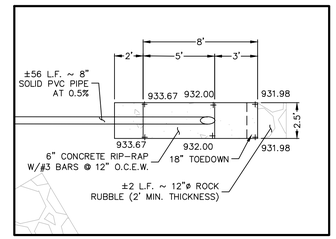
1. UPON ACTIVATION OF FLOAT SWITCH, DDC CONTROLLER TO START DETENTION TIMER #1.
2. DETENTION TIMER #1 TO BE MANUALLY SET TO 12 HOURS AND TO BE USER ADJUSTABLE VALUE.
3. WHEN DETENTION TIMER #1 HAS ELAPSED, A 8" BUTTERFLY VALVE IS TO OPEN AND RELEASE DETAINED WATER BASIN.
4. UPON DEACTIVATION OF FLOAT SWITCH, DDC CONTROLLER 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 8" BUTTERFLY VALVE IS TO CLOSE.
7. VALVE TO BE ACTUATED PERIODICALLY TO SHOW ACTIVE REGARDLESS OF FLOAT SWITCH OPERATION.



M.A.S NOTE:
STAGING AREA REQUIREMENT (800 SQ.FT.) IS SATISFIED BY UTILIZING THE AREA ADJACENT TO THE BASIN AS DESIGNATED IN THE PLAN VIEW ABOVE.

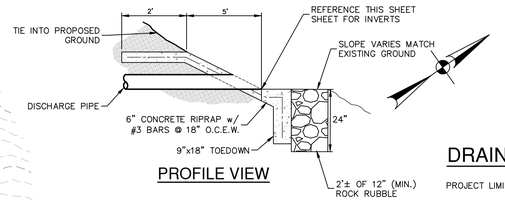
SECTION B-B

NOT-TO-SCALE



DETAIL "A"

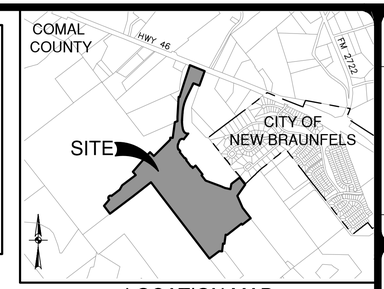
1" = 5'



PROFILE VIEW

DISCHARGE HEADWALL DETAIL

NOT-TO-SCALE



LOCATION MAP

NOT-TO-SCALE
SCALE: 1" = 40'

0' 40' 80' 120'

DRAINAGE LEGEND

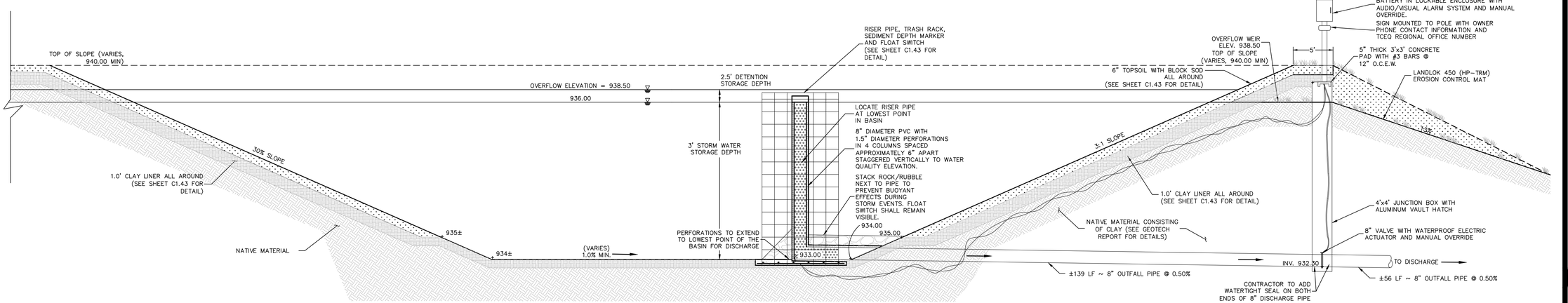
- PROJECT LIMITS
- 100 YR FLOODPLAIN
- EXISTING CONTOUR — 690 —
- PROPOSED CONTOUR — 690 —
- PROPOSED WATER — W —
- PROPOSED SEWER — SS —
- PROPOSED STORM DRAIN
- FLOW ARROW
- GAS, ELECTRIC, TELEPHONE & CABLE TELEVISION EASEMENT — P.U.E.
- CURLEX SINGLE NET EROSION CONTROL BLANKETS
- LANDLOK 450 EROSION CONTROL MAT

BASIN DESIGN DATA

BASIN WATERSHED AREA	=	3,156,358 SF (72.46 AC.)
RUN OFF DEPTH	=	1.50 IN
REQUIRED CAPTURE VOLUME	=	130,919 CF
BASIN STORM WATER DEPTH	=	3.00 FT
BASIN CAPTURE VOLUME	=	135,463

OVERFLOW WEIR CALCULATIONS

Q_{25}	=	$(Cw)(L)(h)^{3/2}$
Q_{25}	=	449.7 cfs
C	=	2.70
L	=	135 ft
449.7	=	$(2.70)(135)(h)^{3/2}$
h	=	1.15 ft



SECTION "A-A"

N.T.S.

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EXHIBIT 5

NO.	REVISION	DATE

STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED PROFESSIONAL ENGINEER
12-5-2024

PAPE-DAWSON ENGINEERS
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #100288-00

PURLSONG PHASE 1
COMAL COUNTY, TEXAS

BASIN 2

PLAT NO.
JOB NO. 30041-18
DATE SEPTEMBER 2024
DESIGNER GDL
CHECKED GL DRAWN CA
SHEET C1.31

FOR PERMIT

Date: October 30, 2024, 1:37 PM - User ID: DLynch
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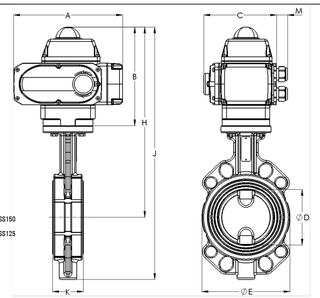
Valworx

SERIES
5670

Dimensions:



Suitable between flanges:

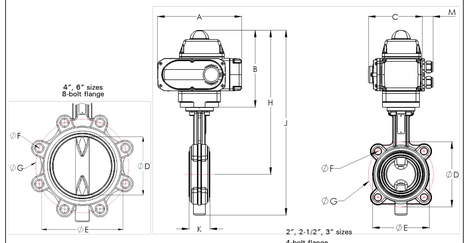
- ANSI/ASME B16.5 CLASS150
- ANSI/ASME B16.1 CLASS125
- EN1092 PN10, PN16
- JIS B 2239 10K, 16K
- BS 10 Table D, Table E

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

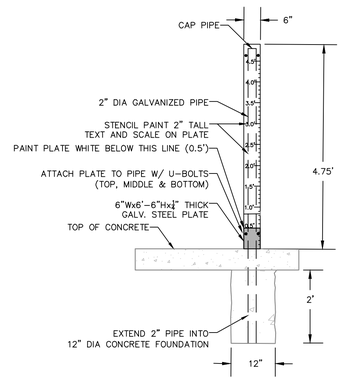
Dimensions:



Suitable between flanges:

- ANSI/ASME B16.5 CLASS150
- ANSI/ASME B16.1 CLASS125

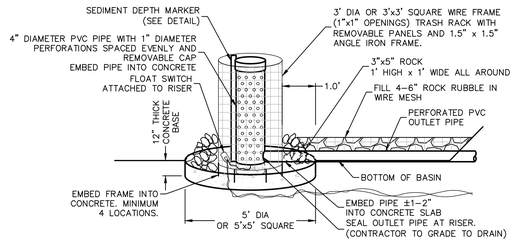
Pipe Size		A	B	C	D	E	F	G	H	J	K	M	ISO	Weight (AC/DC)
2	inch	6.34	7.09	4.65	1.97	3.74	4| 5/8-11	4.74	12.05	15.04	1.81	0.98	F05	12.7 / 13.3 lb
	mm	161	180	118	50	95	--	120.5	306	382	46	25			5.8 / 6.0 kg
2-1/2	inch	6.34	7.09	4.65	2.56	4.13	4| 5/8-11	5.50	12.36	15.59	1.93	0.98	F05	14.5 / 15.0 lb
	mm	161	180	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	16.46	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

NOTES

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

5. 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.

6. THE MINIMUM DRAIN TIME FOR A FULL BASIN IS 24.1 HOURS. CONTRACTOR TO SET BUTTERFLY VALVE TO FULLY OPEN TO BE CONTROLLED DDC CONTROLLER.

CLAY LINER SPECIFICATIONS

PROPERTY	TEST METHOD	UNIT	SPECIFICATION
PERMEABILITY	ASTM D-2434	CM/SEC	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

THE CLAY LINER SHALL HAVE A MINIMUM THICKNESS OF TWELVE (12) INCHES.

IF A GEOMEMBRANE LINER IS USED IT SHALL HAVE A MINIMUM THICKNESS OF FORTY (40) MILS. AND BE ULTRAVIOLET RESISTANT. A GEOTEXTILE FABRIC SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.

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

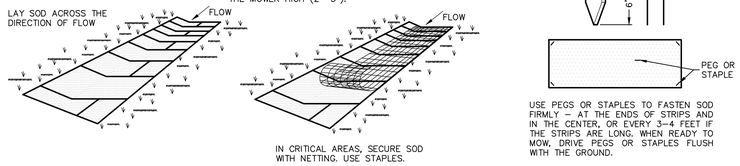
NOTES:

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



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

FILTER FABRIC SPECIFICATIONS

THE SEPARATION LAYER BETWEEN THE SAND FILTER AND GRAVEL LAYERS SHALL BE A DRAINAGE MATTING CONSISTING OF NON-WOVEN FILTER FABRIC MEETING THE FOLLOWING SPECIFICATIONS:

PROPERTY	TEST METHOD	SPECIFICATION
WEIGHT (OZ/SY)	ASTM D 5261	≥ 4.0
GRAB STRENGTH (LBS.)	ASTM D 4632	≥ 90
ELONGATIONS (%)	ASTM D 4632	≤ 55
TRAPEZOID TEAR (LBS)	ASTM D 4533	≥ 50
CBR PUNCTURE STRENGTH (LBS)	ASTM D 6241	≥ 300
UV RESISTANCE AFTER 500 HRS. (%)	ASTM D 4355	≥ 70
AOS (SIEVE #)	ASTM D 4751	70-80
FLOW RATE (GPM/SF)	ASTM D 4491	≥ 125

FABRIC OVERLAP SHALL BE A MINIMUM OF 24".
ALL OVERLAPS SHALL BE WIRE TIED AT A MAXIMUM OF 36" INTERVALS

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.

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 6

NO.	REVISION	DATE

STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED
PROFESSIONAL ENGINEER
12-5-2024

PAPE-DAWSON ENGINEERS
1672 INDEPENDENCE DR, STE 102 | NEW BRAUNFELS, TX 78132 | 830.632.5603
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #100288-00

PURLSONG PHASE 1
COMAL COUNTY, TEXAS
BASIN DETAILS

PLAT NO.
JOB NO. 30041-18
DATE SEPTEMBER 2024
DESIGNER GDL
CHECKED JL DRAWN CA
SHEET C1.43

FOR PERMIT

Date: October 30, 2024, 1:38 PM — User ID: DLynch
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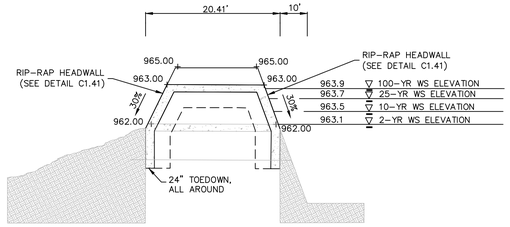
BASIN 1 DETAILS



BASIN OUTFALL
SECTION B-B
NOT-TO-SCALE

FLOW COMPARISON TABLE

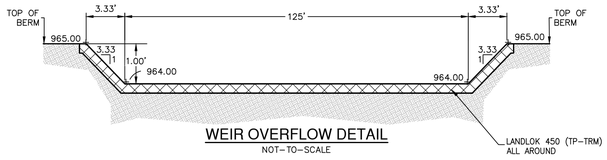
Storm Event	Existing Flows (cfs)	Proposed Flows (cfs)	Ultimate Flows (cfs)	Existing vs. Proposed Flows (cfs)	Existing vs. Ultimate Flows (cfs)
2-yr	204.8	178.6	178.6	-26.2	-26.2
10-yr	410.6	404.1	404.1	-6.5	-6.5
25-yr	550.0	557.3	557.3	7.3	7.3
50-yr	658.2	673.5	673.5	15.3	15.3
100-yr	773.0	792.6	792.6	19.6	19.6

STAGE STORAGE DISCHARGE TABLE PER STORM EVENT

Storm Event	Max Elevation (ft.)	Storage (ac-ft)	Storage Vol (cf)	Ultimate Peak Discharge (cfs)
2-yr	963.1	8.4	365904	178.6
10-yr	963.5	10.1	439956	404.1
25-yr	963.7	11.1	483516	557.3
50-yr	963.8	11.7	509652	673.5
100-yr	963.9	12.3	535788	792.6

DETENTION POND & WATER QUALITY CALCULATIONS

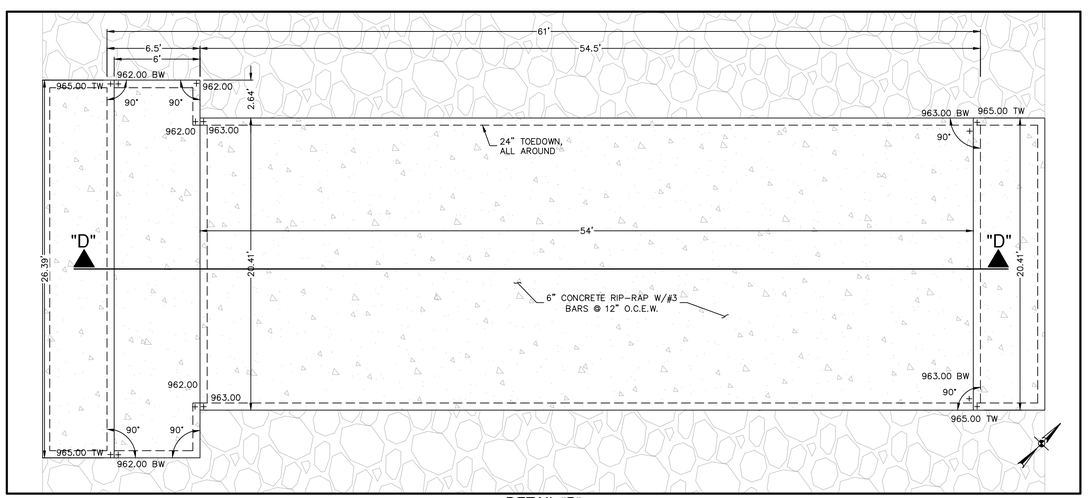
Elevation (ft)	Incremental Height (ft)	Surface Area (sf)	Incremental Vol. (cf)	Cumulative Vol. (cf)	
958	0	0	-	-	
959	1	20,292	6906	6906	Water Quality
960	1	39,049	29055	35961	
961	1	48,549	43524	79485	
962	1	53,565	50496	129981	
962	0	53,565	-	-	
963	1	56,489	54975	184956	Detention
964	1	59,393	57887	242843	



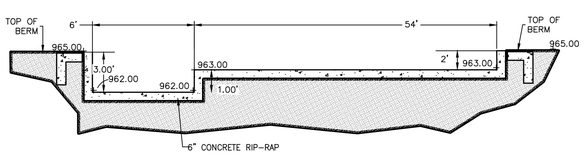
WEIR OVERFLOW DETAIL
NOT-TO-SCALE

2,000' DOWNSTREAM STUDY TABLE

Storm Event	Existing Flows (cfs)	Proposed Flows (cfs)	Ultimate Flows (cfs)	Existing vs. Proposed Flows (cfs)	Existing vs. Ultimate Flows (cfs)
2-yr	476.3	440.4	442.9	-35.9	-33.4
10-yr	954.6	923.2	929.9	-31.4	-24.7
25-yr	1277.1	1252.3	1260	-24.8	-17.1
50-yr	1527.2	1503.4	1511.5	-23.8	-15.7
100-yr	1793.1	1766.2	1774.9	-26.9	-18.2

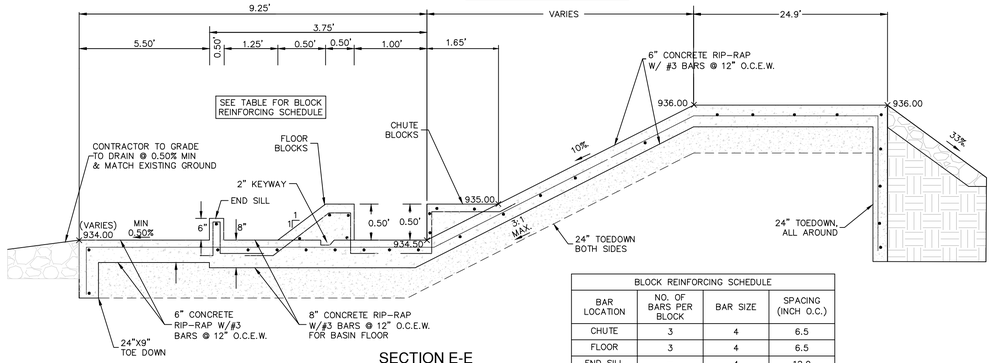


DETAIL "B"
1" = 5'



SECTION D-D
NOT-TO-SCALE

BASIN 2 DETAILS



SECTION E-E
STILLING BASIN SECTION
NOT TO SCALE

BLOCK REINFORCING SCHEDULE			
BAR LOCATION	NO. OF BARS PER BLOCK	BAR SIZE	SPACING (INCH O.C.)
CHUTE	3	4	6.5
FLOOR	3	4	6.5
END SILL	–	4	12.0

STAGE STORAGE DISCHARGE TABLE PER STORM EVENT

Storm Event	Max Elevation (ft.)	Storage (ac-ft)	Storage Vol (cf)	Ultimate Peak Discharge (cfs)
2-yr	937.2	8.1	352836	96.7
10-yr	937.6	10.7	466092	219
25-yr	937.9	12.2	531432	302.2
50-yr	938.0	13.4	583704	365.2
100-yr	938.2	14.5	631620	429.5

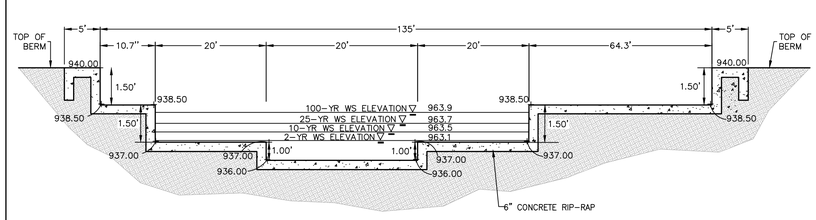
FLOW COMPARISON TABLE

Storm Event	Existing Flows (cfs)	Proposed Flows (cfs)	Ultimate Flows (cfs)	Existing vs. Proposed Flows (cfs)	Existing vs. Ultimate Flows (cfs)
2-yr	178.7	94.1	96.7	-84.6	-82
10-yr	354.7	217.3	219.0	-137.4	-135.7
25-yr	473.2	301.4	302.2	-171.8	-171
50-yr	566.2	365.1	365.2	-201.1	-201
100-yr	662.8	430.1	429.5	-232.7	-233.3

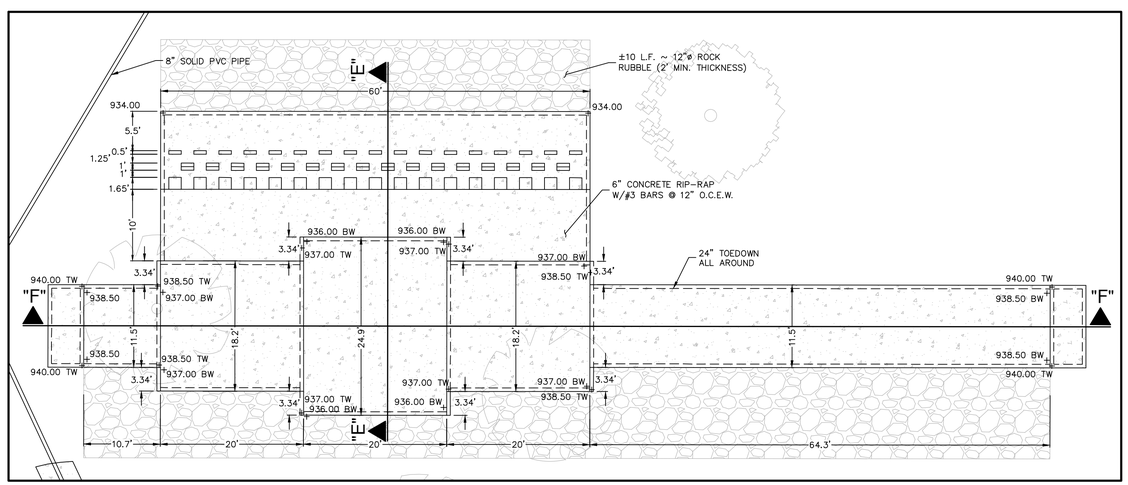
DETENTION POND & WATER QUALITY CALCULATIONS

Elevation (ft)	Incremental Height (ft)	Surface Area (sf)	Incremental Vol. (cf)	Cumulative Vol. (cf)	
933	0	0	-	-	
934	1	30750	6906	10568	Water Quality
935	1	69558	48051	58619	
936	1	84563	76844	135463	
936	0	84563	-	-	
937	1	89680	87758	223221	
938	1	93438	91554	314775	Detention
939	1	97265	95346	410121	
940	1	101174	99208	509329	

**REFERENCE STORM WATER MANAGEMENT PLAN FOR OVERALL DETENTION ANALYSIS OF PEAK DISCHARGE FROM SITE.



SECTION F-F
NOT-TO-SCALE



DETAIL "C"
1" = 10'

NO.	REVISION	DATE

12-5-2024

STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED PROFESSIONAL ENGINEER

PAPE-DAWSON ENGINEERS
672 INDEPENDENCE DR, STE 102 I NEW BRAUNFELS, TX 78132 I 830.632.5633
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #100288-00

PURLSONG PHASE 1
COMAL COUNTY, TEXAS

BASIN DETAILS

PLAT NO.
JOB NO. 30041-18
DATE SEPTEMBER 2024
DESIGNER GDL
CHECKED GL DRAWN CA
SHEET C1.44

FOR PERMIT

Date: October 30, 2024, 1:38 PM - User ID: DLynch
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DEED

RECORD AND RETURN TO:
CHESMAR HOMES, LLC
ATTN: ALLYSON WALTERS
211 N. LOOP 1604 E, SUITE 175
SAN ANTONIO, TEXAS 78232

NOTICE OF CONFIDENTIALITY RIGHTS; IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OF THE FOLLOWING INFORMATION FROM THIS INSTRUMENT BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS. YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.

SPECIAL WARRANTY DEED

STATE OF TEXAS)
ss.: KNOW ALL MEN BY THESE PRESENTS:
COUNTY OF COMAL)

THAT **BRANDT RANCH, LP,** a Texas limited partnership, f/k/a Brandt Ranch, LLC, a Texas limited liability company ("Grantor"), for and in consideration of the sum of $10.00 and other good and valuable consideration paid to Grantor by **CHESMAR HOMES , LLC**, a Texas limited liability company ("Grantee"), having an address at 211 N Loop 1604 E, Suite 175, San Antonio, Texas 78232, the receipt and sufficiency of which are hereby acknowledged, has GRANTED, SOLD AND CONVEYED, and by these presents does hereby GRANT, SELL AND CONVEY unto Grantee, all of that certain real property situated in Comal County, Texas, more particularly described in **Exhibit A** attached hereto and incorporated herein by reference, together with all buildings, improvements and fixtures (to the extent owned by Grantor) located thereon, and all rights, ways, privileges and appurtenances pertaining thereto, including without limitation, Grantor's right, title and interest, if any, to the adjacent streets, alleys and rights-of-ways, strips and gores adjacent thereto, any easement rights, air rights, surface rights, sub-surface rights, subsurface rights, and any rights, privileges and appurtenances pertaining thereto (collectively, the "Property").

SUBJECT, HOWEVER, to the matters set forth in **Exhibit B** attached hereto and made a part hereof (the "Permitted Exceptions"), the state of facts that would be disclosed by a current accurate survey of the Property, standby fees, taxes and assessments by any taxing authority for the years 2024 and thereafter, not yet due and payable.

TO HAVE AND TO HOLD the Property, subject to the aforesaid encumbrances, unto Grantee, Grantee's successors and assigns, forever, and Grantor does hereby bind Grantor and Grantor's successors and assigns to WARRANT AND FOREVER DEFEND all singular the Property, subject to the aforesaid encumbrances, unto Grantee, Grantee's successors and assigns, against every person whomsoever lawfully claiming or to claim the same or any part thereof, by, through or under Grantor, but not otherwise.

EXECUTED as of November 6, 2024.

GRANTOR:

BRANDT RANCH, LP,
a Texas limited partnership
(Formerly known as Brandt Ranch, LLC)

By: Regal, LLC,
a Texas limited liability company
its general partner

By: _____
Name: Clint Jones
Title: Manager

STATE OF TEXAS §

COUNTY OF Bexar §

This instrument was acknowledged before me on the 6th day of November, 2024, by Clint Jones, Manager of Regal, LLC, a Texas limited liability company, general partner of Brandt Ranch, LP, a Texas limited partnership (formerly known as Brandt Ranch, LLC, a Texas limited liability company), on behalf of said entities.

_____
Notary Public, State of Texas

SANDRA M. RAO
Notary Public, State of Texas
Comm. Expires 07-05-2026
Notary ID 293177

UNOFFICIAL

EXHIBIT "A"
To Special Warranty Deed

PROPERTY DESCRIPTION

FIELD NOTES FOR A 221.734 ACRE, OR 9,658,735 SQUARE FEET MORE OR LESS, TRACT SITUATED IN THE A.M. HOLBROOK SURVEY NO. 423, ABSTRACT 271, THE SIMON WASHBURN SURVEY NO. 486, ABSTRACT 663, THE FRIED. MICHEL SURVEY NO. 653, ABSTRACT 400, THE AUGUSTUS MICHEL SURVEY NO. 485, ABSTRACT 394, THE J.M. STEINER SURVEY NO. 596, ABSTRACT 571, AND THE GOTLIEB ARNOLD SURVEY NO. 436, ABSTRACT 13, COMAL COUNTY, TEXAS; BEING A PORTION OF A CALLED 223.8 ACRE TRACT DESCRIBED IN DEED FROM BRANDT RANCH NB, LLC TO BRANDT RANCH, LLC, AS RECORDED IN DOCUMENT NO. 202206028894 OF THE OFFICIAL PUBLIC RECORDS OF COMAL COUNTY, TEXAS. SAID 221.734 ACRE TRACT BEING MORE FULLY DESCRIBED AS FOLLOWS, WITH BEARINGS BASED ON THE TEXAS COORDINATE SYSTEM ESTABLISHED FOR THE SOUTH CENTRAL ZONE FROM THE NORTH AMERICAN DATUM OF 1983 (NA2011) EPOCH 2010.00:

BEGINNING: At a ½" iron rod found on the Southwest right-of-way line of State Highway 46, a 100-foot public right-of-way as shown on TxDOT right-of-way map 15-76-0215-02-029, for the North corner of a called 24.649 acre tract, referenced as Tract 1, described in deed from Charles Frederick Cludius and wife, Blanca C. Cludius to Brymel, LLC, as recorded in Document No. 202206016495 of the said Official Public Records, the Northeast corner of the said 223.8 acre tract and this tract, from Whence a ½" iron rod found on the said Southwest right-of-way line, for the Northeast corner of the said 24.649 acre tract, bears South 68°17'33" East, 445.16 feet;

THENCE: South 19°42'52" West, departing the said Southwest right-of-way line, with the common line of the said 24.649 acre tract and the said 223.8 acre tract, 175.17 feet to a ½" iron rod with yellow plastic cap stamped
"Pape-Dawson" set for an exterior corner of this tract;

THENCE: Departing the said common line, over and across the said 223.8 acre tract the following four courses:

North 68°16'19" West, 164.02 feet to a ½" iron rod with yellow plastic cap stamped "Pape-Dawson" set for an interior corner of this tract;

South 21°43'41" West, 200.04 feet to a ½" iron rod with yellow plastic cap stamped "Pape-Dawson" set for an angle point;

South 29°01'55" West, 60.04 feet to a ½" iron rod with yellow plastic cap stamped "Pape-Dawson" set for an interior corner of this tract;

South 69°46'49" East, 180.68 feet to a ½" iron rod with yellow plastic cap stamped "Pape-Dawson" set on the said common line of the 24.649 acre tract and 223.8 acre tract, for an exterior corner of this tract;

UNOFFICIAL

THENCE: South 19°42'52" West, with the said common line, 638.42 feet to a mag nail found for the North corner of a called 4.998 acre tract, referenced as Tract 2, described in deed from Charles Frederick Cludius and wife, Blanca C. Cludius to Brymel, LLC, as recorded in Document No. 202206016495 of the said Official Public Records, the West corner of the said 24.649 acre tract, an angle point of the said 223.8 acre tract and this tract;

THENCE: Departing the said common line, with the common line of the said 4.998 acre tract and the said 223.8 acre tract the following three courses:

South 01°52'03" East, 422.28 feet to a ½" inch iron rod with yellow plastic cap stamped "Pape-Dawson" set for an angle point;

South 43°21'07" East, 564.42 feet to a ½" iron rod with plastic cap stamped "HMT" found for an angle point;

South 79°28'21" East, 75.70 feet to a ½" iron rod found for the West corner of Lot 28, Block A, Mission Hills Ranch Unit 7B, as recorded in Document No. 200706017898 of the Map and Plat Records of Comal County, Texas, the South corner of the said 4.998 acre tract, an angle point of the said 223.8 acre tract and this tract;

THENCE: South 37°43'10" East, at 1401.53 feet pass a ½" iron rod found for the South corner of Lot 12, Block A, Mission Hills Ranch Unit 5, as recorded in Document No. 200406005650 of the said Map and Plat Records, the West corner of Lot 11, Block A, of the said Mission Hills Ranch Unit 5, in all 1649.22 feet to a ½" iron rod found, for an angle point of a 72.22 acre tract described in a partition deed to Nancy Staats Chafin, as recorded in Document No. 200206016070 of the Official Records of Comal County, Texas, the South corner of the said Lot 11, an exterior corner of the said 223.8 acre tract and this tract;

THENCE: With the common line of the said 72.22 acre tract and the said 223.8 acre tract the following three courses: South 35°01'36" West, 375.84 feet to a 2" metal fence post found for an angle point;

South 23°19'30" East, 361.86 feet to a 2" metal fence post found for an angle point;

South 38°04'13" East, 2,205.27 feet to the remains of a 9" cedar fence post found on the Northwest line of a called 8.42 acre tract described in deed from Leo M. Chafin and wife, Nancy Staats Chafin to Hiram Tavarez and wife, Jana L. Chafin Tavarez, as recorded in Document No. 200206016074 of the said Official Records, for the South corner of a called 0.49 acre tract described in deed from Leo M. Chafin and wife, Nancy Staats Chafin to Hiram Tavarez and wife, Jana L. Chafin Tavarez, as recorded in Document No. 200306047838 of the said Official Records, the East corner of the said 223.8 acre tract and this tract;

THENCE: South 50°42'51" West, with the common line of the said 8.42 acre tract and the said

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223.8 acre tract, 293.77 feet to the remains of a 6" cedar fence post found for the North corner of a called 1.09 acre tract described in deed from Carroll B. Lindeman and wife, Kristina Staats Lindeman to Hiram Tavarez and wife, Jana L. Chafin Tavarez, as recorded in Document No. 200306047839 of the said Official Records, the West corner of the said 8.42 acre tract, an angle point of the said 223.8 acre tract and this tract;

THENCE: South 51°42'16" West, departing the said common line, at 59.83 feet pass a ½" iron rod with plastic cap stamped "BYRN" found for a North corner of a called 204.63 acre tract described in a partition deed to Kristina Staats Lindeman, as recorded in said Document No. 200206016070, the West corner of the said 1.09 acre tract, in all 231.85 feet to a ½" inch iron rod with yellow plastic cap stamped "Pape-Dawson" set on a Northwest line of the said 204.63 acre tract, for an angle point of the said 223.8 acre tract and this tract;

THENCE: With the common line of the said 204.63 acre tract and the said 223.8 acre tract the following three courses:

South 51°56'23" West, 913.07 feet to a 60D nail in fence post found for an angle point;

South 54°17'17" West, 149.32 feet to a 60D nail in fence post found for an interior corner of the said 204.63 acre tract, the South corner of the said 223.8 acre tract and this tract;

North 38°08'02" West, 688.62 feet to a ½" iron rod found for the South corner of a called 10.00 acre tract described in deed from C. Frederick Cludius, et al. to New Braunfels Conservation Society, Inc., as recorded in Document No. 201506012095 of the said Official Public Records, an interior corner of the said 223.8 acre tract and this tract;

THENCE: Departing the said common line, with the common line of the said 10.00 acre tract and the said 223.8 acre tract the following four courses:

North 52°33'00" East, 450.06 feet to a ½" iron rod with plastic cap stamped "HMT" found for the East corner of the said 10.00 acre tract, an interior corner of the said 223.8 acre tract and this tract;

North 37°26'57" West, 844.29 feet to a ½" iron rod with plastic cap stamped "HMT" found for the Northeast corner of the said 10.00 acre tract, an angle point of the said 223.8 acre tract and this tract;

North 82°26'42" West, 178.51 feet to a ½" iron rod with plastic cap stamped "HMT" found for the North corner of the said 10.00 acre tract, an angle point of the said 223.8 acre tract and this tract;

South 52°35'51" West, 340.53 feet to a ½" iron rod with plastic cap stamped "HMT" found on a Northeast line of the said 204.63 acre tract, for the West corner

of the said 10.00 acre tract, an interior corner of the said 223.8 acre tract and this tract;

THENCE: With the common line of the said 204.63 acre tract and the said 223.8 acre tract the following five courses:

North 38°43'13" West, 142.77 feet to a ½" iron rod with plastic cap stamped "HMT" found for an angle point;

North 37°20'05" West, 2,088.94 feet to a 60D nail in fence post found for an angle point;

North 37°24'18" West, 438.74 feet to a 4" square wood post found for an exterior corner of the said 204.63 acre tract, an interior corner of the said 223.8 acre tract and this tract;

South 52°09'43" West, 621.80 feet to a ½" iron rod found for an angle point;

South 52°32'43" West, 816.40 feet to a ½" iron rod with plastic cap stamped "KFW" found for a Southeast corner of a called 200.00 acre tract described in deed from Japhet III LLC et al. to the Board of Trustees of the New Braunfels Independent School District, as recorded in Document No. 201906009101 of the said Official Public Records, an angle point of the said 204.63 acre tract, an exterior corner of the said 223.8 acre tract and this tract;

THENCE: With the common line of the said 200.00 acre tract and the said 223.8 acre tract the following fifteen courses:

North 37°28'08" West, 277.65 feet to a ½" iron rod with plastic cap stamped "KFW" found for an interior corner of the said 200.00 acre tract, an exterior corner of the said 223.8 acre tract and this tract;

North 39°51'50" East, 218.90 feet to a ½" iron rod with plastic cap stamped "KFW" found for an exterior corner of the said 200.00 acre tract, an interior corner of the said 223.8 acre tract and this tract, the beginning of a curve to the right having a radius of 65.00 feet, an arc length of 180.32 feet, a central angle of 158°56'38", a chord bearing and distance of North 29°02'35" East, 127.81 feet;

With the arc of the said curve to the right, 180.32 feet to a ½" iron rod with plastic cap stamped "KFW" found for an exterior corner of the said 200.00 acre tract, an interior corner of the said 223.8 acre tract and this tract, the beginning of a curve to the left having a radius of 15.00 feet, an arc length of 14.56 feet, a central angle of 55°37'57", a chord bearing and distance of North 80°52'32" East, 14.00 feet;

With the arc of the said curve to the left, 14.56 feet to a ½" iron rod with plastic cap stamped "KFW" found for an angle point;

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North 52°34'31" East, 281.33 feet to a ½" iron rod with plastic cap stamped "KFW" found for an angle point; North 30°36'51" East, 134.76 feet to a ½" iron rod with plastic cap stamped "KFW" found for an angle point;

North 52°32'51" East, 474.62 feet to a ½" iron rod with plastic cap stamped "KFW" found for an exterior corner of the said 200.00 acre tract, an interior corner of the said 223.8 acre tract and this tract;

North 41°15'25" West, 123.23 feet to a ½" iron rod with plastic cap stamped "KFW" found for an interior corner of the said 200.00 acre tract, an exterior corner of the said 223.8 acre tract and this tract;

North 40°55'57" East, 629.37 feet to a ½" iron rod with plastic cap stamped "KFW" found for an angle point;

North 44°56'15" East, 90.24 feet to a ½" iron rod with plastic cap stamped "KFW" found for an interior corner of the said 200.00 acre tract, an exterior corner of the said 223.8 acre tract and this tract;

South 45°03'59" East, 149.95 feet to a ½" iron rod with plastic cap stamped "KFW" found for an exterior corner of the said 200.00 acre tract, an interior corner of the said 223.8 acre tract and this tract;

North 44°56'13" East, 640.30 feet to a ½" iron rod with plastic cap stamped "KFW" found for an angle point;

North 07°30'21" East, 59.96 feet to a ½" iron rod with plastic cap stamped "KFW" found for an interior corner of the said 200.00 acre tract, an exterior corner of the said 223.8 acre tract and this tract;

South 82°29'28" East, 67.03 feet to a ½" iron rod with plastic cap stamped "KFW" found for an exterior corner of the said 200.00 acre tract, an interior corner of the said 223.8 acre tract and this tract;

North 07°28'10" East, 440.90 feet to a ½" iron rod with plastic cap stamped "KFW" found on the Southeast line of a remainder of 23 acre tract described in deed from Marie Kirmse to Mary Ann Demuth, as recorded in Volume 842, Page 116 of the said Official Public Records, for the Northeast corner of the said 200.00 acre tract, an exterior corner of the said 223.8 acre tract and this tract;

THENCE: With the common line of the said 23 acre tract and the said 223.8 acre tract the following three courses:

North 66°08'35" East, 76.75 feet to a 60D nail in fence post found for the Southeast corner of the said 23 acre tract, an interior corner of the said 223.8 acre tract and

this tract;

North 01°46'09" East, 123.77 feet to a ½" iron rod with plastic cap stamped "HMT" found for an angle point;

North 03°07'13" East, at 397.16 feet pass a ¼" iron rod found for the South corner of a called 3.488 acre tract described in deed from Franklin Demuth to Mary Ann Demuth, as recorded in Volume 842, Page 114 of the said Official Public Records, the East corner of the said 23 acre tract, in all 465.17 feet to a ½" iron rod with plastic cap stamped "HMT" found on the common line of the said 3.488 acre tract and the said 223.8 acre tract, for an angle point;

THENCE: With the said common line the following three courses:

North 05°47'21" East, 82.72 feet to a 3" metal fence post found for an interior corner of the said 3.488 acre tract, an exterior corner of the said 223.8 acre tract and this tract;

South 77°04'11" East, 25.29 feet to a 3" metal fence post found for an exterior corner of the said 3.488 acre tract, an interior corner of the said 223.8 acre tract and this tract;

North 17°30'42" East, 469.69 feet to a ½" iron rod with yellow plastic cap stamped "Pape-Dawson" set for an exterior corner of this tract;

THENCE: Departing the said common line, over and across the said 223.8 acre tract the following four courses:

South 65°55'47" East, 137.92 feet to a ½" iron rod with yellow plastic cap stamped "Pape-Dawson" set for an interior corner of this tract;

North 22°49'19" East, 43.70 feet to a ½" iron rod with yellow plastic cap stamped "Pape-Dawson" set for an angle point;

North 21°43'59" East, 251.14 feet to a ½" iron rod with yellow plastic cap stamped "Pape-Dawson" set for an interior corner of this tract;

North 68°16'01" West, 159.98 feet to a ½" iron rod with yellow plastic cap stamped "Pape-Dawson" set on the common line of the said 3.488 acre tract and the said 223.8 acre tract, for an exterior corner of this tract;

THENCE: North 17°30'42" East, 175.08 feet to a ½" iron rod found on the said Southwest right-of-way line of State Highway 46, for the East corner of the said 3.488 acre tract, the North corner of the said 223.8 acre tract and this tract, from Whence a ½" iron rod found on the said Southwest right-of-way line, for the North corner of the said 3.488 acre tract, bears North 68°02'54" West, 161.52 feet;

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THENCE: South 68°17'16" East, with the said Southwest right-of-way line, 445.63 feet to the POINT OF BEGINNING containing 221.734 acres, more or less, in Comal County, Texas.

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EXHIBIT "B"
To Special Warranty Deed

PERMITTED EXCEPTIONS

1. Restrictive covenants of record recorded as County Clerk's File No(s). 201506012093 and 201506019786, of the Official Public Records of Comal County, Texas.

2. Easement and Right of Way as set forth in instrument recorded in Volume 52, Page 532, as affected by assignment recorded in Volume 1002, Page 618, of the Deed Records of Comal County, Texas.

3. Utility Line Right of Way Agreement as set forth in instrument filed for record under Comal County Clerk's File No. 200506030940.

4. Easement Reservation as set forth in instrument filed for record under Comal County Clerk's File No. 201506012093.

5. Edwards Aquifer Protection Plan as set forth in instrument filed for record under Comal County Clerk's File No. 201606016909 and 202006020866.

6. Temporary Ingress-Egress Easement Agreement as set forth in instrument filed for record under Comal County Clerk's File No. 201906007082.

7. Terms, conditions, stipulations, provisions, and easements contained in that certain document as set forth in instrument filed for record under Comal County Clerk's File No. 202206028894.

8. All leases, grants, exceptions or reservations of coal, lignite, oil, gas and other minerals, together with all rights, privileges, and immunities relating thereto, appearing in the Public Records.

9. All conveyances, contracts, deeds, reservations, exceptions, limitations, leases, and similar interests in or to any geothermal energy and associated resources below the surface of the land, together with all rights, privileges, and immunities relating thereto, appearing in the Public Records.

10. The potential exercise of power by governmental authorities to limit, control or deny access, ingress or egress to the property from State Highway 46 or service road.

11. Rights and/or privileges existing or which may later exist by virtue of a portion of the property being used as a cemetery; including, but not limited to, the rights to sepulcher and interment and to the rights of ingress and egress in and to said cemetery.

12. The following matters disclosed on that certain plat of survey made by Chance Trevor SRP, Professional Land Surveyor No. 6916, dated June 27, 2024:

a. Rights or claims, if any, of adjoining property owner(s) in and to the portion of insured property lying between the fence and the insured property line. Paragraph 4(b) must be deleted from any T19.1 endorsement issued.

b. No liability is assumed by the location of Utility Pole(s), Utility Poles(s) With Transformer(s), Overhead Utility Lines(s), Fire Hydrant(s), Gas Sign(s), and Gate(s) inside the herein described property.

c. A20' wide Utility Line Right-Of-Way Agreement along the north property line, as set forth in instrument filed for record under Comal County Clerk's File No. 200506030940.

d. A 7.60 Acre Access Easement partly along the northwest property line, and running through the property, as set forth in instrument filed for record under Comal County Clerk's File No. 201506012093.

e. A 12' wide Dirt Road running through the property.

f. A 12' wide Gravel Road running through the property.

g. A Temporary Ingress/Egress Easement Agreement along the northwest property line, as set forth in instrument filed for record under Comal County Clerk's File No. 201906007082.

h. Tombstones are present in the southeast of the property.

13. Terms, conditions and provisions in that certain Petition For Creation of Purlsong Municipal Management District of Comal County, as set forth and defined in instrument recorded under County Clerk's File No. 202406029151, of the Official Public Records of Comal County, Texas.

14. Terms and conditions related to the property's presence in the Purlsong Municipal Management District of Comal County.

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Filed and Recorded
Official Public Records
Bobbie Koepp, County Clerk
Comal County, Texas
11/08/2024 01:55:08 PM
TERRI 11 Pages(s)
202406034227

County Court of Comal County, Texas

Bobbie Koepp

BILL OF SALE AND ASSIGNMENT

STATE OF TEXAS §
§ KNOW ALL PERSONS BY THESE PRESENTS:
COUNTY OF COMAL §

THIS BILL OF SALE AND ASSIGNMENT (this "Assignment") is executed as of the 6 day of November, 2024, by **BRANDT RANCH, LP**, a Texas limited partnership, f/k/a Brandt Ranch, LLC, a Texas limited liability company ("Assignor"), to and for the benefit of **CHESMAR HOMES, LLC.**, a Texas limited liability company ("Assignee").

WHEREAS, contemporaneously herewith, Assignee is acquiring from Assignor certain real property described in Exhibit "A" attached hereto (the "Land"), together with Assignor's right, title, and interest in and to the Property (as defined in that certain Special Warranty Deed of even date herewith), subject, however, to the Permitted Exceptions (as defined therein) (collectively, the "Property"); and

WHEREAS, in connection with the foregoing, Assignor desires to transfer and assign to Assignee all of Assignor's right, title, and interest in and to certain items and rights applicable or relating thereto, if any, all as hereinafter provided.

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Assignor hereby grants, sells, transfers, and assigns unto Assignee all of Assignor's right, title, and interest in and to that certain personal property owned by Assignor or used by Assignor exclusively with all or any portion of the Property (collectively the "Personal Property"), and that certain intangible property owned by Assignor or used by Assignor exclusively in connection with all or any portion of the Property, expressly including all of Assignor's rights, duties and obligations as owner of the Property under any development, financing and reimbursement agreement(s) (or similar agreements), and specifically including all right, title and interest in and to the receipt of any payments, reimbursements, proceeds, credits or offsets of any kind or character to which Assignor or any affiliate of Assignor is or may be come entitled to under any agreement involving Purlsong Municipal Management District of Comal County (collectively the "Intangible Property"), including, without limitation, all of Assignor's right, title, and interest, if any, in and to the following (hereinafter referred to collectively as the "Assigned Properties"):

(i) any and all licenses, permits, certificates of occupancy, approvals, entitlements, development rights, air rights, reimbursement rights, construction contracts, architectural contracts, maintenance contracts, management contracts, utility service contracts, warranties, guaranties, bonds, engineering reports, plans and other intangible property or rights related to or benefitting any of the Property;

(ii) any and all equipment, fixtures, signage and other personal property located on or used in connection with the Property;

N Title Inc.
GF#: NT00-LP241007
CLOSER: Carrie Wallace

(iii) all water, wastewater and other utility rights, allocation, availability and/or capacity attributable to the Property;

(iv) All right, title and interest in and to all site plans, surveys, soil and substrata studies, architectural drawings, plans and specifications, engineering plans and studies, and other plans or studies of any kind that relate to the Property in the possession of Assignor; provided, however, that any information, reports, statements, documents or records produced by third parties and provided or made available to Assignee by Assignor concerning the condition of the Property, including without limitation, the environmental condition of the Property, shall not be representations or warranties, and Assignee shall not rely on such disclosures, but rather, Assignee shall rely only on its own inspection of the Property; and

(v) All other rights, privileges and appurtenances owned by Seller and in any way relating to the above-described Property, save and except as set forth herein or in that certain Agreement of Purchase and Sale between Assignor and Assignee with respect to the Property.

In addition to the foregoing, with respect to that certain Roadway and Utility Construction, Easement and Cost-Sharing Agreement entered into by Assignor, Assignee and the New Braunfels Independent School District on or about _____, 2024 (the "RUCECA"), Assignor not only assigns all of its right, title, and interest pursuant to same with respect to the Property, but also with respect to those two (2) one (1) acre tracts being retained by Assignor which are located adjacent to the Property and more particularly described on Exhibit "B" attached hereto (the "Assignor Retained Tracts"), and by its acceptance of same, Assignee also accepts all of Assignor's rights, duties and obligations of Assignor under the RUCECA with respect to both the Property and the Assignor Retained Tracts. Assignee shall indemnify, defend and hold Assignor harmless from any and all claims, liability, damages, causes or causes of action, costs or other expenses, including without limitation reasonable attorney fees, paid or incurred by or asserted against Assignor based on or relating to any act or negligence of Assignee, its agents, employees, officers or contractors occurring on or in any way relating to the RUCECA, but only to the extent that the underlying act or omission giving basis to such claim(s) occurs subsequent to the date of this Assignment as set forth above.

[Signature Page to follow]

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IN WITNESS WHEREOF, the undersigned has executed this Assignment to be effective as of the date first set forth hereinabove.

ASSIGNOR:

BRANDT RANCH, LP,
a Texas limited partnership
(Formerly known as Brandt Ranch, LLC)

By: Regal, LLC,
a Texas limited liability company
its general partner

CARRIE WALLACE
Notary Public, State of Texas
Comm. Expires 10-05-2028
Notary ID 132711092

Carrie Wallace
11/06/24

By: See attached
Name: _____
Title: _____

ASSIGNEE:

CHESMAR HOMES, LLC,
a Texas limited liability company

By: _____
Name: Terry Shakarisaz.
Title: Authorized Agent

UNOFFICIAL

IN WITNESS WHEREOF, the undersigned has executed this Assignment to be effective as of the date first set forth hereinabove.

ASSIGNOR:

BRANDT RANCH, LP,
a Texas limited partnership
(Formerly known as Brandt Ranch, LLC)

By: Regal, LLC,
a Texas limited liability company
its general partner

By: _____
Name: Clint Jones
Title: Manager

CARRIE WALLACE
Notary Public, State of Texas
Comm. Expires 10-05-2028
Notary ID 132711092

Carrie Wallace
11/06/24

ASSIGNEE:

CHESMAR HOMES, LLC,
a Texas limited liability company

By: See attached
Name: _____
Title: _____

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Exhibit A

The Land

PROPERTY DESCRIPTION

FIELD NOTES FOR A 221.734 ACRE, OR 9,658,735 SQUARE FEET MORE OR LESS, TRACT SITUATED IN THE A.M. HOLBROOK SURVEY NO. 423, ABSTRACT 271, THE SIMON WASHBURN SURVEY NO. 486, ABSTRACT 663, THE FRIED. MICHEL SURVEY NO. 653, ABSTRACT 400, THE AUGUSTUS MICHEL SURVEY NO. 485, ABSTRACT 394, THE J.M. STEINER SURVEY NO. 596, ABSTRACT 571, AND THE GOTLIEB ARNOLD SURVEY NO. 436, ABSTRACT 13, COMAL COUNTY, TEXAS; BEING A PORTION OF A CALLED 223.8 ACRE TRACT DESCRIBED IN DEED FROM BRANDT RANCH NB, LLC TO BRANDT RANCH, LLC, AS RECORDED IN DOCUMENT NO. 202206028894 OF THE OFFICIAL PUBLIC RECORDS OF COMAL COUNTY, TEXAS. SAID 221.734 ACRE TRACT BEING MORE FULLY DESCRIBED AS FOLLOWS, WITH BEARINGS BASED ON THE TEXAS COORDINATE SYSTEM ESTABLISHED FOR THE SOUTH CENTRAL ZONE FROM THE NORTH AMERICAN DATUM OF 1983 (NA2011) EPOCH 2010.00:

BEGINNING: At a ½" iron rod found on the Southwest right-of-way line of State Highway 46, a 100-foot public right-of-way as shown on TxDOT right-of-way map 15-76-0215-02-029, for the North corner of a called 24.649 acre tract, referenced as Tract 1, described in deed from Charles Frederick Cludius and wife, Blanca C. Cludius to Brymel, LLC, as recorded in Document No. 202206016495 of the said Official Public Records, the Northeast corner of the said 223.8 acre tract and this tract, from Whence a ½" iron rod found on the said Southwest right-of-way line, for the Northeast corner of the said 24.649 acre tract, bears South 68°17'33" East, 445.16 feet;

THENCE: South 19°42'52" West, departing the said Southwest right-of-way line, with the common line of the said 24.649 acre tract and the said 223.8 acre tract, 175.17 feet to a ½" iron rod with yellow plastic cap stamped
"Pape-Dawson" set for an exterior corner of this tract;

THENCE: Departing the said common line, over and across the said 223.8 acre tract the following four courses:

North 68°16'19" West, 164.02 feet to a ½" iron rod with yellow plastic cap stamped "Pape-Dawson" set for an interior corner of this tract;

South 21°43'41" West, 200.04 feet to a ½" iron rod with yellow plastic cap stamped "Pape-Dawson" set for an angle point;

South 29°01'55" West, 60.04 feet to a ½" iron rod with yellow plastic cap stamped "Pape-Dawson" set for an interior corner of this tract;

South 69°46'49" East, 180.68 feet to a ½" iron rod with yellow plastic cap stamped "Pape-Dawson" set on the said common line of the 24.649 acre tract and 223.8 acre tract, for an exterior corner of this tract;

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THENCE: South 19°42'52" West, with the said common line, 638.42 feet to a mag nail found for the North corner of a called 4.998 acre tract, referenced as Tract 2, described in deed from Charles Frederick Cludius and wife, Blanca C. Cludius to Brymel, LLC, as recorded in Document No. 202206016495 of the said Official Public Records, the West corner of the said 24.649 acre tract, an angle point of the said 223.8 acre tract and this tract;

THENCE: Departing the said common line, with the common line of the said 4.998 acre tract and the said 223.8 acre tract the following three courses:

South 01°52'03" East, 422.28 feet to a ½" inch iron rod with yellow plastic cap stamped "Pape-Dawson" set for an angle point;

South 43°21'07" East, 564.42 feet to a ½" iron rod with plastic cap stamped "HMT" found for an angle point;

South 79°28'21" East, 75.70 feet to a ½" iron rod found for the West corner of Lot 28, Block A, Mission Hills Ranch Unit 7B, as recorded in Document No. 200706017898 of the Map and Plat Records of Comal County, Texas, the South corner of the said 4.998 acre tract, an angle point of the said 223.8 acre tract and this tract;

THENCE: South 37°43'10" East, at 1401.53 feet pass a ½" iron rod found for the South corner of Lot 12, Block A, Mission Hills Ranch Unit 5, as recorded in Document No. 200406005650 of the said Map and Plat Records, the West corner of Lot 11, Block A, of the said Mission Hills Ranch Unit 5, in all 1649.22 feet to a ½" iron rod found, for an angle point of a 72.22 acre tract described in a partition deed to Nancy Staats Chafin, as recorded in Document No. 200206016070 of the Official Records of Comal County, Texas, the South corner of the said Lot 11, an exterior corner of the said 223.8 acre tract and this tract;

THENCE: With the common line of the said 72.22 acre tract and the said 223.8 acre tract the following three courses: South 35°01'36" West, 375.84 feet to a 2" metal fence post found for an angle point;

South 23°19'30" East, 361.86 feet to a 2" metal fence post found for an angle point;

South 38°04'13" East, 2,205.27 feet to the remains of a 9" cedar fence post found on the Northwest line of a called 8.42 acre tract described in deed from Leo M. Chafin and wife, Nancy Staats Chafin to Hiram Tavarez and wife, Jana L. Chafin Tavarez, as recorded in Document No. 200206016074 of the said Official Records, for the South corner of a called 0.49 acre tract described in deed from Leo M. Chafin and wife, Nancy Staats Chafin to Hiram Tavarez and wife, Jana L. Chafin Tavarez, as recorded in Document No. 200306047838 of the said Official Records, the East corner of the said 223.8 acre tract and this tract;

THENCE: South 50°42'51" West, with the common line of the said 8.42 acre tract and the said

223.8 acre tract, 293.77 feet to the remains of a 6" cedar fence post found for the North corner of a called 1.09 acre tract described in deed from Carroll B. Lindeman and wife, Kristina Staats Lindeman to Hiram Tavarez and wife, Jana L. Chafin Tavarez, as recorded in Document No. 200306047839 of the said Official Records, the West corner of the said 8.42 acre tract, an angle point of the said 223.8 acre tract and this tract;

THENCE: South 51°42'16" West, departing the said common line, at 59.83 feet pass a ½" iron rod with plastic cap stamped "BYRN" found for a North corner of a called 204.63 acre tract described in a partition deed to Kristina Staats Lindeman, as recorded in said Document No. 200206016070, the West corner of the said 1.09 acre tract, in all 231.85 feet to a ½" inch iron rod with yellow plastic cap stamped "Pape-Dawson" set on a Northwest line of the said 204.63 acre tract, for an angle point of the said 223.8 acre tract and this tract;

THENCE: With the common line of the said 204.63 acre tract and the said 223.8 acre tract the following three courses:

South 51°56'23" West, 913.07 feet to a 60D nail in fence post found for an angle point;

South 54°17'17" West, 149.32 feet to a 60D nail in fence post found for an interior corner of the said 204.63 acre tract, the South corner of the said 223.8 acre tract and this tract;

North 38°08'02" West, 688.62 feet to a ½" iron rod found for the South corner of a called 10.00 acre tract described in deed from C. Frederick Cludius, et al. to New Braunfels Conservation Society, Inc., as recorded in Document No. 201506012095 of the said Official Public Records, an interior corner of the said 223.8 acre tract and this tract;

THENCE: Departing the said common line, with the common line of the said 10.00 acre tract and the said 223.8 acre tract the following four courses:

North 52°33'00" East, 450.06 feet to a ½" iron rod with plastic cap stamped "HMT" found for the East corner of the said 10.00 acre tract, an interior corner of the said 223.8 acre tract and this tract;

North 37°26'57" West, 844.29 feet to a ½" iron rod with plastic cap stamped "HMT" found for the Northeast corner of the said 10.00 acre tract, an angle point of the said 223.8 acre tract and this tract;

North 82°26'42" West, 178.51 feet to a ½" iron rod with plastic cap stamped "HMT" found for the North corner of the said 10.00 acre tract, an angle point of the said 223.8 acre tract and this tract;

South 52°35'51" West, 340.53 feet to a ½" iron rod with plastic cap stamped "HMT" found on a Northeast line of the said 204.63 acre tract, for the West corner

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of the said 10.00 acre tract, an interior corner of the said 223.8 acre tract and this tract;

THENCE: With the common line of the said 204.63 acre tract and the said 223.8 acre tract the following five courses:

North 38°43'13" West, 142.77 feet to a ½" iron rod with plastic cap stamped "HMT" found for an angle point;

North 37°20'05" West, 2,088.94 feet to a 60D nail in fence post found for an angle point;

North 37°24'18" West, 438.74 feet to a 4" square wood post found for an exterior corner of the said 204.63 acre tract, an interior corner of the said 223.8 acre tract and this tract;

South 52°09'43" West, 621.80 feet to a ½" iron rod found for an angle point;

South 52°32'43" West, 816.40 feet to a ½" iron rod with plastic cap stamped "KFW" found for a Southeast corner of a called 200.00 acre tract described in deed from Japhet III LLC et al. to the Board of Trustees of the New Braunfels Independent School District, as recorded in Document No. 201906009101 of the said Official Public Records, an angle point of the said 204.63 acre tract, an exterior corner of the said 223.8 acre tract and this tract;

THENCE: With the common line of the said 200.00 acre tract and the said 223.8 acre tract the following fifteen courses:

North 37°28'08" West, 277.65 feet to a ½" iron rod with plastic cap stamped "KFW" found for an interior corner of the said 200.00 acre tract, an exterior corner of the said 223.8 acre tract and this tract;

North 39°51'50" East, 218.90 feet to a ½" iron rod with plastic cap stamped "KFW" found for an exterior corner of the said 200.00 acre tract, an interior corner of the said 223.8 acre tract and this tract, the beginning of a curve to the right having a radius of 65.00 feet, an arc length of 180.32 feet, a central angle of 158°56'38", a chord bearing and distance of North 29°02'35" East, 127.81 feet;

With the arc of the said curve to the right, 180.32 feet to a ½" iron rod with plastic cap stamped "KFW" found for an exterior corner of the said 200.00 acre tract, an interior corner of the said 223.8 acre tract and this tract, the beginning of a curve to the left having a radius of 15.00 feet, an arc length of 14.56 feet, a central angle of 55°37'57", a chord bearing and distance of North 80°52'32" East, 14.00 feet;

With the arc of the said curve to the left, 14.56 feet to a ½" iron rod with plastic cap stamped "KFW" found for an angle point;

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North 52°34'31" East, 281.33 feet to a ½" iron rod with plastic cap stamped "KFW" found for an angle point; North 30°36'51" East, 134.76 feet to a ½" iron rod with plastic cap stamped "KFW" found for an angle point;

North 52°32'51" East, 474.62 feet to a ½" iron rod with plastic cap stamped "KFW" found for an exterior corner of the said 200.00 acre tract, an interior corner of the said 223.8 acre tract and this tract;

North 41°15'25" West, 123.23 feet to a ½" iron rod with plastic cap stamped "KFW" found for an interior corner of the said 200.00 acre tract, an exterior corner of the said 223.8 acre tract and this tract;

North 40°55'57" East, 629.37 feet to a ½" iron rod with plastic cap stamped "KFW" found for an angle point;

North 44°56'15" East, 90.24 feet to a ½" iron rod with plastic cap stamped "KFW" found for an interior corner of the said 200.00 acre tract, an exterior corner of the said 223.8 acre tract and this tract;

South 45°03'59" East, 149.95 feet to a ½" iron rod with plastic cap stamped "KFW" found for an exterior corner of the said 200.00 acre tract, an interior corner of the said 223.8 acre tract and this tract;

North 44°56'13" East, 640.30 feet to a ½" iron rod with plastic cap stamped "KFW" found for an angle point;

North 07°30'21" East, 59.96 feet to a ½" iron rod with plastic cap stamped "KFW" found for an interior corner of the said 200.00 acre tract, an exterior corner of the said 223.8 acre tract and this tract;

South 82°29'28" East, 67.03 feet to a ½" iron rod with plastic cap stamped "KFW" found for an exterior corner of the said 200.00 acre tract, an interior corner of the said 223.8 acre tract and this tract;

North 07°28'10" East, 440.90 feet to a ½" iron rod with plastic cap stamped "KFW" found on the Southeast line of a remainder of 23 acre tract described in deed from Marie Kirmse to Mary Ann Demuth, as recorded in Volume 842, Page 116 of the said Official Public Records, for the Northeast corner of the said 200.00 acre tract, an exterior corner of the said 223.8 acre tract and this tract;

THENCE: With the common line of the said 23 acre tract and the said 223.8 acre tract the following three courses:

North 66°08'35" East, 76.75 feet to a 60D nail in fence post found for the Southeast corner of the said 23 acre tract, an interior corner of the said 223.8 acre tract and

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this tract;

North 01°46'09" East, 123.77 feet to a ½" iron rod with plastic cap stamped "HMT" found for an angle point;

North 03°07'13" East, at 397.16 feet pass a ¼" iron rod found for the South corner of a called 3.488 acre tract described in deed from Franklin Demuth to Mary Ann Demuth, as recorded in Volume 842, Page 114 of the said Official Public Records, the East corner of the said 23 acre tract, in all 465.17 feet to a ½" iron rod with plastic cap stamped "HMT" found on the common line of the said 3.488 acre tract and the said 223.8 acre tract, for an angle point;

THENCE: With the said common line the following three courses:

North 05°47'21" East, 82.72 feet to a 3" metal fence post found for an interior corner of the said 3.488 acre tract, an exterior corner of the said 223.8 acre tract and this tract;

South 77°04'11" East, 25.29 feet to a 3" metal fence post found for an exterior corner of the said 3.488 acre tract, an interior corner of the said 223.8 acre tract and this tract;

North 17°30'42" East, 469.69 feet to a ½" iron rod with yellow plastic cap stamped "Pape-Dawson" set for an exterior corner of this tract;

THENCE: Departing the said common line, over and across the said 223.8 acre tract the following four courses:

South 65°55'47" East, 137.92 feet to a ½" iron rod with yellow plastic cap stamped "Pape-Dawson" set for an interior corner of this tract;

North 22°49'19" East, 43.70 feet to a ½" iron rod with yellow plastic cap stamped "Pape-Dawson" set for an angle point;

North 21°43'59" East, 251.14 feet to a ½" iron rod with yellow plastic cap stamped "Pape-Dawson" set for an interior corner of this tract;

North 68°16'01" West, 159.98 feet to a ½" iron rod with yellow plastic cap stamped "Pape-Dawson" set on the common line of the said 3.488 acre tract and the said 223.8 acre tract, for an exterior corner of this tract;

THENCE: North 17°30'42" East, 175.08 feet to a ½" iron rod found on the said Southwest right-of-way line of State Highway 46, for the East corner of the said 3.488 acre tract, the North corner of the said 223.8 acre tract and this tract, from Whence a ½" iron rod found on the said Southwest right-of-way line, for the North corner of the said 3.488 acre tract, bears North 68°02'54" West, 161.52 feet;

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THENCE: South 68°17'16" East, with the said Southwest right-of-way line, 445.63 feet to the POINT OF BEGINNING containing 221.734 acres, more or less, in Comal County, Texas.

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Exhibit B

The Assignor Retained Tracts

Those two (2) certain remainder 1.0 acre tracts located in Comal County, Texas, more particularly described as that certain 223.8 acre tract more particularly described in Exhibit "A" attached to that certain special Warranty deed recorded at Document No. 202206028894, Official Public Records of Comal County, Texas, LESS AND EXCEPT the Property (as described in Exhibit A attached hereto). The two (2) tracts comprising the Assignor Retained Tracts are more particularly shown and identified on Exhibit B-1 attached hereto.

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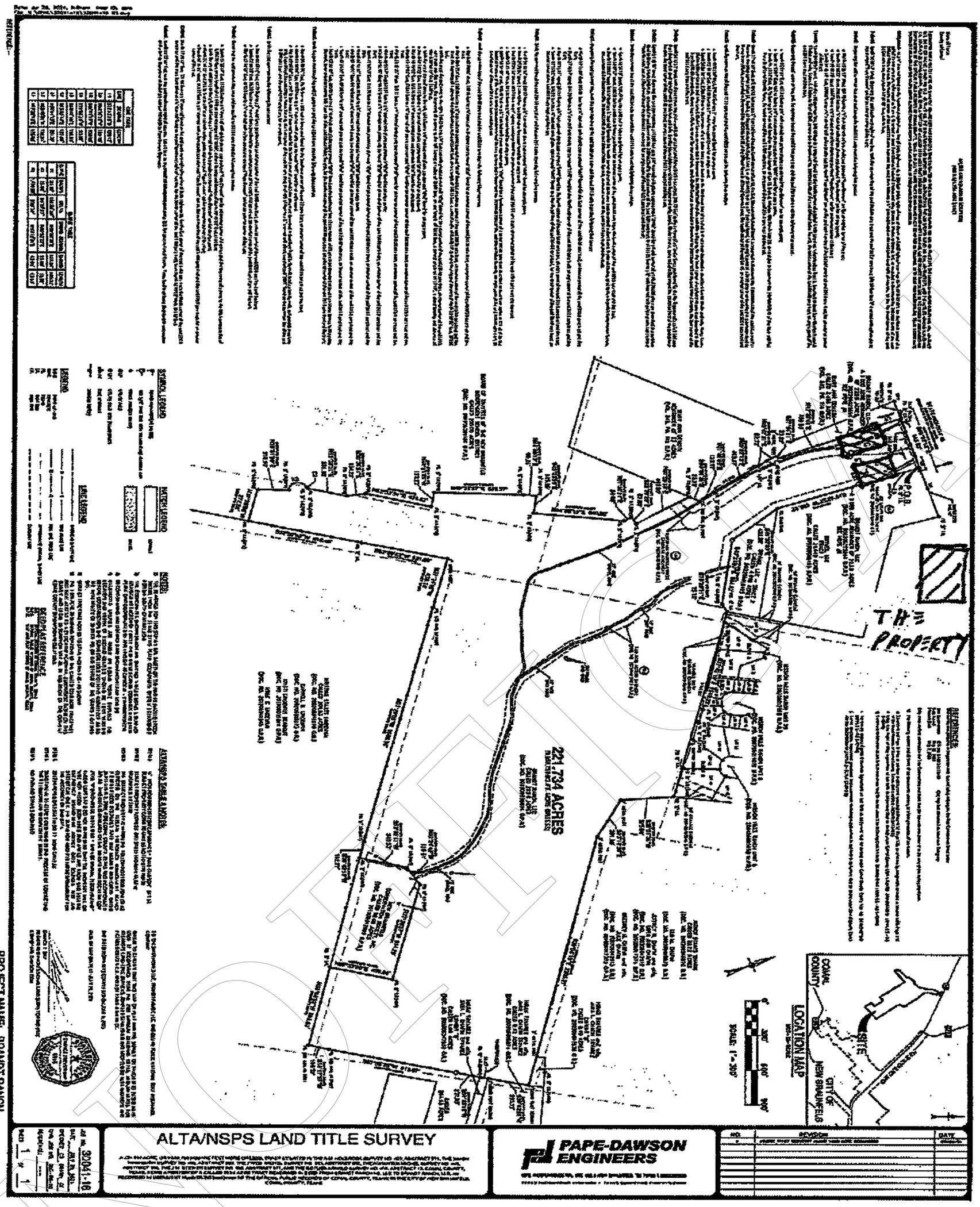
EXHIBIT B-1

THE PROPERTY



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Filed and Recorded
Official Public Records
Bobbie Koepp, County Clerk
Comal County, Texas
12/06/2024 11:00:03 AM
MARY 13 Pages(s)
202406037108

Bobbie Koepp