TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

January 12, 2017

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COUNTY ENGINEER

Mr. James Long
Prosperity Bank
900 Congress Avenue
Austin, Texas 78701

Re: Edwards Aquifer, Comal County

NAME OF PROJECT: Prosperity Bank of New Braunfels; Located on the southwest corner of the intersection of SH 46 and Oak Run Parkway; New Braunfels, Texas

TYPE OF PLAN: Request for Approval of a Water Pollution Abatement Plan (WPAP); 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer

Regulated Entity No. RN109448860; Additional ID. No. 13000268

Dear Mr. Long:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAP Application for the above-referenced project submitted to the San Antonio Regional Office by Moeller & Associates on behalf of Prosperity Bank on October 17, 2016. Final review of the WPAP was completed after additional material was received on December 5, 2016 and December 21, 2016. As presented to the TCEQ, the Temporary and Permanent Best Management Practices (BMPs) were selected and construction plans were prepared by a Texas Licensed Professional Engineer to be in general compliance with the requirements of 30 TAC Chapter 213. These planning materials were sealed, signed and dated by a Texas Licensed Professional Engineer. Therefore, based on the engineer's concurrence of compliance, the planning materials for construction of the proposed project and pollution abatement measures are hereby approved subject to applicable state rules and the conditions in this letter. The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Edwards Aquifer Protection Plan. A motion for reconsideration must be filed no later than 23 days after the date of this approval letter. *This approval expires two (2) years from the date of this letter unless, prior to the expiration date, more than 10 percent of the construction has commenced on the project or an extension of time has been requested.*

PROJECT DESCRIPTION

The proposed project will have an area of approximately 1.58 acres with approximately 1.14 acres (72.15 percent) of impervious cover. This commercial development proposes construction of a bank building and associated parking. Project wastewater will be disposed of by conveyance to the existing Gruene Wastewater Treatment Plant owned by the New Braunfels Utilities.

PERMANENT POLLUTION ABATEMENT MEASURES

To prevent the pollution of stormwater runoff originating on-site or up-gradient of the site and potentially flowing across and off the site after construction, a partial sedimentation/filtration basin and an engineered vegetative filter strip (VFS), designed using the TCEQ technical guidance document, Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices (2005), will be constructed to treat stormwater runoff. The required total suspended solids (TSS) treatment for this project is 1,024 pounds of TSS generated from 1.14 acres of impervious cover. The approved measures meet the required 80 percent removal of the increased load in TSS caused by the project.

The total capture volume of the basin is 4,500 cubic feet (4,460 cubic feet required). The filtration system for the basin will consist of 417 square feet of sand (372 square feet required) meeting ASTM C-33, which is 18 inches thick and an underdrain piping system covered with a minimum two inch gravel layer. The basin will treat 0.57 acres of impervious cover and provide overtreatment for 0.03 acres of uncaptured impervious cover. The required and provided TSS removal is 539 pounds.

A VFS is proposed to treat 485 pounds of TSS generated from 0.54 acres of impervious cover. The VFS shall have a uniform slope of less than 20 percent and vegetated cover of at least 80 percent which will extend along the entire length of the contributing area and will be free of gullies or rills that can concentrate overland flow. The contributing area shall be relatively flat to evenly distribute runoff, and the impervious cover in the direction of flow shall not exceed 72 feet.

GEOLOGY

According to the geologic assessment included with the application, the site is located on the Del Rio Clay and Georgetown Formation. No geologic or manmade features were noted by the project geologist. The San Antonio Regional Office site assessment conducted on November 15, 2016 revealed that the site was generally as described in the application.

SPECIAL CONDITION

I. The permanent pollution abatement measures shall be operational prior to first occupancy of new facilities located within the measure's respective drainage area.

II. All sediment and/or media removed from the water quality basin during maintenance activities shall be properly disposed of according to 30 TAC 330 or 30 TAC 335, as applicable.

STANDARD CONDITIONS

1. Pursuant to Chapter 7 Subchapter C of the Texas Water Code, any violations of the requirements in 30 TAC Chapter 213 may result in administrative penalties.
2. The holder of the approved Edwards Aquifer protection plan must comply with all provisions of 30 TAC Chapter 213 and all best management practices and measures contained in the approved plan. Additional and separate approvals, permits, registrations and/or authorizations from other TCEQ Programs (i.e., Stormwater, Water Rights, UIC) can be required depending on the specifics of the plan.

3. In addition to the rules of the Commission, the applicant may also be required to comply with state and local ordinances and regulations providing for the protection of water quality.

Prior to Commencement of Construction:

4. Within 60 days of receiving written approval of an Edwards Aquifer Protection Plan, the applicant must submit to the San Antonio Regional Office, proof of recordation of notice in the county deed records, with the volume and page number(s) of the county deed records of the county in which the property is located. A description of the property boundaries shall be included in the deed recordation in the county deed records. A suggested form (Deed Recordation Affidavit, TCEQ-0625) that you may use to deed record the approved WPAP is enclosed.
5. All contractors conducting regulated activities at the referenced project location shall be provided a copy of this notice of approval. At least one complete copy of the approved WPAP and this notice of approval shall be maintained at the project location until all regulated activities are completed.
6. Modification to the activities described in the referenced WPAP application following the date of approval may require the submittal of a plan to modify this approval, including the payment of appropriate fees and all information necessary for its review and approval prior to initiating construction of the modifications.
7. The applicant must provide written notification of intent to commence construction, replacement, or rehabilitation of the referenced project. Notification must be submitted to the San Antonio Regional Office no later than 48 hours prior to commencement of the regulated activity. Written notification must include the date on which the regulated activity will commence, the name of the approved plan and program ID number for the regulated activity, and the name of the prime contractor with the name and telephone number of the contact person. The executive director will use the notification to determine if the approved plan is eligible for an extension.
8. Temporary erosion and sedimentation (E&S) controls, i.e., silt fences, rock berms, stabilized construction entrances, or other controls described in the approved WPAP, must be installed prior to construction and maintained during construction. Temporary E&S controls may be removed when vegetation is established and the construction area is stabilized. If a water quality pond is proposed, it shall be used as a sedimentation basin during construction. The TCEQ may monitor stormwater discharges from the site to evaluate the adequacy of temporary E&S control measures. Additional controls may be necessary if excessive solids are being discharged from the site.
9. All borings with depths greater than or equal to 20 feet must be plugged with non-shrink grout from the bottom of the hole to within three (3) feet of the surface. The remainder of the hole must be backfilled with cuttings from the boring. All borings less than 20 feet must be backfilled with cuttings from the boring. All borings must be backfilled or plugged within four (4) days of completion of the drilling operation. Voids may be filled with gravel.

During Construction:

10. During the course of regulated activities related to this project, the applicant or agent shall comply with all applicable provisions of 30 TAC Chapter 213, Edwards Aquifer. The applicant shall remain responsible for the provisions and conditions of this approval until such responsibility is legally transferred to another person or entity.
11. This approval does not authorize the installation of temporary aboveground storage tanks on this project. If the contractor desires to install a temporary aboveground storage tank for use during construction, an application to modify this approval must be submitted and

approved prior to installation. The application must include information related to tank location and spill containment. Refer to Standard Condition No. 6, above.

12. If any sensitive feature (caves, solution cavities, sink holes, etc.) is discovered during construction, all regulated activities near the feature must be suspended immediately. The applicant or his agent must immediately notify the San Antonio Regional Office of the discovery of the feature. Regulated activities near the feature may not proceed until the executive director has reviewed and approved the methods proposed to protect the feature and the aquifer from potentially adverse impacts to water quality. The plan must be sealed, signed, and dated by a Texas Licensed Professional Engineer.
13. No wells exist on the site. All water wells, including injection, dewatering, and monitoring wells must be in compliance with the requirements of the Texas Department of Licensing and Regulation under Title 16 TAC Chapter 76 (relating to Water Well Drillers and Pump Installers) and all other locally applicable rules, as appropriate.
14. If sediment escapes the construction site, the sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain). Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50 percent. Litter, construction debris, and construction chemicals shall be prevented from becoming stormwater discharge pollutants.
15. Intentional discharges of sediment laden water are not allowed. If dewatering becomes necessary, the discharge will be filtered through appropriately selected best management practices. These may include vegetated filter strips, sediment traps, rock berms, silt fence rings, etc.
16. The following records shall be maintained and made available to the executive director upon request: the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.
17. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, and construction activities will not resume within 21 days. When the initiation of stabilization measures by the 14th day is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable.

After Completion of Construction:

18. 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 San Antonio Regional Office within 30 days of site completion.
19. The applicant shall be responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (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. The regulated entity shall then be responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred. A copy of the transfer of responsibility must be filed with the executive director through San Antonio Regional Office within 30 days of the transfer. A copy of the transfer form (TCEQ-10263) is enclosed.
20. Upon legal transfer of this property, the new owner(s) is required to comply with all terms of the approved Edwards Aquifer protection plan. If the new owner intends to commence any new regulated activity on the site, a new Edwards Aquifer protection plan that specifically addresses the new activity must be submitted to the executive director.

Approval of the plan for the new regulated activity by the executive director is required prior to commencement of the new regulated activity.

21. An Edwards Aquifer protection plan approval or extension will expire and no extension will be granted if more than 50 percent of the total construction has not been completed within ten years from the initial approval of a plan. A new Edwards Aquifer protection plan must be submitted to the San Antonio Regional Office with the appropriate fees for review and approval by the executive director prior to commencing any additional regulated activities.
22. At project locations where construction is initiated and abandoned, or not completed, the site shall be returned to a condition such that the aquifer is protected from potential contamination.

This action is taken under authority delegated by the Executive Director of the Texas Commission on Environmental Quality. If you have any questions or require additional information, please contact Dianne Pavlicek-Mesa, P.G., of the Edwards Aquifer Protection Program of the San Antonio Regional Office at 210-403-4074.

Sincerely,

Lynn Bumguardner, Water Section Manager
San Antonio Region
Texas Commission on Environmental Quality

LB/DPM/eg

Enclosure: Deed Recordation Affidavit, Form TCEQ-0625
Change in Responsibility for Maintenance of Permanent BMPs, Form TCEQ-10263

cc: Mr. Shane Klar, P.E., Moeller & Associates
Mr. Robert Camareno, City of New Braunfels
Mr. Thomas H. Hornseth, P.E., Comal County Engineer
Mr. Roland Ruiz, Edwards Aquifer Authority
Mr. H. L. Sauer, Comal Trinity Groundwater Conservation District
TCEQ Central Records, Building F, MC 212

MOELLER & ASSOCIATES
Engineering Solutions

December 21, 2016

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COUNTY ENGINEER

Texas Commission on Environmental Quality
Edwards Aquifer Protection Program
San Antonio Region
Attn: Dianne Pavlicek-Mesa, P.G.
14250 Judson Rd.
San Antonio, TX 78233

RE: Edwards Aquifer, Comal County
Name of Project: Prosperity Bank
Plan Type: Request for the Water Pollution Abatement Plan (WPAP); 30 Texas Administrative Code (TAC) Chapter 213
San Antonio File No. 13000268

This letter is in response to the Fax received 12/08/16 from TCEQ Edwards Aquifer Protection Program as it pertains to the Prosperity Bank Project. The comments received are in italics and our responses are in bold.

1. *Thank you for your response to NOD1.*
   Noted

2. *Please re-submit the TSS Removal Calculations for the sand filter basin and the VFS per changes denoted in the summary tables on Sheet 1.*
   Updated TSS calculations have been provided in the attached resubmittal.

3. *Please provide cross-section details for the sand filter area (Sheet 6) showing: 1) a clay liner option and 2) a geotextile liner option. Details are needed on how these liner options will actually join with the concrete and not leak.*
   Details have been updated to include additional detail for the geotextile liner connection to the concrete basin perimeter. The clay option has been removed.

Please accept these comments and revisions for the referenced project. If you need additional information or have any questions, please do not hesitate to contact me.

Sincerely,

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DEC 21 2016
TCEQ Reg 13

Shane Klar, P.E.
Attachments

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Additional information is provided for cells with a red triangle in the upper right corn
Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG
Characters shown in red are data entry fields.
Characters shown in black (Bold) are calculated fields. Changes to these fields will

1. The Required Load Reduction for the total project: Calculations from RG-348

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

where:

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resul
A_N = Net increase in impervious a
P = Average annual precipitation

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

County =	Comal	
Total project area included in plan * =	1.58	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	1.14	acres
Total post-development impervious cover fraction * =	0.72	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	1023	lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = 3

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

Drainage Basin/Outfall Area No. = 1

Total drainage basin/outfall area =	0.64	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.57	acres
Post-development impervious fraction within drainage basin/outfall area =	0.89	
$L_{M\ THIS\ BASIN}$ =	512	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	Sand Filter	
Removal efficiency =	89	percent

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

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

where:

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

A_C =	**0.64**	acres
A_I =	**0.57**	acres
A_P =	**0.07**	acres
L_R =	**580**	lbs

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

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Desired $L_{M\ THIS\ BASIN}$ =	539	lbs. JAN 1 3 2017
F =	**0.93**	COUNTY ENGINEER

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

Rainfall Depth =	**2.20**	inches
Post Development Runoff Coefficient =	**0.73**	
On-site Water Quality Volume =	**3717**	cubic feet

Calculations from RG-348

Off-site area draining to BMP =		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 =	**743**	
Total Capture Volume (required water quality volume(s) x 1.20) =	**4460**	cubic feet

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

7. Retention/Irrigation System — Designed as Required in RG

Required Water Quality Volume for retention basin =	**NA**	cubic feet

Irrigation Area Calculations:

Soil infiltration/permeability rate =	0.1	in/hr
Irrigation area =	**NA**	square feet
	NA	acres

8. Extended Detention Basin System — Designed as Required in RG

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

9. Filter area for Sand Filters — Designed as Required in RG

9A. Full Sedimentation and Filtration System

Water Quality Volume for sedimentation basin =	**4460**	cubic feet
Minimum filter basin area =	**206**	square feet
Maximum sedimentation basin area =	**1858**	square feet
Minimum sedimentation basin area =	**465**	square feet

9B. Partial Sedimentation and Filtration System

Water Quality Volume for combined basins =	**4460**	cubic feet
Minimum filter basin area =	**372**	square feet
Maximum sedimentation basin area =	**1487**	square feet
Minimum sedimentation basin area =	**93**	square feet

10. Bioretention System — Designed as Required in RG

Required Water Quality Volume for Bioretention Basin =	**NA**	cubic feet

11. Wet Basins — Designed as Required in RG

Required capacity of Permanent Pool =	**NA**	cubic feet

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

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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* =	1.14	acres
Total post-development impervious cover fraction * =	0.72	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	1023	lbs.

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Number of drainage basins / outfalls areas leaving the plan area = 3

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

Drainage Basin/Outfall Area No. = 2

Total drainage basin/outfall area =	0.90	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.54	acres
Post-development impervious fraction within drainage basin/outfall area =	0.60	
$L_{M\ THIS\ BASIN}$ =	485	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Vegetated Filter Strips
Removal efficiency = 85 percent

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

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

where:

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

A_C =	**1.04**	acres
A_I =	**0.79**	acres
A_P =	**0.25**	acres
L_R =	**771**	lbs

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

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Desired $L_{M\ THIS\ BASIN}$ =	**485**	lbs.
F =	**0.63**	

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

Rainfall Depth =	**0.64**	inches
Post Development Runoff Coefficient =	**0.57**	
On-site Water Quality Volume =	**1372**	cubic feet

Calculations from RG-348

Off-site area draining to BMP =		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

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

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Total post-development impervious area within the limits of the plan* =	1.14	acres
Total post-development impervious cover fraction * =	0.72	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	**1023**	lbs.

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

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Number of drainage basins / outfalls areas leaving the plan area = 3

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

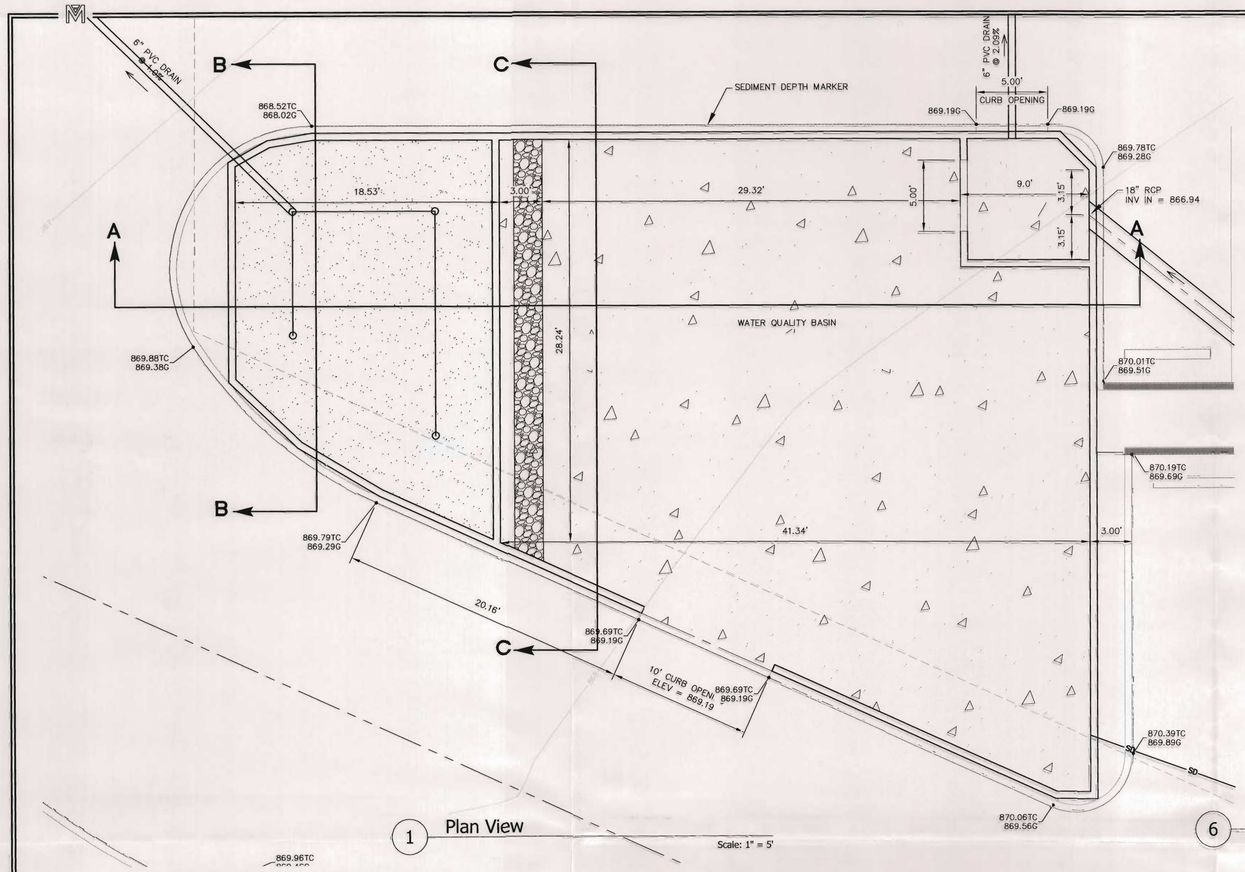
Drainage Basin/Outfall Area No. = 3

Total drainage basin/outfall area =	**0.04**	acres
Predevelopment impervious area within drainage basin/outfall area =	**0.00**	acres
Post-development impervious area within drainage basin/outfall area =	**0.03**	acres
Post-development impervious fraction within drainage basin/outfall area =	**0.75**	
$L_{M\ THIS\ BASIN}$ =	**27**	lbs.

3. Indicate the proposed BMP Code for this basin.

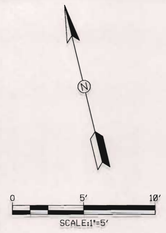
Proposed BMP = None ~~Vegetated Filter Strips~~
Removal efficiency = ~~85 percent~~

This area is accounted for with overtreatment at the sand pond.



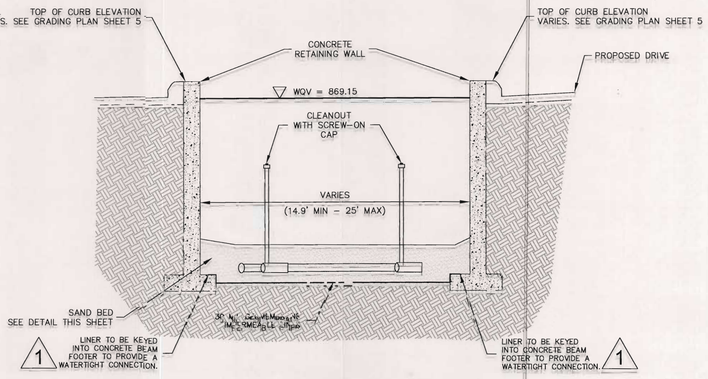
1 Plan View

Scale: 1" = 5'



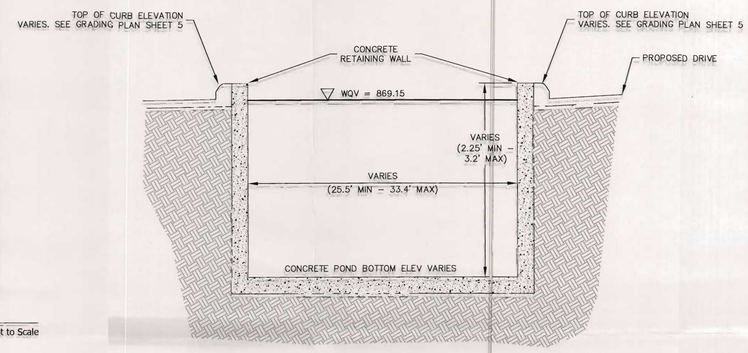
6 Sediment Depth Marker

Not to Scale



3 Section B-B

Not to Scale



4 Section C-C

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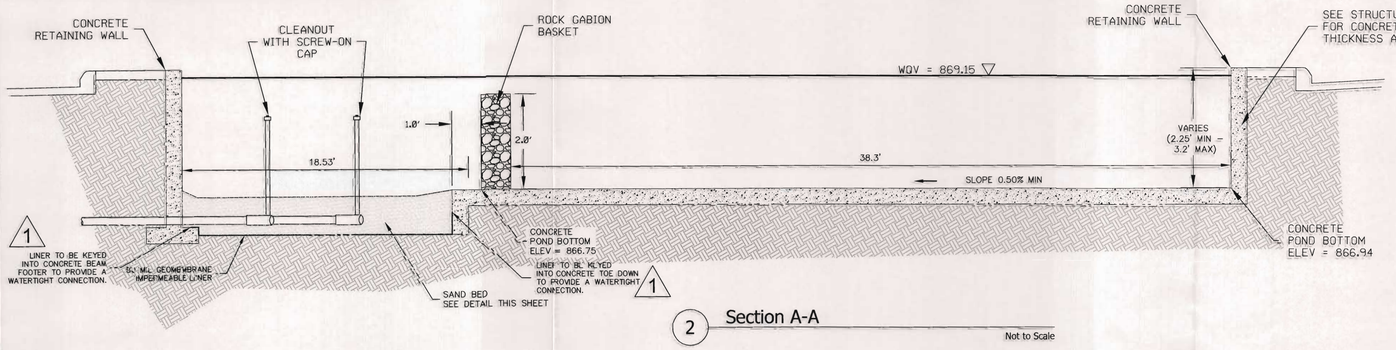

2 Section A-A

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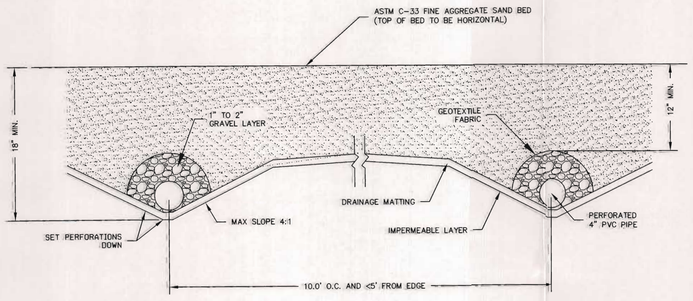


5 SAND BED DETAIL

Not to Scale

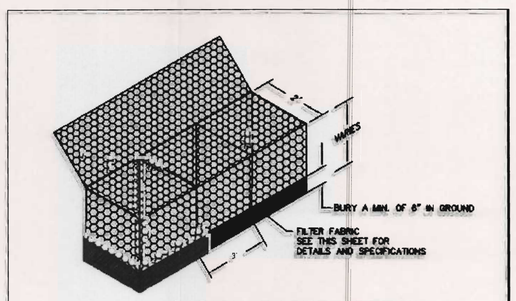
•NOTE: ALL CLEANOUTS TO HAVE SCREW-ON CAPS

Table 3-7 Geotextile Fabric Specifications (COA, 2004)

Property	Test Method	Unit	Specification (min)
Unit Weight		oz/yd²	8
Filtration Rate		ft/sec	0.08
Puncture Strength	ASTM D-751*	lb	105
Mullen Burst Strength	ASTM D-751	psi	400
Tensile Strength	ASTM D-1682	lb	200
Equiv. Opening Size	US Standard Sieve	No	80

*modified

REQUIRED POND VOLUME	=	4,460 CF
AVAILABLE POND VOLUME	=	4,500 CF
REQUIRED FILTER AREA	=	372 SF
PROPOSED FILTER AREA	=	417 SF



GABION BASKET DETAIL

SCALE: NTS

1. STONE
STONE FILL MATERIAL SHALL CONSIST OF HARD, DURABLE, CLEAN STONE OF THE SIZE INDICATED, 6 TO 9 INCHES IN SIZE, OR AS APPROVED BY THE ENGINEER AND RESISTANT TO THE ACTION OF AIR AND WATER AND SUITABLE IN ALL RESPECTS FOR THE PURPOSE INTENDED.
2. WIRE CONTAINERS
WIRE MESH SHALL CONSIST OF PLASTIC COATED (P.V.C.) GALVANIZED WIRE 0.120 INCH IN DIAMETER MINIMUM AND SHALL EQUAL OR EXCEED FEDERAL SPECIFICATION QQ-W-461G, CLASS 3 UNLESS OTHERWISE INDICATED. OPENING OF THE MESH SHALL NOT EXCEED APPROXIMATELY 4 INCHES IN THE LONGEST DIMENSION. THE WIRE MESH IS TO BE FABRICATED IN SUCH MANNER AS TO BE NONRAVELING. TIE AND CONNECTING WIRE SHALL BE OF THE SAME TYPE AND SIZE AS THE BASKETS AND SHALL BE SUPPLIED IN SUFFICIENT QUANTITY FOR SECURELY FASTENING ALL EDGES OF THE GABION AND DIAPHRAGMS.
3. FILTER FABRIC
FILTER FABRIC SHALL BE NON-BIODEGRADABLE ULTRAVIOLET STABILIZED, INERT TO MOST SOIL CHEMICALS, UNAFFECTED BY MOISTURE WHICH ALLOWS WATER TO PASS THROUGH WHILE RETAINING SOIL PARTICLES AND SHALL CONFORM TO ITEM NO. 820, "FILTER FABRIC".

811 Know what's below. Call before you dig.

STATE OF TEXAS
SHANE KLAR
115810
LICENSED PROFESSIONAL ENGINEER
11/29/16

NO	DATE	ISSUES AND REVISIONS
1	12-21-2016	ADDED LINER CONNECTION NOTE

MOELLER & ASSOCIATES Engineering Solutions
2021 W. SH46, STE. 105, NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 www.ma-tx.com
TBPE FIRM F-13351

WATER QUALITY BASIN

PERMIT SET

PROSPERITY BANK SH 46

NEW BRAUNFELS, TX 78132

RECEIVED
JAN 13 2017
COUNTY ENGINEER

SHEET 6 OF 6

Drawing Name: N:\Projects\PROS001-101 Prosperity Bank SH 46\Civil\Construction Drawings\6 - WATER QUALITY BASIN & DETAILS.dwg User: shrinaker Dec 21, 2016 - 2:39pm

MOELLER & ASSOCIATES
Engineering Solutions

RECEIVED

DEC 14 2016

COUNTY ENGINEER

November 29, 2016

Texas Commission on Environmental Quality
Edwards Aquifer Protection Program
San Antonio Region
Attn: Dianne Pavlicek-Mesa, P.G.
14250 Judson Rd.
San Antonio, TX 78233

RECEIVED
DEC - 5 2016
TCEQ Reg 13

RE: **Edwards Aquifer, Comal County**
Name of Project: Prosperity Bank
Plan Type: Request for the Water Pollution Abatement Plan (WPAP); 30 Texas Administrative Code (TAC) Chapter 213
San Antonio File No. 13000268

This letter is in response to the Fax received 11/17/16 from TCEQ Edwards Aquifer Protection Program as it pertains to the Prosperity Bank Project. The comments received are in italics and our responses are in bold.

1. *The following comments pertain to Sheet 6 / Water Quality Basin:*

   1) *Section A-A' shows the concrete liner to be discontinuous beneath the filtration area. Please review and revise accordingly.*
   A note has been added to the profile for clarification. Concrete is not proposed to line the filter area. The contractor will have the choice to use a clay or geotextile liner. A specification table has been added for both options.

   2) *No maintenance ramp is shown. Please review and revise accordingly.*
   The basin is less than 2.5' deep. We propose the maintenance of the basin to be done by hand similar to an Aqualogic basin. This has been discussed with the owner and they are comfortable with the maintenance requirements.

   3) *Please show the location of the sediment depth marker within the water quality basin.*
   A note has been added to note the location of the sediment depth marker.

ATTACHMENT "C"
Project Description

The proposed site is 1.58 acres which consists of lots 12 and 13 and a small portion of lot 11 along a shared access easement within Hunters Creek Business Park. The entire 1.58 acre site will be disturbed with 1.14 acres of impervious cover (72.2%). The lot is located within the New Braunfels city limits at southwest corner of the intersection at SH 46 and Oak Run Parkway. The site is served by New Braunfels Utilities for electric, water, and wastewater. The site is currently cleared, and there are no above ground improvements.

The proposed use for the project is a 6,000 square foot bank building. No other planned uses are proposed for the site.

The proposed construction will include minor grading for the parking areas and building pad, utility service lines, and building infrastructure.

According to the Flood Insurance Rate Map No. 48091C0435F, the site is outside of the flood plain. The entire site drains to an unnamed tributary of Blieders creek. A portion of the stormwater runoff will be treated with a Sand Filter Pond located at the northwest corner of the site, and the rest of the site will drain to Vegetative Filter Strips along the north and east boundaries of the site (See Treatment Area Map). The Sand Filter Pond and the Vegetative Filter Strips will ensure the quality of water exiting without adversely affecting the downstream drainage patterns.

Table 1 - Impervious Cover Table

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	6,072	÷ 43,560 =	0.14
Parking	43,571	÷ 43,560 =	1.00
Other paved surfaces		÷ 43,560 =	
Total Impervious Cover	49,643	÷ 43,560 =	1.14

Total Impervious Cover 1.14 ÷ **Total Acreage** 1.58 **X 100 =** 72.2**% 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.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

October 17, 2016

Mr. Thomas H. Hornseth, P.E.
Comal County Engineer
195 David Jonas Drive
New Braunfels TX 78132-3710

Re: Edwards Aquifer, Comal County

PROJECT NAME: Prosperity Bank New Braunfels, located on the southwest corner of Highway 46 and Oak Run Parkway, New Braunfels, Texas

PLAN TYPE: Application for Approval of a Water Pollution Abatement Plan (WPAP) 30 Texas Administration Code (TAC) Chapter 213; Edwards Aquifer Protection Program

Dear Mr. Hornseth:

The referenced application is being forwarded to you pursuant to the Edwards Aquifer Rules. The Texas Commission on Environmental Quality (TCEQ) is required by 30 TAC Chapter 213 to provide copies of all applications to affected incorporated cities and underground water conservation districts for their comments prior to TCEQ approval. More information regarding this project may be obtained from the TCEQ Central Registry website at http://www.tceq.state.tx.us/permitting/central_registry/.

Please forward your comments to this office by November 17, 2016.

The Texas Commission on Environmental Quality appreciates your assistance in this matter and your compliance efforts to ensure protection of the State's environment. If you or members of your staff have any questions regarding these matters, please feel free to contact the San Antonio Region Office at (210) 490-3096.

Sincerely

for

Todd Jones, Water Section Work Leader
San Antonio Regional Office

TJ/eg

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 if not withdrawn the application will be denied and 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 to you:

- You can withdraw your application, and your fees will be refunded or credited for a resubmittal.
- 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 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 effected 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: Prosperity Bank New Braunfels						**2. Regulated Entity No.:**			
3. Customer Name: Prosperity Bank						**4. Customer No.:**			
5. Project Type: (Please circle/check one)	New		Modification			Extension		Exception	
6. Plan Type: (Please circle/check one)	WPAP	CZP	SCS	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures
7. Land Use: (Please circle/check one)	Residential		Non-residential			**8. Site (acres):**		1.58	
9. Application Fee:	$4,000.00		**10. Permanent BMP(s):**			Yes			
11. SCS (Linear Ft.):	N/A		**12. AST/UST (No. Tanks):**			N/A			
13. County:	Comal		**14. Watershed:**			Blieders Creek			

Application Distribution

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

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

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

Austin Region			
County:	**Hays**	**Travis**	**Williamson**
Original (1 req.)	—	—	—
Region (1 req.)	—	—	—
County(ies)	—	—	—
Groundwater Conservation District(s)	__Edwards Aquifer Authority __Barton Springs/ Edwards Aquifer __Hays Trinity __Plum Creek	__Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	__Austin __Buda __Dripping Springs __Kyle __Mountain City __San Marcos __Wimberley __Woodcreek	__Austin __Bee Cave __Pflugerville __Rollingwood __Round Rock __Sunset Valley __West Lake Hills	__Austin __Cedar Park __Florence __Georgetown __Jerrell __Leander __Liberty Hill __Pflugerville __Round Rock

San Antonio Region					
County:	**Bexar**	**Comal**	**Kinney**	**Medina**	**Uvalde**
Original (1 req.)	—	_X_	—	—	—
Region (1 req.)	—	_X_	—	—	—
County(ies)	—	_X_	—	—	—
Groundwater Conservation District(s)	__ Edwards Aquifer Authority __Trinity-Glen Rose	_X_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 _X_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.
Shane Klar, PE
Print Name of Customer/Authorized Agent 10/13/2016
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):	

WATER POLLUTION ABATEMENT PLAN

FOR

Prosperity Bank New Braunfels

PREPARED FOR

Texas Commission on Environmental Quality

Region 13 – San Antonio
14250 Judson Road
San Antonio, Texas 78233
210-490-3096 (office)
210-545-4329 (fax)

PREPARED BY

MOELLER & ASSOCIATES
Engineering Solutions

F-13351

Shane Klar, P.E.
2021 SH 46W, Ste 105
New Braunfels, TX 78130

Prepared
October 13, 2016

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: Shane Klar, P.E.

Date: 10/13/2016

Signature of Customer/Agent:

Project Information

1. Regulated Entity Name: Prosperity Bank New Braunfels
2. County: Comal
3. Stream Basin: Unnamed Tributary of Blieders Creek
4. Groundwater Conservation District (If applicable): N/A
5. Edwards Aquifer Zone:

   ☒ Recharge Zone
   ☐ Transition Zone

6. Plan Type:

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

7. Customer (Applicant):

Contact Person: James Long
Entity: Prosperity Bank
Mailing Address: 900 Congress Avenue
City, State: Austin, TX Zip: 78701
Telephone: (512) 472-5433 FAX: (512) 236-2632
Email Address: James.Long@prosperitybankusa.com

8. Agent/Representative (If any):

Contact Person: Shane Klar, P.E.
Entity: Moeller & Associates
Mailing Address: 2021 SH 46W, Ste 105
City, State: New Braunfels, TX Zip: 78132
Telephone: 830-358-7127 FAX: 830-515-5611
Email Address: shaneklar@ma-tx.com

9. Project Location:

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

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

The project site is located on the southwest corner of the intersection of SH 46 and Oak Run Parkway.

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: 10/13/2016

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)

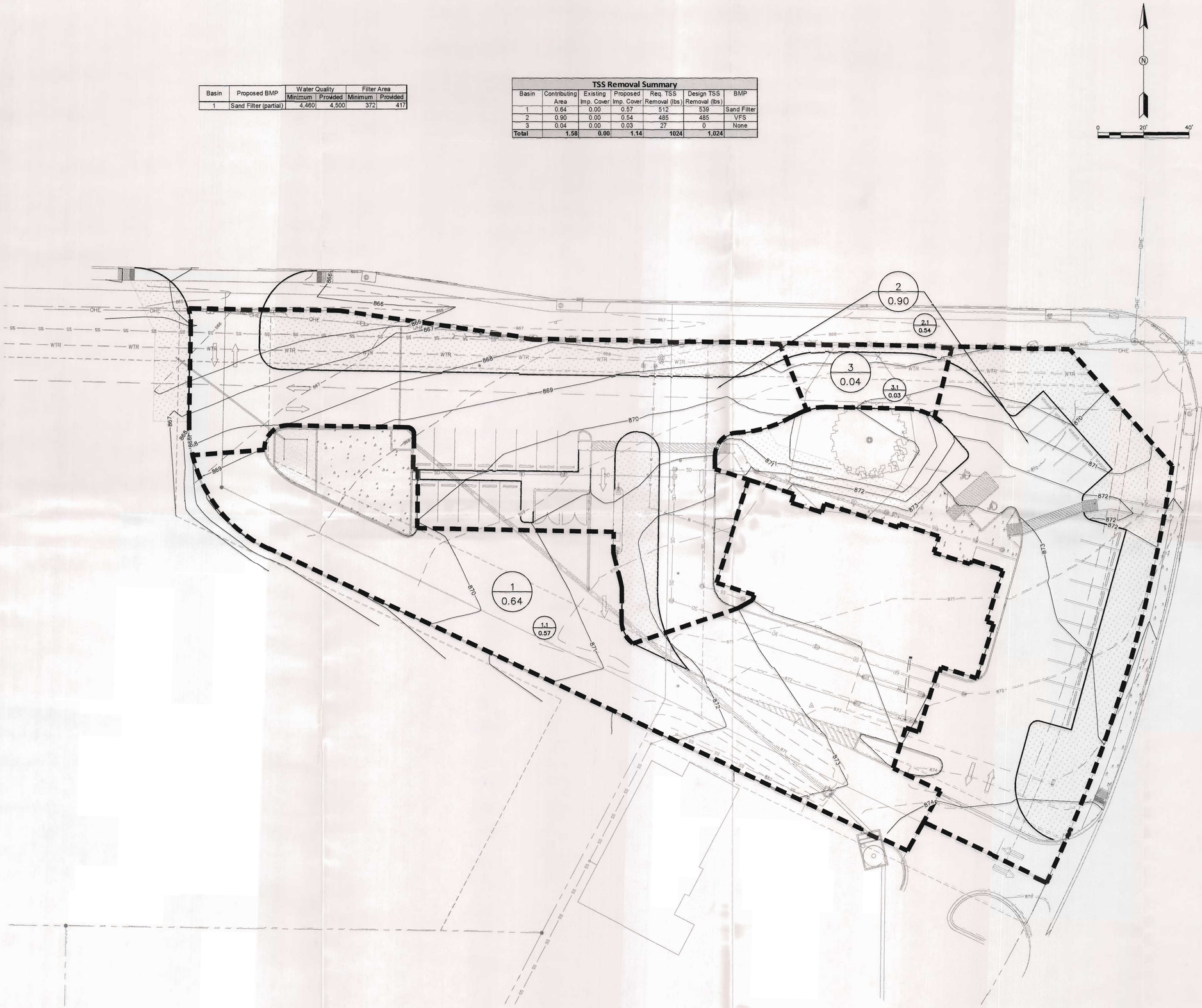
20. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies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

Basin	Proposed BMP	Water Quality		Filter Area	
		Minimum	Provided	Minimum	Provided
1	Sand Filter (partial)	4,460	4,500	372	417

TSS Removal Summary

Basin	Contributing Area	Existing Imp. Cover	Proposed Imp. Cover	Req. TSS Removal (lbs.)	Design TSS Removal (lbs.)	BMP
1	0.64	0.00	0.57	512	539	Sand Filter
2	0.90	0.00	0.54	485	485	VFS
3	0.04	0.00	0.03	27	0	None
Total	**1.58**	**0.00**	**1.14**	**1024**	**1,024**	



811 Know what's below. Call before you dig.

STATE OF TEXAS
SHANE KLAR
115810
LICENSED PROFESSIONAL ENGINEER
11/29/16

NO	DATE	ISSUES AND REVISIONS

MOELLER & ASSOCIATES Engineering Solutions
2021 W. SH46, STE. 105, NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 www.mo-tx.com
TBPE FIRM F-13351

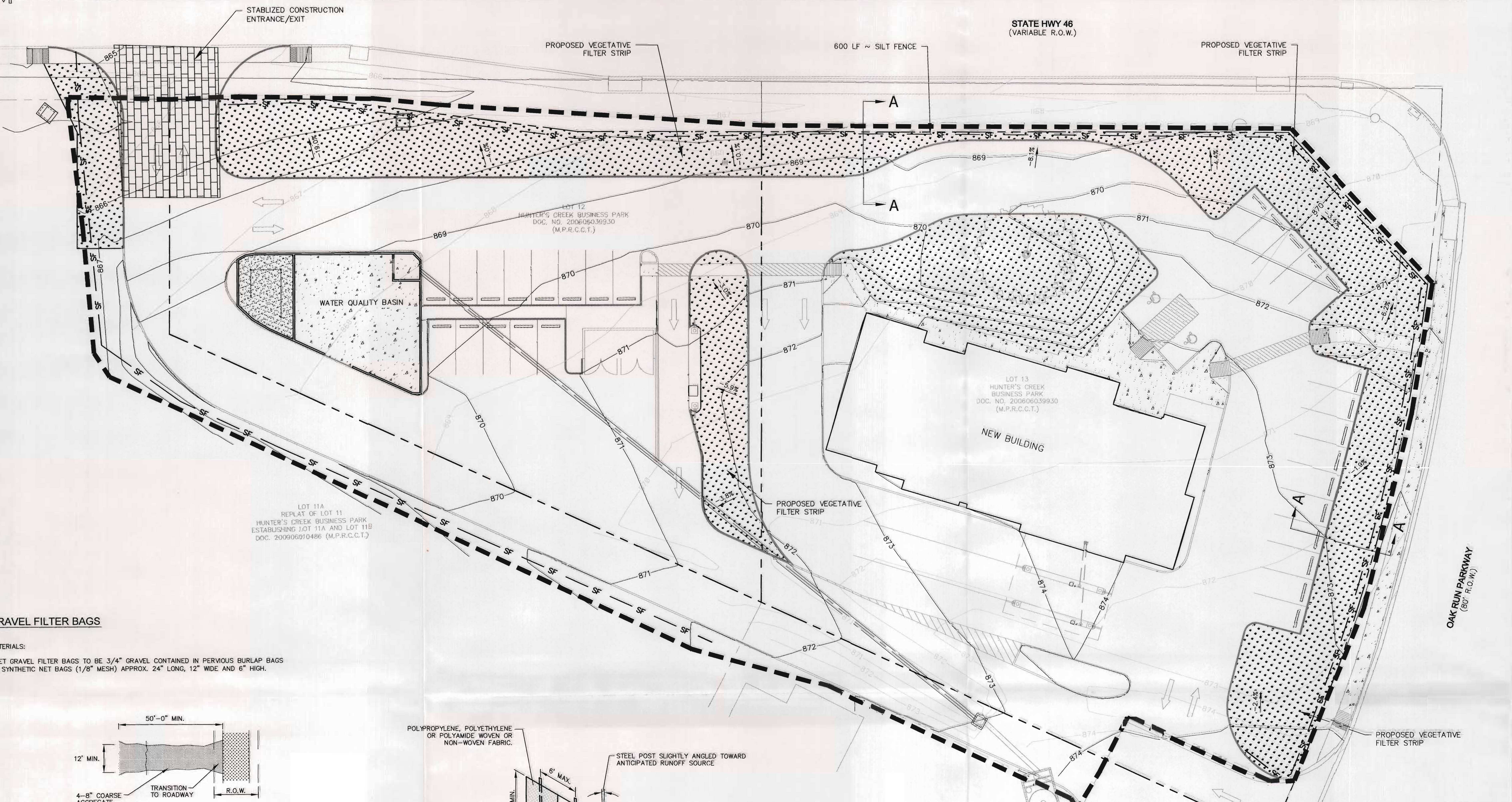
TREATMENT AREA MAP

WPAP SUBMITTAL

PROSPERITY BANK NB

NEW BRAUNFELS, TX 78132

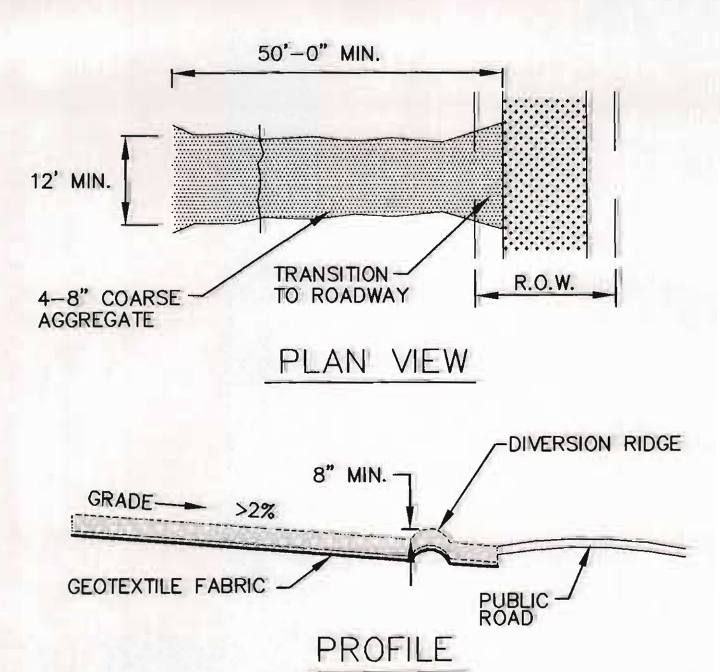
SHEET 1 OF 6



GRAVEL FILTER BAGS

MATERIALS:

INLET GRAVEL FILTER BAGS TO BE 3/4" GRAVEL CONTAINED IN PERVIOUS BURLAP BAGS OR SYNTHETIC NET BAGS (1/8" MESH) APPROX. 24" LONG, 12" WIDE AND 6" HIGH.



STABILIZED CONSTRUCTION ENTRANCE / EXIT

MATERIALS:

(1) THE AGGREGATE SHOULD CONSIST OF 4 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/YD2, A MULLEN BURST RATING OF 140 LB/IN2, 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 RACK 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 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.

INSPECTION AND MAINTENANCE GUIDELINES:

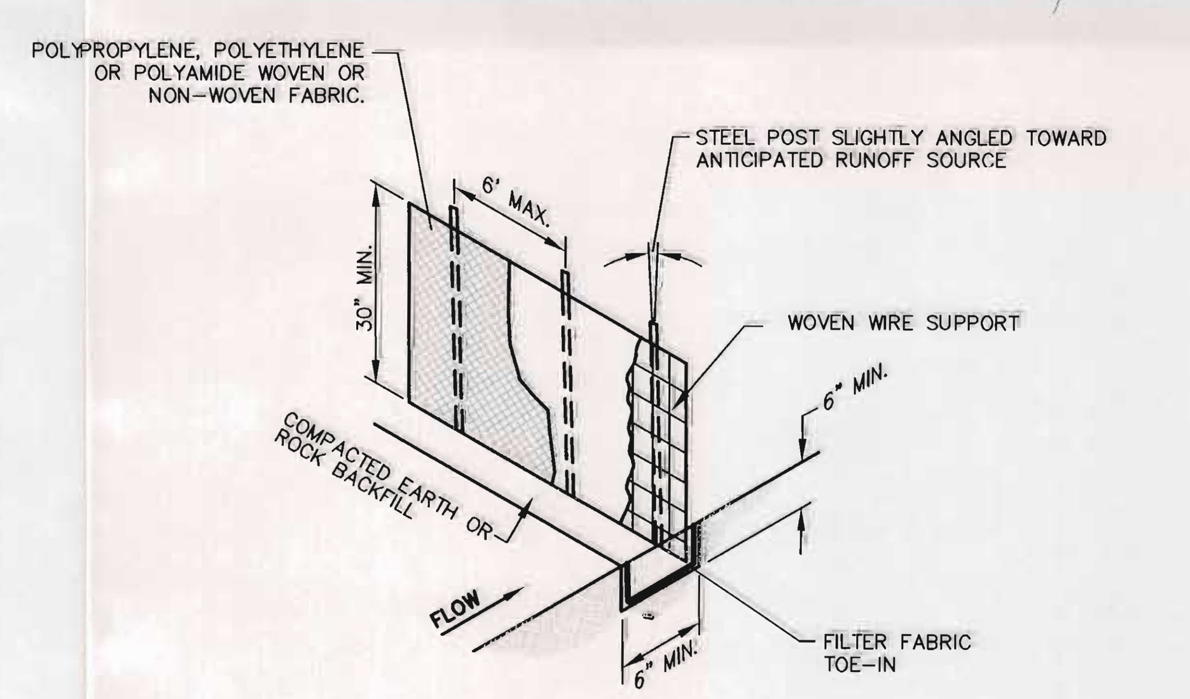
(1) THE ENTRANCE SHOULD BE MAINTAINED IN A CONDITION, WHICH WILL PREVENT TRACKING OR LOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

(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.



SILT FENCE

MATERIALS:

(1) SILT FENCE MATERIAL SHOULD BE POLYPROPYLENE, POLYETHYLENE OR POLYAMIDE WOVEN OR NONWOVEN FABRIC. THE FABRIC WIDTH 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 NO. 30.

(2) FENCE POSTS SHOULD BE MADE OF HOT ROLLED STEEL, AT LEAST 4 FEET LONG WITH TEE OR YBAR CROSS SECTION, SURFACE PAINTED OR GALVANIZED, MINIMUM NOMINAL WEIGHT 1.25 LB/FT2, 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. POST 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.

INSPECTION AND MAINTENANCE GUIDELINES:

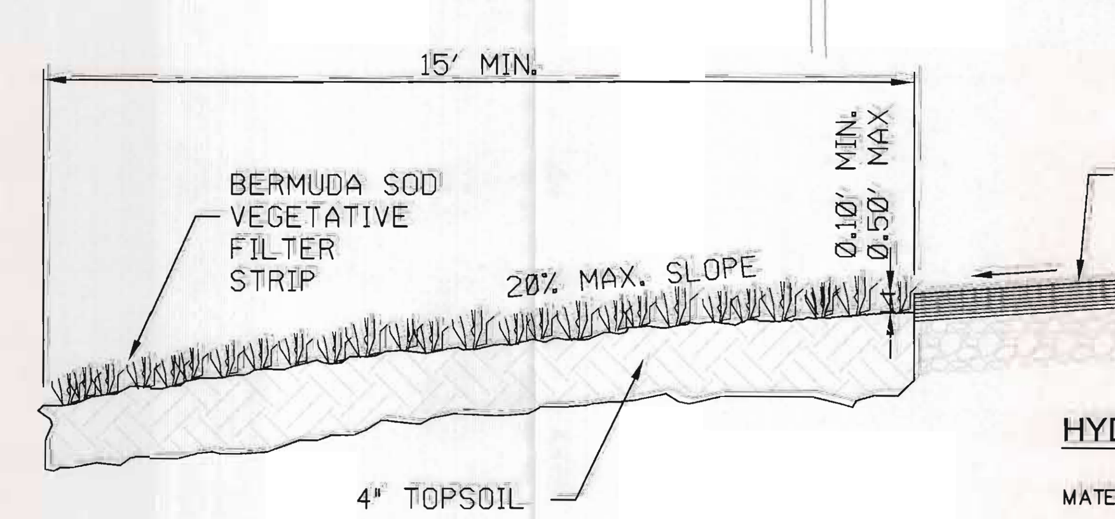
(1) INSPECT ALL FENCING WEEKLY, AND AFTER ANY RAINFALL.

(2) REMOVE SEDIMENT WHEN BUILDUP REACHES 6 INCHES.

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

(4) REPLACE OR REPAIR ANY 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.



SECTION A-A

VEGETATIVE FILTER STRIP

HYDRAULIC MULCH

MATERIALS:

HYDRAULIC MULCHES: WOOD FIBER MULCH CAN BE APPLIED ALONE OR AS A COMPONENT OF HYDRAULIC MATRICES. WOOD FIBER APPLIED ALONE IS TYPICALLY APPLIED AT THE RATE OF 2,000 TO 4,000 LB/ACRE. WOOD FIBER MULCH IS MANUFACTURED FROM WOOD OR WOOD WASTE FROM LUMBER MILLS OR FROM URBAN SOURCES.

HYDRAULIC MATRICES: HYDRAULIC MATRICES INCLUDE A MIXTURE OF WOOD FIBER AND ACRYLIC POLYMER OR OTHER TACKIFIER AS BINDER. APPLY AS A LIQUID SLURRY USING A HYDRAULIC APPLICATION MACHINE (I.E., HYDRO SEEDER) AT THE FOLLOWING MINIMUM RATES, OR AS SPECIFIED BY THE MANUFACTURER TO ACHIEVE COMPLETE COVERAGE OF THE TARGET AREA: 2,000 TO 4,000 LB/ACRE WOOD FIBER MULCH, AND 5 TO 10% (BY WEIGHT) OF TACKIFIER (ACRYLIC COPOLYMER, GUAR, PSYLLIUM, ETC.)

BONDED FIBER MATRIX: BONDED FIBER MATRIX (BFM) IS A HYDRAULICALLY APPLIED SYSTEM OF FIBERS AND ADHESIVES THAT UPON DRYING FORMS AN EROSION RESISTANT BLANKET THAT PROMOTES VEGETATION, AND PREVENTS SOIL EROSION. BFMS ARE TYPICALLY APPLIED AT RATES FROM 3,000 LB/ACRE TO 4,000 LB/ACRE BASED ON THE MANUFACTURER'S RECOMMENDATION. A BIODEGRADABLE BFM IS COMPOSED OF MATERIALS THAT ARE 100% BIODEGRADABLE. THE BINDER IN THE BFM SHOULD ALSO BE BIODEGRADABLE AND SHOULD NOT DISSOLVE OR DISPERSE UPON RE-WETTING. TYPICALLY, BIODEGRADABLE BFMS SHOULD NOT BE APPLIED IMMEDIATELY BEFORE, DURING OR IMMEDIATELY AFTER RAINFALL IF THE SOIL IS SATURATED. DEPENDING ON THE PRODUCT, BFMS TYPICALLY REQUIRE 12 TO 24 HOURS TO DRY AND BECOME EFFECTIVE.

INSTALLATION:

1. PRIOR TO APPLICATION, ROUGHEN EMBANKMENT AND FILL AREAS BY ROLLING WITH A CRIMPING OR PUNCHING TYPE ROLLER OR BY TRACK WALKING. TRACK WALKING SHALL ONLY BE USED WHERE OTHER METHODS ARE IMPRACTICAL.
2. TO BE EFFECTIVE, HYDRAULIC MATRICES REQUIRE 24 HOURS TO DRY BEFORE RAINFALL OCCURS.
3. AVOID MULCH OVER SPRAY ONTO ROADS, SIDEWALKS, DRAINAGE CHANNELS, EXISTING VEGETATION, ETC.
4. 4" OF TOP SOIL SHALL BE PLACED.

INSPECTION AND MAINTENANCE GUIDELINES:

1. MULCHED AREAS SHOULD BE INSPECTED WEEKLY AND AFTER EACH RAIN EVENT TO LOCATE AND REPAIR ANY DAMAGE.
2. AREAS DAMAGED BY STORMS OR NORMAL CONSTRUCTION ACTIVITIES SHOULD BE REGRADED AND HYDRAULIC MULCH REAPPLIED AS SOON AS PRACTICAL.

SEQUENCE OF CONSTRUCTION:

1. OBTAIN CITY APPROVED SITE PREPARATION PLANS, AND TPDES PERMIT (NOT A COPY OF THE TPDES APPLICATION TO TCEQ), IF APPLICABLE.
2. INSTALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS.
3. SCHEDULE PRE-CON MEETING WITH THE CITY.
4. BEGIN DEMOLITION ACTIVITIES, IF APPLICABLE.
5. BEGIN SITE CLEARING AND GRADING.
6. INSTALL TEMPORARY SEED POND AS APPROPRIATE.
7. RESTORE AND REVEGETATE ALL DISTURBED AREAS NOT UNDER IMPERMEABLE IMPROVEMENTS.
8. COMPLETE ANY REMAINING "PUNCH LIST" ITEMS.
9. CITY OF NEW BRAUNFELS FINAL INSPECTION.
10. CONTRACTOR SHALL REMOVE TEMPORARY EROSION CONTROLS AFTER PERMANENT STABILIZATION IS AT LEAST 70% EVENLY ESTABLISHED. RYE IS NOT ACCEPTED.
11. CITY ISSUES CERTIFICATE OF ACCEPTANCE OR OCCUPANCY.

0 20' 40'

SCALE:1"=20'

LEGEND

SF — SILT FENCE

BOUNDARY OF DISTURBED AREA

900 — EXISTING CONTOURS

900 — PROPOSED CONTOURS

FLOW ARROWS

GRAVEL FILTER BAGS (INLET PROTECTION)

STABLIZED CONSTRUCTION ENTRANCE/EXIT

IMPERVIOUS COVER	
DESCRIPTION	ACRES
TOTAL LAND AREA	1.58
TOTAL IMPERVIOUS AREA	1.14
% IMPERVIOUS	72.2%

SOIL STABILIZATION NOTE

ALL DISTURBED SOILS SHOULD BE SEEDED OR OTHERWISE STABILIZED WITH 14 CALENDAR DAYS AFTER FINAL GRADING OR WHERE CONSTRUCTION ACTIVITY HAS TEMPORARILY CEASED FOR MORE THAN 21 DAYS.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
WATER POLLUTION ABATEMENT PLAN
GENERAL CONSTRUCTION NOTES
EDWARDS AQUIFER PROTECTION PROGRAM CONSTRUCTION NOTES

1. A WRITTEN NOTICE OF CONSTRUCTION MUST BE SUBMITTED TO THE TCEQ REGIONAL OFFICE AT LEAST 48 HOURS PRIOR TO THE START OF ANY REGULATED ACTIVITIES. THIS NOTICE MUST INCLUDE:
   - THE NAME OF THE APPROVED PROJECT;
   - THE ACTIVITY START DATE; AND
   - THE CONTACT INFORMATION OF THE PRIME CONTRACTOR.

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

3. IF ANY SENSITIVE FEATURE(S) (CAVES, SOLUTION CAVITY, SINK HOLE, ETC.) IS DISCOVERED DURING CONSTRUCTION, ALL REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MUST BE SUSPENDED IMMEDIATELY. THE APPROPRIATE TCEQ REGIONAL OFFICE MUST BE IMMEDIATELY NOTIFIED OF ANY SENSITIVE FEATURES ENCOUNTERED DURING CONSTRUCTION. CONSTRUCTION ACTIVITIES MAY NOT BE RESUMED UNTIL THE TCEQ HAS REVIEWED AND APPROVED THE APPROPRIATE PROTECTIVE MEASURES IN ORDER TO PROTECT ANY SENSITIVE FEATURE AND THE EDWARDS AQUIFER FROM POTENTIALLY ADVERSE IMPACTS TO WATER QUALITY.

4. NO TEMPORARY OR PERMANENT HAZARDOUS SUBSTANCE STORAGE TANK SHALL BE INSTALLED WITHIN 150 FEET OF A WATER SUPPLY SOURCE, DISTRIBUTION SYSTEM, WELL, OR SENSITIVE FEATURE.

5. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY, ALL TEMPORARY EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES MUST BE PROPERLY INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE APPROVED PLANS AND MANUFACTURERS SPECIFICATIONS. IF INSPECTIONS INDICATE A CONTROL HAS BEEN USED INAPPROPRIATELY, OR INCORRECTLY, THE APPLICANT MUST REPLACE OR MODIFY THE CONTROL FOR SITE SITUATIONS. THESE CONTROLS MUST REMAIN IN PLACE UNTIL THE DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED.

6. ANY SEDIMENT THAT ESCAPES THE CONSTRUCTION SITE MUST BE COLLECTED AND PROPERLY DISPOSED OF BEFORE THE NEXT RAIN EVENT TO ENSURE IT IS NOT WASHED INTO SURFACE STREAMS, SENSITIVE FEATURES, ETC.

7. SEDIMENT MUST BE REMOVED FROM THE SEDIMENT TRAPS OR SEDIMENTATION BASINS NOT LATER THAN TCEQ-0592 (REV. JULY 15, 2015) PAGE 2 OF 2 WHEN IT OCCUPIES 50% OF THE BASIN'S DESIGN CAPACITY.

8. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS EXPOSED TO STORMWATER SHALL BE PREVENTED FROM BEING DISCHARGED OFFSITE.

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

10. IF PORTIONS OF THE SITE WILL HAVE A TEMPORARY OR PERMANENT CEASE IN CONSTRUCTION ACTIVITY LASTING LONGER THAN 14 DAYS, SOIL STABILIZATION IN THOSE AREAS SHALL BE INITIATED AS SOON AS POSSIBLE PRIOR TO THE 14TH DAY OF INACTIVITY. IF ACTIVITY WILL RESUME PRIOR TO THE 21ST DAY, STABILIZATION MEASURES ARE NOT REQUIRED. IF DROUGHT CONDITIONS OR INCLEMENT WEATHER PREVENT ACTION BY THE 14TH DAY, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS POSSIBLE.

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

12. THE HOLDER OF ANY APPROVED EDWARD AQUIFER PROTECTION PLAN MUST NOTIFY THE APPROPRIATE REGIONAL OFFICE IN WRITING AND OBTAIN APPROVAL FROM THE EXECUTIVE DIRECTOR PRIOR TO INITIATING ANY OF THE FOLLOWING:
   A. ANY PHYSICAL OR OPERATIONAL MODIFICATION OF ANY WATER POLLUTION ABATEMENT STRUCTURE(S), INCLUDING BUT NOT LIMITED TO PONDS, DAMS, BERMS, SEWAGE TREATMENT PLANTS, AND DIVERSIONARY STRUCTURES;
   B. ANY CHANGE IN THE NATURE OR CHARACTER OF THE REGULATED ACTIVITY FROM THAT WHICH WAS ORIGINALLY APPROVED OR A CHANGE WHICH WOULD SIGNIFICANTLY IMPACT THE ABILITY OF THE PLAN TO PREVENT POLLUTION OF THE EDWARDS AQUIFER;
   C. ANY DEVELOPMENT OF LAND PREVIOUSLY IDENTIFIED AS UNDEVELOPED IN THE ORIGINAL WATER POLLUTION ABATEMENT PLAN.

AUSTIN REGIONAL OFFICE	SAN ANTONIO REGIONAL OFFICE
12100 PARK 35 CIRCLE, BUILDING A AUSTIN, TEXAS 78753-1808 PHONE (512) 339-2929 FAX (512) 339-3795	14250 JUDSON ROAD SAN ANTONIO, TEXAS 78233-4480 PHONE (210) 490-3096 FAX (210) 545-4329

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STATE OF TEXAS — SHANE KLAR — 115810 — LICENSED PROFESSIONAL ENGINEER — 11/29/16

ISSUES AND REVISIONS

NO	DATE
△	

MOELLER & ASSOCIATES
Engineering Solutions
2021 W SH46, STE 105, NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 www.ma-tx.com
TBPE FIRM F-13351

WPAP SITE PLAN
EROSION CONTROL

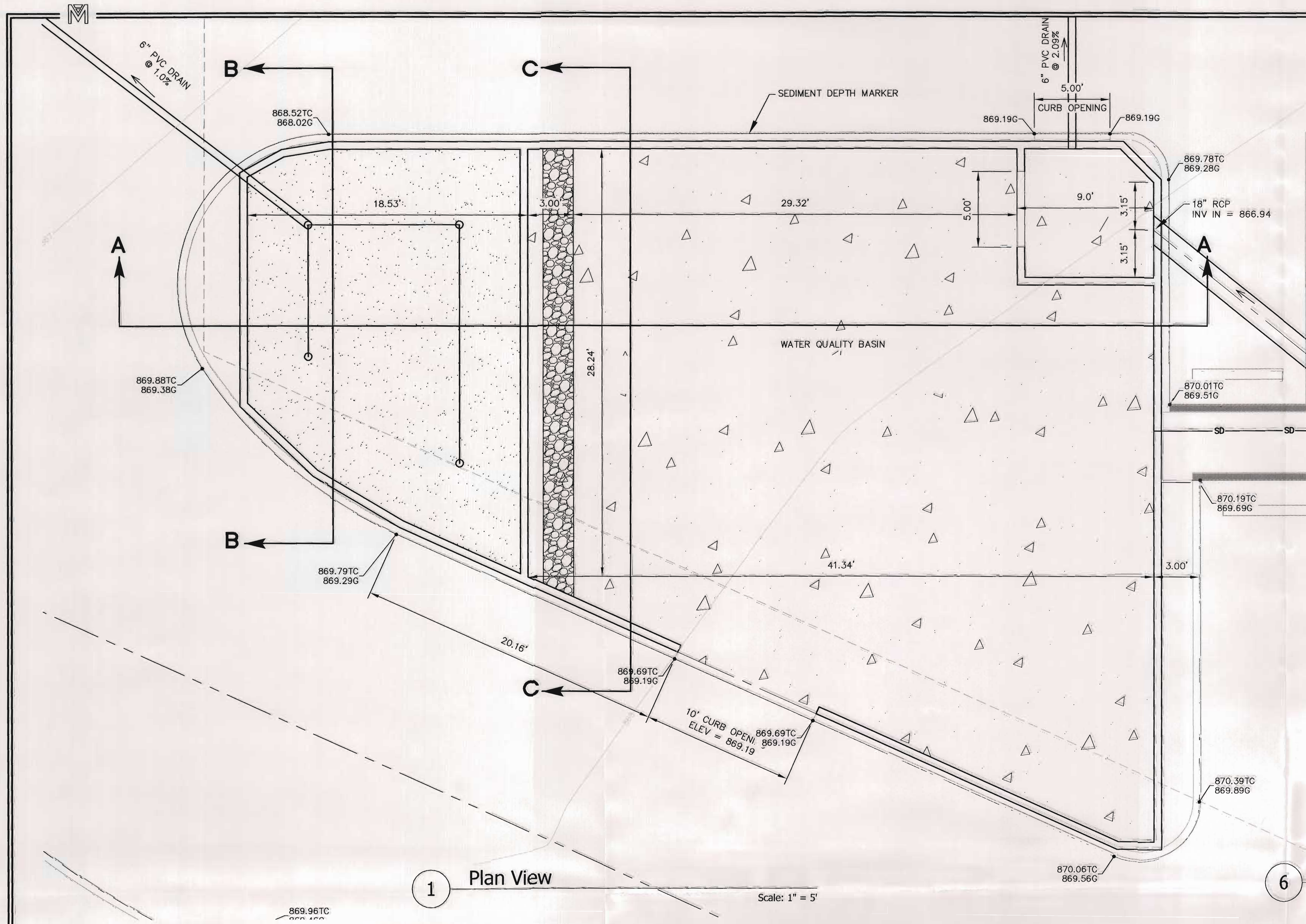
REVIEW SET

PROSPERITY BANK SH 46

NEW BRAUNFELS, TX 78132

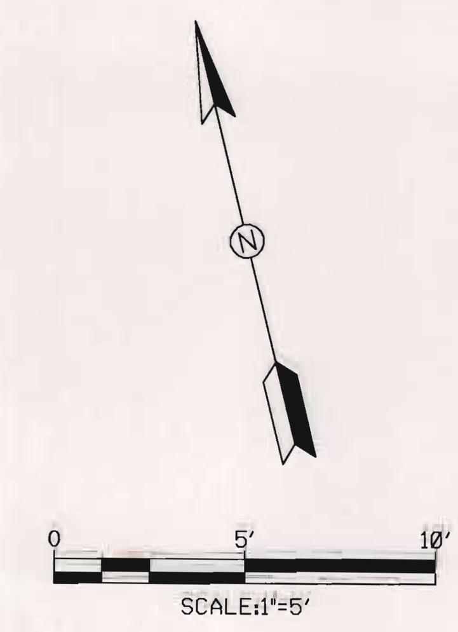
SHEET 3 OF 6

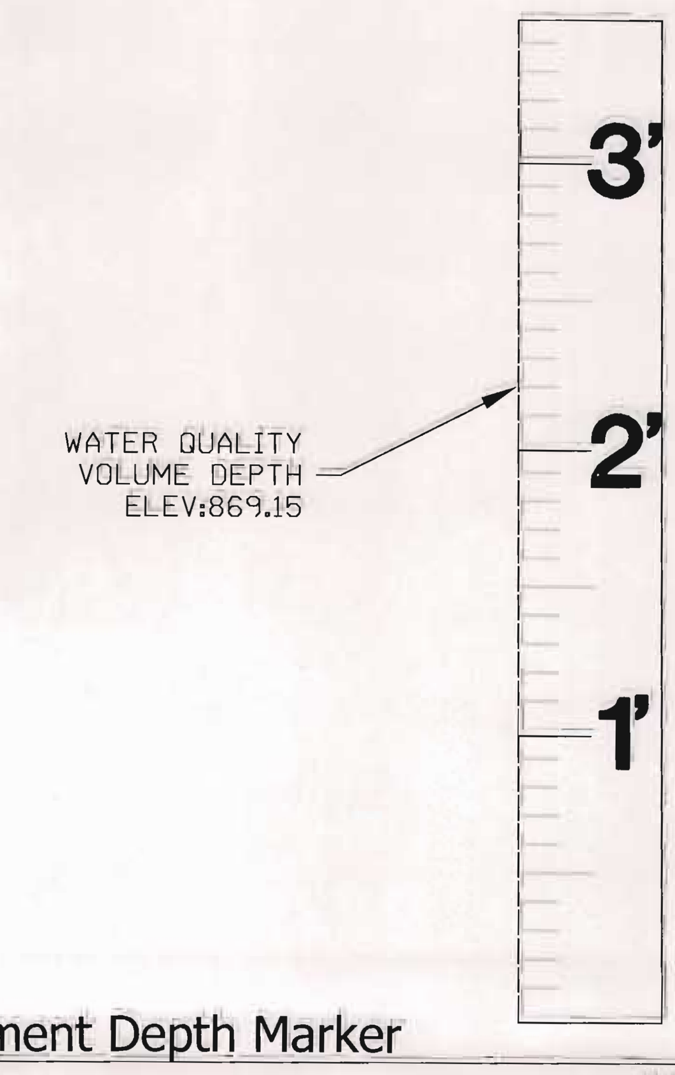
Drawing Name: N:\!Projects\PROS001.101 Prosperity Bank SH 46\Civil\Construction Drawings\3 - EROSION CONTROL PLAN.dwg User: BiancaPizana Nov 29, 2016 - 4:03pm



1 Plan View

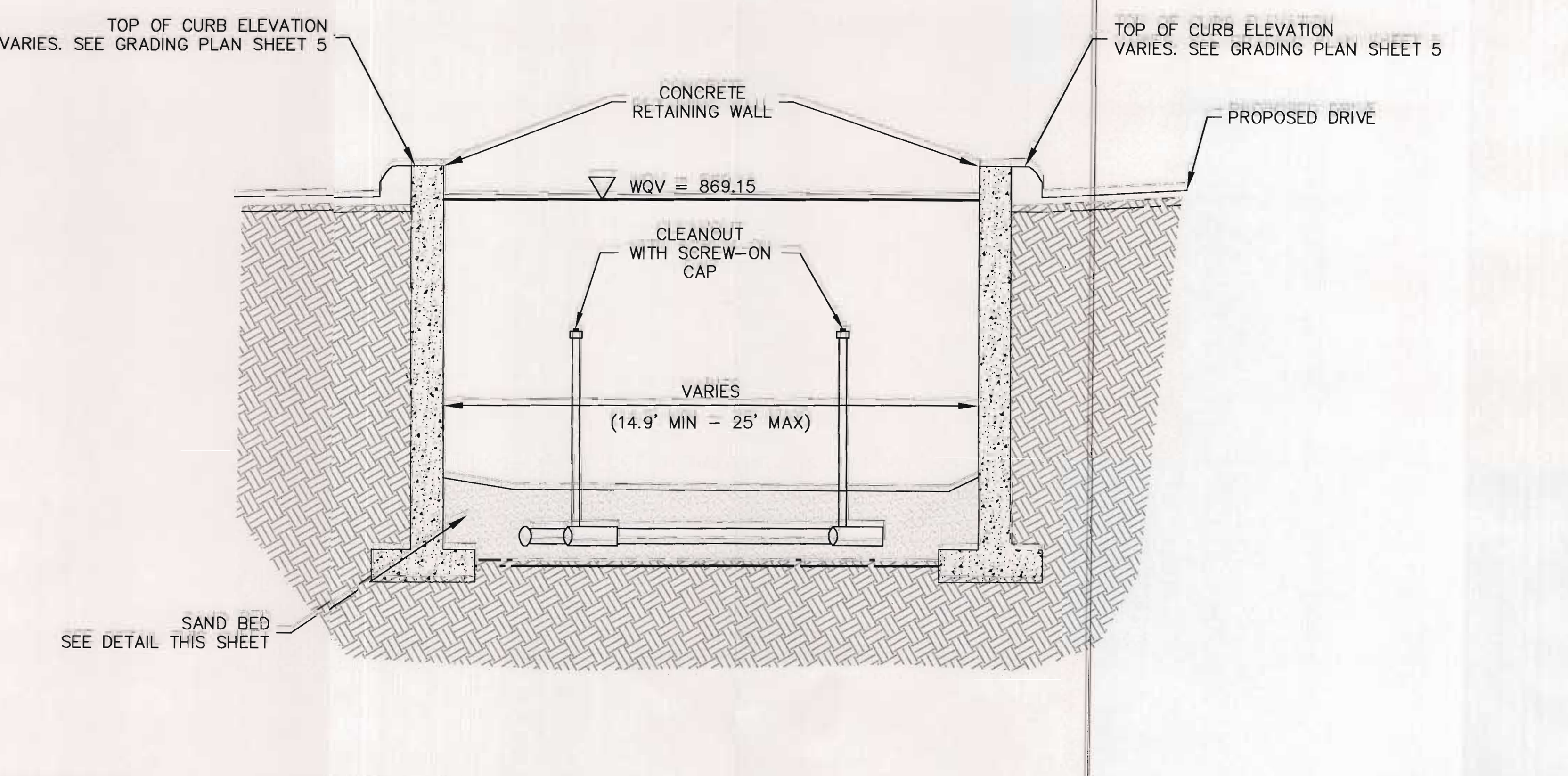
Scale: 1" = 5'





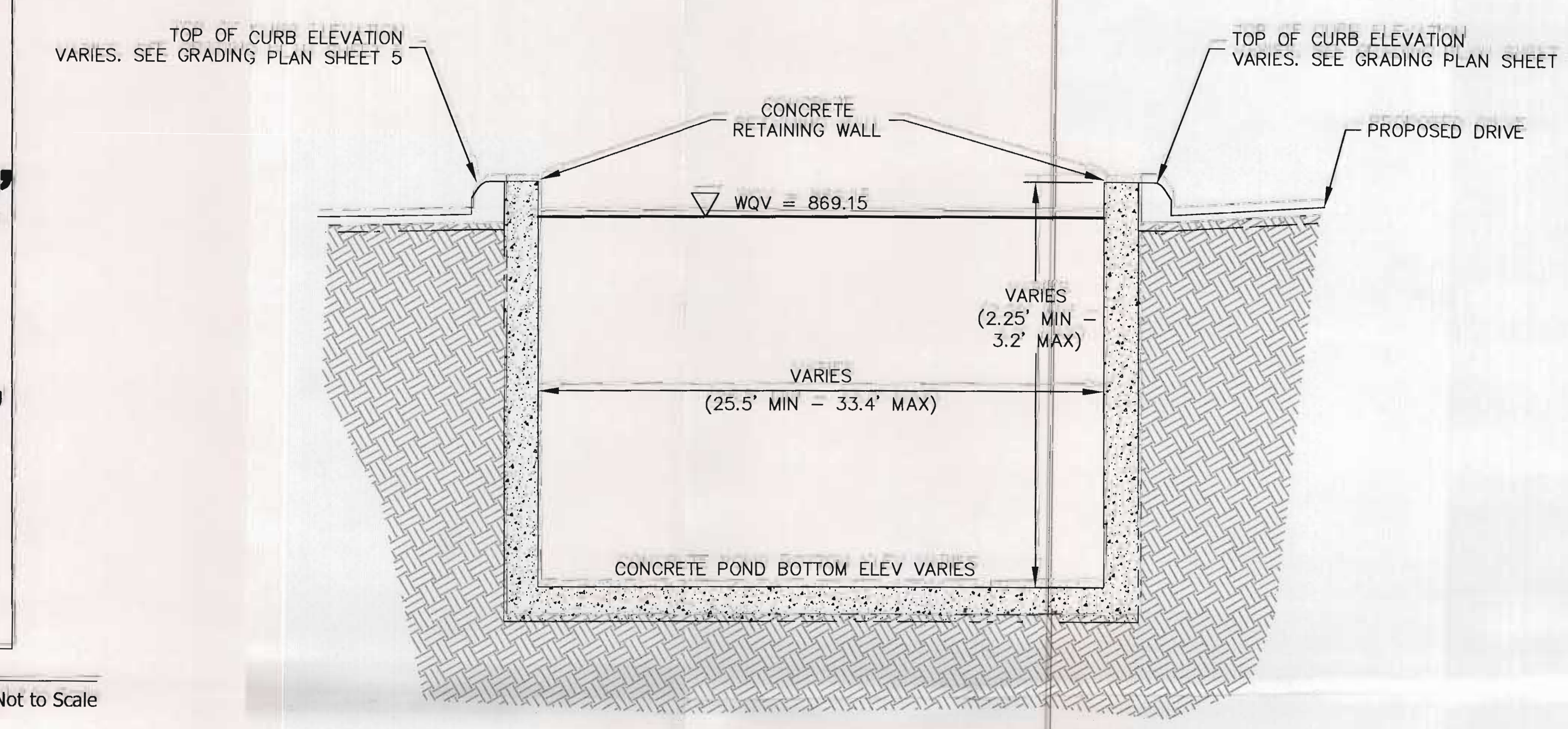
6 Sediment Depth Marker

Not to Scale



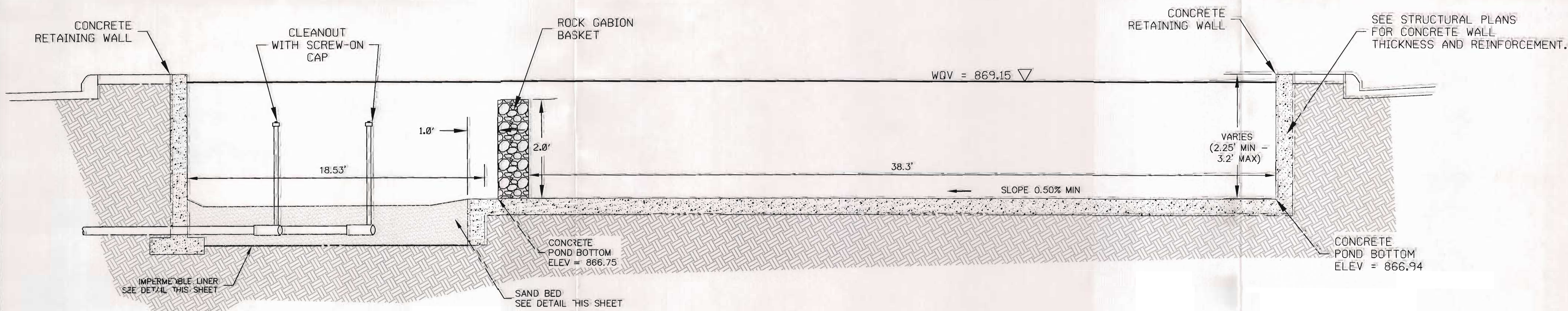
3 Section B-B

Not to Scale



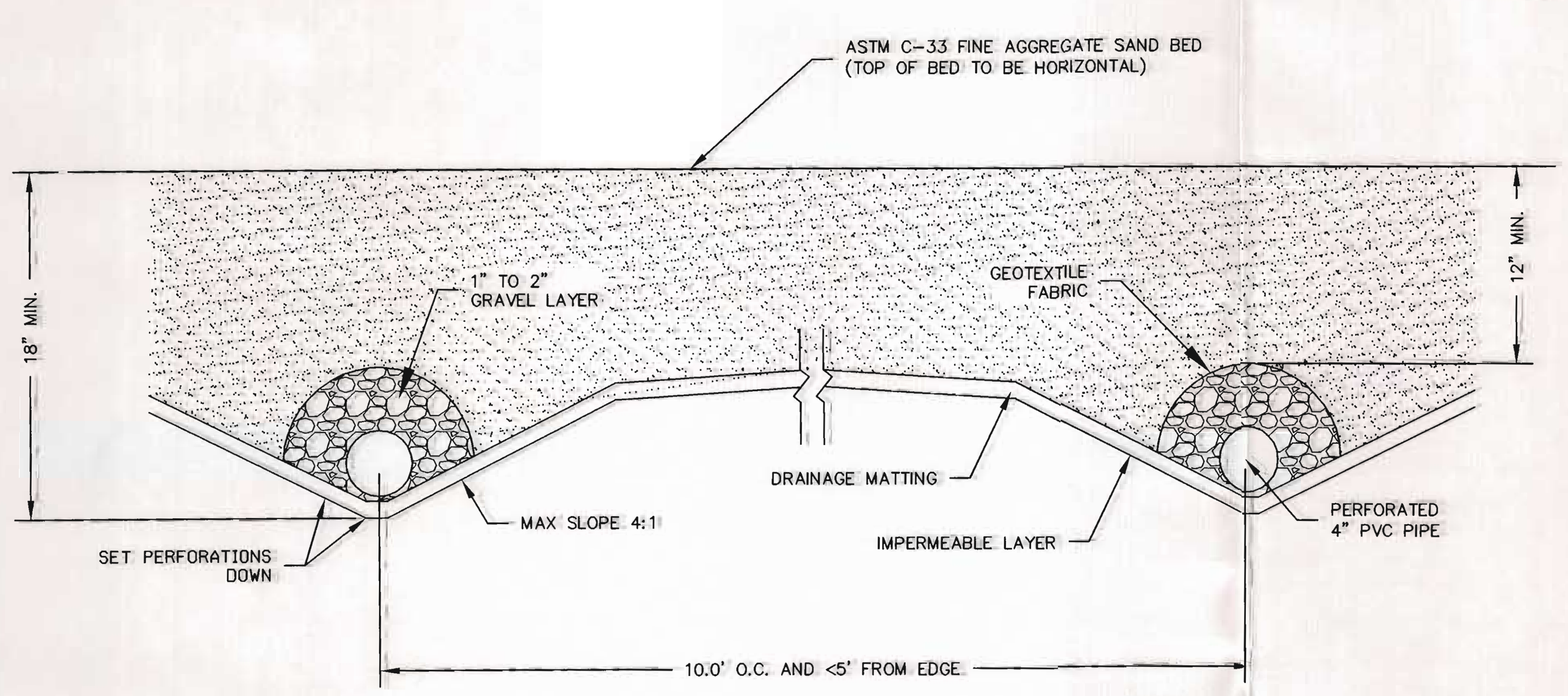
4 Section C-C

Not to Scale



2 Section A-A

Not to Scale



5 SAND BED DETAIL

Not to Scale

*NOTE: ALL CLEANOUTS TO HAVE SCREW-ON CAPS

Table 3-6 Clay Liner Specifications (COA, 2004)

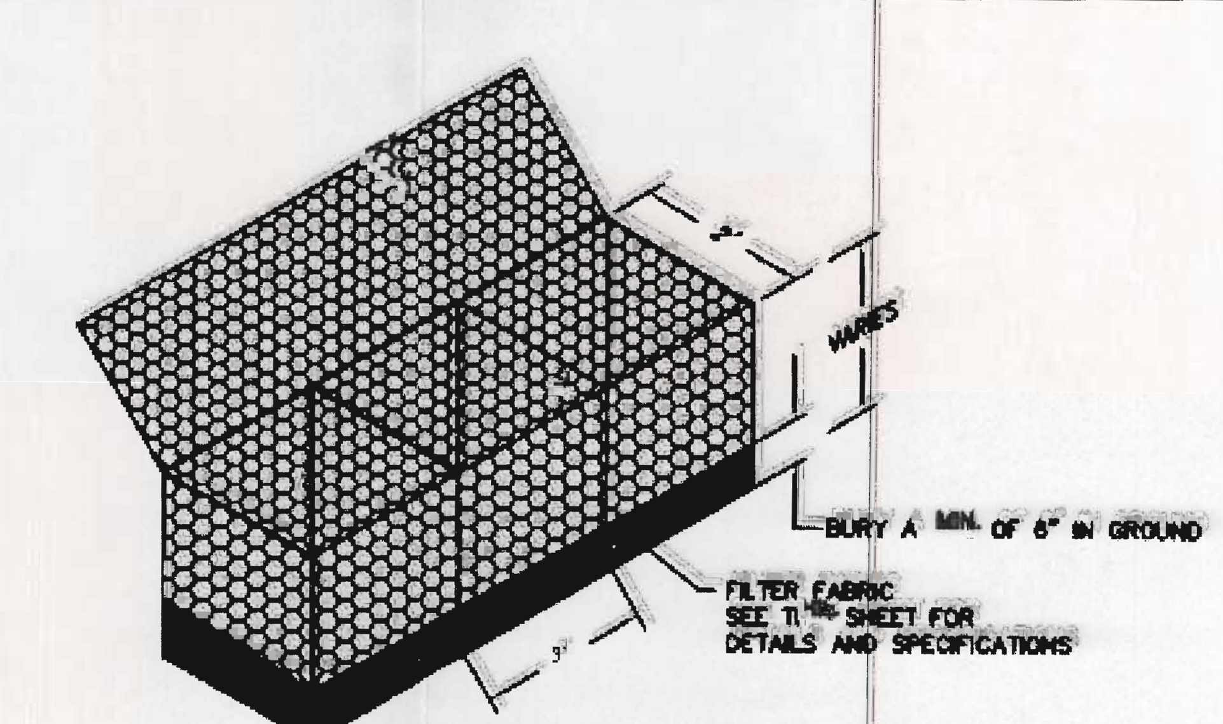
Property	Test Method	Unit	Specification
Permeability	ASTM D-2434	cm/sec	1 x 10^{-6}
Plasticity Index of Clay	ASTM D-423 & D-424	%	Not less than 15
Liquid Limit of Clay	ASTM D-2216	%	Not less than 30
Clay Particles Passing	ASTM D-422	%	Not less than 30
Clay Compaction	ASTM D-2216	%	95% of Standard Proctor Density

Table 3-7 Geotextile Fabric Specifications (COA, 2004)

Property	Test Method	Unit	Specification (min)
Unit Weight		oz/yd^2	8
Filtration Rate		in/sec	0.08
Puncture Strength	ASTM D-751*	lb	125
Mullen Burst Strength	ASTM D-751	psi	400
Tensile Strength	ASTM D-1682	lb	300
Equiv. Opening Size	US Standard Sieve	No.	80

*modified

REQUIRED POND VOLUME	=	4,460 CF
AVAILABLE POND VOLUME	=	4,500 CF
REQUIRED FILTER AREA	=	372 SF
PROPOSED FILTER AREA	=	417 SF



GABION BASKET DETAIL

SCALE: NTS

1. STONE
   STONE FILL MATERIAL SHALL CONSIST OF HARD, DURABLE, CLEAN STONE OF THE SIZE INDICATED, 6 TO 9 INCHES IN SIZE OR AS APPROVED BY THE ENGINEER AND RESISTANT TO THE ACTION OF AIR AND WATER AND SUITABLE IN ALL RESPECTS FOR THE PURPOSE INTENDED.
2. WIRE CONTAINERS
   WIRE MESH SHALL CONSIST OF PLASTIC COATED (P.V.C.) GALVANIZED WIRE 0.120 INCH IN DIAMETER MINIMUM AND SHALL EQUAL OR EXCEED FEDERAL SPECIFICATION QQ-W-461G, CLASS 3 UNLESS OTHERWISE INDICATED. OPENING OF THE MESH SHALL NOT EXCEED APPROXIMATELY 4 INCHES IN THE LONGEST DIMENSION. THE WIRE MESH IS TO BE FABRICATED IN SUCH MANNER AS TO BE NONRAVELING. TIE AND CONNECTING WIRE SHALL BE OF THE SAME TYPE AND SIZE AS THE BASKETS AND SHALL BE SUPPLIED IN SUFFICIENT QUANTITY FOR SECURELY FASTENING ALL EDGES OF THE GABION AND DIAPHRAGMS.
3. FILTER FABRIC
   FILTER FABRIC SHALL BE NON-BIODEGRADABLE ULTRAVIOLET STABILIZED, INERT TO MOST SOIL CHEMICALS, UNAFFECTED BY MOISTURE WHICH ALLOWS WATER TO PASS THROUGH WHILE RETAINING SOIL PARTICLES AND SHALL CONFORM TO ITEM NO. 620, "FILTER FABRIC".

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115810
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ISSUES AND REVISIONS

NO	DATE

MOELLER & ASSOCIATES
Engineering Solutions
2021 W. SH46, STE. 105, NEW BRAUNFELS, TX 78132
PH: 830-358-7127 www.ma-tx.com
TBPE FIRM F-13351

WATER QUALITY BASIN

REVIEW SET

PROSPERITY BANK SH 46

NEW BRAUNFELS, TX 78132

SHEET 6 OF 6

ATTACHMENT "C"
Project Description

The proposed site is 1.58 acres which consists of lots 12 and 13 and a small portion of lot 11 along a shared access easement within Hunters Creek Business Park. The entire 1.58 acre site will be disturbed with 1.28 acres of impervious cover (81.0%). The lot is located within the New Braunfels city limits at southwest corner of the intersection at SH 46 and Oak Run Parkway. The site is served by New Braunfels Utilities for electric, water, and wastewater. The site is currently cleared, and there are no above ground improvements.

The proposed use for the project is a 6,000 square foot bank building. No other planned uses are proposed for the site.

The proposed construction will include minor grading for the parking areas and building pad, utility service lines, and building infrastructure.

According to the Flood Insurance Rate Map No. 48091C0435F, the site is outside of the flood plain. The entire site drains to an unnamed tributary of Blieders creek. A portion of the stormwater runoff will be treated with a Sand Filter Pond located at the northwest corner of the site, and the rest of the site will drain to Vegetative Filter Strips along the north and east boundaries of the site (See Treatment Area Map). The Sand Filter Pond and the Vegetative Filter Strips will ensure the quality of water exiting without adversely affecting the downstream drainage patterns.

GEOLOGIC ASSESSMENT

For

PROSPERITY BANK NEW BRAUNFELS TRACT
SWC HWY. 46 & OAK RUN PARKWAY
NEW BRAUNFELS, COMAL COUNTY, TEXAS

Prepared for

MOELLER INGALLS, LLC
2021 S.H. 46W, NO. 105
NEW BRAUNFELS, TEXAS 78132

Prepared by

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

PSI PROJECT NO.: 0435- 2883

September 22, 2016

Information To Build On
Engineering • Consulting • Testing

September 22, 2016

Moeller Ingalls, LLC
2021 S.H. 46W No. 105
New Braunfels, Texas 78132

Attn: Mr. Jeff Moeller, P.E., President

Re: Geologic Assessment
Prosperity Bank New Braunfels
State Highway 46
New Braunfels, Comal County, Texas
PSI Project No. 435-2694

Dear Mr. Moeller:

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 by a signed copy of PSI Proposal No. 186673 between Moeller Ingalls, LLC and PSI dated August 2, 2016.

PROJECT DESCRIPTION

The subject site is located on the southwest corner of Highway 46 and Oak Run Parkway in New Braunfels, Comal County, Texas. The Prosperity Bank New Braunfels Lots 1911 & 1917 tract is approximately 1.5-acres in size, and is an irregularly shaped parcel of undeveloped land with a flat topography sloping gently to the west. A small unnamed tributary to Blieder's Creek is located approximately 1,500' west of the site. The site vegetation consists primarily of native grasses as the site was previously cleared of trees and shrubbery.

REGIONAL GEOLOGY

Physiography

Comal County lies within two physiographic provinces, the Edwards Plateau and the Blackland Prairie. Most of Comal County lies within the Edwards Plateau, which is characterized by rugged and hilly terrain, with elevations in excess of 1,400' feet above sea

level in the northwestern portion of the county. 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 650 feet to 1100 feet above sea level. The regional dip of the lower Cretaceous rocks in Comal County is approximately 15 feet per mile towards the southeast. The faults are predominantly normal, down-to-the southeast with near vertical throws. Elevations at the Prosperity Bank New Braunfels Lots 1911 & 1917 tract range from approximately 874 feet above mean sea level in the eastern portion of the tract to approximately 867 feet above mean sea level in the western portion of the tract.

Stratigraphy and Structure

Rocks underlying the site are mapped as the Cretaceous Del Rio clay and Georgetown Formations. The site is overlain with a thin veneer of grass covered soil. Rock outcrops are not exposed at the site although limestone and chert fragments are present. According to "The Geologic Framework and Hydrogeologic Characteristics of the Edwards Aquifer Outcrop, Comal County Texas" written by the USGS, the Del Rio clay ranges in thickness from 40 to 50 feet and is considered a confining unit of the Edwards Group. The Del Rio Clay is 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 diagnostic and widespread throughout the formation.

The underlying Georgetown Formation (Kgt) is a reddish-brown and gray to light tan marly limestone which commonly contains the brachiopod *waconella wacoensis* and mollusks such as *gryphaea washitaensis*. The Georgetown is considered an upper confining unit, and has low porosity and permeability, with little to no karst or cavern development. The thickness ranges from 10-40', and generally thins from northeast to southwest.

No sensitive features scoring more than 40 points on the F-0585 form were observed on the subject tract. No other non-sensitive recharge features were found as well. Chert and limestone fragments were present but no distinct rock outcrops were observed. Limited clearing of site vegetation has occurred in the past, and the site is currently mowed.

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.

SUMMARY

No sensitive features were observed on the subject tract. Please note that subtle features, buried or obscured from view, may be present on the tract. It is possible that

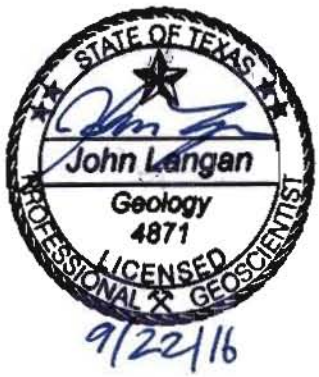
clearing/construction activities will reveal the presence of features currently hidden by thick vegetation and/or soil cover. If caves, sinkholes, or solution cavities are encountered during future clearing/construction activities, please contact our office for additional assistance.

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 sufficient 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 Moeller Ingalls, LLC. for the site discussed herein. Reproductions of this report cannot be made without the expressed approval Moeller Ingalls, LLC. The general terms and conditions under which this assessment was prepared apply solely to Moeller Ingalls, LLC. 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: September 22, 2016 Fax: 210/342-9401

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

Signature of Geologist:

Regulated Entity Name: Prosperity Bank New Braunfels

Project Information

1. Date(s) Geologic Assessment was performed: 9/8/16
2. Type of Project:
   - ☒ WPAP
   - ☐ SCS
   - ☐ AST
   - ☐ UST
3. Location of Project:
   - ☒ Recharge Zone
   - ☐ Transition Zone
   - ☐ Contributing Zone within the Transition Zone

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

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

Table 1 - Soil Units, Infiltration Characteristics and Thickness

Soil Name	Group*	Thickness(feet)
Rumple-Comfort Asso., undulating	B	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" = 20'
   Site Geologic Map Scale: 1" = 20'
   Site Soils Map Scale (if more than 1 soil type): 1" = _____'

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

Prosperity Bank New Braunfels
SWC State Highway 46 & Oak Run Parkway
New Braunfels, Comal County, Texas

FORMATION	THICKNESS	LITHOLOGIC DESCRIPTION
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.

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 Rumple-Comfort association, undulating (RUD).

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

Comal County lies within two physiographic provinces, the Edwards Plateau and the Blackland Prairie. Most of Comal County lies within the Edwards Plateau, which is characterized by rugged and hilly terrain, with elevations in excess of 1,400' feet above sea level in the northwestern portion of the county. 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 650 feet to 1100 feet above sea level. The regional dip of the lower Cretaceous rocks in Comal County is approximately 15 feet per mile towards the southeast. The faults are predominantly normal, down-to-the southeast with near vertical throws. Elevations at the Prosperity Bank New Braunfels Lots 1911 & 1917 tract range from approximately 874 feet above mean sea level in the eastern portion of the tract to approximately 867 feet above mean sea level in the western portion of the tract.

Stratigraphy and Structure

Rocks underlying the site are mapped as the Cretaceous Del Rio clay and Georgetown Formations. The site is overlain with a thin veneer of grass covered soil. Rock outcrops are not exposed at the site although limestone and chert fragments are present. According to "The Geologic Framework and Hydrogeologic Characteristics of the Edwards Aquifer Outcrop, Comal County Texas" written by the USGS, the Del Rio clay ranges in thickness from 40 to 50 feet and is considered a confining unit of the Edwards Group. The Del Rio Clay is 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 diagnostic and widespread throughout the formation.

The underlying Georgetown Formation (Kgt) is a reddish-brown and gray to light tan marly limestone which commonly contains the brachiopod *waconella wacoensis* and mollusks such as *gryphaea washitaensis*. The Georgetown is considered an upper confining unit, and has low porosity and permeability, with little to no karst or cavern development. The thickness ranges from 10-40', and generally thins from northeast to southwest.

No sensitive features scoring more than 40 points on the F-0585 form were observed on the subject tract. No other non-sensitive recharge features were found as well. Chert and limestone fragments were present but no distinct rock outcrops were observed. Limited clearing of site vegetation has occurred in the past, and the site is currently mowed.

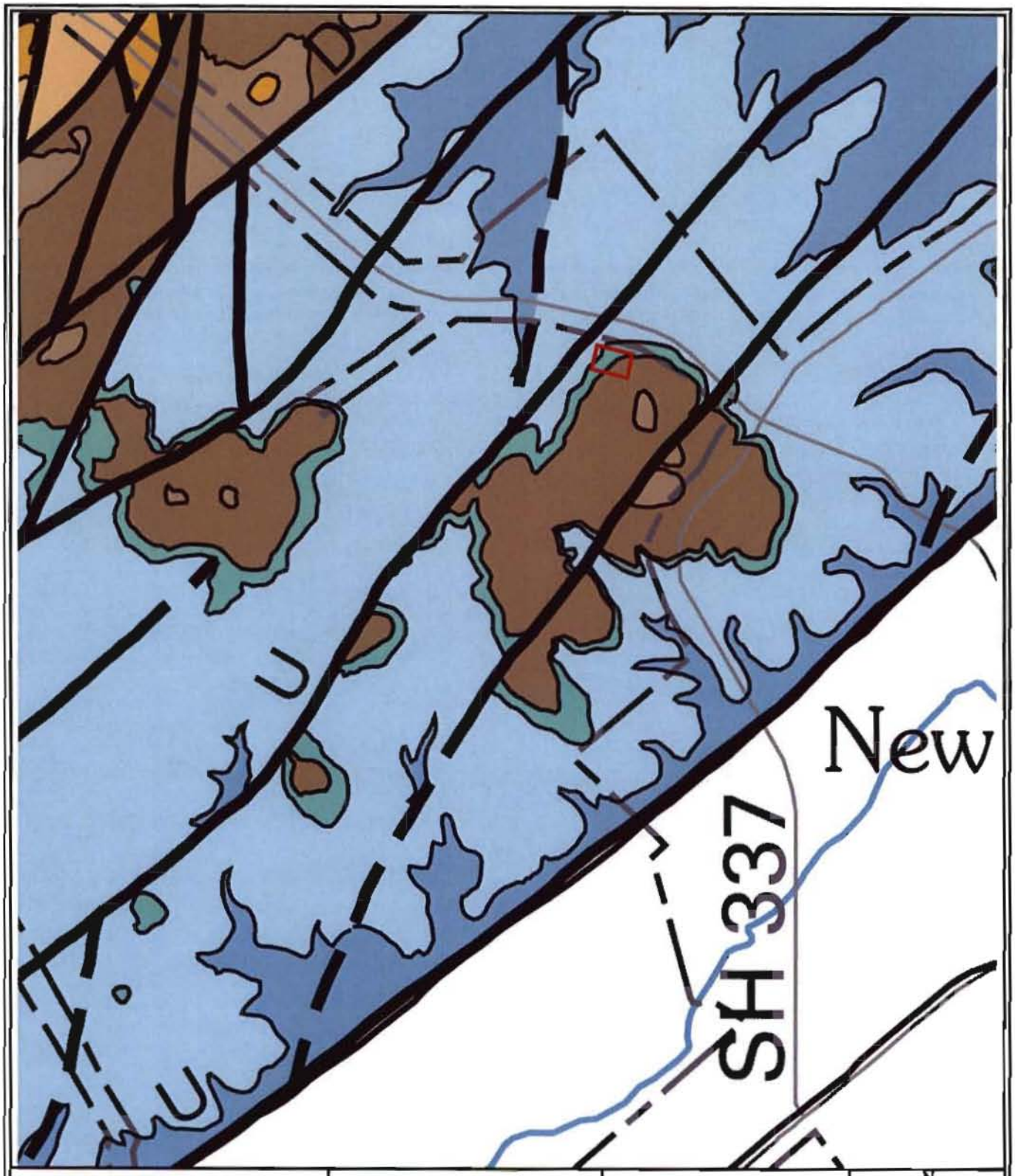
SITE INVESTIGATION

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.

SUMMARY

No sensitive features were observed on the subject tract. 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.



PSI Information To Build On
Engineering • Consulting • Testing
PSI, Inc.
3 Burwood Lane
San Antonio, Texas 78216

PROJECT NAME:
First State Bank Tract
Highway 46 & Oak Run Pkwy
New Braunfels, Texas

PROJECT NO.:435-2883

Geologic Map of Edwards Aquifer Recharge Zone, South-Central Texas

(USGS, 2005)

N

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

NEW BRAUNFELS WEST QUADRANGLE
TEXAS
7.5 MINUTE SERIES (TOPOGRAPHIC)

SITE

RECHARGE ZONE

TRANSITION ZONE

NEW BRAUNFELS

Produced by the United States Geological Survey
Revised in cooperation with the Texas Water Development Board

Control by USGS, NOS/NOAA, and USCE

Compiled by the Army Map Service by photogrammetric methods from aerial photographs taken 1956. Field checked 1958
Revised from aerial photographs taken 1986. Field checked 1987
Map edited 1988

Projection and 10,000-foot grid ticks: Texas coordinate system, south central zone (Lambert conformal conic)
1000-meter Universal Transverse Mercator grid, zone 14
1927 North American Datum
To place on the predicted North American Datum 1983 move the projection lines 20 meters south and 28 meters east as shown by dashed corner ticks

Fine red dashed lines indicate selected fence and field lines generally visible on aerial photographs. This information is unchecked

UTM GRID AND 1988 MAGNETIC NORTH DECLINATION AT CENTER OF MAP
DIAGRAM IS APPROXIMATE

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

QUADRANGLE LOCATION

2998-413

ROAD CLASSIFICATION

Primary highway, hard surface — Light-duty road, hard or improved surface
Secondary highway, hard surface — Unimproved road
Interstate Route U. S. Route State Route

NEW BRAUNFELS WEST, TEX.
29098-F2-TF-024
1988
DMA 6343 II NW-SERIES V822

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

NEW BRAUNFELS EAST QUADRANGLE
TEXAS
7.5 MINUTE SERIES (TOPOGRAPHIC)

RECHARGE ZONE

TRANSITION ZONE

Produced by the United States Geological Survey in cooperation with the Defense Mapping Agency

Control by USGS and NOS/NOAA and USCE

Compiled from aerial photographs taken 1956. Revisions in purple and woodland compiled from aerial photographs taken 1986 and other sources and has been field checked. Map edited 1994
Conflicts may exist between some updated features and previously mapped contours

North American Datum of 1927 (NAD 27). Projection and 10000-foot ticks : Texas Coordinate System, south central zone (Lambert Conformal Conic)
Blue 1000-meter Universal Transverse Mercator ticks, zone 14

North American Datum of 1983 (NAD 83) is shown by dashed corner ticks. The values of the shift between NAD 27 and NAD 83 for 7.5-minute intersections are obtainable from National Geodetic Survey NADCON software

UTM GRID AND 1994 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
SUPPLEMENTARY CONTOUR INTERVAL 5 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

TEXAS
QUADRANGLE LOCATION

2998-414

ROAD CLASSIFICATION

Primary highway, hard surface
Secondary highway, hard surface
Light-duty road, hard or improved surface
Unimproved road
Interstate Route
U. S. Route
State Route

NEW BRAUNFELS EAST, TEX.
29098-F1-TF-024

1958
REVISED 1994
DMA 6343 II NE-SERIES V882


PROJECT SITE
46
Oak Run Pkwy
Oakmont Circle
Oakmont
Oak Sprawl
Oak Glen
Hunters Village
Hunters Trail
Hunters Chase
Diamond Trail
Big Oak
Morning Star
Morning Moon
bing
PROSPERITY BANK
LOCATION MAP
1 inch = 208 feet
Legend
Project_Site
Parcels
Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China
MOELLER & ASSOCIATES Engineering Solutions

GEOLOGIC ASSESSMENT TABLE — PROJECT NAME: Prosperity Bank New Braunfels

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)	INCD	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	
			NO FEATURES FOUND																	

* 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.

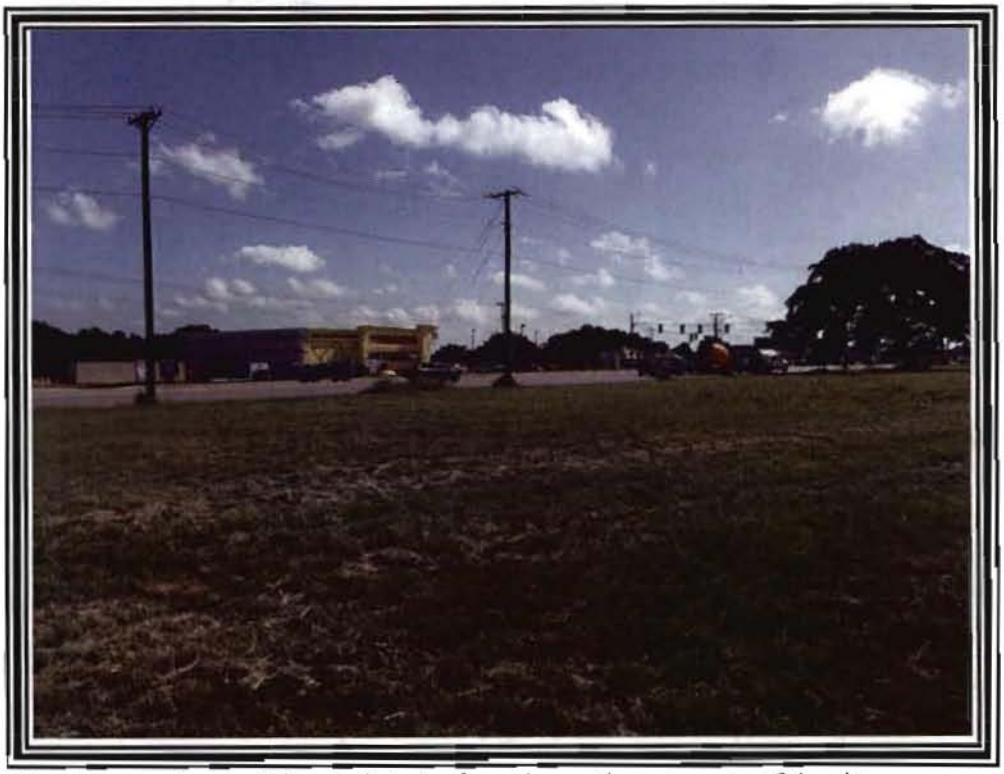
Date: 9-22-16

Sheet 1 of 1

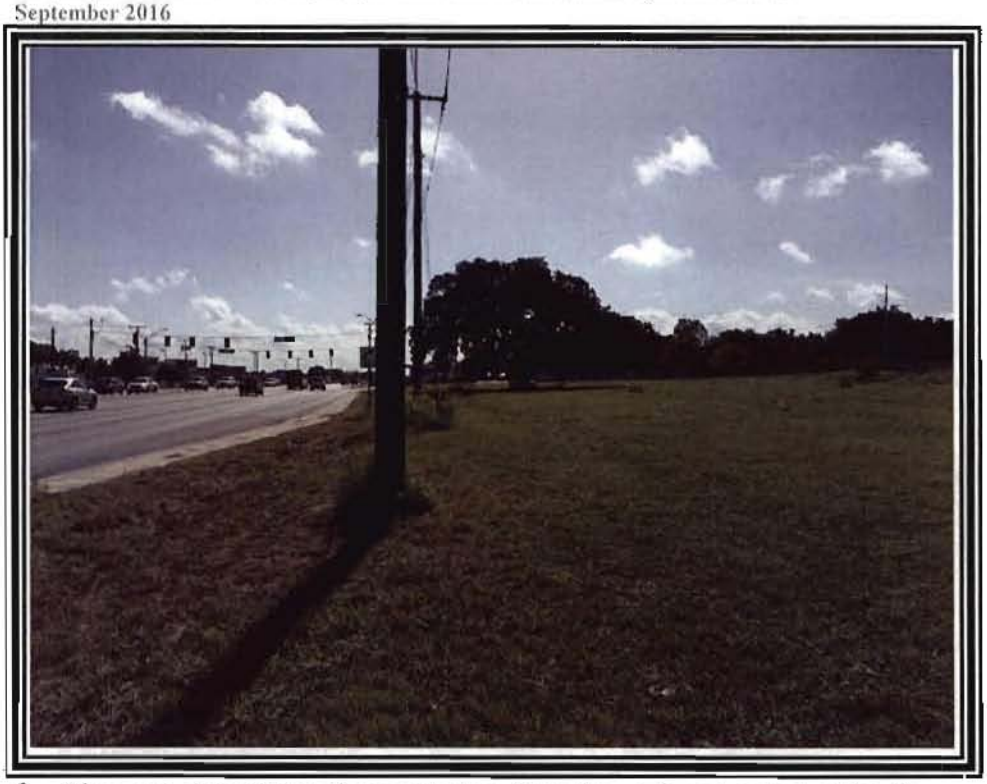
STATE OF TEXAS
John Langan
Geology
4871
LICENSED
PROFESSIONAL GEOSCIENTIST
9/22/16

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

1. View north along the west property line from the southwest corner of the approximate 1.5-acre Prosperity Bank New Braunfels tract located at the SWC of Highway 46 and Oak Run Parkway in New Braunfels, Comal County, Texas.



2. View northeast of the site interior from the southwest corner of the site.



3. View east along the north property line from the northwest corner of the site.

4. View west along the north property line from the northeast corner of the site.

5. View southwest of the site interior from the northeast corner.

6. View south along the east property line from the northeast corner.

7. View north along the east property line from the southeast corner of the site.

8. View northwest of the site interior from the southeast corner.

Water Pollution Abatement Plan Application

RECEIVED
OCT 19 2016
COUNTY ENGINEER

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: Shane Klar, P.E

Date: 10/13/2016

Signature of Customer/Agent:

Regulated Entity Name: Prosperity Bank New Braunfels

Regulated Entity Information

1. The type of project is:

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

2. Total site acreage (size of property):1.58

3. Estimated projected population:0

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	6,942	÷ 43,560 =	0.16
Parking	48,787	÷ 43,560 =	1.12
Other paved surfaces		÷ 43,560 =	
Total Impervious Cover	55,729	÷ 43,560 =	1.28

Total Impervious Cover 1.28 ÷ **Total Acreage** 1.58 **X 100 =** 81.0% **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	500Gallons/day
_____% Industrial	_____Gallons/day
_____% Commingled	_____Gallons/day
TOTAL gallons/day 500	

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 Gruene 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" = 20'.

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 Panel Number 48091C0435F 9/2/2009

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

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

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

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

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

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

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

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

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

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

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

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

26. ☐ Surface waters (including wetlands).

☒ N/A

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

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

28. ☒ Legal boundaries of the site are shown.

Administrative Information

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

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

ATTACHMENT "A"
Factors Affecting Water Quality

The development will consist of a building structure of approximately 6,000 square feet, and associated parking with a San Filtration System and Vegetative Filter Strips. This will result in minimal to no pollution from the site. Some pollution may originate from automobile wastes and cleaning chemicals which may have an effect on surface water by sediments leaving the site after a rainfall event.

ATTACHMENT "B"
Volume and Character of Stormwater

The development of this site will result in a minimal increase in stormwater run-off. Onsite stormwater within the building area and the majority of the parking will be captured and treated by a Sand Filtration System and the remaining parking and drives will drain to Vegetative Filter strips along the north and west boundary of the site. There is no offsite runoff.

ATTACHMENT "C"
Suitability Letter from Authorized Agent

There is no proposed OSSF.

ATTACHMENT "D"
Exception to the Required Geologic Assessment

No exception will be requested.

LEGEND:

Kdr - CRETACEOUS DEL RIO CLAY

Kgt - CRETACEOUS GEORGETOWN FORMATION

GRAPHIC SCALE

20 0 10 20 40

(IN FEET)
1 inch = 20 ft.

GEOLOGIC ASSESSMENT
for
PROSPERITY BANK
NEW BRAUNFELS, TEXAS

John Langan
Geology
4871
LICENSED
PROFESSIONAL GEOSCIENTIST
10/11/16

psi Information To Build On
Engineering • Consulting • Testing
7400 BLANCO ROAD, SUITE 257
SAN ANTONIO, TEXAS 78216

REVISIONS:

JOB NO. 04352883
FILE: 04352883.01
DATE: 09/22/2016
DESIGN: ~
DRAWN: J LEAL
CHECKED:
SHEET 1 OF 1

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: Shane Klar, P.E.

Date: 10/13/2016

Signature of Customer/Agent:

Regulated Entity Name: Prosperity Bank New Braunfels

Project Information

Potential Sources of Contamination

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

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

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

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

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

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

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

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

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

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

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

Sequence of Construction

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

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

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

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

Temporary Best Management Practices (TBMPs)

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

☒ N/A

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

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

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

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

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

Soil Stabilization Practices

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

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

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

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

Administrative Information

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

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

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

ATTACHMENT "A"
Spill Response Actions

Spill Prevention and Control

The objective of this section is to describe measures to prevent or reduce the discharge of pollutants to drainage systems or watercourses from leaks and spills by reducing the chance for spills, stopping the source of spills, containing and cleaning up spills, properly disposing of spill materials, and training employees.

The following steps will help reduce the stormwater impacts of leaks and spills:

Education

(1) Be aware that different materials pollute in different amounts. Make sure that each employee knows what a "significant spill" is for each material they use, and what is the appropriate response for "significant" and "insignificant" spills. Employees should also be aware of when spills must be reported to the TCEQ. Information available in 30 TAC 327.4 and 40 CFR 302.4.

(2) Educate employees and subcontractors on potential dangers to humans and the environment from spills and leaks.

(3) Hold regular meetings to discuss and reinforce appropriate disposal procedures (incorporate into regular safety meetings).

(4) Establish a continuing education program to indoctrinate new employees.

(5) Have contractor's superintendent or representative oversee and enforce proper spill prevention and control measures.

General Measures

(1) To the extent that the work can be accomplished safely, spills of oil, petroleum products, and substances listed under 40 CFR parts 110,117, and 302, and sanitary and septic wastes should be contained and cleaned up immediately.

(2) Store hazardous materials and wastes in covered containers and protect from vandalism.

(3) Place a stockpile of spill cleanup materials where it will be readily accessible.

(4) Train employees in spill prevention and cleanup.

(5) Designate responsible individuals to oversee and enforce control measures.

(6) Spills should be covered and protected from stormwater runoff during rainfall to the extent that it doesn't compromise clean up activities.

(7) Do not bury or wash spills with water.

(8) Store and dispose of used clean up materials, contaminated materials, and recovered spill material that is no longer suitable for the intended purpose in conformance with the provisions in applicable BMP's.

(9) Do not allow water used for cleaning and decontamination to enter storm drains or watercourses. Collect and dispose of contaminated water in accordance with applicable regulations.

(10) Contain water overflow or minor water spillage, and do not allow it to discharge into drainage facilities or watercourses.

(11) Place Material Safety Data Sheets (MSDS), as well as proper storage, cleanup, and spill reporting instructions for hazardous materials stored or used on the project site in an open, conspicuous, and accessible location.

(12) Keep waste storage areas clean, well organized, and equipped with ample cleanup supplies as appropriate for the materials being stored. Perimeter controls, containment structures, covers, and liners should be repaired or replaced as needed to maintain proper function.

Cleanup

(1) Clean up leaks and spills immediately.

(2) Use a rag for small spills on paved surfaces, a damp mop for general cleanup, and absorbent material for larger spills. If the spilled material is hazardous, then the used cleanup materials are also hazardous and must be disposed of as hazardous waste.

(3) Never hose down or bury dry material spills. Clean up as much of the material as possible and dispose of properly. See the waste management BMP's in this section for specific information.

Minor Spills

(1) Minor spills typically involve small quantities of oil, gasoline, paint, etc. which can be controlled by the first responder at the discovery of the spill.

(2) Use absorbent materials on small spills rather than hosing down or burying the spill.

(3) Absorbent materials should be promptly removed and disposed of properly.

(4) Follow the practice below for a minor spill:

(5) Contain the spread of the spill.

(6) Recover spilled materials.

(7) Clean the contaminated area and properly dispose of contaminated materials.

Semi-Significant Spills

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

Spills should be cleaned up immediately:

(1) Contain spread of the spill.

(2) Notify the project foreman immediately.

(3) If the spill occurs on paved or impermeable surfaces, clean up using "dry" methods (absorbent materials, cat litter and/or rags). Contain the spill by encircling with absorbent materials and do not let the spill spread widely.

(4) If the spill occurs in dirt areas, immediately contain the spill by constructing an earthen dike. Dig up and properly dispose of contaminated soil.

(5) If the spill occurs during rain, cover spill with tarps or other material to prevent contaminating runoff.

Significant/Hazardous Spills

For significant or hazardous spills that are in reportable quantities:

(1) Notify the TCEQ by telephone as soon as possible and within 24 hours at 512-339-2929 (Austin) or 210-490-3096 (San Antonio) between 8 AM and 5 PM.
After hours, contact the Environmental Release Hotline at 1-800-832-8224. It is the contractor's responsibility to have all emergency phone numbers at the construction site.

(2) For spills of federal reportable quantities, in conformance with the requirements in 40 CFR parts 110,119, and 302, the contractor should notify the National Response Center at (800) 424-8802.

(3) Notification should first be made by telephone and followed up with a written report.

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

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

More information on spill rules and appropriate responses is available on the TCEQ website at: http://www.tnrcc.state.tx.us/enforcement/emergency_response.html

Vehicle and Equipment Maintenance

(1) If maintenance must occur onsite, use a designated area and a secondary containment, located away from drainage courses, to prevent the runoff of stormwater and the runoff of spills.

(2) Regularly inspect onsite vehicles and equipment for leaks and repair immediately

(3) Check incoming vehicles and equipment (including delivery trucks, and employee and subcontractor vehicles) for leaking oil and fluids. Do not allow leaking vehicles or equipment onsite.

(4) Always use secondary containment, such as a drain pan or drop cloth, to catch spills or leaks when removing or changing fluids.

(5) Place drip pans or absorbent materials under paving equipment when not in use.

(6) Use absorbent materials on small spills rather than hosing down or burying the spill. Remove the absorbent materials promptly and dispose of properly.

(7) Promptly transfer used fluids to the proper waste or recycling drums. Don't leave full drip pans or other open containers lying around.

(8) Oil filters disposed of in trashcans or dumpsters can leak oil and pollute stormwater. Place the oil filter in a funnel over a waste oil-recycling drum to drain excess oil before disposal. Oil filters can also be recycled. Ask the oil supplier or recycler about recycling oil filters.

(9) Store cracked batteries in a non- leaking secondary container. Do this with all cracked batteries even if you think all the acid has drained out. If you drop a battery, treat it as if it is cracked. Put it into the containment area until you are sure it is not leaking.

Vehicle and Equipment Fueling

(1) If fueling must occur on site, use designated areas, located away from drainage courses, to prevent the runoff of stormwater and the runoff of spills.

(2) Discourage "topping off" of fuel tanks.

(3) Always use secondary containment, such as a drain pan, when fueling to catch spills/ leaks.

ATTACHMENT "B"
Potential Sources of Contamination

The only potential sources of contamination are construction equipment leaks, re-fueling spills, port-o-lets, and the total suspended solids (TSS) due to the construction activities on-site. There are no other anticipated potential sources of contamination.

ATTACHMENT "C"
Sequence of Major Activities

Stages of Construction:

1. Installation of temporary BMP's.
2. Minor site grading: This includes the removal of organic material and other debris within the proposed parking and building site. Approximate total disturbed area = 1.58 acres.
3. Grading: Cutting and filling of the proposed site to prepare the site for parking and foundation construction. Approximate total disturbed area = 1.58 acres.
4. Utility installation: All primary utility mains have already been installed and are available at the site. Sewer, water, gas, and electrical services will be installed at this time.
5. Finished grading: Final landscaping, Parking and building infrastructure are installed. Approximate total disturbed area = 1.58 acres.

ATTACHMENT "D"
Temporary BMP's and Measures

The following sequence will be followed for installing temporary BMP's:

1. Silt fence will be constructed on the downgradient side of proposed site.
2. A stabilized construction exit will be installed prior to any site work.

A. Silt Fence will be installed on the most downgradient side of the site and will reduce potential pollution from any stormwater that originates onsite or offsite. A stabilized construction exit will be constructed at the entrance of the site; this will reduce the amount of contaminants leaving the site.

B. Silt fence will be placed on the downgradient side of each proposed improvement to contain pollutants generated from onsite runoff. Disturbed areas will be seeded to replace destroyed vegetation. The existing vegetation located downgradient of each proposed improvement will work in conjunction with the silt fence and stabilized construction entrance to prevent pollution of water originating onsite and/or flowing offsite.

C. The proposed silt fences, and stabilized construction entrance constructed upgradient of the existing streams will prevent pollutants from entering them, as well as the aquifer. According to the Geologic Assessment, there are no sensitive features with the project boundary.

D. There were no sensitive features identified in the Geologic Assessment.

ATTACHMENT "E"
Request to Temporarily Seal a Feature

There will be no request to temporarily seal a feature.

ATTACHMENT "F"
Structural Practices

Stabilized Construction Exit and Silt fence will be used to protect disturbed soils and to prevent contamination from leaving the project site.

ATTACHMENT "G"
Drainage Area Map

See Drainage Area Map at the end of this section.

ATTACHMENT "H"
Temporary Sediment Pond Plans and Calculations

There will not be more than 10 acres of disturbed soil in one common drainage area that will occur at one time. Silt fence will be used for small drainage areas. No sediment ponds will be constructed due to the minimal amount of soil disturbance.

ATTACHMENT "I"
Inspection and Maintenance for BMP's

Inspection and Maintenance Plan

The contractor is required to inspect the control and fences at weekly intervals and after any rainfall events to ensure that they are functioning properly. The contractor is required to document any changes on the Site Plan, documentation must include person performing task, task performed, and date. The contractor must also document if proper inspection measures have been taken while making changes. The person(s) responsible for maintenance controls and fences shall immediately make any necessary repairs to damaged areas.

Temporary Construction Entrance/Exit: The entrance should be maintained in a condition, which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment. All sediment spilled, dropped, washed or tracked onto public rights-of-way should be removed immediately by contractor. When necessary, wheels should be cleaned to remove sediment prior to entrance onto public right-of-way. When washing is required, it should be done on an area stabilized with crushed stone that drains into an

approved sediment trap or sediment basin. All sediment should be prevented from entering any storm drain, ditch or water course by using approved methods.

Silt Fence: Remove sediment when buildup reaches 6 inches. Replace any torn fabric or install a second line of fencing parallel to the torn section. Replace or repair any 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. 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.

TCEQ staff will be allowed full access to the property during construction of the project for inspecting controls and fences and to verify that the accepted plan is being utilized in the field. TCEQ staff has the right to speak with the contractor to verify plan changes and modifications.

Documentation: All scheduled inspection and maintenance measures made to the temporary BMPs must be documented clearly on the WPAP Site Plan showing inspection/maintenance measures performed, date, and person responsible for inspection and maintenance. Any changes made to the location or type of controls shown on the accepted plans, due to onsite conditions, shall be documented on the site plan that is part of this Water Pollution Abatement Plan. No other changes shall be made unless approved by TCEQ and the Design Engineer. Documentation shall clearly show changes made, date, person responsible for the change, and the reason for the change.

Owner's Information:

Owner:	Prosperity Bank
Contact:	Charles Bray
Phone:	(512) 472-5433
Address:	900 Congress Avenue Austin, Texas 78701

Design Engineer:

Company:	Moeller & Associates
Contact:	Shane Klar, P.E.
Phone:	(830) 358-7127
Address:	2021 SH 46W., Ste. 105 New Braunfels, Texas 78132

Person or Firm Responsible for Erosion/Sedimentation Control Maintenance:

Company: _____
Contact: _____
Phone: _____
Address: _____

Signature of Responsible Party: _____

This portion of the form shall be filled out and signed by the responsible party prior to construction.

ATTACHMENT "J"
Schedule of Interim and Permanent Soil Stabilization Practices

Areas which are disturbed by construction staging and storage areas will be hydro mulched with the appropriate seed mixture. Areas between the edge of pavement and property line will also by hydro mulched. There will be no fill slopes exceeding a 3:1 slope, and all fill slopes will be hydro mulched. Installation and acceptable mixtures of hydro mulch are as follows:

Materials:

Hydraulic Mulches: Wood fiber mulch can be applied alone or as a component of hydraulic matrices. Wood fiber applied alone is typically applied at the rate of 2,000 to 4,000 lb/acre. Wood fiber mulch is manufactured from wood or wood waste from lumber mills or from urban sources.

Hydraulic Matrices: Hydraulic matrices include a mixture of wood fiber and acrylic polymer or other tackifier as binder. Apply as a liquid slurry using a hydraulic application machine (i.e., hydro seeder) at the following minimum rates, or as specified by the manufacturer to achieve complete coverage of the target area: 2,000 to 4,000 lb/acre wood fiber mulch, and 5 to 10% (by weight) of tackifier (acrylic copolymer, guar, psyllium, etc.)

Bonded Fiber Matrix: Bonded fiber matrix (BFM) is a hydraulically applied system of fibers and adhesives that upon drying forms an erosion resistant blanket that promotes vegetation, and prevents soil erosion. BFMs are typically applied at rates from 3,000 lb/acre to 4,000 lb/acre based on the manufacturer's recommendation. A biodegradable BFM is composed of materials that are 100% biodegradable. The binder in the BFM should also be biodegradable and should not dissolve or disperse upon re-wetting. Typically, biodegradable BFMs should not be applied immediately before, during or immediately after rainfall if the soil is saturated. Depending on the product, BFMs typically require 12 to 24 hours to dry and become effective.

Seed Mixtures:

Dates	Climate	Species	(lb/ac.)
Sept. 1 to Nov. 30	Temporary Cool Season	Tall Fescue	4.0
		Oats	21.0
		Wheats	30.0
		Total	**55.0**
Sept. 1 to Nov. 30	Cool Season Legume	Hairy Vetch	8.0
May 1 to Aug. 31	Temporary Warm Season	Foxtail Millet	30.0

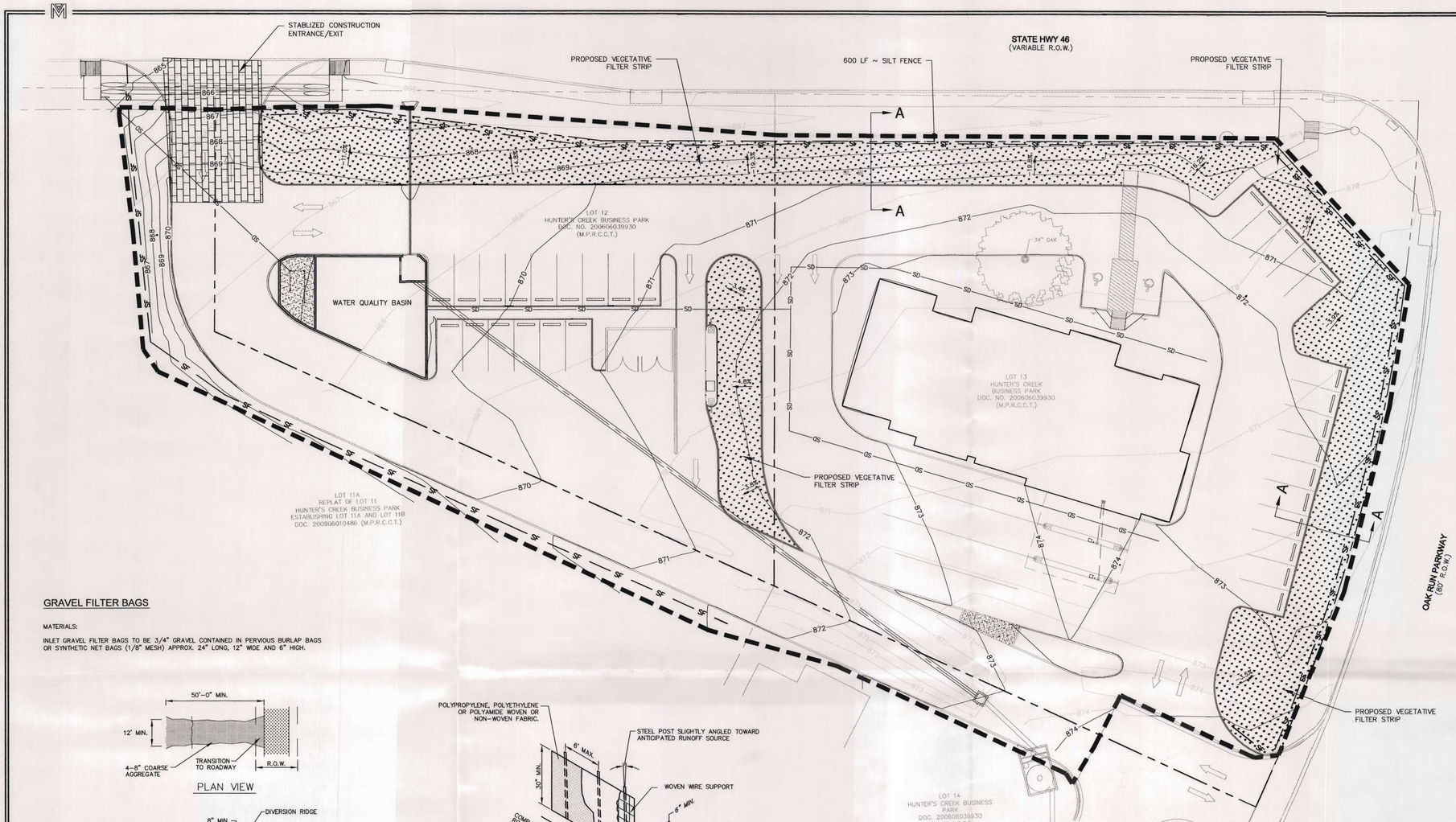
Fertilizer: Fertilizer should be applied at the rate of 40 pounds of nitrogen and 40 pounds of phosphorus per acre, which is equivalent to about 1.0 pounds of nitrogen and phosphorus per 1000 square feet.

Installation:

(1) Prior to application, roughen embankment and fill areas by rolling with a crimping or punching type roller or by track walking. Track walking shall only be used where other methods are impractical.

(2) To be effective, hydraulic matrices require 24 hours to dry before rainfall occurs.

(3) Avoid mulch over spray onto roads, sidewalks, drainage channels, existing vegetation, etc.



SEQUENCE OF CONSTRUCTION:

1. OBTAIN CITY APPROVED SITE PREPARATION PLANS, AND TPDES PERMIT (NOT A COPY OF THE TPDES APPLICATION TO TCEQ), IF APPLICABLE.
2. INSTALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS.
3. SCHEDULE PRE-CON MEETING WITH THE CITY.
4. BEGIN DEMOLITION ACTIVITIES, IF APPLICABLE.
5. BEGIN SITE CLEARING AND GRADING.
6. INSTALL TEMPORARY SEED POND AS APPROPRIATE.
7. RESTORE AND REVEGETATE ALL DISTURBED AREAS NOT UNDER IMPERMEABLE IMPROVEMENTS.
8. COMPLETE ANY REMAINING "PUNCH LIST" ITEMS.
9. CITY OF NEW BRAUNFELS FINAL INSPECTION.
10. CONTRACTOR SHALL REMOVE TEMPORARY EROSION CONTROLS AFTER PERMANENT STABILIZATION IS AT LEAST 70% EVENLY ESTABLISHED. RYE IS NOT ACCEPTED.
11. CITY ISSUES CERTIFICATE OF ACCEPTANCE OR OCCUPANCY.

N

0 20' 40'
SCALE:1"=20'

RECEIVED
OCT 19 2016
COUNTY ENGINEER

LEGEND

- SF — SILT FENCE
- BOUNDARY OF DISTURBED AREA
- 900 — EXISTING CONTOURS
- 900 — PROPOSED CONTOURS
- FLOW ARROWS
- GRAVEL FILTER BAGS (INLET PROTECTION)
- STABILIZED CONSTRUCTION ENTRANCE/EXIT

IMPERVIOUS COVER	
DESCRIPTION	ACRES
TOTAL LAND AREA	1.66
TOTAL IMPERVIOUS AREA	1.28
% IMPERVIOUS	77.1%

SOIL STABILIZATION NOTE

ALL DISTURBED SOILS SHOULD BE SEEDED OR OTHERWISE STABILIZED WITH 14 CALENDAR DAYS AFTER FINAL GRADING OR WHERE CONSTRUCTION ACTIVITY HAS TEMPORARILY CEASED FOR MORE THAN 21 DAYS.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
WATER POLLUTION ABATEMENT PLAN
GENERAL CONSTRUCTION NOTES
EDWARDS AQUIFER PROTECTION PROGRAM CONSTRUCTION NOTES

1. A WRITTEN NOTICE OF CONSTRUCTION MUST BE SUBMITTED TO THE TCEQ REGIONAL OFFICE AT LEAST 48 HOURS PRIOR TO THE START OF ANY REGULATED ACTIVITIES. THIS NOTICE MUST INCLUDE:
   - THE NAME OF THE APPROVED PROJECT;
   - THE ACTIVITY START DATE; AND
   - THE CONTACT INFORMATION OF THE PRIME CONTRACTOR.

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

3. IF ANY SENSITIVE FEATURE(S) (CAVES, SOLUTION CAVITY, SINK HOLE, ETC.) IS DISCOVERED DURING CONSTRUCTION, ALL REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MUST BE SUSPENDED IMMEDIATELY. THE APPROPRIATE TCEQ REGIONAL OFFICE MUST BE IMMEDIATELY NOTIFIED OF ANY SENSITIVE FEATURES ENCOUNTERED DURING CONSTRUCTION. CONSTRUCTION ACTIVITIES MAY NOT BE RESUMED UNTIL THE TCEQ HAS REVIEWED AND APPROVED THE APPROPRIATE PROTECTIVE MEASURES IN ORDER TO PROTECT ANY SENSITIVE FEATURE AND THE EDWARDS AQUIFER FROM POTENTIALLY ADVERSE IMPACTS TO WATER QUALITY.

4. NO TEMPORARY OR PERMANENT HAZARDOUS SUBSTANCE STORAGE TANK SHALL BE INSTALLED WITHIN 150 FEET OF A WATER SUPPLY SOURCE, DISTRIBUTION SYSTEM, WELL, OR SENSITIVE FEATURE.

5. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY, ALL TEMPORARY EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES MUST BE PROPERLY INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE APPROVED PLANS AND MANUFACTURERS SPECIFICATIONS. IF INSPECTIONS INDICATE A CONTROL HAS BEEN USED INAPPROPRIATELY, OR INCORRECTLY, THE APPLICANT MUST REPLACE OR MODIFY THE CONTROL FOR SITE SITUATIONS. THESE CONTROLS MUST REMAIN IN PLACE UNTIL THE DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED.

6. ANY SEDIMENT THAT ESCAPES THE CONSTRUCTION SITE MUST BE COLLECTED AND PROPERLY DISPOSED OF BEFORE THE NEXT RAIN EVENT TO ENSURE IT IS NOT WASHED INTO SURFACE STREAMS, SENSITIVE FEATURES, ETC.

7. SEDIMENT MUST BE REMOVED FROM THE SEDIMENT TRAPS OR SEDIMENTATION BASINS NOT LATER THAN TCEQ-0592 (REV. JULY 15, 2015) PAGE 2 OF 2
WHEN IT OCCUPIES 50% OF THE BASIN'S DESIGN CAPACITY.

8. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS EXPOSED TO STORMWATER SHALL BE PREVENTED FROM BEING DISCHARGED OFFSITE.

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

10. IF PORTIONS OF THE SITE WILL HAVE A TEMPORARY OR PERMANENT CEASE IN CONSTRUCTION ACTIVITY LASTING LONGER THAN 14 DAYS, SOIL STABILIZATION IN THOSE AREAS SHALL BE INITIATED AS SOON AS POSSIBLE PRIOR TO THE 14TH DAY OF INACTIVITY. IF ACTIVITY WILL RESUME PRIOR TO THE 21ST DAY, STABILIZATION MEASURES ARE NOT REQUIRED. IF DROUGHT CONDITIONS OR INCLEMENT WEATHER PREVENT ACTION BY THE 14TH DAY, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS POSSIBLE.

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

12. THE HOLDER OF ANY APPROVED EDWARD AQUIFER PROTECTION PLAN MUST NOTIFY THE APPROPRIATE REGIONAL OFFICE IN WRITING AND OBTAIN APPROVAL FROM THE EXECUTIVE DIRECTOR PRIOR TO INITIATING ANY OF THE FOLLOWING:
   A. ANY PHYSICAL OR OPERATIONAL MODIFICATION OF ANY WATER POLLUTION ABATEMENT STRUCTURE(S), INCLUDING BUT NOT LIMITED TO PONDS, DAMS, BERMS, SEWAGE TREATMENT PLANTS, AND DIVERSIONARY STRUCTURES;
   B. ANY CHANGE IN THE NATURE OR CHARACTER OF THE REGULATED ACTIVITY FROM THAT WHICH WAS ORIGINALLY APPROVED OR A CHANGE WHICH WOULD SIGNIFICANTLY IMPACT THE ABILITY OF THE PLAN TO PREVENT POLLUTION OF THE EDWARDS AQUIFER;
   C. ANY DEVELOPMENT OF LAND PREVIOUSLY IDENTIFIED AS UNDEVELOPED IN THE ORIGINAL WATER POLLUTION ABATEMENT PLAN.

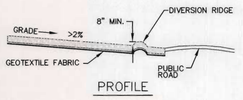
AUSTIN REGIONAL OFFICE	SAN ANTONIO REGIONAL OFFICE
12100 PARK 35 CIRCLE, BUILDING A AUSTIN, TEXAS 78753-1808 PHONE (512) 339-2929 FAX (512) 339-3795	14250 JUDSON ROAD SAN ANTONIO, TEXAS 78233-4480 PHONE (210) 490-3096 FAX (210) 545-4329

GRAVEL FILTER BAGS

MATERIALS:

INLET GRAVEL FILTER BAGS TO BE 3/4" GRAVEL CONTAINED IN PERVIOUS BURLAP BAGS OR SYNTHETIC NET BAGS (1/8" MESH) APPROX. 24" LONG, 12" WIDE AND 6" HIGH.

PLAN VIEW



PROFILE

STABILIZED CONSTRUCTION ENTRANCE / EXIT

MATERIALS:

(1) THE AGGREGATE SHOULD CONSIST OF 4 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/YD2, A MULLEN BURST RATING OF 140 LB/IN2, 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 RACK 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 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.

INSPECTION AND MAINTENANCE GUIDELINES:

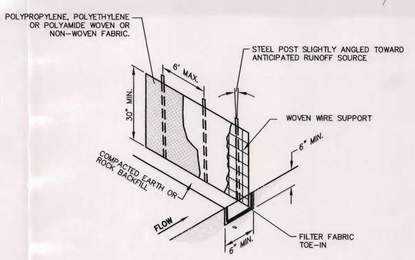
(1) THE ENTRANCE SHOULD BE MAINTAINED IN A CONDITION, WHICH WILL PREVENT TRACKING OR LOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

(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.



SILT FENCE

MATERIALS:

(1) SILT FENCE MATERIAL SHOULD BE POLYPROPYLENE, POLYETHYLENE OR POLYAMIDE WOVEN OR NONWOVEN FABRIC. THE FABRIC WIDTH 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 NO. 30.

(2) FENCE POSTS SHOULD BE MADE OF HOT ROLLED STEEL. AT LEAST 4 FEET LONG WITH TEE OR YBAR CROSS SECTION, SURFACE PAINTED OR GALVANIZED, MINIMUM NOMINAL WEIGHT 1.25 LB/FT2, 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. POST 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.

INSPECTION AND MAINTENANCE GUIDELINES:

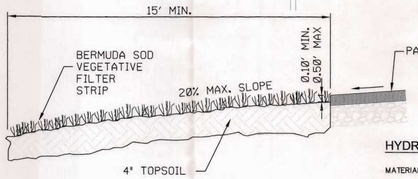
(1) INSPECT ALL FENCING WEEKLY, AND AFTER ANY RAINFALL.

(2) REMOVE SEDIMENT WHEN BUILDUP REACHES 6 INCHES.

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

(4) REPLACE OR REPAIR ANY 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.



SECTION A-A
VEGETATIVE FILTER STRIP

HYDRAULIC MULCH

MATERIALS:

HYDRAULIC MULCHES: WOOD FIBER MULCH CAN BE APPLIED ALONE OR AS A COMPONENT OF HYDRAULIC MATRICES. WOOD FIBER APPLIED ALONE IS TYPICALLY APPLIED AT THE RATE OF 2,000 TO 4,000 LB/ACRE. WOOD FIBER MULCH IS MANUFACTURED FROM WOOD OR WOOD WASTE FROM LUMBER MILLS OR FROM URBAN SOURCES.

HYDRAULIC MATRICES: HYDRAULIC MATRICES INCLUDE A MIXTURE OF WOOD FIBER AND ACRYLIC POLYMER OR OTHER TACKIFIER AS BINDER. APPLY AS A LIQUID SLURRY USING A HYDRAULIC APPLICATION MACHINE (I.E., HYDRO SEEDER) AT THE FOLLOWING MINIMUM RATES, OR AS SPECIFIED BY THE MANUFACTURER TO ACHIEVE COMPLETE COVERAGE OF THE TARGET AREA: 2,000 TO 4,000 LB/ACRE WOOD FIBER MULCH, AND 5 TO 10% (BY WEIGHT) OF TACKIFIER (ACRYLIC COPOLYMER, GUAR, PSYLLIUM, ETC.)

BONDED FIBER MATRIX: BONDED FIBER MATRIX (BFM) IS A HYDRAULICALLY APPLIED SYSTEM OF FIBERS AND ADHESIVES THAT UPON DRYING FORMS AN EROSION RESISTANT BLANKET THAT PROMOTES VEGETATION, AND PREVENTS SOIL EROSION. BFMS ARE TYPICALLY APPLIED AT RATES FROM 3,000 LB/ACRE TO 4,000 LB/ACRE BASED ON THE MANUFACTURER'S RECOMMENDATION. A BIODEGRADABLE BFM IS COMPOSED OF MATERIALS THAT ARE 100% BIODEGRADABLE. THE BINDER IN THE BFM SHOULD ALSO BE BIODEGRADABLE AND SHOULD NOT DISSOLVE OR DISPERSE UPON RE-WETTING. TYPICALLY, BIODEGRADABLE BFMS SHOULD NOT BE APPLIED IMMEDIATELY BEFORE, DURING OR IMMEDIATELY AFTER RAINFALL IF THE SOIL IS SATURATED. DEPENDING ON THE PRODUCT, BFMS TYPICALLY REQUIRE 12 TO 24 HOURS TO DRY AND BECOME EFFECTIVE.

INSTALLATION:

1. PRIOR TO APPLICATION, ROUGHEN EMBANKMENT AND FILL AREAS BY ROLLING WITH A CRIMPING OR PUNCHING TYPE ROLLER OR BY TRACK WALKING. TRACK WALKING SHALL ONLY BE USED WHERE OTHER METHODS ARE IMPRACTICAL.
2. TO BE EFFECTIVE, HYDRAULIC MATRICES REQUIRE 24 HOURS TO DRY BEFORE RAINFALL OCCURS.
3. AVOID MULCH OVER SPRAY ONTO ROADS, SIDEWALKS, DRAINAGE CHANNELS, EXISTING VEGETATION, ETC.
4. 4" OF TOP SOIL SHALL BE PLACED.

INSPECTION AND MAINTENANCE GUIDELINES:

1. MULCHED AREAS SHOULD BE INSPECTED WEEKLY AND AFTER EACH RAIN EVENT TO LOCATE AND REPAIR ANY DAMAGE.
2. AREAS DAMAGED BY STORMS OR NORMAL CONSTRUCTION ACTIVITIES SHOULD BE REGRADED AND HYDRAULIC MULCH REAPPLIED AS SOON AS PRACTICAL.

811 Know what's below. Call before you dig.

STATE OF TEXAS
SHANE KLAR
115810
LICENSED PROFESSIONAL ENGINEER
10/13/16

NO	DATE	ISSUES AND REVISIONS

MOELLER & ASSOCIATES Engineering Solutions
2021 W. SH46, STE. 105, NEW BRAUNFELS, TX. 78132
PH: 830-387-0777 www.moeller-tx.com
TBPE FIRM F-13351

WPAP SITE PLAN
EROSION CONTROL
REVIEW SET

PROSPERITY BANK SH 46
NEW BRAUNFELS, TX 78132

SHEET 3 OF 6

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.

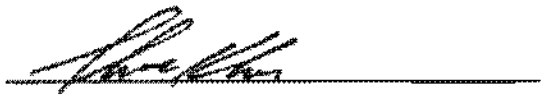
Signature

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: Shane Klar, P.E.

Date: 10/13/2016

Signature of Customer/Agent



Regulated Entity Name: Prosperity Bank New Braunfels

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 "A"
20% or Less Impervious Cover Waiver

The proposed development is a bank building and the 20% Impervious Cover Waiver does not apply. Permanent BMP's will be designed in accordance with TCEQ requirements for the removal of TSS generated by the proposed development.

ATTACHMENT "B"
BMP's for Upgradient Stormwater

There is no proposed upgradient storm water flow across the site.

ATTACHMENT "C"
BMP's for On-Site Stormwater

The permanent BMP's used to treat on-site stormwater runoff will be Sand Filter Basin and Vegetative Filter Strips. Please refer to the Drainage Area Map in the Temporary Stormwater Section for areas of treatment and BMP structures used.

ATTACHMENT "D"
BMP's for Surface Streams

The Sand Filter Basin and Vegetative Filter Strips will be installed to prevent pollutants from entering surface streams and, ultimately, the aquifer. There were no sensitive features identified by the Geological Assessment.

The natural vegetation located downgradient of proposed improvements will provide additional filtration to help prevent pollution from entering streams, sensitive features, and the aquifer.

ATTACHMENT "G"
Inspection, Maintenance, Repair, and Retrofit Plan

Sand Filter Systems Maintenance and Monitoring Procedures

- *Inspections.* BMP facilities must be inspected at least twice a year (once during or immediately following wet weather) to evaluate facility operation. During each inspection, erosion areas inside and downstream of the BMP must be identified and repaired or revegetated immediately. With each inspection, any damage to the structural elements of the system (pipes, concrete drainage structures, retaining walls, etc.) must be identified and repaired immediately. Cracks, voids and undermining should be patched/filled to prevent additional structural damage. Trees and root systems should be removed to prevent growth in cracks and joints that can cause structural damage.

- *Sediment Removal.* Remove sediment from the inlet structure and sedimentation chamber when sediment buildup reaches a depth of 6 inches or when the proper functioning of inlet and outlet structures is impaired. Sediment should be cleared from the inlet structure at least every year and from the sedimentation basin at least every 5 years.

- *Media Replacement.* Maintenance of the filter media is necessary when the drawdown time exceeds 48 hours. When this occurs, the upper layer of sand should be removed and replaced with new material meeting the original specifications. Any discolored sand should also be removed and replaced. In filters that have been regularly maintained, this should be limited to the top 2 to 3 inches.

- *Debris and Litter Removal.* Debris and litter will accumulate near the sedimentation basin outlet device and should be removed during regular mowing operations and inspections. Particular attention should be paid to floating debris that can eventually clog the control device or riser.

- *Filter Underdrain.* Clean underdrain piping network to remove any sediment buildup as needed to maintain design drawdown time.

- *Mowing.* Grass areas in and around sand filters must be mowed at least twice annually to limit vegetation height to 18 inches. More frequent mowing to maintain aesthetic appeal may be necessary in landscaped areas. Vegetation on the pond embankments should be mowed as appropriate to prevent the establishment of woody vegetation.

Vegetative Filter Strips Maintenance and Monitoring Procedures

- *Pest Management* - An Integrated Pest Management (IPM) Plan should be developed for vegetated areas. This plan should specify how problem insects and weeds will be controlled with minimal or no use of insecticides and herbicides.

- *Seasonal Mowing and Lawn Care* - If the filter strip is made up of turf grass, it should be mowed as needed to limit vegetation height to 18 inches, using a mulching mower (or removal of clippings). If native grasses are used, the filter may require less frequent mowing, but a minimum of twice annually. Grass clippings and brush debris should not be deposited on vegetated filter strip areas. Regular mowing should also include weed control practices, however herbicide use should be kept to a minimum (Urbonas et al., 1992). Healthy grass can be maintained without using fertilizers because runoff usually contains sufficient nutrients. Irrigation of the site can help assure a dense and healthy vegetative cover.

- *Inspection* - Inspect filter strips at least twice annually for erosion or damage to vegetation; however, additional inspection after periods of heavy runoff is most

desirable. The strip should be checked for uniformity of grass cover, debris and litter, and areas of sediment accumulation. More frequent inspections of the grass cover during the first few years after establishment will help to determine if any problems are developing, and to plan for long-term restorative maintenance needs. Bare spots and areas of erosion identified during semi-annual inspections must be replanted and restored to meet specifications. Construction of a level spreader device may be necessary to reestablish shallow overland flow.

- *Debris and Litter Removal* - Trash tends to accumulate in vegetated areas, particularly along highways. Any filter strip structures (i.e. level spreaders) should be kept free of obstructions to reduce floatables being flushed downstream, and for aesthetic reasons. The need for this practice is determined through periodic inspection, but should be performed no less than 4 times per year.

- *Sediment Removal* - Sediment removal is not normally required in filter strips, since the vegetation normally grows through it and binds it to the soil. However, sediment may accumulate along the upstream boundary of the strip preventing uniform overland flow. Excess sediment should be removed by hand or with flat-bottomed shovels.

- *Grass Reseeding and Mulching* - A healthy dense grass should be maintained on the filter strip. If areas are eroded, they should be filled, compacted, and reseeded so that the final grade is level. Grass damaged during the sediment removal process should be promptly replaced using the same seed mix used during filter strip establishment. If possible, flow should be diverted from the damaged areas until the grass is firmly established. Bare spots and areas of erosion identified during semi-annual inspections must be replanted and restored to meet specifications. Corrective maintenance, such as weeding or replanting should be done more frequently in the first two to three years after installation to ensure stabilization. Dense vegetation may require irrigation immediately after planting, and during particularly dry periods, particularly as the vegetation is initially established.

ATTACHMENT "I"
Measures for Minimizing Surface Stream Contamination

All surface streams will be protected from erosion by not allowing runoff to exceed existing velocities. The stormwater runoff for the property will be directed into the San Filter Basin and Vegetative Filter Strips where the pollutants will be removed.

Attachment "G"

Maintenance Plan for Vegetative Filter Strips

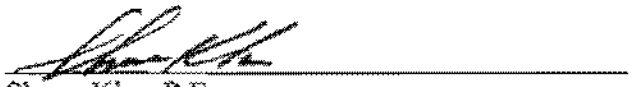
Location:	The vegetative filter strips will be located as shown in the plans attached to this permit.
Owner:	Prosperity Bank 900 Congress Avenue Austin, TX 78701 Phone: (512) 472-5433

The Vegetative Filter Strip Maintenance and Monitoring Procedures will be implemented to ensure that the proposed BMP functions as designed.

James Long
Prosperity Bank

10/13/16
Date

I have reviewed the attached maintenance and monitoring procedures and to the best of my knowledge certify that, if they are followed as outlined, the Vegetative Filter Strips will function as designed.



Shane Klar, P.E.

Attachment "G"

Maintenance Plan for Sand Filtration Basin

Location: The sand filtration basin will be located as shown in the plans attached to this permit.

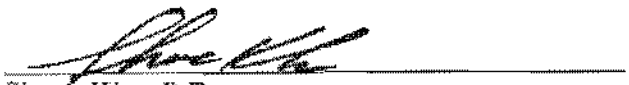
Owner: Prosperity Bank
900 Congress Avenue
Austin, TX 78701
Phone: (512) 472-5433

Sand Filtration Basin Maintenance and Monitoring Procedures will be implemented to ensure that the proposed BMP functions as designed.

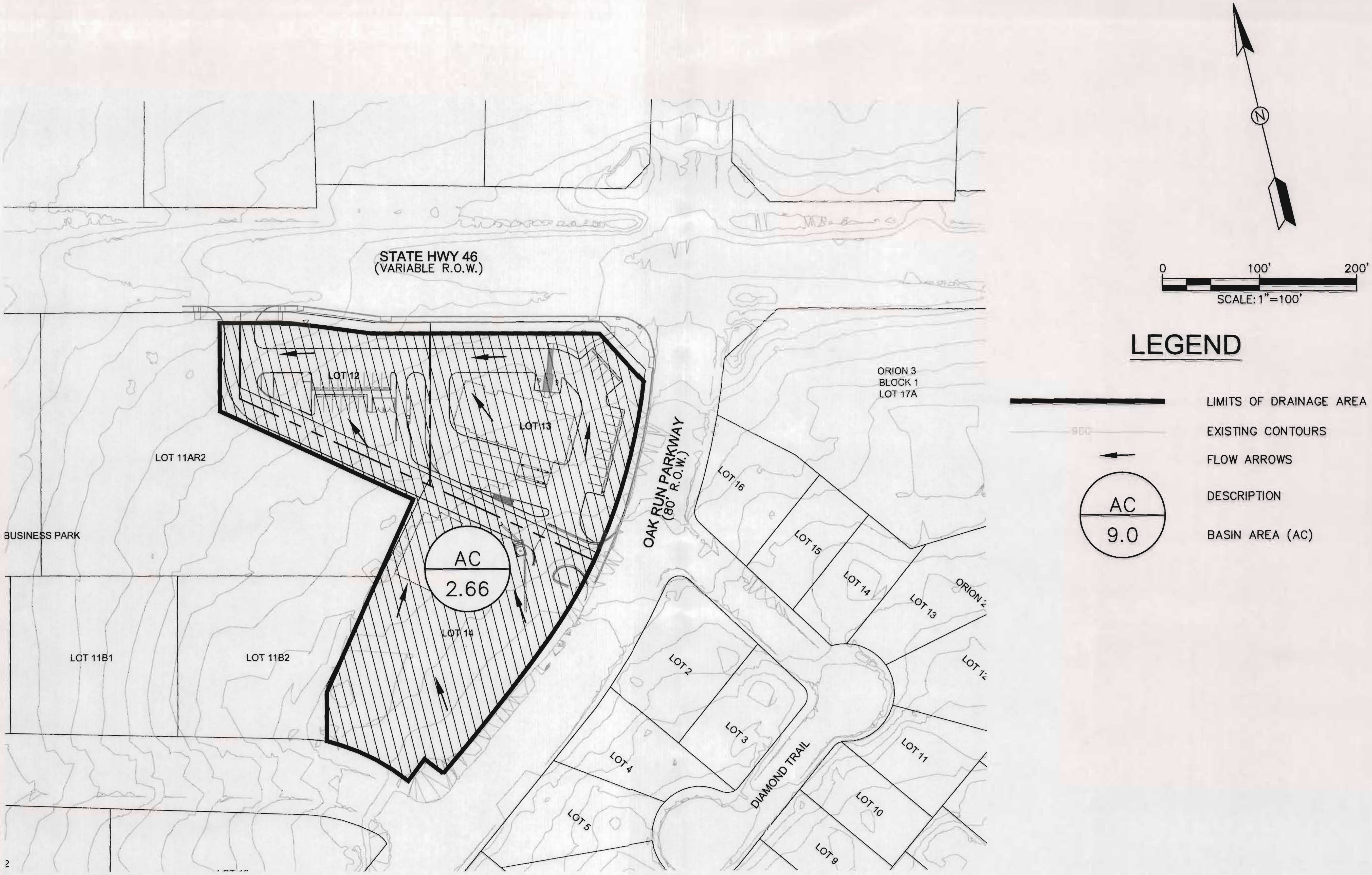
James Long
Prosperity Bank

10/13/16
Date

I have reviewed the attached maintenance and monitoring procedures and to the best of my knowledge certify that, if they are followed as outlined, the Sand Filtration Basin will function as designed.



Shane Klar, P.E.



811
Know what's below. Call before you dig.

ISSUES AND REVISIONS

NO	DATE	

MOELLER & ASSOCIATES
Engineering Solutions
1040 N. WALNUT AVE., STE B, NEW BRAUNFELS, TX 78130
PH: 830-358-7127 www.mm-tx.com
TBPE FIRM F-13351

DRAINAGE AREA EXHIBIT

PROSPERITY BANK SH 46

NEW BRAUNFELS, TX 78132

SHEET
1

TSS REMOVAL CALCULATIONS/PERMANENT BMP DESIGN

FOR

PROSPERITY BANK NEW BRAUNFELS

PREPARED BY

MOELLER & ASSOCIATES
Engineering Solutions

F-13351

Shane Klar, P.E.
2021 SH 46W., Ste 105
New Braunfels, TX 78130

Prepared
October 13, 2016

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Additional information is provided for cells with a red triangle in the upper right corn
Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG
Characters shown in red are data entry fields.
Characters shown in black (Bold) are calculated fields. Changes to these fields will

1. The Required Load Reduction for the total project: Calculations from RG-348

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

where:

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resul
A_N = Net increase in impervious a
P = Average annual precipitation

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

County =	Comal	
Total project area included in plan * =	1.58	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	1.28	acres
Total post-development impervious cover fraction * =	0.81	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	1149	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. = 1

Total drainage basin/outfall area =	0.54	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.49	acres
Post-development impervious fraction within drainage basin/outfall area =	0.91	
$L_{M\ THIS\ BASIN}$ =	440	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	Sand Filter	
Removal efficiency =	89	percent

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

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

where:

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

A_C =	0.54	acres
A_I =	0.49	acres
A_P =	0.05	acres
L_R =	499	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	440	lbs.
F =	0.88	

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

Rainfall Depth =	1.50	inches
Post Development Runoff Coefficient =	0.74	
On-site Water Quality Volume =	2178	cubic feet

Calculations from RG-348

Off-site area draining to BMP =		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 =	**436**	
Total Capture Volume (required water quality volume(s) x 1.20) =	**2614**	cubic feet

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

7. Retention/Irrigation System — Designed as Required in RG

Required Water Quality Volume for retention basin =	**NA**	cubic feet

Irrigation Area Calculations:

Soil infiltration/permeability rate =	**0.1**	in/hr
Irrigation area =	**NA**	square feet
	NA	acres

8. Extended Detention Basin System — Designed as Required in RG

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

9. Filter area for Sand Filters — Designed as Required in RG

9A. Full Sedimentation and Filtration System

Water Quality Volume for sedimentation basin =	**2614**	cubic feet
Minimum filter basin area =	**121**	square feet
Maximum sedimentation basin area =	**1089**	square feet
Minimum sedimentation basin area =	**272**	square feet

9B. Partial Sedimentation and Filtration System

Water Quality Volume for combined basins =	**2614**	cubic feet
Minimum filter basin area =	**218**	square feet
Maximum sedimentation basin area =	**871**	square feet
Minimum sedimentation basin area =	**54**	square feet

10. Bioretention System — Designed as Required in RG

Required Water Quality Volume for Bioretention Basin =	**NA**	cubic feet

11. Wet Basins — Designed as Required in RG

Required capacity of Permanent Pool =	**NA**	cubic feet

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Additional information is provided for cells with a red triangle in the upper right corn
Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG
Characters shown in red are data entry fields.
Characters shown in black (Bold) are calculated fields. Changes to these fields will

1. The Required Load Reduction for the total project: Calculations from RG-348

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

where:

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resul
A_N = Net increase in impervious a
P = Average annual precipitation

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

County =	Comal	
Total project area included in plan * =	1.58	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	1.28	acres
Total post-development impervious cover fraction * =	0.81	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	1149	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. = 2

Total drainage basin/outfall area =	1.04	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.79	acres
Post-development impervious fraction within drainage basin/outfall area =	0.76	
$L_{M\ THIS\ BASIN}$ =	709	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Vegetated Filter Strips
Removal efficiency = 85 percent

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

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

where:

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

A_C =	1.04	acres
A_I =	0.79	acres
A_P =	0.25	acres
L_R =	771	lbs

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

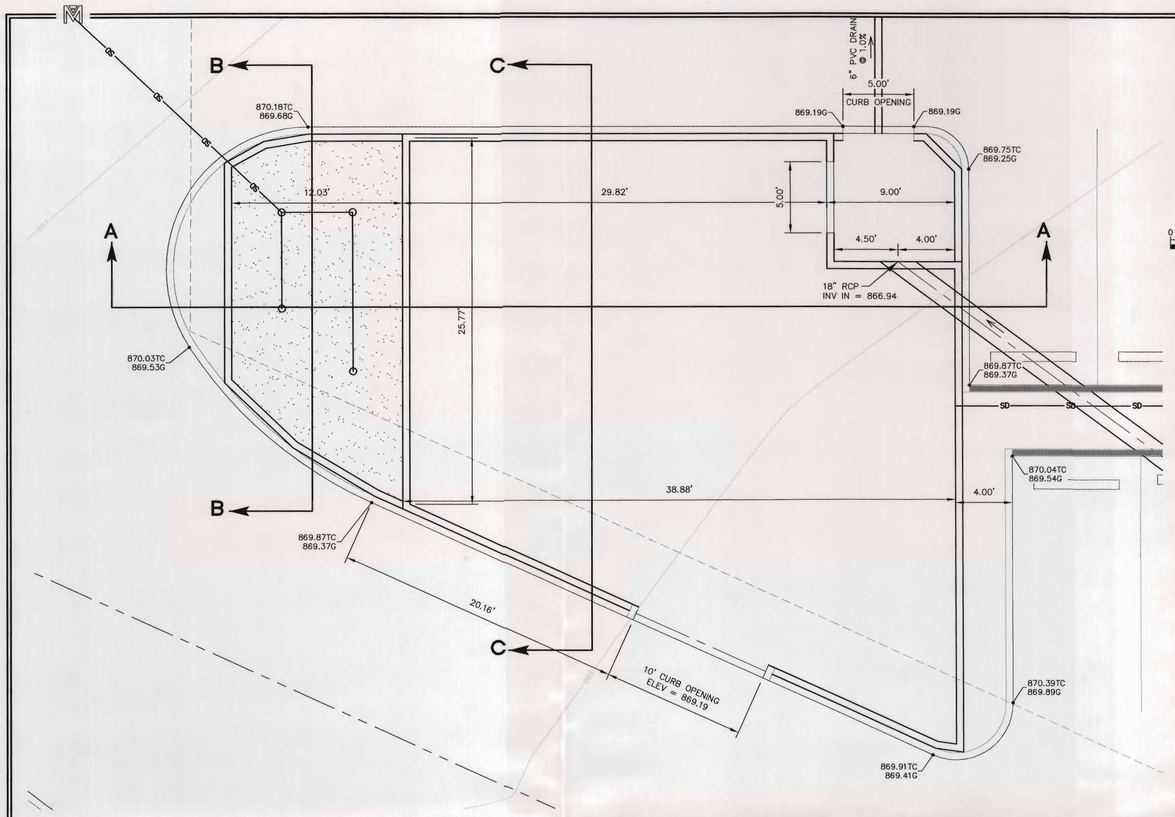
Desired $L_{M\ THIS\ BASIN}$ =	709	lbs.
F =	0.92	

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

Rainfall Depth =	2.00	inches
Post Development Runoff Coefficient =	0.57	
On-site Water Quality Volume =	4315	cubic feet

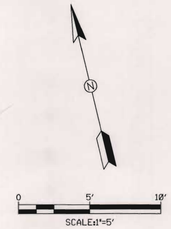
Calculations from RG-348

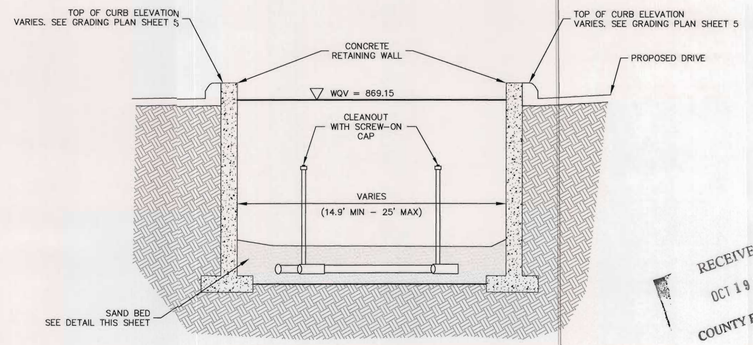
Off-site area draining to BMP =		acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0	
Off-site Runoff Coefficient =	0.00	
Off-site Water Quality Volume =	0	cubic feet



1 Plan View

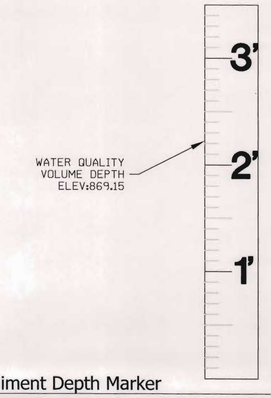
Scale: 1" = 5'





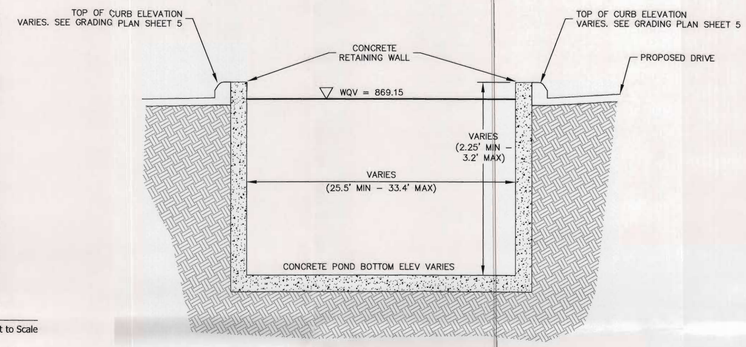
3 Section B-B

Not to Scale



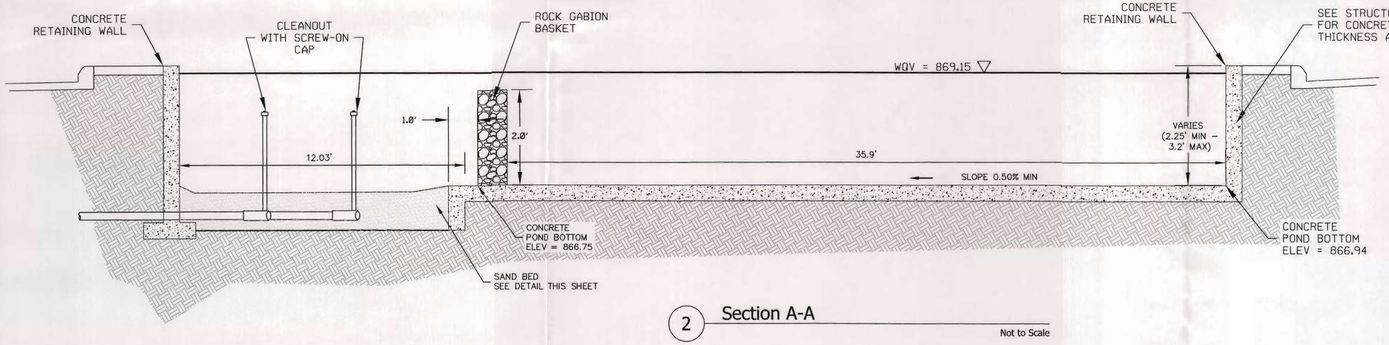
6 Sediment Depth Marker

Not to Scale



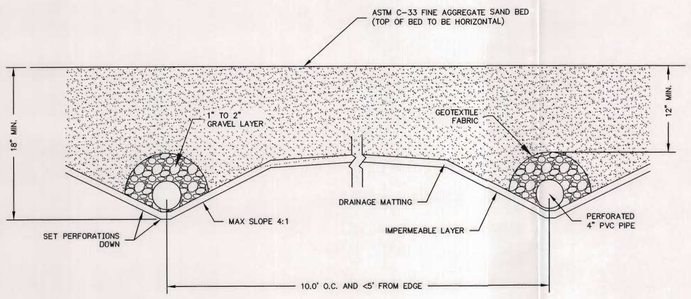
4 Section C-C

Not to Scale



2 Section A-A

Not to Scale

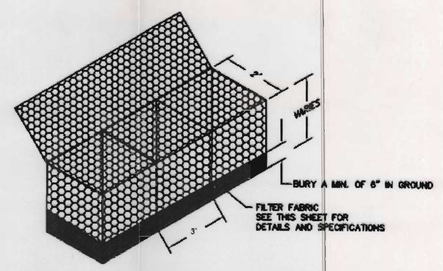


5 SAND BED DETAIL

Not to Scale

•NOTE: ALL CLEANOUTS TO HAVE SCREW-ON CAPS

REQUIRED POND VOLUME	=	2,614 CF
AVAILABLE POND VOLUME	=	2,718 CF
REQUIRED FILTER AREA	=	218 SF
PROPOSED FILTER AREA	=	257 SF



GABION BASKET DETAIL

SCALE: NTS

1. STONE
   STONE FILL MATERIAL SHALL CONSIST OF HARD, DURABLE, CLEAN STONE OF THE SIZE INDICATED, 6 TO 9 INCHES IN SIZE OR AS APPROVED BY THE ENGINEER AND RESISTANT TO THE ACTION OF AIR AND WATER AND SUITABLE IN ALL RESPECTS FOR THE PURPOSE INTENDED.
2. WIRE CONTAINERS
   WIRE MESH SHALL CONSIST OF PLASTIC COATED (P.V.C.) GALVANIZED WIRE 0.120 INCH IN DIAMETER MINIMUM AND SHALL EQUAL OR EXCEED FEDERAL SPECIFICATION QQ-W-461G, CLASS 3 UNLESS OTHERWISE INDICATED. OPENING OF THE MESH SHALL NOT EXCEED APPROXIMATELY 4 INCHES IN THE LONGEST DIMENSION. THE WIRE MESH IS TO BE FABRICATED IN SUCH MANNER AS TO BE NONRAVELING. TIE AND CONNECTING WIRE SHALL BE OF THE SAME TYPE AND SIZE AS THE BASKETS AND SHALL BE SUPPLIED IN SUFFICIENT QUANTITY FOR SECURELY FASTENING ALL EDGES OF THE GABION AND DIAPHRAGMS.
3. FILTER FABRIC
   FILTER FABRIC SHALL BE NON-BIODEGRADABLE ULTRAVIOLET STABILIZED, INERT TO MOST SOIL CHEMICALS, UNAFFECTED BY MOISTURE WHICH ALLOWS WATER TO PASS THROUGH WHILE RETAINING SOIL PARTICLES AND SHALL CONFORM TO ITEM NO. 620, "FILTER FABRIC".

811 Know what's below. Call before you dig.

STATE OF TEXAS
SHANE KLAR
115810
LICENSED PROFESSIONAL ENGINEER
10/13/16

RECEIVED
OCT 19 2016
COUNTY ENGINEER

NO	DATE	ISSUES AND REVISIONS
1		

MOELLER & ASSOCIATES Engineering Solutions
2021 W SH46, STE 105, NEW BRAUNFELS, TX 78132
PH: 830-358-7127 www.mo-tx.com
TBPE FIRM F-13351

WATER QUALITY BASIN

REVIEW SET

PROSPERITY BANK SH 46

NEW BRAUNFELS, TX 78132

SHEET 6 OF 6

Drawing Name: N:\Projects\PROS201.101 Prosperity Bank SH 46\Civil\Construction Drawings\8 - WATER QUALITY BASIN & DETAILS.dwg User: bbiscoglosano Oct 13, 2016 - 10:22am

PROSPERITY BANK®

RECEIVED
OCT 19 2016
COUNTY ENGINEER

October 14, 2016

Alex D. Grant
Texas Commission on Environmental Quality
Edwards Aquifer Protection Program
TCEQ – San Antonio Region
14250 Judson Road
San Antonio, TX 78233

Re: Prosperity Bank WPAP

Dear Mr. Grant,
Please accept this letter as confirmation that James Long holds the position of Senior Vice President with Prosperity Bank and Is fully authorized to execute all documents related to the WPAP. If you have any questions or need additional information, please don't hesitate to contact me at (512) 236-2610.

Thank you very much for your assistance.

Best regards,

Charles W. Bray
Area President

PROSPERITY BANK

Certified Copy of Excerpt of Board Minutes

I hereby certify the following is a true and correct excerpt of the Board Minutes from a meeting held on January 19, 2016:

RESOLVED, That for the purpose of conducting the regular business of the Bank, the Senior Chairman, Chairman, Vice Chairman, CEO, any President, Chief Financial Officer, Chief Lending Officer, Chief Credit Officer, General Counsel, any Vice President, or Cashier are hereby authorized to sign documents on behalf of the Bank including Letters of Credit.

I hereby certify above excerpt has not been rescinded or modified in any manner.

Date: February 4, 2016

PROSPERITY BANK

denise Urbanovsky, Secretary

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

I **James Long**,
Print Name

Banking Center President,
Title - Owner/President/Other

of **Prosperity Bank**,
Corporation/Partnership/Entity Name

have authorized **Shane Klar, P.E.**
Print Name of Agent/Engineer

of **Moeller & Associates**
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 applicants 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.

Applicant's Signature — Date: 10/13/16

THE STATE OF Texas §

County of Comal §

BEFORE ME, the undersigned authority, on this day personally appeared James Long 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 13th day of October, 2016

KELLY K. PAPE
Notary Public, State of Texas
Comm. Expires 09-16-2019
Notary ID 12395344-5

NOTARY PUBLIC

Kelly K. Pape
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 9/16/19

Application Fee Form

Texas Commission on Environmental Quality

Name of Proposed Regulated Entity: Prosperity Bank New Braunfels

Regulated Entity Location: 900 Congress Ave., Austin, TX 78701

Name of Customer: Prosperity Bank

Contact Person: Shane Klar, P.E. (Agent) Phone: 830-358-7127

Customer Reference Number (if issued):CN _____

Regulated Entity Reference Number (if issued):RN _____

Austin Regional Office (3373)

☐ Hays ☐ Travis ☐ Williamson

San Antonio Regional Office (3362)

☐ Bexar ☐ Medina ☐ Uvalde

☒ Comal ☐ Kinney

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

☐ Austin Regional Office

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

☒ San Antonio Regional Office

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

Site Location (Check All That Apply):

☒ Recharge Zone ☐ Contributing Zone ☐ Transition Zone

Type of Plan	***Size***	***Fee Due***
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	1.58 Acres	$ 4,000
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: 10/13/2016

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

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		RN

SECTION II: Customer Information

4. General Customer Information	5. Effective Date for Customer Information Updates (mm/dd/yyyy)	10/13/2016

☒ 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: e.g.: Doe, John)	If new Customer, enter previous Customer below:
Prosperity Bank	

7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number (if applicable)
0000239001	17421395165	74-213951	

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:	900 Congress Avenue						
	City	Austin	State	TX	ZIP	78701	ZIP + 4	2437

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

18. Telephone Number	19. Extension or Code	20. Fax Number (if applicable)
(512) 472 - 5433		(512) 236 - 2632

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.)

Property Bank New Braunfels

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

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:	The lot is located within the New Braunfels city limits on the southwest corner of the intersection at SH 46 and Oak Run Parkway

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

27. Latitude (N) In Decimal:	29.719679		28. Longitude (W) In Decimal:	-98.166978	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
29	43	10.8444	-98	10	1.1208

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)
6021	6111	521110	522110

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

Bank

34. Mailing Address:	900 Congress Avenue						
	City		State		ZIP		ZIP + 4	
35. E-Mail Address:							

36. Telephone Number	37. Extension or Code	38. Fax Number (if applicable)
(512) 472 - 5433		(512) 236 - 2632

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.

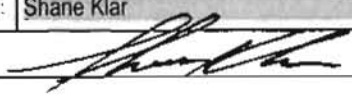
☐ Dam Safety	☐ Districts	☒ Edwards Aquifer	☐ Emissions Inventory Air	☐ Industrial Hazardous Waste
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☐ Waste Water	☐ Wastewater Agriculture	☐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

SECTION IV: Preparer Information

40. Name:	Shane Klar, P.E.		41. Title: Authorized Agent
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(830) 358 - 7127		(830) 515 - 5611	shaneklar@ma-tx.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:	MOeller & Associates	Job Title:	Engineer
Name(*In Print*):	Shane Klar	Phone:	(830) 358 - 7127
Signature:		Date:	10/13/16

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

October 6, 2016

Mr. Charlie Hill
DHJB Development, LLC
102A Cordillera Ridge
Boerne, Texas 78006

Re: Edwards Aquifer, Comal County

NAME OF PROJECT: Johnson Ranch; Located on the northeast corner of the intersection of US 281 and FM 1863; Bulverde, Texas

TYPE OF PLAN: Request for Modification of an Approved Water Pollution Abatement Plan (WPAP); 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer

Regulated Entity No. RN105332522; Additional ID No. 13000114

Dear Mr. Hill:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAP modification for the above-referenced project submitted to the San Antonio Regional Office by Bowman Consulting on behalf of DHJB Development, LLC on March 29, 2016. Final review of the WPAP was completed after additional material was received on June 22, 2016, July 25, 2016, August 19, 2016, and August 29, 2016. As presented to the TCEQ, the Temporary and Permanent Best Management Practices (BMPs) were selected and construction plans were prepared by a Texas Licensed Professional Engineer to be in general compliance with the requirements of 30 TAC Chapter 213. These planning materials were sealed, signed and dated by a Texas Licensed Professional Engineer. Therefore, based on the engineer's concurrence of compliance, the planning materials for construction of the proposed project and pollution abatement measures are hereby approved subject to applicable state rules and the conditions in this letter. The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Edwards Aquifer Protection Plan. A motion for reconsideration must be filed no later than 23 days after the date of this approval letter. *This approval expires two (2) years from the date of this letter unless, prior to the expiration date, more than 10 percent of the construction has commenced on the project or an extension of time has been requested.*

BACKGROUND

The original Johnson Ranch project was approved by letter dated October 24, 2007 for a 751.3 acre site. The project included the construction of a main collector road, residential streets, and 12 single family lots. The impervious cover was to be 4.44 acres (0.59 percent).

V. Since constructed facilities exist in Unit 1, Phases 1 and 2, this separate WPAP application must be submitted to the TCEQ, San Antonio Regional Office, within 90 days of the date of this approval letter.

VI. Upon approval of the application for Unit 1, Phases 1 and 2 (except for 12 lots), measures must be implemented and functional prior to occupancy of any structures within the modified 249.18 acre Johnson Ranch site.

STANDARD CONDITIONS

1. Pursuant to Chapter 7 Subchapter C of the Texas Water Code, any violations of the requirements in 30 TAC Chapter 213 may result in administrative penalties.
2. The holder of the approved Edwards Aquifer protection plan must comply with all provisions of 30 TAC Chapter 213 and all best management practices and measures contained in the approved plan. Additional and separate approvals, permits, registrations and/or authorizations from other TCEQ Programs (i.e., Stormwater, Water Rights, UIC) can be required depending on the specifics of the plan.
3. In addition to the rules of the Commission, the applicant may also be required to comply with state and local ordinances and regulations providing for the protection of water quality.

Prior to Commencement of Construction:

4. Within 60 days of receiving written approval of an Edwards Aquifer Protection Plan, the applicant must submit to the San Antonio Regional Office, proof of recordation of notice in the county deed records, with the volume and page number(s) of the county deed records of the county in which the property is located. A description of the property boundaries shall be included in the deed recordation in the county deed records. A suggested form (Deed Recordation Affidavit, TCEQ-0625) that you may use to deed record the approved WPAP is enclosed.
5. All contractors conducting regulated activities at the referenced project location shall be provided a copy of this notice of approval. At least one complete copy of the approved WPAP and this notice of approval shall be maintained at the project location until all regulated activities are completed.
6. Modification to the activities described in the referenced WPAP application following the date of approval may require the submittal of a plan to modify this approval, including the payment of appropriate fees and all information necessary for its review and approval prior to initiating construction of the modifications.
7. The applicant must provide written notification of intent to commence construction, replacement, or rehabilitation of the referenced project. Notification must be submitted to the San Antonio Regional Office no later than 48 hours prior to commencement of the regulated activity. Written notification must include the date on which the regulated activity will commence, the name of the approved plan and program ID number for the regulated activity, and the name of the prime contractor with the name and telephone number of the contact person. The executive director will use the notification to determine if the approved plan is eligible for an extension.
8. Temporary erosion and sedimentation (E&S) controls, i.e., silt fences, rock berms, stabilized construction entrances, or other controls described in the approved WPAP, must be installed prior to construction and maintained during construction. Temporary E&S controls may be removed when vegetation is established and the construction area is stabilized. If a water quality pond is proposed, it shall be used as a sedimentation basin during construction. The TCEQ may monitor stormwater discharges from the site to evaluate the adequacy of temporary E&S control measures. Additional controls may be necessary if excessive solids are being discharged from the site.
9. All borings with depths greater than or equal to 20 feet must be plugged with non-shrink grout from the bottom of the hole to within three (3) feet of the surface. The remainder of the hole must be backfilled with cuttings from the boring. All borings less than 20 feet must be backfilled with

to the entity. The regulated entity shall then be responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred. A copy of the transfer of responsibility must be filed with the executive director through San Antonio Regional Office within 30 days of the transfer. A copy of the transfer form (TCEQ-10263) is enclosed.

20. Upon legal transfer of this property, the new owner(s) is required to comply with all terms of the approved Edwards Aquifer protection plan. If the new owner intends to commence any new regulated activity on the site, a new Edwards Aquifer protection plan that specifically addresses the new activity must be submitted to the executive director. Approval of the plan for the new regulated activity by the executive director is required prior to commencement of the new regulated activity.
21. An Edwards Aquifer protection plan approval or extension will expire and no extension will be granted if more than 50 percent of the total construction has not been completed within ten years from the initial approval of a plan. A new Edwards Aquifer protection plan must be submitted to the San Antonio Regional Office with the appropriate fees for review and approval by the executive director prior to commencing any additional regulated activities.
22. At project locations where construction is initiated and abandoned, or not completed, the site shall be returned to a condition such that the aquifer is protected from potential contamination.

This action is taken under authority delegated by the Executive Director of the Texas Commission on Environmental Quality. If you have any questions or require additional information, please contact Mr. Alex Grant of the Edwards Aquifer Protection Program of the San Antonio Regional Office at 210-403-4035

Sincerely,

Lynn Bumguardner, Water Section Manager
San Antonio Region
Texas Commission on Environmental Quality

LB/AG/eg

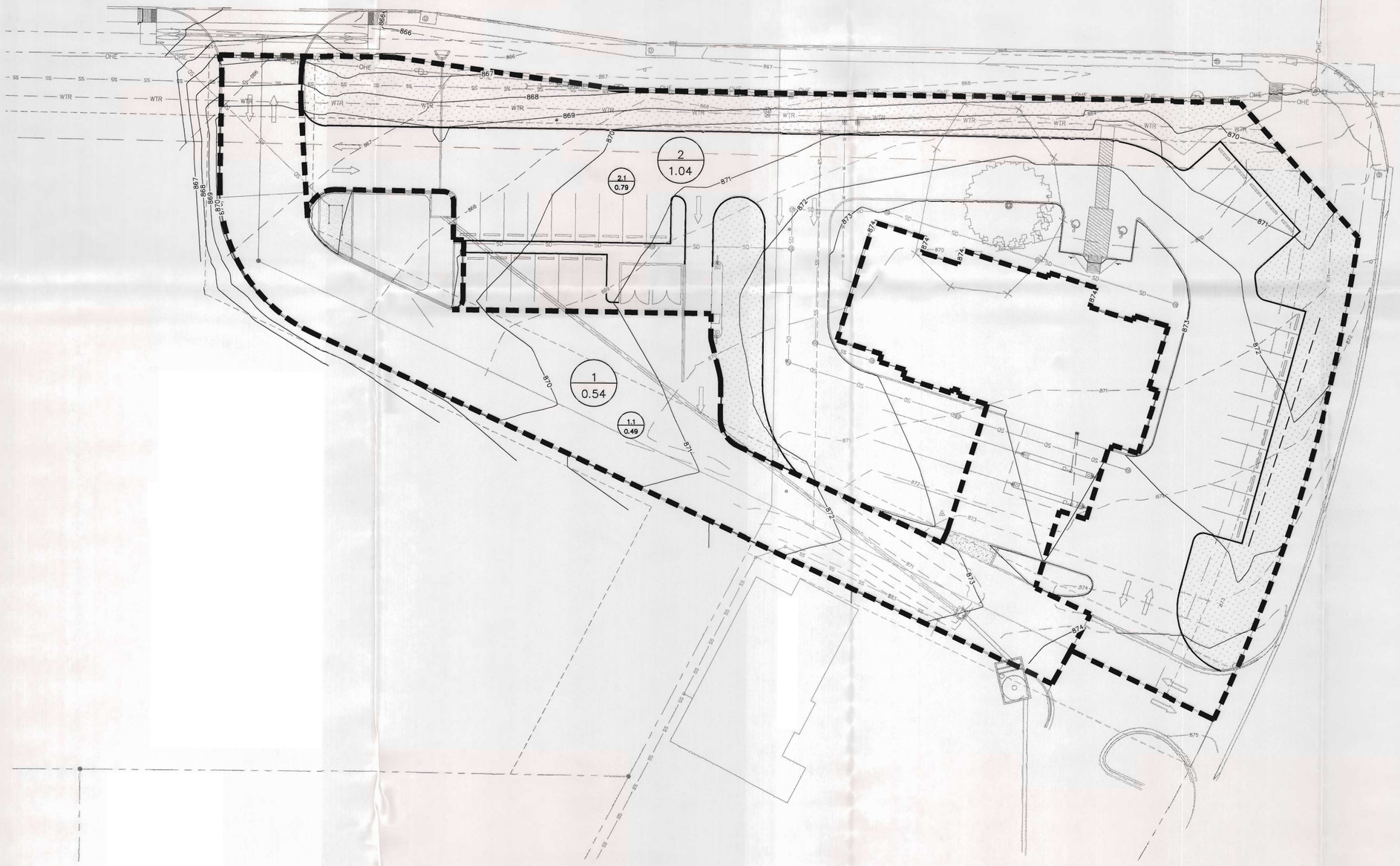
Enclosure: Deed Recordation Affidavit, Form TCEQ-0625
Change in Responsibility for Maintenance of Permanent BMPs, Form TCEQ-10263

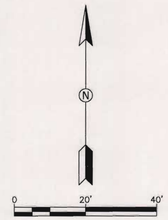
cc: Mr. Timothy Holland, P.E., Bowman Consulting
The Honorable Bill Krawietz, City of Bulverde
Mr. Tom Hornseth, P.E., Comal County
Mr. H. L. Saur, Comal Trinity Groundwater Conservation District
Mr. Roland Ruiz, Edwards Aquifer Authority
TCEQ Central Records, Building F, MC 21

Basin	Proposed BMP	Water Quality		Filter Area	
		Minimum	Provided	Minimum	Provided
1	Sand Filter (partial)	2,614	2,718	218	257

TSS Removal Summary

Basin	Contributing Area	Existing Imp. Cover	Proposed Imp. Cover	Req. TSS Removal (lbs)	Design TSS Removal (lbs)	BMP
1	0.54	0.00	0.49	440	440	Sand Filter
2	1.04	0.00	0.79	709	709	VFS
Total	**1.58**	**0.00**	**1.28**	**1,149**	**1,149**	





LEGEND

- LIMITS OF DRAINAGE BASIN
- LIMITS OF SUB-DRAINAGE AREA
- TC — TC — TIME OF CONCENTRATION
- EXISTING CONTOURS
- 900 — PROPOSED CONTOURS
- FLOW ARROWS
- 1 / 9.0 — DRAINAGE BASIN LABEL, BASIN AREA (AC)
- 1.1 / 2.0 — SUB-DRAINAGE AREA LABEL, IMPERVIOUS AREA (AC)

RECEIVED
OCT 19 2016
COUNTY ENGINEER

811 Know what's below. Call before you dig.

STATE OF TEXAS
SHANE KLAR
115810
LICENSED PROFESSIONAL ENGINEER
10/13/16

NO	DATE	ISSUES AND REVISIONS

MOELLER & ASSOCIATES Engineering Solutions
2021 W SH46, STE. 105, NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 www.mo-tx.com
TBPE FIRM F-13351

TREATMENT AREA MAP

WPAP SUBMITTAL

PROSPERITY BANK NB

NEW BRAUNFELS, TX 78132

SHEET 1 OF 6

• Engineers
• Surveyors
• Planners

Moy Tarin Ramirez Engineers, LLC

October 5, 2016

RECEIVED
OCT 19 2016
COUNTY ENGINEER

REC'D
OCT 06 2016
Region 13

Mr. Joshua Vacek
Texas Commission on Environmental Quality
San Antonio - Region 13
14250 Judson Road
San Antonio, TX 78233

RE: Response to Comments dated September 28, 2016
CISD Smithson Valley High School CZP Modification
Regulated Entity No. RN103932638
Additional ID No. 13000218

Dear Mr. Vacek:

In response to the comment received from TCEQ on September 28, 2016 for the subject CZP Modification application, we are providing the following responses and additional information listed below:

1. We have amended the attached page 3 of the CZP Application form, Item 15, to indicate 44.37 acres of total impervious cover after completion of the proposed improvements. The project description included in Attachment B of the Modification of a Previously Approved Contributing Zone Plan form and Attachment C of the CZP Application form has been revised to include the total impervious cover for the site.
2. We have updated the attached TSS Calculations to account for all of the impervious cover. Of the 0.56 acres of impervious cover attributable to the proposed projects, 0.30 acres does not drain into the extended detention basins. We have included a separate TSS calculation for the 0.30 acres of impervious cover. Also, Attachment B of the Modification of a Previously Approved Contributing Zone Plan form and Attachment K of the CZP Application form have been revised to account for the total pounds of TSS that each basin is capable of removing and for the overtreatment provided for the untreated 0.30 acres of impervious cover.
3. Per the previously submitted Attachment K of the CZP Application form, Basin 3 has a proposed capacity of 8,987 cubic feet due to the proposed minor grading within the basin and the existing elevation of the concrete spillway. No revisions were necessary for this comment.
4. The attached TSS calculations, Attachment B of the Modification of a Previously Approved Contributing Zone Plan form and Attachment K of the CZP Application form have been revised for the oversizing of Basin 2 to account for the portion of required TSS load not being removed by Basin 3.

If you have any questions, please contact me.

Sincerely,

Duane A Moy, P.E.

Duane A. Moy, P.E.
Principal

Attachments:
1. TCEQ Comments
2. Revised TSS Removal Calculations
3. Page 3 of 11 of the Contributing Zone Plan Application
4. Revised Attachment B – "Narrative of Proposed Modification"
5. Revised Attachment C – "Project Narrative"
6. Revised Attachment K – "BMPs for On-Site Storm Water"

12770 Cimarron Path, Suite 100 • San Antonio, TX 78249 • TBPE F-5297
Ph. 210.698.5051 • Fx. 210.698.5085

TCEQ
Protecting Texas by Reducing and Preventing Pollution

Fax Cover Sheet

Number of Pages: *(Including this sheet)* 2

Date: September 28, 2016

To: Duane A. Moy

Organization: MTR Engineers, LLC

Fax: dmoy@mtrengineers.com

To: Mr. John Tucker

Organization: Comal Independent School District

Fax: john.tucker@comalisd.org

From: Joshua Vacek

Division : Edwards Aquifer Protection Program

Texas Commission on Environmental Quality

Phone: 210-403-4028

Fax: 210-545-4329

Re: Edwards Aquifer, Comal County

NAME OF PROJECT: CISD Smithson Valley High School; Located at 14001 State Highway 46; Spring Branch, Texas

TYPE OF PLAN: Request for Modification of an Approved Contributing Zone Plan (CZP); 30 Texas Administrative Code (TAC) Chapter 213 Subchapter B Edwards Aquifer

Regulated Entity No. RN103932638; Additional ID No. 13000218

Dear Mr. Moy:

We are in the process of technically reviewing the CZP Modification application and additional materials you submitted on the above-referenced project. Before we can proceed with our review, the following comments relating to the application must be addressed.

1. The amended page 3 of the CZP application form (TCEQ-10257), item 15, states the total impervious cover as 43.81 acres on the table and 43.20 acres just below the table. The TSS Calculations state the total to be 44.37 acres. The amended project description states 43.81 acres of impervious cover. The attached amendment E sates 44.37 acres of impervious cover.

Please reconcile the differences in total impervious cover and amended the application, as necessary.

2. The TSS Calculations for the three extended detention basins do not account for the full 44.37 acres of impervious cover. According to the calculations, the impervious cover within the drainage areas for basins 1, 2, and 3 are 15.37 acres, 25.69 acres, and 2 acres, respectively, which totals to 43.06 acres. Please update the calculations to account for the missing 1.31 acres of impervious cover.
3. According to the TSS calculations, basin 3 has a required volume of 8,544 cubic feet to treat the designed 1,470 pounds of TSS. The designed capacity of the basin is 8,358 cubic feet. Basin 3 is not sized enough to accommodate the required volume necessary to treat the designed TSS removal. Please update the TSS spreadsheet for basin 3 to ensure the basin has enough capacity to treat all of the designed TSS removal.
4. It is understood basin 3 cannot fully treat the required TSS removal and Basins 1 and 2 will be used to provide overtreatment. Please specify how much overtreatment each basin will be provided or if only one basin will be utilized for overtreatment, which basin will provide the overtreatment.

We ask that you submit one original and five copies of the amended materials to supplement the application to this office by no later than **14 days from the date of this fax** to avoid denial of the plan. If the response to this notice is not received, is incomplete or inadequate, or provides new information that is incomplete or inadequate, a second notice will be sent to you requiring a response within 14 days from the notice date. 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 will be denied unless you provide written notification that the application is being withdrawn. Please note that the application fee will be forfeited if the plan is not withdrawn. If you have any questions or require additional information, please contact Mr. Joshua Vacek of the Edwards Aquifer Protection Program of the San Antonio Regional Office at (210) 403-4028.

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: SVHS
Date Prepared: 10/4/2016

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 spreadshee

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:

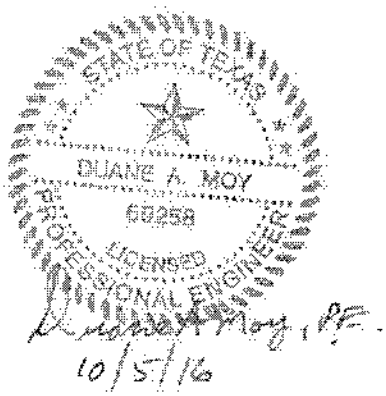
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased lo
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

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

County =	Comal	
Total project area included in plan * =	60.59	acres
Predevelopment impervious area within the limits of the plan * =	27.35	acres
Total post-development impervious area within the limits of the plan* =	44.37	acres
Total post-development impervious cover fraction * =	0.73	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	15277	lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = 4



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

Drainage Basin/Outfall Area No. =	1	
Total drainage basin/outfall area =	30.37	acres
Predevelopment impervious area within drainage basin/outfall area =	10.63	acres
Post-development impervious area within drainage basin/outfall area =	15.87	acres
Post-development impervious fraction within drainage basin/outfall area =	0.52	
$L_{M\ THIS\ BASIN}$ =	4793	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Extended Detention
Removal efficiency = 76 percent

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

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

RG-348 Page 3-33 Equation 3.7: L_R = (BMP efficiency) x P x (A_I x 34.8 + A_P x 0.54)

where:

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

A_C =	30.37	acres
A_I =	15.87	acres
A_P =	14.50	acres
L_R =	13784	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 4793 lbs.

F = 0.36

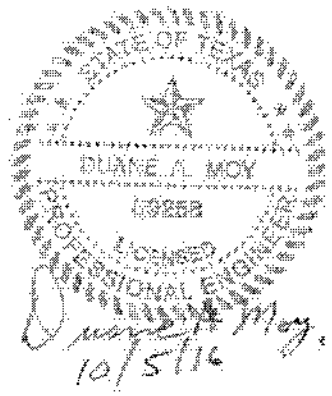
8. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area. Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth = 0.23 inches
Post Development Runoff Coefficient = 0.37
On-site Water Quality Volume = 9524 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 = 1905
Total Capture Volume (required water quality volume(s) x 1.20) = 11428 cubic feet



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

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

Required Water Quality Volume for retention basin = NA cubic feet

Irrigation Area Calculations:

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

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

Required Water Quality Volume for extended detention basin = 11428 cubic feet

9. Filter area for Sand Filters Designed as Required in RG-348 Pages 3-58 to 3-63

9A. Full Sedimentation and Filtration System

Water Quality Volume for sedimentation basin = NA cubic feet

Minimum filter basin area = NA square feet

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

9B. Partial Sedimentation and Filtration System

Water Quality Volume for combined basins = NA cubic feet

Minimum filter basin area = NA square feet

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

10. Bioretention System Designed as Required in RG-348 Pages 3-63 to 3-66

Required Water Quality Volume for Bioretention Basin = NA cubic feet

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

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

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: SVHS
Date Prepared: 10/4/2016

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

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

where:

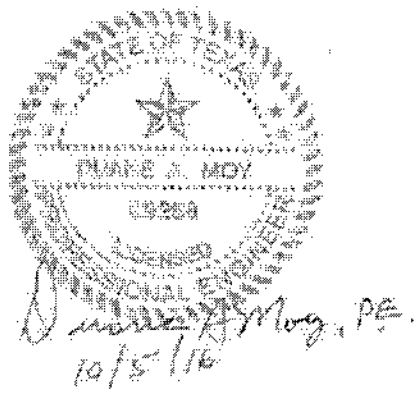
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased lo
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

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

County =	Comal	
Total project area included in plan * =	60.50	acres
Predevelopment impervious area within the limits of the plan * =	27.35	acres
Total post-development impervious area within the limits of the plan* =	44.37	acres
Total post-development impervious cover fraction * =	0.73	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	15277	lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = 4



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

Drainage Basin/Outfall Area No. = 2

Total drainage basin/outfall area =	27.14	acres
Predevelopment impervious area within drainage basin/outfall area =	16.82	acres
Post-development impervious area within drainage basin/outfall area =	26.20	acres
Post-development impervious fraction within drainage basin/outfall area =	0.97	
$L_{M\ THIS\ BASIN}$ =	5418	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Extended Detention
Removal efficiency = 75 percent

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

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

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

where:

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

A_C =	27.14	acres
A_I =	26.20	acres
A_P =	0.94	acres
L_R =	22448	lbs

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

Desired $L_{w\ this\ basin}$ = 9014 lbs.

F = 0.40

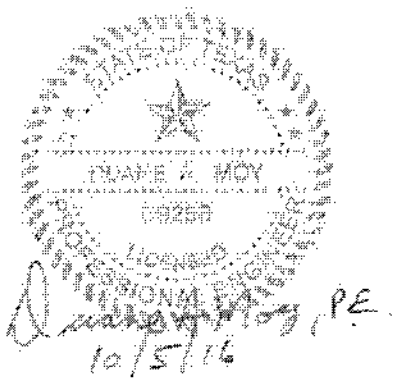
6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area. Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth = 0.29 inches
Post Development Runoff Coefficient = 0.79
On-site Water Quality Volume = 22671 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 = 4534
Total Capture Volume (required water quality volume(s) x 1.2[f] = 27205 cubic feet



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

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

Required Water Quality Volume for retention basin = NA cubic feet

Irrigation Area Calculations:

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

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

Required Water Quality Volume for extended detention basin = 27205 cubic feet

9. Filter area for Sand Filters Designed as Required in RG-348 Pages 3-58 to 3-63

9A. Full Sedimentation and Filtration System

Water Quality Volume for sedimentation basin = NA cubic feet

Minimum filter basin area = NA square feet

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

9B. Partial Sedimentation and Filtration System

Water Quality Volume for combined basins = NA cubic feet

Minimum filter basin area = NA square feet

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

10. Bioretention System Designed as Required in RG-348 Pages 3-63 to 3-65

Required Water Quality Volume for Bioretention Basin = NA cubic feet

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

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

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: SVHS
Date Prepared: 10/4/2016

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 spreadshee

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 lo
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 * =	60.50	acres
Predevelopment impervious area within the limits of the plan * =	27.35	acres
Total post-development impervious area within the limits of the plan* =	44.37	acres
Total post-development impervious cover fraction * =	0.73	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	16277	lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = 4

Duane A. Moy, P.E.
10/5/16

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

Drainage Basin/Outfall Area No. = 3

Total drainage basin/outfall area =	2.69	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	2.00	acres
Post-development impervious fraction within drainage basin/outfall area =	0.74	
$L_{M\ THIS\ BASIN}$ =	1795	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Extended Detention
Removal efficiency = 75 percent

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

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

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

where:

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

A_C =	2.69	acres
A_I =	2.00	acres
A_P =	0.69	acres
L_R =	1722	lbs

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

Desired $L_{M\ proposed}$ = 1470 lbs.

F = 0.85

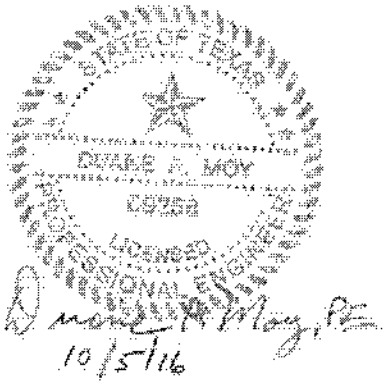
5. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area. Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth = 1.32 inches
Post Development Runoff Coefficient = 0.66
On-site Water Quality Volume = 7120 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 = 1424
Total Capture Volume (required water quality volume(s) x 1.20) = 8544 cubic feet



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

7. Retention/Irrigation System Designed as Required in RG-348 Pages 3-42 to 3-45

Required Water Quality Volume for retention basin = NA cubic feet

Irrigation Area Calculations:

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

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

Required Water Quality Volume for extended detention basin = 8544 cubic feet

9. Filter area for Sand Filters Designed as Required in RG-348 Pages 3-58 to 3-63

9A. Full Sedimentation and Filtration System

Water Quality Volume for sedimentation basin = NA cubic feet

Minimum filter basin area = NA square feet

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

9B. Partial Sedimentation and Filtration System

Water Quality Volume for combined basins = NA cubic feet

Minimum filter basin area = NA square feet

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

10. Bioretention System Designed as Required in RG-348 Pages 3-63 to 3-65

Required Water Quality Volume for Bioretention Basin = NA cubic feet

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

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

REQUIRED TSS REMOVAL FOR THE 0.30 ACRES OF IMPERVIOUS COVER NOT TREATED BY THE PONDS

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: SVHS
Date Prepared: 10/4/2016

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.
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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:

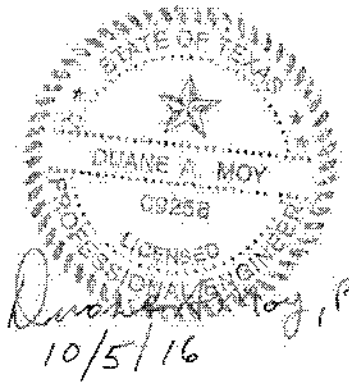
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased lo
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

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

County =	Comal	
Total project area included in plan * =	60.50	acres
Predevelopment impervious area within the limits of the plan * =	27.35	acres
Total post-development impervious area within the limits of the plan* =	44.37	acres
Total post-development impervious cover fraction * =	0.73	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	15277	lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = 4



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

Drainage Basin/Outfall Area No. = 4

Total drainage basin/outfall area =	0.30	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.30	acres
Post-development impervious fraction within drainage basin/outfall area =	1.00	
$L_{M\ THIS\ BASIN}$ =	269	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Extended Detention
Removal efficiency = 75 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 =		acres
A_I =		acres
A_P =	0.00	acres
L_R =	0	lbs

☐ Existing paved and/or unpaved roads
☐ Undeveloped (Cleared)
☐ Undeveloped (Undisturbed/Not cleared)
☒ Other: Existing High School site

12. The type of project is:

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

13. Total project area (size of site): 95.4 Acres

Total disturbed area: ±6 Acres

14. Estimated projected population: 2,600

15. The amount and type of impervious cover expected after construction is complete is shown below:

Table 1 - Impervious Cover

Impervious Cover of Proposed Project	*Sq. Ft.*	*Sq. Ft./Acre*	*Acres*
Structures/Rooftops	463,454	÷ 43,560 =	10.64
Parking	977,731	÷ 43,560 =	22.45
Other paved surfaces	491,323	÷ 43,560 =	11.28
Total Impervious Cover	1,932,508	÷ 43,560 =	44.37

Total Impervious Cover 44.37 ÷ **Total Acreage** 95.4 **X 100 =** 46.51% **Impervious Cover**

16. ☒ **Attachment D - Factors Affecting Surface Water Quality.** A detailed description of all factors that could affect surface water quality is attached. If applicable, this includes the location and description of any discharge associated with industrial activity other than construction.

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

For Road Projects Only

Complete questions 18 - 23 if this application is exclusively for a road project.

☒ N/A

ATTACHMENT B

NARRATIVE OF PROPOSED MODIFICATION

This CZP Modification is in regards to three (3) concurrent projects at the Comal ISD Smithson Valley High School location. These projects include the Athletics Additions and Renovations, a new Ag Barn, and storm drainage improvements.

The Athletics Additions and Renovations project includes the renovation of an existing baseball field house and replacement of structures at the softball and football fields. The three (3) proposed areas of construction are currently developed. Portions of existing impervious cover will be removed and replaced with new.

The Ag Barn project includes the addition of a small structure adjacent to the existing football field and a new building in an existing parking lot area. The small structure will add a small amount of impervious cover to an area that is currently vegetated. The larger structure will add approximately 0.30 acres of impervious cover, of which about 63% is existing asphalt parking lot and concrete curb.

There are three (3) separate areas that will receive drainage improvements. The first is the addition of a concrete interceptor channel and underground storm system to intercept upgradient runoff from the west. The channel will be positioned upgradient of the existing improvements and will feed into a proposed underground storm system which will route the runoff around the existing structures before outfalling to grade. The second drainage project is concrete channel between the softball field and practice football field. The purpose of this channel is to alleviate existing erosion and more effectively convey the runoff in this area to the east, where the channel can outfall to grade. The last drainage improvement will be lining an existing channel with concrete to reduce erosion and improve flow. The channel is southeast of the baseball field and drains into Extended Detention Pond #2. The runoff in this channel currently tops the existing drive before entering Pond #2. As part of the improvements, box culverts will be installed to convey the runoff under the drive before entering the pond.

There are no changes to the overall drainage patterns due to the proposed additions, renovations, and drainage improvements described above.

The original CZP approval states that the site is 91.6 acres. Based on our research, the site is 95.4 acres. We believe that the acreage stated in the original CZP is in error due to the fact that Pond #2 and a driveway is located within the additional 3.8 acres that are being added with this modification.

A Contributing Zone Plan (CZP) for the site was approved on April 24, 2009 (EAPP#2859.00) for a 15.45 acre increase in impervious cover. The approved overall impervious for the site is 42.8 acres which includes impervious cover that was in place prior to the Edwards CZP requirements became effective. The actual existing impervious

cover on the site is 43.81 acres, 1.01 acres more than what was approved. The increase in impervious cover due to the proposed projects is 0.56 acres for a total impervious cover of 44.37 acres. Due to the increase in impervious cover, an analysis of the three (3) existing extended detention ponds is required to ensure that there is adequate additional capacity for treatment of this additional impervious cover.

The proposed improvements at Smithson Valley High School will result in a 0.56 acre increase in impervious cover, which equates to a total of 503 pounds of TSS that needs to be accounted for by additional treatment. In addition, the 1.01 acres of additional existing impervious cover above what was approved requires the removal of an additional 907 pounds of TSS for a total additional required removal of 1,410 pounds.

To accomplish the required increased removal of 1,410 pounds of TSS, treatment will be provided at the three existing (3) on-site extended detention ponds.

The required TSS removal for the post development impervious cover within Pond 1 drainage area is 4,793 pounds with a required volume of 11,428 cubic feet. The new design volume of Pond 1 is 98,140 cubic feet.

The required TSS removal for the post development impervious cover within Pond 3 drainage area is 1,795 pounds. The actual removal is 1,470 pounds with a required volume of 8,544 cubic feet. The new design volume of Pond 3 is 8,987 cubic feet. The 325 pounds of required TSS not being removed by Pond 3 is being removed through overtreatment by Pond 2.

The required TSS removal for the 0.30 acres of proposed impervious cover that doesn't drain into any of the extended detention ponds is 269 pounds. This 269 pounds of TSS is being removed through overtreatment provided by Pond 2.

The required TSS removal for the post development impervious cover within Pond 2 drainage area is 8,419 pounds. With the overtreatment of 325 pounds required for Pond 3 drainage area and the overtreatment of 269 pounds required for the 0.30 acres of proposed impervious cover that doesn't drain into a pond, the desired load (Lm) to be removed by Pond 2 is 9,014 pounds (round-off error from 9,013) . Based on the TSS calculation for Pond 2, a desired load removal of 9,014 pounds requires a volume of 27,205 cubic feet. The new design volume of Pond 2 is 143,622 cubic feet.

Proposed modifications to the Extended Detention Ponds area as follows:

Pond #1 – This pond has an existing rock riprap low-flow channel that was installed with the pond construction approved in 2009. It has been observed that this channel becomes filled with sediment quickly and does not adequately convey low flows. A concrete low-flow channel is proposed in place of the existing rock riprap channel. A rock gabion mattress will be installed at the downstream end of the low-flow channel to disperse flow at the riser pipe. In addition, a rock gabion mattress will also be added at the pond inflow

structure. The top elevation of the existing gabion that creates the forebay is lower than the existing water surface elevation. Therefore, the top of the gabion will be raised to the existing water surface elevation. Minor grading will occur in the pond to achieve a positive slope to alleviate the existing ponding water.

Pond #2 - This pond has an existing rock riprap low-flow channel that was installed with the pond construction approved in 2009. It has been observed that this channel becomes filled with sediment quickly and does not adequately convey low flows. Concrete low-flow channels are proposed in place of the existing rock riprap channel. A rock gabion mattress will be installed at the downstream end of the low-flow channels to disperse flow at the riser pipe. Pond #2 has two (2) inflow locations. At one of the locations, a forebay doesn't exist; therefore, a rock gabion will be constructed at the additional location where flows currently enter the pond to create a forebay area. At this same location, pipe culverts will be added under the existing drive and discharge into the pond to minimize the amount of water flowing over the drive. A rock gabion mattress will be installed at the discharge point of the proposed culvert outfall into Pond #2. The top elevation of the existing gabion that creates a forebay is lower than the existing water surface elevation. Therefore, the top of the gabion will be raised to the existing water surface elevation. Minor grading will occur in the pond to achieve a positive slope to alleviate the existing ponding water.

Pond #3 – This pond was installed without a rock riprap low-flow channel. As part of this modification, a concrete low-flow channel will be installed to aid in conveying low flows through the pond. A rock gabion mattress will be installed at the downstream end of the low-flow channel to disperse flow at the riser pipe. Minor grading will occur in the pond to achieve a positive slope to alleviate the existing ponding water.

ATTACHMENT C

PROJECT NARRATIVE

This CZP Modification is in regards to three (3) concurrent projects at the Comal ISD Smithson Valley High School location. These projects include the Athletics Additions & Renovations, a new Ag Barn, and storm drainage improvements.

The original CZP states that the site is 91.6 acres. Based on our research, the site is 95.4 acres. We believe that the acreage stated in the original CZP is in error due to the fact that Pond #2 and a driveway is located within the additional 3.8 acres that is being added with this modification.

The site is an existing high school and the intended use will NOT change as a result of these improvements.

The approved impervious cover for the site is 42.8 acres. The calculated existing impervious cover is 43.81 acres. The proposed improvements will result in a 0.56 acre increase in impervious cover, for a total impervious cover of 44.37 acres of which 27.35 acres of impervious cover existed prior to the effective date of the Edwards CZP requirements.

The site is NOT within the limits of any 100-year floodplain and does NOT have a Critical Water Quality Zone.

The permanent BMPs utilized on-site consist of three (3) extended detention ponds. A Contributing Zone Plan (CZP) for the site was approved on April 24, 2009 (EAPP#2859.00) for a 15.45 acre increase in impervious cover. Impervious cover in-place prior to the 2009 CZP was installed before the Edwards CZP requirements became effective. The approved overall impervious for the site is 42.8 acres which includes the impervious cover that was in place prior to the Edwards CZP requirements became effective. The actual existing impervious cover on the site is 43.81 acres, 1.01 acres more than what was approved. The increase in impervious cover due to the proposed projects is 0.56 acres for a total impervious cover of 44.37 acres. To mitigate the increase in impervious cover from what was originally approved, treatment will be provided at the three (3) existing on-site extended detention ponds. The total required TSS to be removed is 15,277 pounds.

The proposed improvements at Smithson Valley High School will result in a 0.56 acre increase in impervious cover, which equates to a total of 503 pounds of TSS that needs to be accounted for by additional treatment. In addition, the 1.01 acres of additional existing impervious cover above what was approved requires the removal of an additional 907 pounds of TSS for a total additional required removal of 1,410 pounds.

Upgradient storm water enters the site along the north and west boundaries. A proposed interceptor channel will collect the upgradient flow near the northwestern corner of the

site and convey it downstream to a proposed underground storm system. The proposed interceptor channel and associated underground system will allow the runoff to be directed south, west of the structures and wall, to a point it can be discharged at grade. The aforementioned runoff does not traverse impervious cover prior to entering the interceptor channel. All other storm water originating upgradient of the site will continue to naturally enter the site and is accounted for in TSS treatment calculations.

Areas of the site to be demolished are developed areas. These areas are illustrated on the Existing Impervious Cover Exhibits and Proposed Impervious Cover Exhibits. No portion of the proposed work is in an undeveloped area.

There will be minor modifications made to Extended Detention Ponds as follows:

Pond #1 – This pond has an existing rock riprap low-flow channel that was installed with the pond construction approved in 2009. It has been observed that this channel becomes filled with sediment quickly and does not adequately convey low flows. A concrete low-flow channel is proposed in place of the existing rock riprap channel. A rock gabion mattress will be installed at the downstream end of the low-flow channel to disperse flow at the riser pipe. In addition, a rock gabion mattress will also be added at the pond inflow structure. The top elevation of the existing gabion that creates the forebay is lower than the existing water surface elevation. Therefore, the top of the gabion will be raised to the existing water surface elevation. Minor grading will occur in the pond to achieve a positive slope to alleviate the existing ponding water.

Pond #2 - This pond has an existing rock riprap low-flow channel that was installed with the pond construction approved in 2009. It has been observed that this channel becomes filled with sediment quickly and does not adequately convey low flows. Concrete low-flow channels are proposed in place of the existing rock riprap channel. A rock gabion mattress will be installed at the downstream end of the low-flow channels to disperse flow at the riser pipe. Pond #2 has two (2) inflow locations. At one of the locations, a forebay doesn't exist; therefore, a rock gabion will be constructed at the additional location where flows currently enter the pond to create a forebay area. At this same location, pipe culverts will be added under the existing drive and discharge into the pond to minimize the amount of water flowing over the drive. A rock gabion mattress will be installed at the discharge point of the proposed culvert outfall into Pond #2. The top elevation of the existing gabion that creates a forebay is lower than the existing water surface elevation. Therefore, the top of the gabion will be raised to the existing water surface elevation. Minor grading will occur in the pond to achieve a positive slope to alleviate the existing ponding water.

Pond #3 – This pond was installed without a rock riprap low-flow channel. As part of this modification, a concrete low-flow channel will be installed to aid in conveying low flows through the pond. A rock gabion mattress will be installed at the downstream end of the low-flow channel to disperse flow at the riser pipe. Minor grading will occur in the pond to achieve a positive slope to alleviate the existing ponding water.

ATTACHMENT K

BMP'S FOR ON-SITE STORM WATER

During construction, temporary BMP's consisting of silt fences, rock berms, bagged gravel inlet filters, stabilized construction entrances/exits and the three (3) existing extended detention ponds will be utilized to alleviate sediment from leaving the site.

Due to impervious cover existing prior to June 1, 1999, the total impervious cover required to be treated is 17.02 acres which calculates to a required removal of 15,277 pounds of total suspended solids (TSS). Removal of the required TSS pollutants from the runoff generated by the 17.02 acres of onsite impervious cover is accomplished through treatment provided by the three (3) existing extended detention ponds. Per the latest TCEQ approval, 42.8 acres of existing impervious cover drains into the 3 ponds. In addition, 1.01 acres of additional existing impervious cover was calculated; therefore, the existing impervious cover draining into the ponds is 43.81 acres. Out of the 0.56 acres of proposed impervious cover, 0.26 acres drains into the existing ponds for a total impervious cover of 44.07 acres draining into the three (3) existing extended detention ponds for permanent water quality treatment. The ponds have been designed to remove the additional required TSS attributable to the impervious cover that is proposed and the additional existing impervious cover.

For ***Pond #1***, the approved total required storage volume is 14,196 cubic feet. The original design storage volume is 100,420 cubic feet. The proposed volume calculated at the existing spillway elevation of 1220.30 is 98,140 cubic feet.
Based on the TCEQ TSS Removal Calculations spreadsheet, the total required TSS removal for Pond #1 (L_m this basin) after the associated improvements is 4,793 pounds with a required Total Capture Volume of 11,428 cubic feet, which is less than the new design volume of 98,140 cubic feet.

For ***Pond #2***, the approved total required storage volume is 23,562 cubic feet. The original design storage volume is 152,489 cubic feet. The proposed volume calculated at the existing spillway elevation of 1255.30 is 143,622 cubic feet.
Based on the TCEQ TSS Removal Calculations spreadsheet, the total required TSS removal for Pond #2 (L_m this basin) after the associated improvements is 8,419 pounds. In addition to the 8,419 pounds required to be removed from the Pond 2 drainage area, Pond 2 provides overtreatment of the required 325 pounds of TSS for Pond 3 drainage area and overtreatment of the required 269 pounds of TSS for the 0.30 acres of proposed impervious cover that doesn't drain into a pond. Therefore, the desired load (Lm) to be removed by Pond 2 is 9,013 pounds (used 9,014 in the calculations due to round-off). Based on the TSS calculation for Pond 2, a desired load removal of 9,014 pounds requires a Total Capture Volume of 27,205 cubic feet, which is less than the new design volume of 143,622 cubic feet.

For ***Pond #3***, the approved total required storage volume is 1,257 cubic feet. The original design storage volume is 8,358 cubic feet. The proposed volume calculated at the existing spillway elevation of 1205.80 is 8,987 cubic feet.
Based on the TCEQ TSS Removal Calculations spreadsheet, the total required TSS removal for Pond #3 (L_m this basin) after the associated improvements is 1,795 pounds. The pond is capable of only removing 1,470 pounds with a required Total Capture Volume of 8,544 cubic feet, which is less than the new design volume of 8,987 cubic feet. The required 325 pounds of TSS that is not being removed by Pond #3 is compensated for through the overtreatment in Pond 2.

Non-treated impervious cover:
0.30 acres of impervious cover associated with the proposed improvements does not drain into any of the extended detention ponds. Based on the TCEQ TSS Removal Calculations spreadsheet, the total required TSS removal for the 0.30 acres is 269 pounds. The required 269 pounds of TSS is compensated for through the overtreatment in Pond 2.