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 <u>30 TAC 213</u>.

Administrative Review

1. <u>Edwards Aquifer applications</u> 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: <u>http://www.tceq.texas.gov/field/eapp</u>.

- 2. This Edwards Aquifer Application Cover Page form (certified by the applicant or agent) must be included in the application and brought to the administrative review meeting.
- 3. Administrative reviews are scheduled with program staff who will conduct the review. Applicants or their authorized agent should call the appropriate regional office, according to the county in which the project is located, to schedule a review. The average meeting time is one hour.
- 4. In the meeting, the application is examined for administrative completeness. Deficiencies will be noted by staff and emailed or faxed to the applicant and authorized agent at the end of the meeting, or shortly after. Administrative deficiencies will cause the application to be deemed incomplete and returned.

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

- 5. If an application is received by mail, courier service, or otherwise submitted without a review meeting, the administrative review will be conducted within 30 days. The applicant and agent will be contacted with the results of the administrative review. If the application is found to be administratively incomplete, it can be retrieved from the regional office or returned by regular mail. If returned by mail, the regional office may require arrangements for return shipping.
- 6. If the geologic assessment was completed before October 1, 2004 and the site contains "possibly sensitive" features, the assessment must be updated in accordance with the *Instructions to Geologists* (TCEQ-0585 Instructions).

Technical Review

- 1. When an application is deemed administratively complete, the technical review period begins. The regional office will distribute copies of the application to the identified affected city, county, and groundwater conservation district whose jurisdiction includes the subject site. These entities and the public have 30 days to provide comments on the application to the regional office. All comments received are reviewed by TCEQ.
- 2. A site assessment is usually conducted as part of the technical review, to evaluate the geologic assessment and observe existing site conditions. The site must be accessible to our staff. The site boundaries should be

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

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

Mid-Review Modifications

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

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

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

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

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

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

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

1. Regulated Entity N Christian Academy	ame: New B	raunfe	els	2. Regulated Entity No.:104634530						
3. Customer Name: N Academy	New Braunfe	ls Chri	4. Cu	4. Customer No.:602851750						
5. Project Type: (Please circle/check one)	New C	Modif	icatior		Exter	nsion	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-r	residen	itial	•	8. Sit	e (acres): 27.17			
9. Application Fee:	\$6,500	10. P	ermai	nent l	BMP(s	s):	Two Batch Detention Basins			
11. SCS (Linear Ft.):		12. A	ST/US	6T (N	o. Tar	nks):				
13. County:	Comal	14. W	aters	hed:			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 Kegion												
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.

Joseph Sandoval, P.E.

Print Name of Customer/Authorized Agent Signature of Customer/Authorized Agent

19/2023 3 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 Cust								
Agent Authorization Complete/Notarized (Y/N):		Fee	Payable to TCEQ (Y/N):							
Core Data Form Complete (Y/N):		Check:	Signed (Y/N):							
Core Data Form Incomplete Nos.:			Less than 90 days old (Y/N):							

General Information Form

Texas Commission on Environmental Quality

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

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

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

Signature

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

Print Name of Customer/Agent: Joseph Sandoval, P.E.

Date: March 9, 2023

Signature of Customer/Agent:

oseph Sandonal, P.E.

Project Information



- 1. Regulated Entity Name: New Braunfels Christian Academy
- 2. County: Comal
- 3. Stream Basin: Blieders Creek
- 4. Groundwater Conservation District (If applicable): Edwards Aquifer Authority
- 5. Edwards Aquifer Zone:



6. Plan Type:

\boxtimes	WPAP
	SCS
\boxtimes	Modification

AST
UST
Exception Request

TCEQ-0587 (Rev. 02-11-15)

1 of 4

7. Customer (Applicant):

Contact Person: <u>Nicholas J. Reeves</u> Entity: <u>New Braunfels Christian Academy</u> Mailing Address: <u>220 FM 1863</u> City, State: <u>New Braunfes, Texas</u> Telephone: <u>830-629-1821</u> Email Address: <u>nreeves@nbcatx.org</u>

Zip: <u>78132</u> FAX: _____

8. Agent/Representative (If any):

Contact Person: <u>Joseph Sandoval, P.E.</u> Entity: <u>HMT Engineering & Surveying</u> Mailing Address: <u>290 S. Castell</u> City, State: <u>New Braunfels, Texas</u> Telephone: <u>830-625-8555</u> Email Address: <u>Josephs@hmtnb.com</u>

Zip: <u>78130</u> FAX:

9. Project Location:

The project site is located inside the city limits of <u>New Braunfels</u>.

The project site is located outside the city limits but inside the ETJ (extra-territorial jurisdiction) of _____.

- The project site is not located within any city's limits or ETJ.
- 10. The location of the project site is described below. The description provides sufficient detail and clarity so that the TCEQ's Regional staff can easily locate the project and site boundaries for a field investigation.

From TCEQ's Regional office, head south on Judson Road approximately 1.5 miles to the IH-35 frontage road. Turn left and merge onto nrothbound IH-35. Continue along IH-35 for approximately 17.2 milesand then exit toward TX 337 Loop. Turn left onto TX 337 Loop and proceed north for approximately 3.0 miles. Next, take the TX-46 West ramp to Boerne/New Braunfels. Turn left onto TX-46, proceed 1.4 miles and turn left onto FM 1863. The site will be located on the right, approximately 0.4 miles down.

- 11. Attachment A Road Map. A road map showing directions to and the location of the project site is attached. The project location and site boundaries are clearly shown on the map.
- 12. Attachment B USGS / Edwards Recharge Zone Map. A copy of the official 7 ½ minute USGS Quadrangle Map (Scale: 1" = 2000') of the Edwards Recharge Zone is attached. The map(s) clearly show:

Project site boundaries.

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

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

Survey staking will be completed by this date: _____

- 14. Attachment C Project Description. Attached at the end of this form is a detailed narrative description of the proposed project. The project description is consistent throughout the application and contains, at a minimum, the following details:
 - 🔀 Area of the site
 - 🔀 Offsite areas
 - Impervious cover
 - \ge 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:

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. \square 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.

Google Maps

Texas Commission-Environmental, 14250 Judson Rd, San Antonio, TX 78233 to New Braunfels Christian Academy, 220 FM1863, New Braunfels, TX 78132

Drive 18.7 miles, 29 min

TCEQ WPAP Mod- New Braunfels Christian Academy General Information Form (TCEQ-0587) Attachment A - Road Map



Map data ©2022 Google 2 mi ■

Texas Commission-Environmental 14250 Judson Rd, San Antonio, TX 78233

Continue to Judson Rd

			16 s (200 ft)
1	1.	Head southeast toward Judson Rd	
			115 ft
\rightarrow	2.	Turn right toward Judson Rd	
			85 ft

Drive from Nacogdoches Rd, Schoenthal Rd N and FM1863 E to New Braunfels

			28 min (18.6 mi)
∽	3.	Turn right onto Judson Rd	
Ъ	4.	Turn right onto Wenzel Rd	0.3 mi
ᠳ	5.	Turn left onto Toepperwein Rd	0.6 mi
←	6. ()	Turn right onto Nacogdoches Rd Pass by Wendy's (on the left in 0.9 m	0.4 mi
←	7.	Turn left onto FM3009 N	5.5 mi
с)	8.	Turn right onto Schoenthal Rd N	2.4 mi
ᢙ	9.	Turn right onto FM1863 E	5.0 mi
			4.5 mi

Drive to your destination

			1 min (0 1 mi)
←	10.	Turn left	1 11111 (0.1 1111)
h	11.	Turn right	174 ft
←	12.	Turn left Destination will be on the left	26 ft
	_		305 ft

New Braunfels Christian Academy

220 FM1863, New Braunfels, TX 78132

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

USGS/Edwards Recharge Zone Map



USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography

TCEQ | USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset;

TCEQ EDWARDS OFFICIAL MAPS

Comal Trinity GCD



PLATE NO. 3

GENERAL INFROMATION ATTACHMENT C Project Description

New Braunfels Christian Academy is an existing school located at 220 FM 1863, within the city limits of New Braunfels. The project site is located in Comal County, Texas and is situated entirely over the Edwards Aquafer Recharge Zone.

Previous Studies

A Water Pollution Abatement Plan (WPAP) for the site titled "New Braunfels Christian Academy" was approved by the Texas Commission on Environmental Quality (TCEQ) on June 9, 2006 (RN104634530; EAPP File No. 2347.02). The original WPAP permitted construction of approximately 4.09 acres of impervious cover for Phase 1 of a two-phase developments, or 15.50% of a 27.17-acre site. Fifteen-foot (15') wide Engineered Vegetative Filter Strips (VFS) were approved as Permanent Best Management Practices (BMPs) for the site to treat driveways, parking, and sidewalks. A variant of the 20% or less impervious cover exception request was approved by the TCEQ on July 13, 2005 (EAPP File No. 2347.00), prior to WPAP submittal, and which waived the requirement for treatment of impervious cover from school buildings.

A WPAP modification (MOD) for this site titled "New Braunfels Christian Academy Water Pollution Abatement Plan Modification" was approved by TCEQ on October 25th, 2013 (RN104634530). This WPAP MOD permitted construction of approximately 4.39 acres of impervious cover over the 12.17 acres site. One (1) proposed retention basin/irrigation system and existing fifteen-foot (15') Engineered Vegetative Filter Strips (VFS) were approved as the Permanent Best Management Practices (PBMPs).

A WPAP Exception for this site titled "New Braunfels Christian Academy" was approved by TCEQ on June 17, 2022 (RN104634530). This WPAP Exception permitted construction of approximately 2015 square feet of impervious cover from a proposed portable building. The approval of the previous WPAP Modification approved on October 25th, 2013 accounted and treated for approximately 4.39 acres of impervious cover. Of that 4.39 acres of impervious cover from this exception has been accounted and designed for in the previous WPAP modification study.

Proposed Improvements

Construction activities proposed with this MOD include clearing, grading, excavation, drainage improvements, construction of two (2) batch detention basins, a sport field, field house, softball field, baseball field, batting cages, maintenance building, secondary school building, elementary school building, cafetorium/practice gym building, and associated parking for all development. Approximately 15.5 acres of impervious cover are proposed, or 57.05%.

All PBMPs have been designed in accordance with the TCEQ's Technical Guidance Manual (TGM) RG-348 (2005) to remove 80% of the increase in TSS from the site. The irrigation system will be constructed and installed in accordance with the requirements of the TCEQ's TGM Section 3.4.3.

This school site generates approximately 10,000 gallons per day (gpd) of peak wastewater flow. Wastewater service is provided by New Braunfels Utilities (NBU) with conveyance to the existing Gruene Wastewater Treatment Plant. Potable water service is also provided by NBU.

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Geologic Assessment

Texas Commission on Environmental Quality

For Regulated Activities on The Edwards Aquifer Recharge/transition Zones and Relating to 30 TAC §213.5(b)(3), Effective June 1, 1999

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

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

Signature

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

Print Name of Geologist: Matt Anding

Telephone: <u>832-641-8143</u>

Fax:

Date: 12/30/2021

Representing: <u>Anding Environmental Consulting, LLC</u> (Name of Company and TBPG or TBPE registration number)

Signature of Geologist:

Regulated Entity Name: Anding Environmental Consulting, LLC

Project Information

- 1. Date(s) Geologic Assessment was performed: December 19, 2021
- 2. Type of Project:
 - WPAP
- 3. Location of Project:



TCEQ-0585 (Rev.02-11-15)

1 of 3

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. \square The Recharge Zone boundary is shown and labeled, if appropriate.
- 14. All known wells (test holes, water, oil, unplugged, capped and/or abandoned, etc.): If applicable, the information must agree with Item No. 20 of the WPAP Application Section.
 - There are _____ (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply.)

The wells are not in use and have been properly abandoned.

] The wells are not in use and will be properly abandoned.

The wells are in use and comply with 16 TAC Chapter 76.

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

Administrative Information

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

ATTACHMENT A - GEOLOGIC ASSESSMENT TABLE **GEOLOGIC ASSESSMENT**

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	SETTING	12	TOPOGRAPHY	1	Hilltop	Drainage	Hillside	Hillside																					A OF + US		HEW ANDING ECLOGY 11654
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	LION	ę	ITIVITY	웟				Γ				T		Ι																	Q
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X 781	EVA	ø	TOTAL	-	15	85	35	35																							Beologi
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ATTACHMENT B - STRATIGRAPHIC COLUMN **GEOLOGIC ASSESSMENT**



STRATIGRAPHIC COLUMN

н	Hydrogeologic subdivision			fo or	Group, rmation, member	Hydro- logic function	Thickness (feet)	Llihology	Field Identification	Cavern development	Porosity/ permeability type																																
	Upp confin	er ing	Tay	lor G	roup	CU	600	Clay; chalky limestone	Gray-brown clay; marly limestone	None	Low porosity/ low permeability																																
cous	uni	l.	Aus	stin Ci	iroup	CU; rarely AQ	130 150	White to light-tan to gray limestone	White, chalky limestone; Pyenodonte aucella Inoceramus subquadratus	None	Low porosity; rare water production from fractures/ low permeability																																
Upper Cretac			Eag	Eagle Ford Group		Eagle Ford Group		agle Ford Group		Eagle Ford Group		Eagle Ford Group		Eagle Ford Group		Eagle Ford Group		Eagle Ford Group		Eagle Ford Group		Eagle Ford Group		Eagle Ford Group		Eagle Ford Group		Eagle Ford Group		Eagle Ford Group		Eagle Ford Group		Eagle Ford Group		Eagle Ford Group		CU	30 50	Brown, flaggy sandy shale and argillaceous limestone	Thin flagstones; petroliferous	None	Primary porosity lost/ low permeability
	}		Buc	la Lii	nestone	CU	40 - 50	Buff, light-gray, dense mudstone	Porcelaneous limestone	Minor surface karst	Low porosity/ low permeability																																
			Del	Rio	Clay	CU	50 - 60	Blue-green to yellow-brown clay	Fossiliferous: Ilymatogyra arietina	None	None/primary upper confining unit																																
	1		Geo	orgete	own Formation	CU	40-60	Gray to light-tan, marly limestone	Marker fossil: Waconella wacoensis	None	Low porosity/ low permeability																																
	II			ation	Cyclic and marine members, undivided (4)	AQ	0 – 70	Mudstone to packstone; <i>miliolid</i> grainstone; chert	Boxwork vugs; light tan, massive; some <i>Toucasla</i> , <i>Caprinid</i> , and <i>Chondrodonta</i>	Many caves; might be associated with earlier karst development	Laterally extensive; both fabric and not fabric/water-yielding; one of the most porous and permeable; essentially absent in Travis County																																
	Ш			Person Form	Leached and collapsed members, undivided (4)	AQ	30 80	Crystalline limestone; mudstone to wacke- stone to <i>miliolid</i> grainstone; chert; collapsed breccia	Light-gray, bioturbated iron- stained beds separated by massive limestone beds; <i>Toucasia, Chondrodonta</i>	Extensive lateral development; large rooms	Majority not fabrie/ one of the most porous and permeable																																
suc	IV	ds aquifer	s Group		Regional dense member (3)	CU	20-30	Light-tan, dense, argillaccous mudstone	Wispy iron-oxide stains; Pleuromya knowltoni, Ceratostreon texanum	None; only vertical fracture enlargement	Not fabrie/ low permeability; vertical barrier																																
Lower Cretace	V	Edware	Edward			Grainstone member (2)	AQ	45-60	Light-gray, <i>miliolid</i> grainstone; mudstone to wackestone; chert	White crossbedded grainstone; <i>Toucasia</i> , <i>Turritella</i> , and <i>Chondrodonta</i>	Few eaves	Not fabric/ recrystallization reduces permeability																															
	VI			mation	Kirschherg evaporite member (1)	AQ	65 - 75	Light-gray, crystalline limestone; chalky mudstone; chert	Boxwork voids, with neospar and travertine frame; <i>Cladophyllia</i> and <i>Turritella</i>	Probably extensive cave development	Majority fabric/ one of the most porous and permeable																																
	VII			Kainer For	Dolomitic member (1)	AQ	110 150	Mudstone to grainstone; crystalline limestone; chert	Massively bedded, light gray, <i>Toucasia</i> abundant; <i>Dictyocomus</i> walmatensis, Caprinid	Caves related to structure or bedding planes	Mostly not fabric; some bedding-plane fabric/ water-yielding; locally permeable																																
	VIII				Basal nodular member	Karst AQ; not karst CU	45 - 60	Shaly, fossiliferous, nodular limestone; mudstone; miliolid grainstone	Massive, nodular and mottled; Ceratostreon texanum, Dictyoconus walmutensis, and Texigryphuca	Fowleaves	Fabrie/low permeability																																
	Low confin uni	Lower confining unit		per m len R	ember of the ose Limestone	CU; evaporite beds AQ	350 - 500	Yellowish-tan, thinly bedded limestone and marl	Stair-step topography; alternating limestone and marl	Some surface cave development	Some water production at evaporite beds/ relatively impermeable																																

SITE STRATIGRAPHY (Person Formation Outcrop)

GEOLOGIC ASSESSMENT ATTACHMENT C - SITE GEOLOGY



GEOLOGIC ASSESSMENT 220 FM 1863 New Braunfels, Comal County, Texas_

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Prepared for: New Braunfels Christian Academy Prepared by: Anding Environmental Consulting, LLC December 2021

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Geologic Assessment

220 FM 1863 New Braunfels, Comal County, Texas

> Prepared for: New Braunfels Christian Academy 220 FM 1863 New Braunfels, TX 78130

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Attachment F	Frost GeoSciences Geologic Site Assessment (2005, 2013)

Acronyms

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BMP	Best Management Practices
EAPP	Edwards Aquifer Protection Plan
FEMA	Federal Emergency Management Administration
GPS	Global Positioning System
TCEQ	Texas Commission on Environmental Quality
USDA	United States Department of Agriculture
USGS	United States Geological Survey

1.0 INTRODUCTION AND PURPOSE

1.1 Introduction

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This Geologic Assessment was prepared in general accordance with to 30 TAC §213.5(b)(3), effective September 01, 2003, Texas Commission on Environmental Quality (TCEQ) requirements for regulated developments within the Edwards Aquifer Recharge Zone, and the "Instructions to Geologists", TCEQ-0585-Instructions (Rev. 10-1-04). Per TCEQ guidance, a proposed project on the Site for future development of additional school facilities requires a Geologic Assessment to identify all potential pathways for contaminant movement to the Edwards Aquifer and provide sufficient geologic information so that the appropriate Best Management Practices (BMPs) can be proposed in the Edwards Aquifer Protection Plan (EAPP). This Geologic Assessment has been prepared by a Texas Board of Professional Geoscientists licensed geologist, Mr. Matt Anding, P.G.

1.2 Project Description

The Site is located at 220 FM 1863, New Braunfels, Comal County, Texas, just west of the intersection of FM 1863 and Hwy 46. The center of the Site is located at 29°43'4.11"N Latitude and 98°11'5.91"W Longitude (WGS 84), and the Site is ~27 acres in size. The property location is depicted on **Figure D-1**. A project is in place to further develop the school property with additional facilities.

The northeastern portion of the Site property is currently developed and being utilized as a middle school and high school campus. This includes three (3) large buildings for classrooms, chapel, and a gymnasium building, sports fields in the rear, and a paved parking lot in front. The southwestern portion of the Site property is currently undeveloped and largely forested.

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2.0 METHODOLOGY

2.1 Research Information

The Geologic Assessment was performed by Matt Anding, P.G. and Amanda Anding, Environmental Scientist, with Anding Environmental Consulting, LLC (Anding Environmental) on December 19, 2021. Anding Environmental first conducted a desktop analysis of the geology of the area surrounding the Site. The research included, but was not limited to, the Geologic Atlas of Texas, Federal Emergency Management Agency (FEMA) maps, Edwards Aquifer Recharge Zone Maps, USGS 7.5 Minute Quadrangle Maps, Bureau of Economic Geology online digital data, historic aerials and topographic maps, and the United States Department of Agriculture (USDA) Soil Survey of Comal County, Texas.

Three (3) Geologic Assessments were previously conducted at and adjacent to the Site, all by Frost GeoSciences. The 2005 GA was conducted for the same project Site boundaries as this GA and 10 findings were documented. The 2006 GA was conducted for the proposed wastewater line adjacent to the north of the Site. The 2013 GA was conducted just for the northeastern developed portion of the Site, and two (2) additional findings were documented. Anding Environmental reviewed the previously conducted GA reports in preparation for this GA, and has addressed all previously documented findings.

2.2 Field Survey

After reviewing the available information, a field investigation was performed to identify any geologic or man-made potential recharge features. A transect spacing of approximately 25-50 feet, or less depending on vegetation thickness, was used to inspect the Site. A 2019 aerial photograph, in conjunction with a hand held sub-meter Trimble GeoXH Global Positioning System (GPS), was used to navigate on the property and search for previously mapped and other potential recharge features, as recommended in the "Instructions to Geologists", TCEQ-0585-Instructions (Rev. 10-1-04). The Geologic Assessment Form, Stratigraphic Column, and the Geologic Assessment Table have been filled with the appropriate information for this Site and are included in this report. Special attention was given to the mapped faults, bedrock outcroppings, and other structural features observed from aerial photographs and the Site reconnaissance.

2.3 Data Gaps

An area in the southwestern portion of the Site, adjacent to the southern Site boundary, was observed to have historic soil fill and limestone rock debris spread out and in piles. Although the piles of fill soil and rock debris covering the natural ground surface represents a data gap to this Geologic Assessment, historic aerial imagery indicates the debris was not located on the Site during the 2005 Geologic Assessment. Any potential recharge features would have likely been observed during that field investigation.

2.4 Limitations of Assessment

No Geologic Assessment can wholly eliminate uncertainty regarding potential pathways for contaminant movement to the Edwards Aquifer in connection with a property. Performance of a Geologic Assessment in accordance with TCEQ-0585 instructions is intended to reduce, but

cannot eliminate, uncertainty regarding the potential for surficial points of infiltration in connection with a property, and the TCEQ recognizes reasonable limits of time and cost.

Anding Environmental assumes no responsibility for the discovery of any surficial or subsurface points of infiltration, caves, solution cavities or enlarged fractures/faults, sinkholes, or any other karst features not observed during this Geologic Assessment. Anding Environmental does not have any responsibility with regard to the Client's compliance with or fulfillment of its obligation under any law, ordinance, or regulation prevailing at any of the observed locations.

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3.0 NARRATIVE DESCRIPTION OF SITE GEOLOGY

3.1 Site Characterization

The Site is located on a broad gently sloping topographical area that consists of a developed school campus and an undeveloped wooded area. The northeastern portion of the Site property is currently developed and being utilized as a middle school and high school campus. The southwestern portion of the Site property is currently undeveloped and largely forested.

Site topography tends to slope to the north towards a dry drainage feature which skirts the northern Site boundary. The drainage feature is an unnamed tributary of Blieders Creek, emerges just southwest of the Site, flows to the north then northwest and into Blieders Creek 2 miles northeast of the Site. The highest elevation is approximately 922 ft amsl at the southwestern corner of the Site. The lowest elevation is approximately 864 ft amsl at the northern Site boundary near the drainage feature. Several manmade berms are located on the Site. The athletic fields have a large downgradient manmade berm bordering the western, northern, and eastern sides of the fields. A historic livestock tank is located in the southwestern undeveloped portion of the Site where the tank was excavated and bermed around all sides. The livestock tank berm has since been cut to allow drainage to exit to the northeast. An area in the southwestern portion of the Site, adjacent to the southern Site boundary, was observed to have historic soil fill and limestone rock debris spread out and in piles. The area is vegetated and grown over, indicating the area has not been recently disturbed.

The Site vegetation for the developed northeastern portion of the Site consists of maintained and landscaped lawn, trees, and shrubbery. Site vegetation for the undeveloped southwestern portion of the Site consists of thick cedar trees (Ashe Juniper) stands with live oaks, along with multiple non-wooded grassy areas.

3.2 Site Geology

Per the TCEQ Edwards Aquifer Program GIS dataset, the entire Site is located within the Edwards Aquifer Recharge Zone. A map of the Site and Edwards Aquifer Zones is presented as **Figure D**-4.

The following resources were most utilized in mapping the Site geology:

- Digital Geologic Map Database for the State of Texas (USGS)
- 1982 Geologic Atlas of Texas, San Antonio Sheet (Bureau of Economic Geology)
- 1992 Geologic Map of Texas (Bureau of Economic Geology)
- 2007 Geology of the New Braunfels Area (Bureau of Economic Geology, Texas Water Development Board, and USGS)
- Geologic Framework and Hydrogeologic Characteristics of the Edwards Aquifer Outcrop, Comal County, Texas (USGS)
- Geologic Map of the Edwards Aquifer Recharge Zone, South-Central Texas (USGS)

High resolution geologic mapping in the Site area was best found in the 1982 Geologic Atlas of Texas, San Antonio Sheet (BEG) and the 2007 Geology of the New Braunfels Area (BEG, TWDB,

USGS). The 1982 San Antonio Sheet maps the Site as largely Edwards Limestone Undivided (Ked) with a small sliver of Del Rio Clay (Kdr) mapped in the southwest corner of the Site, which is likely just due to a GIS projection error. The 2007 Geology of the New Braunfels Area figure maps the entire Site as the Person Member (Kp) of the Edwards Group.

Person Member of Edwards Group (Lower Cretaceous) - The entirety of the Site consists of the Person Cyclic and Marine Member of the Edwards Group. This is characterized as a chert-bearing mudstone to packstone and miliolid grainstone. This unit weathers to massive, light-tan outcrops with scattered toucasia present. This member is one of the most productive hydrologically because of the large number of subsurface caverns associated with incipient karstification. It can be very permeable with laterally extensive, fabric and nonfabric-selective porosity (Small and Hanson, 1995; Stein and Ozuna, 1995). Thickness 10–180 ft.

Del Rio Clay (Upper Cretaceous) – The 1982 San Antonio Sheet maps a small sliver of Del Rio Clay (Kdr) in the southwest corner of the Site, though this may be a GIS error. Anding Environmental did not observe any Del Rio clay outcroppings on the Site, however, there are known outcroppings to the west and south of the Site. The Del Rio Clay is a primary upper confining unit of the Edward Aquifer. The Del Rio Clay has no recognized cavern development and no significant porosity or permeability. (Small and Hanson, 1995; Clark, 2003). Thickness 40–110 ft.

Other stratigraphic units mapped nearby the Site include:

Georgetown Formation (Lower Cretaceous) – The Georgetown Formation, deposited on the eroded Person Formation, outcrops just below the Del Rio Clay and Buda Limestone in the area. The Georgetown Formation is the uppermost unit of the Edwards Aquifer. This unit is characterized by reddish-brown and gray to light-tan, marly limestone with biomicritic texture (Young, 1967). The Georgetown is considered an upper confining unit, has very low porosity and permeability, and has little or no karstification or cavern development (Stein and Ozuna, 1995). Thickness 2–20 ft.

Buda Limestone (Upper Cretaceous) – The Buda Limestone outcrops on topographic highs in the area on top of Del Rio Clay and Georgetown formations. Limestone beds in the upper part of the Buda are generally hard and dense and may exhibit conchoidal fracturing and a porcelaneous texture when broken. Limestone beds in the lower part of the Buda tend to be chalky (Collins, 2000). Regionally considered a confining unit. This unit has minor surface karst with low porosity and permeability (Small and Hanson, 1995). Thickness 40–90 ft.

Edwards limestone outcroppings were observed throughout the undeveloped southwestern portion of the Site. Typical outcroppings include bedding outcrops on flat topography where soil has eroded, boulders and exposed bedding on slopes, and exposed bedding within drainages.

Based on literature research and field reconnaissance, the Site has multiple known inferred normal faults on the property and surrounding area. Anding Environmental observed no significant fault structures on the Site during the field reconnaissance. No evidence of fault structures were observed on historic aerial imagery. Micro-fracturing was, however, observed in bedrock and large rocks throughout the Site.

A geologic map of the Site is presented as **Figure D-5**. Attachment E, Photo Log, displays photographs of typical outcroppings of the mapped geologic unit on Site.

3.3 Site Soils

The majority of the Site (Person formation) is covered with Rumple-Comfort soils. The southwestern corner of the Site is mapped as having Medlin, warm-Eckrant association soils. **Table 3-1** displays soils mapped on the Site and **Figure D-6** illustrates the soils in relation to the Site.

Table 3-1 – Site Soils

RUD - Rumple-Comfort, rubbly association, 1% to 8% slopes
MEC - Medlin, Warm-Eckrant association, 1% to 8% slopes

Rumple-Comfort, Rubbly Association (RUD) - Rumple-Comfort, Rubbly Association soils are on broad ridgetops and side slopes with gently sloping topography and more sloping areas near rock outcrops and drainage-ways. Rumple-Comfort, Rubbly Association soils (RUD) may have the surface covered with as much as 20 percent by volume of rounded chert, limestone fragments, gravels, and/or cobble. The surface soil layer is a dark reddish brown, very cherty loam, or gravelly clay loams to extremely cobbly clay loams that is about 10 inches thick. The subsoil (10-28 inches deep) is a dark reddish brown very cherty clay to extremely cherty clay that may have up to 75 percent by volume of limestone fragments present in the lower part of the subsoil. The underlying material is coarsely fractured indurated limestone that has dark reddish brown soil in the crevices. The underlying material is 28-36 inches in depth. Bedrock can be below 28-29 inches. Rumple-Comfort, Rubbly Association soils are typically well drained with very high runoff class and moderately low to moderately high capacity to transmit water (USDA/NRCS, 2021).

Medlin, Warm-Eckrant Association, Undulating (MEC) -The topographic sequence finds the Eckrant soil on the upper side slopes and on the crest of the hills or ridges in the region, while the Medlin is on the concave hillside below the Eckrant with the Krum below on the toe slope and the Comfort at the crest of ridges and narrow limestone rock ledges of the upper side slopes (Carson, 2000). This soil series is typically clayey residuum weather from claystones.

The topsoil of the Medlin, Warm-Eckrant Association, Undulating soils is grayish brown stony to dark grayish brown clay about 9 to 11 inches thick. The underlying subsoil layers are light yellowish brown, light olive brown, olive brown, olive yellow or olive. The unique color and mottles also present are due to the very poor permeability and large amounts of shrink/swell clay present. The subsoil layers are 9 to 80 inches deep. The weathered parent material is 50 to 80 inches deep and a light gray to light brownish gray shaley clay. Mottles of olive yellow and yellow are common here due to the poor drainage and discontinuous oxygen content (Carson, 2000). These soils are typically well drained with very high runoff class and very low to moderately low capacity to transmit water (USDA/NRCS, 2021).

In general, Anding Environmental observed Site soils to be rather deep in places other than steep slopes, bedrock outcrops, and drainages.3.4 Site Assessment

Anding Environmental observed and documented four (4) features during the Site reconnaissance, including a non-karst closed depression, a manmade feature in bedrock (stock tank), and two (2) solution cavities. Details regarding these features can be found below and in the Geologic Assessment Table found in Attachment A of this report, and the feature locations are displayed on Figure D-7.

Documented Features

SC-1

Non-Karst Closed Depressions: This feature consists an area approximately 10' x CD-1 10'where two (2) voids within manmade fill were observed. The fill material is fairly deep as it was brought in to develop a berm supporting a detention area around the athletic fields in the northeastern portion of the Site. Both voids appear to be located within the fill adjacent to larger rocks where compaction was not suitable. Due to the features being located on deep fill material, the topographic positioning on the bermed slope, and a lack of evidence suggesting surface water being directed towards the features, Anding Environmental determined the features to not have a high potential for surface water infiltration to the subsurface, and are not considered a sensitive feature.

> This feature was documented as S-101 in the 2013 GA and was not considered to be a sensitive feature. It should be noted that the 2013 GA identified three (3) voids in this area and Anding Environmental was unable to locate a third void.

Manmade Feature in Bedrock: This feature consists of a historic livestock tank **MB-1** excavated down to bedrock in the center. The excavated soil was used to create a berm around the livestock tank. A section of the down-gradient berm has been removed for quite some time, allowing water to freely flow out of the depression area. Historic aerials indicate a lack of standing water in the depression due to this dating back to at least 1995. The exposed bedrock in the center is minimal and no voids or evidence of surface water flow to the subsurface was observed. Due to the historic tank no longer allowing water to pond and a lack of voids or infiltration evidence, this feature is not being considered a sensitive feature.

This feature was documented as S-1 in the 2005 GA and was not considered a sensitive feature. And a sensitive devices a sensitive devices and the sensitive devices and the

Solution Cavity: This solution cavity, located on the southwestern portion of the Site, was observed on a gentle slope within fractured limestone boulders at the base of an oak tree. The cavity and surrounding area was investigated for potential for surface water infiltration to the subsurface. It appears the cavity is located between boulders, not within bedrock, as the limestone rock is sitting higher that surrounding surface. The cavity was likely formed as an animal burrow under the rocks. Digging by hand and shovel, the bottom of the cavity appeared to be limestone bedding without

additional fracturing or cavities. The slope which the boulders are located on, a slight topographic high, displayed no evidence of surface water drainage or infiltration. Due to a very low potential for surface water infiltration to the subsurface, and the animal burrow nature of the dug-out cavity, this finding is not being considered a sensitive feature.

This feature was documented as S-2 in the 2005 GA and was not considered a sensitive feature.

SC-2 Solution Cavity: This solution cavity, also located on the southwestern portion of the Site, was observed on a gentle slope in soil amongst limestone boulders. The cavity and surrounding area was investigated for potential for surface water infiltration to the subsurface. The cavity is situated along the side of a boulder, not within bedrock. Digging by hand and shovel, the bottom of the cavity appeared to be limestone bedding without additional fracturing or cavities. The slope which the cavity is located on displayed no evidence of surface water drainage or infiltration. Due to a very low potential for surface water infiltration to the subsurface, this finding is not being considered a sensitive feature.

This feature was documented as S-3 in the 2005 GA and was not considered a sensitive feature.

2005 and 2013 Geologic Assessment Features

Multiple features observed in the 2005 and 2013 GA reports were either not located during this Site investigation or were determined to not be potential features.

S-4 (2005) was identified as a non-sensitive man-made feature in bedrock "consisting of an excavated area" near the livestock tank. While Anding Environmental did observe berms and several undulating topographic lows at the S-4 area, no bedrock or topographic lows where surface water would pond was located.

The 2005 GA report identified three (3) recently drilled geotechnical borings as non-sensitive manmade features in bedrock (S5, S-9, and S-10). The borings were plugged and appropriately abandoned at the time. Anding Environmental was unable to locate the boring holes in the field during the Site visit.

S-6 (2005) is a dry drainage which was identified as sensitive zone feature due to some vuggy limestone and fractured rock outcrops within the drainage pathway. The 2005 GA did not identify any specific features which would allow for rapid infiltration into the subsurface, and no photographic documentation was provided. Anding Environmental observed the drainage to competent bedrock where exposed, or otherwise a swale with a vegetated soil horizon. One area was observed with particular vuggy limestone, however lacking permeability. Standing water was observed in the vuggy limestone area. Discontinuous fractured rock was observed at a bearing of N 33°, but also at other various bearings. Anding Environmental closely examined the entire length of the drainage, hand digging any potential solution cavities, and no individual features were

observed. Exposed bedrock provided for a clear observation of fracturing and porosity conditions. Depressions and fractures were observed to be filled with vegetation and Rumple-Comfort clays, characterized by high runoff potential, suggesting the drainage feature has potential for high runoff instead of infiltration. Anding Environmental determined the dry drainage feature to be formed in intact limestone with minimal leakage through hairline fractures, bedding planes, or matrix porosity, which would not be considered a point or zone feature.

S-7 (2005) was identified as a non-sensitive solution cavity located just northeast of the baseball field. Anding Environmental was unable to locate any solution cavities in the area surrounding the 2005 coordinates and observed no evidence of surface water preferential pathways.

S-8 (2005) was identified as a non-sensitive solution cavity located adjacent or below the parking lot in front of the school. Anding Environmental was unable to locate any solution cavities in the area surrounding the 2005 coordinates and observed no evidence of surface water preferential pathways. It is possible the solution cavity was covered by the parking lot or newer landscaping.

S-102 (2013) was identified as a non-sensitive man-made feature in bedrock set of septic treatment tanks located behind the school gymnasium. Based on the 2013 report, it is unclear if the septic tank holds were dug down to bedrock. Anding Environmental examined the area directly on top of and surrounding the installed septic tanks and observed no evidence of surface water preferential pathways or surficial voids. The surface appears to be compacted clays which would cause rapid runoff of surface water.
4.0 SUMMARY

1

Anding Environmental has conducted a Geologic Assessment for the referenced Site in accordance with 30 TAC §213.5(b)(3), TCEQ requirements for regulated developments within the Edwards Aquifer Recharge Zone, and the "Instructions to Geologists", TCEQ-0585-Instructions (Rev. 10-1-04). Four (4) features (CD-1, MB-1, SC-1, and SC-2) were observed and found to be non-sensitive features. No sensitive features were observed on the Site.

Please note that other karst features may exist on Site, either buried or obscured from view, which may have potential for openings to the subsurface. If any additional potentially karst features are discovered during future Site activities, please do not hesitate to contact Anding Environmental for support.

5.0 REFERENCES

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GEOLOGIC ASSESSMENT ATTACHMENT D - SITE GEOLOGIC MAPS













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GEOLOGIC ASSESSMENT ATTACHMENT E - PHOTO LOG

Attachment E - Photo Log Site Investigation Photos





Site Campus Entrance Southeastern Site Boundary

Site Entrance



Site Eastern Corner



Northeastern Site Boundary





Site Northern Corner

Site Northwestern Boundary Developed Portion of Site



Site Northwestern Boundary Undeveloped Portion of Site



Site Western Corner

101.0



Site Southern Corner



School Gymnasium



Front Parking Lot Area and Classroom Buildings



Rear of School Facilities



Athletic Fields



Undeveloped Portion of Site Southwest of Athletic Fields



Typical Cedar Thicket and Edwards Limestone in Undeveloped Portion of Site



Typical Grassy Areas in Undeveloped Portion of Site



Dry Tributary Along Northwestern Site Boundary



Dry Tributary Exiting Northwestern Site Boundary



Southern Portion of Site with Soil Fill and Rock Debris



CD-1 - Non-Karst Closed Depressions within Manmade Berm



CD-1 – Non-Karst Closed Depression within Manmade Berm



CD-1 – Non-Karst Closed Depression within Manmade Berm



MB-1 – Manmade Feature in Bedrock Livestock Tank



MB-1 – Bedrock in Center of Livestock Tank



SC-1 – Solution Cavity



Topography and Typical Vegetation Surrounding SC-1 – Solution Cavity



SC-2 - Solution Cavity

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Topography and Typical Vegetation Surrounding SC-2 – Solution Cavity

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Area of S-4 Manmade Feature in Bedrock from 2005 Frost Geologic Assessment (Unable to Locate)



Area of S-5 Manmade Feature in Bedrock (Geotech Boring) from 2005 Frost Geologic Assessment (Unable to Locate)



Dry Drainage Feature S-6 Zone from 2005 Frost Geologic Assessment Facing Upstream



Ponding Water on Vuggy Limestock in Dry Drainage Feature





Dry Drainage Feature S-6 Zone from 2005 Frost Geologic Assessment Facing Downstream

Dry Drainage Feature S-6 Zone from 2005 Frost Geologic Assessment Facing Downstream



Dry Drainage Feature S-6 Zone from 2005 Frost Geologic Assessment Exiting Northwestern Site Boundary



Area of S-7 Solution Cavity from 2005 Frost Geologic Assessment (Unable to Locate)



Area of S-8 Solution Cavity from 2005 Frost Geologic Assessment (Unable to Locate)



Area of S-9 Manmade Feature in Bedrock (Geotech Boring) from 2005 Frost Geologic Assessment (Unable to Locate)



Area of S-10 Manmade Feature in Bedrock (Geotech Boring) from 2005 Frost Geologic Assessment (Unable to Locate)



Area of S-102 Manmade Feature in Bedrock (Septic System) from 2013 Frost Geologic Assessment (Unable to Locate)



RUD - Rumple-Comfort, rubbly association, 1% to 8% slopes



RUD - Rumple-Comfort, rubbly association, 1% to 8% slopes



MEC - Medlin, warm-Eckrant association, 1% to 8% slopes



MEC - Medlin, warm-Eckrant association, 1% to 8% slopes

Modification of a Previously Approved Plan

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Transition Zone and Relating to 30 TAC 213.4(j), Effective June 1, 1999

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

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

Signature

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

Print Name of Customer/Agent: Joseph Sandoval, P.E.

Date: 3/9/2023

Signature of Customer/Agent:

andonel, P.E.

Project Information



 Current Regulated Entity Name: <u>New Braunfels Christian Academy</u> Original Regulated Entity Name: <u>New Braunfels Christian Academy</u> Regulated Entity Number(s) (RN): <u>104634530</u>

Edwards Aquifer Protection Program ID Number(s): ____

The applicant has not changed and the Customer Number (CN) is: <u>602851750</u>

The applicant or Regulated Entity has changed. A new Core Data Form has been provided.

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

- 3. A modification of a previously approved plan is requested for (check all that apply):
 - Physical or operational modification of any water pollution abatement structure(s) including but not limited to ponds, dams, berms, sewage treatment plants, and diversionary structures;
 - Change in the nature or character of the regulated activity from that which was originally approved or a change which would significantly impact the ability of the plan to prevent pollution of the Edwards Aquifer;
 - Development of land previously identified as undeveloped in the original water pollution abatement plan;

Physical modification of the approved organized sewage collection system;

Physical modification of the approved underground storage tank system;

Physical modification of the approved aboveground storage tank system.

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

WPAP Modification Summary	Approved Project (2005)	Previously Approved Modification (2013)	Previously Approved Exception (2022)	Proposed Modifications
Acres	<u>27.17</u>	<u>12.17 of 27.17</u>	<u>12.17 of 27.17</u>	<u>27.17</u>
Type of Development	<u>School</u>	School	<u>School</u>	<u>School</u>
Number of Residential	<u>N/A</u>	N/A	N/A	<u>N/A</u>
Lots				
Impervious Cover (acres)	<u>4.09</u>	4.39	<u>3.94</u>	<u>15.5</u>
Impervious Cover (%	<u>15.50</u>	36.07	32.37	57.05
Permanent BMPs	15' Engineered VFS;	15' Engineered VFS;	Existing 15'	Two (2) batch
Other	20% exemption for school buildings	and one (1) retention basin/irrigation	and one (1) retention basin/	detention basins
SCS Modification		system	irrigation system	
Summary	Approved Project	Proposed Modification		
Linear Feet				
Pipe Diameter				
Other				

AST Modification	Approved Project	Proposed Modification	
Summary			
Number of ASTs			
Volume of ASTs			
Other			
UST Modification	Approved Project	Proposed Modification	
UST Modification Summary	Approved Project	Proposed Modification	
UST Modification Summary Number of USTs	Approved Project	Proposed Modification	
<i>UST Modification</i> <i>Summary</i> Number of USTs Volume of USTs	Approved Project	Proposed Modification	

- 5. Attachment B: Narrative of Proposed Modification. A detailed narrative description of the nature of the proposed modification is attached. It discusses what was approved, including any previous modifications, and how this proposed modification will change the approved plan.
- 6. Attachment C: Current Site Plan of the Approved Project. A current site plan showing the existing site development (i.e., current site layout) at the time this application for modification is attached. A site plan detailing the changes proposed in the submitted modification is required elsewhere.
 - The approved construction has not commenced. The original approval letter and any subsequent modification approval letters are included as Attachment A to document that the approval has not expired.
 - The approved construction has commenced and has been completed. Attachment C illustrates that the site was constructed as approved.
 - The approved construction has commenced and has been completed. Attachment C illustrates that the site was **not** constructed as approved.

The approved construction has commenced and has **not** been completed. Attachment C illustrates that, thus far, the site was constructed as approved.

- The approved construction has commenced and has **not** been completed. Attachment C illustrates that, thus far, the site was **not** constructed as approved.
- 7. The acreage of the approved plan has increased. A Geologic Assessment has been provided for the new acreage.
 - Acreage has not been added to or removed from the approved plan.
- 8. Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

Bryan W. Shaw, Ph.D., *Chairman* Carlos Rubinstein, *Commissioner* Toby Baker, *Commissioner* Zak Covar, *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

August 15, 2013

Mr. Roland Ruiz, General Manager Edwards Aquifer Authority 1615 N St. Mary's San Antonio TX 78215-1415

Re: Edwards Aquifer, Comal County PROJECT NAME: New Braunfels Christian Academy, located at 995 Mission Hills Drive, New Braunfels, Texas

PLAN TYPE: Application for Approval of a Water Pollution Plan (WPAP) 30 Texas Administration Code (TAC) Chapter 213; Edwards Aquifer Protection Program EAPP File No. and Regulated Entity No.: RN104634530

Dear Mr. Ruiz:

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.

Please forward your comments to this office by September 152, 2013.

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.

Jolk la Sincerely

Todd Jones Water Section Work Leader San Antonio Regional Office

TJ/eg

TCEQ Region 13 • 14250 Judson Rd. • San Antonio, Texas 78233-4480 • 210-490-3096 • Fax 210-545-4329

Bryan W. Shaw, Ph.D., Chairman Carlos Rubinstein, Commissioner Toby Baker, Commissioner Zak Covar, Executive Director



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

August 15, 2013

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: New Braunfels Christian Academy, located at 995 Mission Hills Drive, New Braunfels, Texas

PLAN TYPE: Application for Approval of a Water Pollution Plan (WPAP) 30 Texas Administration Code (TAC) Chapter 213; Edwards Aquifer Protection Program EAPP File No. and Regulated Entity No.: RN104634530

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.

Please forward your comments to this office by September 15, 2013.

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

Todd Jones Water Section Work Leader San Antonio Regional Office

TJ/eg

Bryan W. Shaw, Ph.D., Chairman Carlos' Rubinstein, Commissioner Toby Baker, Commissioner Zak Covar, Executive Director



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

August 15, 2013

Mr. James C. Klein, P.E., City Engineer City of New Braunfels 424 S. Castell Ave New Braunfels TX 78130-7619

Re: Edwards Aquifer, Comal County PROJECT NAME: New Braunfels Christian Academy, located at 995 Mission Hills Drive, New Braunfels, Texas

PLAN TYPE: Application for Approval of a Water Pollution Plan (WPAP) 30 Texas Administration Code (TAC) Chapter 213; Edwards Aquifer Protection Program EAPP File No. and Regulated Entity No.: RN104634530

Dear Mr. Klein:

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.

Please forward your comments to this office by September 15, 2013.

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

Todd Jones Water Section Work Leader San Antonio Regional Office

TJ/eg

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Bryan W. Shaw, Ph.D. Chairman Carlos Rubinstein, Commissioner Toby Baker, Commissioner Zak Covar, Executive Director

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TEXAS COMMISSION ON ENVIRONMENTAL QUALITY ENGINEER

Protecting Texas by Reducing and Preventing Pollution

October 25, 2013

Mr. Eric Pipken New Braunfels Christian Academy 220 FM 1863 New Braunfels, Texas 78132

Re: Edwards Aquifer, Comal County

NAME OF PROJECT: New Braunfels Christian Academy; Located at 995 Mission Hills Drive; New Braunfels, Texas

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

Edwards Aquifer Protection Program ID No. and Regulated Entity No. RN104634530; Investigation No. 1114715; Additional ID No. 13-13081403

Dear Mr. Pipken:

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 Pape-Dawson Engineers, Inc. on behalf of New Braunfels Christian Academy on August 14, 2013. Final review of the WPAP was completed after additional material was received on September 25 and 30, 2013. As presented to the TCEQ, the Temporary and Permanent Best Management Practices (BMPs) 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

A WPAP was approved by the TCEQ on June 9, 2006 for the construction of a temporary middle school, temporary high school, gymnasium, football field, roadways, driveway, and parking lots.

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PROJECT DESCRIPTION

The proposed commercial project will have an area of approximately 12.17 acres. It will include the reconfiguration of the previously approved gymnasium building and construction of an all natural grass sports field. The impervious cover will be 4.39 acres (36.07 percent). Project wastewater will be disposed of by conveyance to the existing Gruene Wastewater Treatment Plant owned by New Braunfels Utilities.

PERMANENT POLLUTION ABATEMENT MEASURES

To prevent the pollution of stormwater runoff originating on-site or upgradient of the site and potentially flowing across and off the site after construction, one irrigation/retention basin and existing vegetative filter strips, designed using the TCEQ technical guidance document, <u>Complying with the Edwards Aquifer</u> <u>Rules: Technical Guidance on Best Management Practices (2005)</u>, will be constructed to treat stormwater runoff. The required total suspended solids (TSS) treatment for this project is 3,582.24 pounds of TSS generated from the 4.39 acres of impervious cover. The approved measures meet the required 80 percent removal of the increased load in TSS caused by the project. The table provided below provides the characteristics of the drainage areas with impervious cover and the Permanent Best Management Practices (PBMP).

Drainage Area	Total	Impervious	PBMP	TSS	TSS
	Area	Cover		Generated	Removed
	(ac)	(ac)		(lbs)	(lbs)
А	5.95	3.03	Retention/	2,472.48	2,529.60
			Irrigation		
В	0.11	0.11	VFS	89.76	89.76
Uncaptured 1	0.02	0.02	Uncaptured	16.32	
Uncaptured 2	0.05	0.05	Uncaptured	40.80	
A'	-	1.18	VFS (appvd	962.88	962.88
			2006)		
Totals		4.39		3,582.24	3,582.24

<u>GEOLOGY</u>

According to the geologic assessment included with the application, the project site is in the cyclic and marine member of the Person Formation. The San Antonio Regional Office site assessment conducted on September 23, 2013 revealed that there were three geologic features (one closed depression and two solution cavities) and one manmade feature (septic tanks). None of the features were rated as sensitive. The site was found to be as described in the Geologic Assessment.

Mr. Eric Pipken Page 3 October 25, 2013

SPECIAL CONDITIONS

- This modification is subject to all Special and Standard Conditions listed in the WPAP approval letter I. dated June 9, 2006.
- II. All permanent pollution abatement measures shall be operational prior to occupancy of the facility.
- III. 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.
- The applicant must provide written notification of intent to commence construction, replacement, or 7. 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.



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COUNTY ENGINEER



Mr. Eric Pipken Page 4 October 25, 2013

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 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.

Mr. Eric Pipken Page 5 October 25, 2013

- 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 Mr. Michael Isley of the Edwards Aquifer Protection Program of the San Antonio Regional Office at 210-403-4057.

Sincerely,

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

RECEIVED NOV **0 5** 2013

COUNTY ENGINEER

LMB/MI/eg

- Enclosure: Deed Recordation Affidavit, Form TCEQ-0625 Change in Responsibility for Maintenance of Permanent BMPs, Form TCEQ-10263
- cc: Mr. Song Tan, P.E., Pape-Dawson Engineers, Inc. Mr. Thomas Hornseth, P.E., Comal County Engineer Mr. James Klein, P.E., City of New Braunfels Mr. Roland Ruiz, Edwards Aquifer Authority TCEQ Central Records, Building F, MC 212

MODIFICATION OF A PREVIOUSLY APPROVED PLAN ATTACHMENT B Narrative of Proposed Modifications

New Braunfels Christian Academy is an existing school located at 220 FM 1863, within the limits of the City of New Braunfels. The project site is located in Comal County, Texas and is situated entirely over the Edwards Aquafer Recharge Zone.

Previous Studies

A Water Pollution Abatement Plan (WPAP) for the site titled "New Braunfels Christian Academy" was approved by the Texas Commission on Environmental Quality (TCEQ) on June 9, 2006 (RN104634530; EAPP File No. 2347.02). The original WPAP permitted construction of approximately 4.09 acres of impervious cover for Phase 1 of a two-phase developments, or 15.50% of a 27.17-acre site. Fifteen-foot (15') wide Engineered Vegetative Filter Strips (VFS) were approved as Permanent Best Management Practices (BMPs) for the site to treat driveways, parking, and sidewalks. A variant of the 20% or less impervious cover exception request was approved by the TCEQ on July 13, 2005 (EAPP File No. 2347.00), prior to WPAP submittal, and which waived the requirement for treatment of impervious cover from school buildings.

A WPAP modification (MOD) for this site titled "New Braunfels Christian Academy Water Pollution Abatement Plan Modification" was approved by TCEQ on October 25th, 2013 (RN104634530). This WPAP MOD permitted construction of approximately 4.39 acres of impervious cover over the 12.17 acres site. One (1) proposed retention basin/irrigation system and existing fifteen-foot (15') Engineered Vegetative Filter Strips (VFS) were approved as the Permanent Best Management Practices (PBMPs).

A WPAP Exception for this site titled "New Braunfels Christian Academy" was approved by TCEQ on June 17, 2022 (RN104634530). This WPAP Exception permitted construction of approximately 2015 square feet of impervious cover from a proposed portable building. The approval of the previous WPAP Modification approved on October 25th, 2013 accounted and treated for approximately 4.39 acres of impervious cover. Of that 4.39 acres of impervious cover from this exception has been accounted and designed for in the previous WPAP modification study.

Proposed Improvements

Construction activities proposed with this MOD include clearing, grading, excavation, drainage improvements, construction of two (2) batch detention basins, a sport field, field house, softball field, baseball field, batting cages, maintenance building, secondary school building, elementary school building, cafetorium/practice gym building, and associated parking for all development. Approximately 15.5 acres of impervious cover are proposed, or 57.05%.
All PBMPs have been designed in accordance with the TCEQ's Technical Guidance Manual (TGM) RG-348 (2005) to remove 80% of the increase in TSS from the site. The irrigation system will be constructed and installed in accordance with the requirements of the TCEQ's TGM Section 3.4.3.

This school site generates approximately 10,000 gallons per day (gpd) of peak wastewater flow. Wastewater service for the area is provided by New Braunfels Utilities (NBU) with conveyance to the existing Gruene Wastewater Treatment Plant. Potable water service is also provided by NBU.

Water Pollution Abatement Plan Application

Texas Commission on Environmental Quality

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

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

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

Signature

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

Print Name of Customer/Agent: Joseph Sandoval, P.E.

Date: March 9, 2023

Signature of Customer/Agent:

Regulated Entity Name: New Braunfels Christian Academy

Regulated Entity Information

1. The type of project is:

Residential: Number of Lots:

Residential: Number of Living Unit Equivalents:

- Commercial
- Industrial
- Other:<u>Existing school site</u>
- 2. Total site acreage (size of property): 27.17
- 3. Estimated projected population:
- 4. The amount and type of impervious cover expected after construction are shown below:

TCEQ-0584 (Rev. 02-11-15)



Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	134,622.2	÷ 43,560 =	3.091
Parking	164,875.5	÷ 43,560 =	3.785
Other paved surfaces	326,198.1	÷ 43,560 =	8.624
Total Impervious Cover	625695.8	÷ 43,560 =	15.5

Table 1 - Impervious Cover Table

Total Impervious Cover <u>15.50</u> ÷ Total Acreage <u>27.17</u> X **100** = <u>57.05</u>% 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 = _____ $Ft^2 \div 43,560 Ft^2/Acre = _____ acres.$

10. Length of pavement area: _____ feet.

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

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

A rest stop will not be included in this project.

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

Stormwater to be generated by the Proposed Project

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

Wastewater to be generated by the Proposed Project

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

<u>100</u> % Domestic	<u>10,00</u> 0Gallons/day
% Industrial	Gallons/day
% Commingled	Gallons/day
TOTAL gallons/day	

15. Wastewater will be disposed of by:

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

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

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

Sewage Collection System (Sewer Lines):

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

The SCS was previously submitted on_____.

- \boxtimes 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 <u>Gruene Wastewater</u> <u>Treatment Plant</u> (name) Treatment Plant. The treatment facility is:

imes	Existing.
	Proposed.

16. \square 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. \square The Site Plan must have a minimum scale of 1" = 400'.

Site Plan Scale: 1" = <u>40</u>'.

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): <u>FEMA_DFIRM (Digital Flood Insurance Rate Map for Bexar County and Incorportated areas)</u> Panel Number 48091C0435F, Dated September 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 <u>0</u> (#) 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.

 \square 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. \square 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. \boxtimes 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.

WATER POLLUTION ABATEMENT PLAN ATTACHMENT A Factors Affecting Water Quality

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

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

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

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

However, temporary BMP measures were taken to ensure water quality is not impaired by construction.

WATER POLLUTION ABATEMENT PLAN ATTACHMENT B Volume and Character of Stormwater

The New Braunfels Christian Academy site covers 27.17 acres. The drainage area map can be found on pages C2.00 through C2.02 of the NBCA Expansion WPAP Construction Plans. In existing conditions

Currently there are existing improvements on the site. In order to be most conservative, our analysis considers the site to be undeveloped. Construction activities proposed with this MOD include clearing, grading, excavation, drainage improvements, construction of two (2) batch detention basins, a sport field, field house, softball field, baseball field, batting cages, maintenance building, secondary school building, elementary school building, cafetorium/practice gym building, and associated parking for all development. Approximately 15.5 acres of impervious cover are proposed, or 57.05%.

The plans include permanent BMPs to treat the increase of TSS due to this development. The resulting TSS removal from the proposed development is 12,890 pounds; which meets the 80% TSS removal standard set by TCEQ. The proposed Permanent BMPs include two (2) Batch Detention Ponds. The water quality drainage areas do not change from the proposed drainage areas.

The SCS method has been used along with the program Hydrographs, to analysis and size the two batch detention basins and insure no adverse impact or increased stormwater flow onto adjacent properties. The soil type, in accordance with the USGS soil map, is Type D. The curve numbers used for existing conditions is 78 which represents the cover type of: Meadow-continuous grass, protected from grazing and generally mowed for hay and soil type D. The curve number used for existing conditions is which represents the cover type of: Zone C-1/C1A Neighborhood business and soil type D. These values were derived from the most current revision of the City of New Braunfels Drainage Criteria Manual

The Modified Rational method was used to analyze and design the proposed drainage features and storm drain network. The proposed conditions runoff coefficient a weighted average of asphaltic, concrete and pasture/range on a 2-7% slope. These values were derived from the most current revision of the City of New Braunfels Drainage Criteria Manual. Tables showing the drainage areas and resulting flows are the drainage area maps contained within the construction plans.

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: Joseph Sandoval, P.E.

Date: March 9, 2023

Signature of Customer/Agent:

sof Sandone

Regulated Entity Name: New Bruanfels Christian Academy

n Academy

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: <u>Blieders Creek</u>

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:

		\square 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 now BIVIPS 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.	\square	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.	\boxtimes	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.
		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.
		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. \square 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.

TEMPORARY STORMWATER SECTION ATTACHMENT A Spill Response Actions

In the event of an accidental leak or spill:

- The spill must be contained and cleaned up immediately. Do no bury or wash spills with water. 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.
- Contractor shall take action to contain the spread of the spill. Contractor may use sand or other absorbent material stockpiled on site to absorb spill. Absorbent material should be spread over the spill area to absorb the spilled product.
- In the event of an uncontained discharge the contractor shall utilize onsite equipment to construct berms downgradient of the spill with sand or other absorbent material to contain and absorb the spilled product.
- Spill containment/absorbent materials along with impacted media must be collected and stored in such a way so as not to continue to affect additional media (soil/water). Once the spill has been contained, collected material should be placed on poly or plastic sheeting until removed from the site. The impacted media and cleanup materials should be covered with plastic sheeting and the edges weighed down with paving bricks or other similarly dense objects as the material is being accumulated. This will prevent the impacted media and cleanup materials from becoming airborne in windy conditions or impacting runoff during a rain event. The stockpiled materials should not be located within an area of concentrated runoff such as along a curb line or within a swale.
- Contaminated soils and cleanup materials will be sampled for waste characterization. When the analysis results are known the contaminated soils and cleanup materials will be removed from the site and disposed in a permitted landfill in accordance with applicable regulations.
- The contractor will be required to notify the owner, who will in tum contact TCEQ to notify them in the event of a significant hazardous/reportable quantity spill. Additional notifications as required by the type and amount of spill will be conducted by the owner or owner's representative.

In the event of a significant or hazardous spill in reportable quantities:

- Notify the TCEQ by telephone as soon as possible and within 24 hours by phone at (210) 490-3096 (San Antonio) between the hours of 8 AM and 5 PM. After hours, contact the Environmental Release Hotline at 1-800-832-8224
- For spills of federal reportable quantities, the contractor should notify the National Response Center at (800) 424-880the Edwards Aquifer Authority at (210) 222-2204
- Notifications should first be made by telephone and followed up with a written report.
- The services of a spills contractor or a Haz-Mat team should be obtained immediately. Construction personnel should not attempt to clean up until the appropriate and qualified staffs have arrived at the job site.
- Other agencies which may need to be consulted include, but are not limited to, the City Police Department, County Sheriff Office, Fire Departments, etc.

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

TEMPORARY STORMWATER SECTION ATTACHMENT B Potential Sources of Contamination

Potential sources of contamination during construction include:

- Asphalt products used on this project.
- Oil, grease, fuel, and hydraulic fluid contamination from construction equipment and vehicle dropping
- Accidental leaks or spills of oil, petroleum products and substances listed under 40 CFR parts 110, 117, and 302 used or stored temporarily on site
- Miscellaneous trash and litter from construction workers and material wrappings.
- Construction debris
- Spills/overflow of waste from portable toilets

Preventative measure shall include:

- After placement of asphalt, emulsion or coatings, the contractor will be responsible for immediate cleanup should an unexpected rain occur. For the duration of the asphalt product curing time, the contractor will maintain standby personnel and equipment to contain any asphalt wash-off should an unexpected rain occur. The contractor will be instructed not to place asphalt products on the ground within 48 hours of a forecasted rain.
- Vehicle maintenance, when possible, will be performed within the construction staging area
- Construction vehicles and equipment shall be checked regularly for leaks and repaired immediately.
- Contractor to incorporate into regular safety meetings, a discussion of spill prevention and appropriate disposal procedures.
- Contractor's superintendent or representative overseer shall enforce proper spill prevention and control measures.
- Hazardous materials and wastes shall be stored in covered containers and protected from vandalism.
- A stockpile of spill cleanup materials shall be stored on site where it will be readily accessible.
- Trash containers will be placed throughout the site to encourage proper trash disposal.
- Construction debris will be monitored daily by contractor. Debris will be collected weekly and placed in disposal bins. Situations requiring immediate attention will be addressed on a case-by-case basis.
- Portable toilets will be placed away from high traffic vehicular areas and storm drain inlets
- Portable toilets will be placed on a level ground surface.
- Portable toilets will be inspected regularly for leaks and will be serviced and sanitized at time intervals that will maintain sanitary conditions.

TEMPORARY STORMWATER SECTION

ATTACHMENT C

Sequence of Major Activities

The sequence of major activities which disturb soil during construction on this site will be performed in one phase.

- 1. Call New Braunfels Utilities and TCEQ 48-hours prior to beginning any work. Call the Dig Tess for utilities locations.
- 2. Temporary erosion and sedimentation (E&S) controls, i.e., silt fences, rock berms, stabilized entrances, or other controls must be installed prior to construction and maintained during construction.
- 3. Begin site clearing. (27.17 acres disturbed)
- 4. Inspect erosion controls at weekly intervals, before and after significant rainfall events to insure they are functioning properly.
- 5. Road cuts to subgrade elevation. (27.17 acres already disturbed)
- 6. Install onsite sewer mains and laterals. (27.17 acres already disturbed)
- 7. Install water lines. (27.17 acres already disturbed)
- 8. Construct drainage improvements. (27.17 acres already disturbed)
- 9. Complete fill and compaction on site to match subgrade elevations. (27.17 acres already disturbed)
- 10. Construct curb inlet protection at the time of curb and inlet installation. (27.17 acres already disturbed)
- 11. Complete all construction per approved plans and stabilize all disturbed areas.
- 12. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities cease and will not resume within 21 days.
- 13. Install streetscape and/or landscaping improvements.
- 14. Contact project engineer to inspect site. Final city inspection to be scheduled.
- 15. Complete any necessary final dress up in areas disturbed.
- 16. Removed and dispose of temporary erosion controls after site revegetation has occurred.

TEMPORARY STORMWATER SECTION ATTACHMENT D Temporary Best Management Practices and Measures

Temporary erosion controls are proposed for this project to include silt fence, rock berms, concrete wash out area, filter curb inlet protection, temporary spoils & staging area and stabilized construction entrances and exits. Please see sheet C4.00 and C4.02 for layout of all BMPs.

Temporary sediment basins are not required because there are no drainage areas greater than 10 acres disturbed on site.

A stabilized construction entrance at the beginning of the project will be required.

Rock berms will be established at the existing low points at the beginning of the project will be required.

From the TECQ RG 348 dated July, 2005, silt fences provide protection. In addition, the contractor has been directed to minimize disturbance.

Upgradient stormwater runoff from areas to the south are intercepted by FM 1863 and do not enter the project site. No additional TBMPs are necessary and all TBMPs utilized are adequate for the drainage areas served.

Site preparation, which is the initiation of all activity on the project, will disturb the largest amount of soil. Therefore, before any of this work can begin, the clearing and grading contractor will be responsible for the installation of all on-site control measures. The methodology for pollution prevention of on-site stormwater will include:

- 1. Placement of silt fence along the downgradient boundary of construction activities for temporary erosion and sedimentation controls,
- 2. Installation of rock berms downgradient from areas of concentrated stormwater flow for temporary erosion control, and
- 3. Installation of construction staging area(s)

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

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

There are no surface streams on or immediately adjacent to the site.

No naturally-occurring sensitive features were identified in the Geologic Assessment. There are no surface streams on or immediately adjacent to the site. BMP measures utilized in this plan are intended to allow stormwater to continue downstream after passing through the BMPs. This will allow stormwater runoff to continue downgradient to streams or features that may exist downstream of the site. Features discovered during construction will be reported and assessed in accordance with applicable regulations.

TEMPORARY STORMWATER SECTION ATTACHMENT F Structural Practices

Prior to the initiation of site preparation activities, silt fence will be installed along the down gradient boundary of the site and a construction staging area will be installed. Silt fences will be used until construction is complete and vegetation and paving have been established.

Rough cutting of the proposed parking lot will divert flows from entering the trench areas. Additionally, the contractor will pile the spoils from trench excavation on the uphill side of the trench, with a minimum of one foot between the trench and the pile, in order to prevent storm water from entering the trench.

In addition, the contractor will be directed to minimize site disturbance and avoid having equipment in areas that are not necessary for the construction. Natural vegetation shall be left undisturbed and will help remove sediment if any bypass at silt fences or other structural measures occurs.

TEMPORARY STORMWATER SECTION ATTACHMENT G Drainage Area Map

The Existing Drainage Area Map, Proposed Drainage Area Map and Ultimate Drainage Area Map can be found on sheet C2.00, C2.01, and C2.02 respectively, of the NBCA Expansion WPAP Civil Site Construction Plans.





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e	Q ₂ (cfs)	Q ₁₀ (cfs)	Q ₂₅ (cfs)	Q ₅₀ (cfs)	Q ₁₀₀ (cfs)
)	30.27	67.82	97.53	124.23	154.88
)	14.71	32.96	47.39	60.37	75.26
)	2.19	4.91	7.07	9.00	11.22
)	1.48	3.30	4.75	6.05	7.55
)	5.20	11.65	16.75	21.34	26.60
)	2.44	5.47	7.86	1.01	12.48
)	1.13	2.54	3.66	4.66	5.80
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00	76.60	165.90	235.61	298.64	370.88
00	16.49	38.12	53.07	66.58	84.83
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	0.74	0.82	0.87	0.87	5.05	7.50	9.12	10.38	11.70	2.62	4.33
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#### TEMPORARY STORMWATER SECTION ATTACHMENT I Inspection and Maintenance of BMPs

The Contractor will be directed to inspect and maintain all temporary BMPs. The design engineer will also make regular visits to the project and will provide visual inspections as well. Any deficiency noted must be corrected immediately by the contractor.

#### Maintenance:

- 1. Inspect all silt fence, rock berms, concrete wash out areas, sediment basins, and stabilized concrete entrances and exits weekly and after any rainfalls. Inspect the filter curb inlet protection daily.
- 2. Remove sediment when buildup reaches 6 inches on silt fence, rock berms, or sediment basins or install a second line of silt fence parallel. Remove sediment when buildup reaches 2 inches in filter curb inlet protection.
- 3. Replace any torn fabric in the silt fence or filter curb inlet protection.
- 4. Replace or repair any sections crushed or collapsed in the course of construction.
- 5. See stormwater pollution plan details as shown in the construction plans for proper size and installation.
- 6. Contractor to maintain a daily log and note any deficiencies to temporary BMPs and corrective action taken. Rainfall events shall also be noted.

#### TEMPORARY STORMWATER SECTION ATTACHMENT J Schedule of Interim and Permanent Soil Stabilization Practices

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

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

# **Permanent Stormwater Section**

**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: Joseph Sandoval, P.E.

Date: March 9,2023

Signature of Customer/Agent

Regulated Entity Name: <u>New Braunfels Christian Academy</u>



# 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 multifamily 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.

<ul> <li>7. Attachment C - BMPs for On-site Stormwater.</li> <li>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.</li> <li>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.</li> <li>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.</li> <li>N/A</li> <li>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.</li> <li>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.</li> <li>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</li> </ul>
<ul> <li>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.</li> <li>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.</li> <li>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.</li> <li>N/A</li> <li>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.</li> <li>M 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.</li> <li>Attachment E - Request to Seal Features. A request to seal a naturally-occurring sensitive feature, a justification as to why no reasonable and practicable alternative exists, is attached.</li> </ul>
<ul> <li>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.</li> <li>N/A</li> <li>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.</li> <li>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.</li> <li>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.</li> </ul>
<ul> <li>N/A</li> <li>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.</li> <li>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.</li> <li>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.</li> </ul>
<ul> <li>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.</li> <li>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.</li> <li>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.</li> </ul>
<ul> <li>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.</li> <li>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.</li> </ul>
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:
<ul> <li>Design calculations (TSS removal calculations)</li> <li>TCEQ construction notes</li> <li>All geologic features</li> <li>All proposed structural BMP(s) plans and specifications</li> </ul>

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:
	<ul> <li>Prepared and certified by the engineer designing the permanent BMPs and measures</li> <li>Signed by the owner or responsible party</li> </ul>
	<ul> <li>Procedures for documenting inspections, maintenance, repairs, and, if necessary retrofit</li> <li>A discussion of record keeping procedures</li> </ul>
	N/A
12.	<b>Attachment H - Pilot-Scale Field Testing Plan</b> . 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.
$\boxtimes$	N/A
13. 🔀	<b>Attachment I -Measures for Minimizing Surface Stream Contamination</b> . 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

∏ N/A

degradation.

# Responsibility for Maintenance of Permanent BMP(s)

by the regulated activity, which increase erosion that results in water quality

# *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

#### PERMANENT STORMWATER SECTION ATTACHMENT B BMPs for Upgradient Stormwater

There are no permanent BMPs for upgradient stormwater for the New Braunfels Christian Academy site because the site is located adjacent to a watershed boundary and near the local high elevation.

#### PERMANENT STORMWATER SECTION ATTACHMENT C BMPs for On-Site Stormwater

Two (2) batch detention basins are proposed as the Permanent Best Management Practices (PBMPs) for this site. All required TSS removal from the proposed impervious cover has been treated through the two proposed batch detention basins. All PBMPs have been designed in accordance with the TCEQ's Technical Guidance Manual (TGM) RG-348 (2005) to remove 80% of the increase in TSS from the site. The irrigation system will be constructed and installed in accordance with the requirements of the TCEQ's TGM Section 3.4.3.

#### PERMANENT STORMWATER SECTION ATTACHMENT D BMPs for Surface Streams

There are no surface streams on or immediately adjacent to the site. Two batch detention basins are proposed as the Permanent Best Management Practices (PBMPs) for this site. All PBMPs have been designed in accordance with the TCEQ's Technical Guidance Manual (TGM) RG-348 (2005) to remove 80% of the increase in TSS from the site. The irrigation system will be constructed and installed in accordance with the requirements of the TCEQ's TGM Section 3.4.3.

#### PERMANENT STORMWATER SECTION ATTACHMENT F Construction Plans

There is one type of proposed Permanent BMPs for the on-site stormwater for New Braunfels Christian Academy. The BMPs include two batch detention basins. The permanent BMPs will be constructed to TCEQ standards and the design plans and details can be found on sheets C6.08 through C6.13 of the New Braunfels Christian Academy Office Construction Plans.

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Tette NEW BRAUNT	
Childen and the sch with set of the sch with s	
Blieder ^s	
NEW BRAUL OF GROVE 1863 CITY LINE RUN	
SITE BRAUNTELS	
TBM #2 TBM #1	
B POP WHILE OAKVIEW THE OAKVIEW	
PROJECT LOCATION MAP SCALE: N.T.S.	
PROJECT BENCHMARK	
SITE TBM #1 SET #51 N: 13809285.50	
E: 2227495.88 ELEV: 893.95'	
SITE TBM #2 SET #52	
N: 13808993.24 E: 2227031.23 ELEV: 901.80'	
see grading sheets c5.00 LEGAL DESCRIPTION	
BEING A 27.135 ACRE TRACT OF LAND SITUATED IN THE LUIS SALINAS SURVEY NO. 458, ABSTRACT NO. 531, COMAL COUNTY, TEXAS, RECORDED IN DOCUMENTS NO. 201706030260	
AND 200406025465 OFFICIAL PUBLIC RECORDS, COMAL COUNTY, TEXAS. Please note: NBU requires GPS points for certain electric, water and wastewater attributes, some of which must be taken prior to backely during construction.	
GPS POINTS SHALL BE REQUIRED FROM THE DEVELOPER'S CONTRACTOR OR ENGINEER. A MINIMUM OF THREE (3) COORDINATE POINTS FOR GEOREFERENCING SHALL BE REQUIRED. THE WATER AND WASTEWATER GPS	
POINTS SHALL BE TO SURVEY GRADE AND ELECTRIC GPS POINTS SHALL BE TO MAP GRADE. PLEASE REFERENCE NBU'S WATER CONNECTION POLICY FOR ADDITIONAL CAD DELIVERABLE REQUIREMENTS.	
REQUIRED MEASUREMENTS FOR THE WATER SYSTEM INCLUDE: 1. VERTICAL BENDS AND EDGE OF STEEL CASING (IF APPLICABLE) PRIOR TO BACKFILL. 2. HORIZONTAL BENDS PRIOR TO BACKFILL.	
<ol> <li>TEES PRIOR TO BACKFILL.</li> <li>FITTINGS (REDUCERS AND COUPLINGS) PRIOR TO BACKFILL.</li> <li>FIRE HYDRANTS (TOP OF FLANGE).</li> </ol>	
<ol> <li>VALVES.</li> <li>METERS (TOP CENTER OF BOX).</li> <li>BLOW OFF ASSEMBLIES.</li> </ol>	
9. CORNER SLAB OF WATER TANKS AND THE ISOLATION GATE VALVE ON THE WATER TANK. REQUIRED MEASUREMENTS FOR THE WASTEWATER SYSTEM:	
2. CLEANOUTS. 3. CORNER SLAB OF ALL LIFT STATIONS.	
REQUIRED MEASUREMENTS FOR THE ELECTRIC SYSTEM INCLUDE: 1. POLES. 2. TRANSFORMERS, BOTH ABOVE AND UNDERGROUND (FRONT LOCK).	
<ol> <li>PULL BOXES.</li> <li>STREET LIGHTS.</li> </ol>	
COORDINATE GPS REQUIREMENTS WITH NEU INSPECTOR	
1. IF CONSTRUCTION HAS NOT COMMENCED WITHIN ONE—YEAR OF CITY APPROVAL FOR CONSTRUCTION INSPECTION, THAT APPRO 2. THE MOST CURRENT EDITIONS OF THE CITY OF SAN ANTONIO STANDARD SPECIFICATIONS AND THE TEXAS DEPARTMENT OF TH SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND BRIDGES SHALL BE FOLLOWED FOR ALL CONSTRUCTION EXC CITY OF NEW PRAILNEELS STANDARD DETAILS	)val Ransf 2ept /
<ol> <li>ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER OF RECORD. IN ACCEPTING THESE PLANS REMAINS WITH THE ENGINEER OF RECORD. IN ACCEPTING THESE PLANS REMAINS WITH THE ENGINEER OF RECORD. IN ACCEPTING THESE PLANS REMAINS WITH THE ENGINEER OF RECORD.</li> <li>BRAUNFELS MUST RELY UPON THE ADEQUACY OF THE WORK OF THE ENGINEER IN RECORD.</li> <li>PRIOR TO THE START OF CONSTRUCTION THE CONTRACTOR SHALL CONTACT THE CITY OF NEW BRAUNFELS TO SET A PRE-C A 48-HOUR ADVANCED NOTIFICATION IS REQUIRED FOR ALL INSPECTION AND MEETING REQUESTS.</li> </ol>	'LANS ONSTF
4.1 ALL INSPECTIONS ARE TO BE CALLED IN AT 830-221-4068 OR, 4.2 FAXED IN AT 830-608-2117 OR, 4.3 E-MAILED AT INSPECTIONS@NBTEXAS.ORG.	
5. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SEE THAT ALL TEMPORARY AND PERMANENT TRAFFIC CONTROL DEVICES ARE PERMANENTAL AND ACCORDANCE WITH THE PLANS AND LATEST EDITION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL ARISES, ADDITIONAL TEMPORARY TRAFFIC CONTROL DEVICES MAY BE ORDERED BY THE ENGINEERING REPRESENTATIVE AT THE ACT OF CONSTRUCTION MUST BE COMPLETED AND IN PLACE F	ROPER DEVIC E CON PRIOR
IMPERVIOUS COVER TO THE SITE. 7. THIS DEVELOPMENT IS A TYPE 3 DEVELOPMENT. 8. NO PORTION OF THE SUBDIVISION IS LOCATED WITHIN ANY SPECIAL FLOOD HAZARD AREA (100 YR. FLOOD), AS DEFINED BY	THE (
TEXAS, FIRM PANEL NUMBER 48091C0435F EFFECTIVE DATE SEPTEMBER, 02, 2009, AS PRÈPARED BY THE FEDERAL EMERGEN 9. THIS PROJECT IS LOCATED WITHIN THE EDWARDS AQUIFER RECHARGE, TRANSITION OR CONTRIBUTING ZONE. 10. GAS UTILITIES ARE NOT INCLUDED IN THE CIVIL CONSTRUCTION PLANS. FINAL GAS UTILITY DESIGN SHALL BE APPROVED BY T WITHIN PUBLIC RIGHT-OF-WAY, JE APPLICABLE	ICA N

11. THE ENGINEER OF RECORD ACKNOWLEDGES THAT ALL PROPOSED WATER AND WASTEWATER IMPROVEMENTS MUST COMPLY WITH TCEQ, CITY OF NEW BRAUNFELS, NBU WATER CONNECTION POLICY, SOUND ENGINEERING JUDGEMENT AND ANY OTHER GOVERNING ENTITY ORDINANCES OR CODES.

# NBCA **EXPANSION WPAP/SCS** NEW BRAUNFELS, TEXAS **CIVIL SITE CONSTRUCTION PLANS**

# NEW BRAUNFELS CHRISTIAN ACADEMY 220 FM 1863 NEW BRAUNFELS, TEXAS 78132



# MARCH 2023



03/10/2023

ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER OF RECORD. IN ACCEPTING THESE PLANS, THE CITY OF NEW BRAUNFELS MUST RELY UPON THE ADEQUACY OF THE WORK OF THE ENGINEER OF RECORD.

bopph T. Sandonal, P.E. Joseph T. Sandoval P.E. License No. 110257

# PREPARED BY:

IS NO LONGER VALID. PORTATION STANDARD AS AMENDED BY THE THE CITY OF NEW

TRUCTION MEETING.

RLY INSTALLED AND CES. IF THE NEED NTRACTOR'S EXPENSE. to adding

COMAL COUNTY, ANAGEMENT AGENCY. CITY FOR ANY WORK



290 S. CASTELL AVE., STE. 100 NEW BRAUNFELS, TX 78130 HMTNB.COM P(830)625-8555*F(830)625-8556 **TBPE FIRM F-10961** TBPLS FIRM 1053600

WATER IS A PRECIOUS COMMODITY IN THE STATE OF TEXAS AND NEW BRAUNFELS UTILITIES (NBU) IS PASSIONATE ABOUT PROTECTING THE _OCAL RESOURCE. NBU'S CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ACQUIRING A FIRE HYDRANT METER SO THAT ALL WATER USED FOR CONSTRUCTION OR TESTING PURPOSES ARE PROPERLY ACCOUNTED FOR. NBU WILL NOT TOLERATE ANY WATER THEFT, REGARDLESS OF THE AMOUNT. IF WATER THEFT IS DISCOVERED NBU'S CONTRACTOR SHALL BE SUBJECT TO MONETARY PENALTIES, CRIMINAL CHARGES, AND STOPPAGE OF ALL CONSTRUCTION ACTIVITIES RELATED TO THE PROJECT. COSTS ASSOCIATED WITH ANY WORK STOPPAGE RESULTING FROM WATER THEFT SHALL BE AT THE FULL EXPENSE OF THE CONTRACTOR.

SHEET LIST TABLE				
SHEET NO.	SHEET TITLE			
C0.00	COVER			
C0.01	CONSTRUCTION NOTES			
C1.00	PLAT (1 OF 2)			
C1.01	PLAT (2 OF 2)			
C2.00	EXISTING DRAINAGE AREA MAP			
C2.01	PROPOSED DRAINAGE AREA MAP			
C2.02	PROPOSED DRAINAGE SUB-AREA MAP			
C3.00	TREE PLAN			
C3.01	TREE PROTECTION DETAILS			
C4.00	TEMPORARY WATER POLLUTION ABATEMENT PLAN (1 OF 2)			
C4.01	TEMPORARY WATER POLLUTION ABATEMENT PLAN (2 OF 2)			
C4.02	TEMPORARY WATER POLLUTION ABATEMENT PLAN DETAILS			
C4.03	PERMANENT WPAP IMPERVIOUS COVER EXHIBIT			
C5.00	OVERALL SITE			
C5.01	SITE PLAN (1 OF 3)			
C5.02	SITE PLAN (2 OF 3)			
C5.03	SITE PLAN (3 OF 3)			
C5.04	SITE PLAN DETAILS (1 OF 2)			
C5.05	SITE PLAN DETAILS (2 OF 2)			
C6.00	OVERALL GRADING			
C6.01	DETAILED GRADING (1 OF 3)			
C6.02	DETAILED GRADING (2 OF 3)			
C6.03	DETAILED GRADING (3 OF 3)			
C7.00	OVERALL STORM			
C7.01	STORM DRAIN LINE 1			
C7.02	STORM DRAIN LINE 2			
C7.03	STORM DRAIN LINE A1			
C7.04	STORM DRAIN LINE A2			
C7.05	STORM DRAIN LINE A3 & A4 PLAN AND PROFILE			
C7.06	STORM DRAIN LINE A5 & CHANNEL PLAN AND PROFILE			
C7.07	BASIN A (1 OF 2)			
C7.08	BASIN A (2 OF 2)			
C7.09	BASIN B (1 OF 2)			
C7.10	BASIN B (2 OF 2)			
C7.11	BASIN DETAILS (1 OF 2)			
C7.12	BASIN DETAILS (2 OF 2)			
C7.13	STORM DETAILS (1 OF 3)			
C7.14	STORM DETAILS (2 OF 3)			
C7.15	STORM DETAILS (3 OF 3)			
C8.00	WATER PLAN AND PROFILE (1 OF 2)			
C8.01	WATER PLAN AND PROFILE (2 OF 2)			
C8.02	4 in DOMESTIC WATER PLAN			
C8.03	WATER DETAILS			
C9.00	OVERALL WASTEWATER			
C9.01	1.25" WASTEWATER LINE PLAN AND PROFILE			
C9.02	WASTEWATER LINE B PLAN AND PROFILE			
C9.03	WASTEWATER DETAILS			

ANS

#### NOTE TO CONTRACTOR:

BY THE ACT OF SUBMITTING A BID FOR THIS PROPOSED CONTRACT, THE BIDDER WARRANTS THAT THE BIDDER, AND ALL SUBCONTRACTORS AND MATERIAL SUPPLIERS HE INTENDS TO USE HAVE CAREFULLY AND THOROUGHLY REVIEWED THE DRAWINGS, SPECIFICATIONS AND ALL OTHER CONTRACT DOCUMENTS AND HAVE FOUND THEM COMPLETE AND FREE FROM ANY AMBIGUITIES AND SUFFICIENT FOR THE PURPOSE INTENDED. THE BIDDER FURTHER WARRANTS THAT TO THE BEST OF HIS OR HIS SUBCONTRACTORS' AND MATERIAL SUPPLIERS' KNOWLEDGE, ALL MATERIALS AND PRODUCTS SPECIFIED OR INDICATED HEREIN ARE ACCEPTABLE FOR ALL APPLICABLE CODES AND AUTHORITIES.

THE LOCATION OF ALL EXISTING UTILITIES SHOWN ON THESE PLANS HAS BEEN BASED UPON RECORD INFORMATION ONLY AND MAY NOT MATCH LOCATIONS AND/OR DEPTHS AS CONSTRUCTED. THE CONTRACTOR SHALL CONTACT EACH OF THE INDIVIDUAL UTILITIES FOR ASSISTANCE IN DETERMINING EXISTING UTILITY LOCATIONS AND DEPTHS PRIOR TO BEGINNING ANY CONSTRUCTION. CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF ALL UTILITY CROSSINGS PRIOR TO BEGINNING ANY CONSTRUCTION.

#### TEXAS COMMISSION ON ENVIRONMENTAL QUALITY ORGANIZED SEWAGE COLLECTION SYSTEM GENERAL CONSTRUCTION NOTES

1. THIS ORGANIZED SEWAGE COLLECTION SYSTEM (SCS) MUST BE CONSTRUCTED IN ACCORDANCE WITH 30 TEXAS ADMINISTRATIVE CODE (TAC) §213.5(C), THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY'S (TCEQ) EDWARDS AQUIFER RULES AND ANY LOCAL GOVERNMENT STANDARD SPECIFICATIONS.

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

3. A WRITTEN NOTICE OF CONSTRUCTION MUST BE SUBMITTED TO THE PRESIDING 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.

4. ANY MODIFICATION TO THE ACTIVITIES DESCRIBED IN THE REFERENCED SCS APPLICATION FOLLOWING THE DATE OF APPROVAL MAY REQUIRE THE SUBMITTAL OF AN SCS APPLICATION TO MODIFY THIS APPROVAL, INCLUDING THE PAYMENT OF APPROPRIATE FEES AND ALL INFORMATION NECESSARY FOR ITS REVIEW AND APPROVAL.

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 MANUFACTURERS SPECIFICATIONS. THESE CONTROLS MUST REMAIN IN PLACE UNTIL THE DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED.

6. IF ANY SENSITIVE FEATURES ARE DISCOVERED DURING THE WASTEWATER LINE TRENCHING ACTIVITIES, ALL REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MUST BE SUSPENDED IMMEDIATELY. THE APPLICANT MUST IMMEDIATELY NOTIFY THE APPROPRIATE REGIONAL OFFICE OF THE TCEQ OF THE FEATURE DISCOVERED. A GEOLOGIST'S ASSESSMENT OF THE LOCATION AND EXTENT OF THE FEATURE DISCOVERED MUST BE REPORTED TO THAT REGIONAL OFFICE IN WRITING AND THE APPLICANT MUST SUBMIT A PLAN FOR ENSURING THE STRUCTURAL INTEGRITY OF THE SEWER LINE OR FOR MODIFYING THE PROPOSED COLLECTION SYSTEM ALIGNMENT AROUND THE FEATURE. THE REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MAY NOT PROCEED UNTIL THE TCEQ-0596 (REV. JULY 15, 2015) PAGE 2 OF 6 EXECUTIVE DIRECTOR HAS REVIEWED AND APPROVED THE METHODS PROPOSED TO PROTECT THE SENSÍTIVE FEATURE AND THE EDWARDS AQUIFER FROM ANY POTENTIALLY ADVERSE IMPACTS TO WATER QUALITY WHILE MAINTAINING THE STRUCTURAL INTEGRITY OF THE LINE.

7. SEWER LINES LOCATED WITHIN OR CROSSING THE 5-YEAR FLOODPLAIN OF A DRAINAGE WAY WILL BE PROTECTED FROM INUNDATION AND STREAM VELOCITIES WHICH COULD CAUSE EROSION AND SCOURING OF BACKFILL. THE TRENCH MUST BE CAPPED WITH CONCRETE TO PREVENT SCOURING OF BACKFILL, OR THE SEWER LINES MUST BE ENCASED IN CONCRETE. ALL CONCRETE SHALL HAVE A MINIMUM THICKNESS OF 6 INCHES.

8. BLASTING PROCEDURES FOR PROTECTION OF EXISTING SEWER LINES AND OTHER UTILITIES WILL BE IN ACCORDANCE WITH THE NATIONAL FIRE PROTECTION ASSOCIATION CRITERIA, SAND IS NOT ALLOWED AS BEDDING OR BACKFILL IN TRENCHES THAT HAVE BEEN BLASTED. IF ANY EXISTING SEWER LINES ARE DAMAGED, THE LINES MUST BE REPAIRED AND RETESTED.

9. ALL MANHOLES CONSTRUCTED OR REHABILITATED ON THIS PROJECT MUST HAVE WATERTIGHT SIZE ON SIZE RESILIENT CONNECTORS ALLOWING FOR DIFFERENTIAL SETTLEMENT. IF MANHOLES ARE CONSTRUCTED WITHIN THE 100-YEAR FLOODPLAIN, THE COVER MUST HAVE A GASKET AND BE BOLTED TO THE RING. WHERE GASKETED MANHOLE COVERS ARE REQUIRED FOR MORE THAN THREE MANHOLES IN SEQUENCE OR FOR MORE THAN 1,500 FEET, ALTERNATE MEANS OF VENTING WILL BE PROVIDED. BRICKS ARE NOT AN ACCEPTABLE CONSTRUCTION MATERIAL FOR ANY PORTION OF THE MANHOLE.

THE DIAMETER OF THE MANHOLES MUST BE A MINIMUM OF FOUR FEET AND THE MANHOLE FOR ENTRY MUST HAVE A MINIMUM CLEAR OPENING DIAMETER OR 30 INCHES. THESE DIMENSIONS AND OTHER DETAILS SHOWING COMPLIANCE WITH THE COMMISSION'S RULES CONCERNING MANHOLES AND SEWER LINE/MANHOLE INVERTS DESCRIBED IN 30 TAC §217.55 ARE INCLUDED ON PLAN SHEET <u>C8.06</u>.

IT IS SUGGESTED THAT ENTRANCE INTO MANHOLES IN EXCESS OF FOUR FEET DEEP BE ACCOMPLISHED BY MEANS OF A PORTABLE LADDER. THE INCLUSION OF STEPS IN A MANHOLE IS PROHIBITED.

10. WHERE WATER LINES AND NEW SEWER LINES ARE INSTALLED WITH A SEPARATION DISTANCE CLOSER THAN NINE FEET (I.E., WATER LINES CROSSING WASTEWATER LINES, WATER LINES PARALLELING WASTEWATER LINES, OR WATER LINES NEXT TO MANHOLES) THE INSTALLATION MUST MEET THE REQUIREMENTS OF 30 TAC §217.53 (D) (PIPE DESIGN) OR 30 TAC §290.44(E) (WATER DISTRIBUTION).

11. WHERE SEWER LINES DEVIATE FROM STRAIGHT ALIGNMENT AND UNIFORM GRADE ALL CURVATURE OF SEWER PIPE MUST BE ACHIEVED BY THE FOLLOWING PROCEDURE WHICH IS RECOMMENDED BY THE PIPE MANUFACTURER: THERE WILL BE NO DEVIATION FROM STRAIGHT ALIGNMENTS.

IF PIPE FLEXURE IS PROPOSED, THE FOLLOWING METHOD OF PREVENTING DEFLECTION OF THE JOINT MUST BE USED: PIPE FLEXURE IS NOT PROPOSED.

SPECIFIC CARE MUST BE TAKEN TO ENSURE THAT THE JOINT IS PLACED IN THE CENTER OF THE TRENCH AND PROPERLY BEDDED IN ACCORDANCE WITH 30 TAC §217.54.

12. NEW SEWAGE COLLECTION SYSTEM LINES MUST BE CONSTRUCTED WITH STUB OUTS FOR THE CONNECTION OF ANTICIPATED EXTENSIONS. THE LOCATION OF SUCH STUB-OUTS MUST BE MARKED ON THE GROUND SUCH THAT THEIR LOCATION CAN BE EASILY DETERMINED AT THE TIME OF CONNECTION OF THE EXTENSIONS. SUCH STUB-OUTS MUST 3e manufactured wyes or tees that are compatible in size and material with both the sewer line and THE EXTENSION. AT THE TIME OF ORIGINAL CONSTRUCTION, NEW STUB-OUTS MUST BE CONSTRUCTED SUFFICIENTLY TO EXTEND BEYOND END OF THE STREET PAVEMENT. ALL STUB-OUTS MUST BE SEALED WITH A MANUFACTURED CAP TO PREVENT LEAKAGE. EXTENSIONS THAT WERE NOT ANTICIPATED AT THE TIME OF ORIGINAL CONSTRUCTION OR THAT ARE TO BE CONNECTED TO AN EXISTING SEWER LINE NOT FURNISHED WITH STUB-OUTS MUST BE CONNECTED USING A MANUFACTURED SADDLE AND IN ACCORDANCE WITH ACCEPTED PLUMBING TECHNIQUES.

IF NO STUB-OUT IS PRESENT AN ALTERNATE METHOD OF JOINING LATERALS IS SHOWN IN THE DETAIL ON PLAN SHEET <u>C8.06</u>. (FOR POTENTIAL FUTURE LATERALS).

THE PRIVATE SERVICE LATERAL STUB-OUTS MUST BE INSTALLED AS SHOWN ON THE PLAN AND PROFILE SHEETS ON PLAN SHEET <u>C8.06</u> AND MARKED AFTER BACKFILLING AS SHOWN IN THE DETAIL ON PLAN SHEET <u>C8.06</u>.

13. TRENCHING, BEDDING AND BACKFILL MUST CONFORM 30 TAC §217.54. THE BEDDING AND BACKFILL FOR FLEXIBLE PIPE MUST COMPLY WITH THE STANDARDS OF ASTM D-2321, CLASSES IA, IB, II OR III. RIGID PIPE BEDDING MUST COMPLY WITH THE REQUIREMENTS OF ASTM C 12 (ANSI A 106.2) CLASSES A, B OR C.

14. SEWER LINES MUST BE TESTED FROM MANHOLE TO MANHOLE. WHEN A NEW SEWER LINE IS CONNECTED TO AN EXISTING STUB OR CLEAN-OUT, IT MUST BE TESTED FROM EXISTING MANHOLE TO NEW MANHOLE. IF A STUB OR CLEAN-OUT IS USED AT THE END OF THE PROPOSED SEWER LINE, NO PRIVATE SERVICE ATTACHMENTS MAY BE CONNECTED BETWEEN THE LAST MANHOLE AND THE CLEAN-OUT UNLESS IT CAN BE CERTIFIED AS CONFORMING WITH THE PROVISIONS OF 30 TAC  $\S213.5(C)(3)(E)$ .

15. ALL SEWER LINES MUST BE TESTED IN ACCORDANCE WITH 30 TAC §217.57. THE ENGINEER MUST RETAIN COPIES OF ALL TEST RESULTS WHICH MUST BE MADE AVAILABLE TO THE EXECUTIVE DIRECTOR UPON REQUEST. THE ENGINEER MUST CERTIFY IN WRITING THAT ALL WASTEWATER LINES HAVE PASSED ALL REQUIRED TESTING TO THE APPROPRIATE REGIONAL OFFICE WITHIN 30 DAYS OF TEST COMPLETION AND PRIOR TO USE OF THE NEW COLLECTION SYSTEM. TESTING METHOD WILL BE:

(a) FOR A COLLECTION SYSTEM PIPE THAT WILL TRANSPORT WASTEWATER BY GRAVITY FLOW. THE DESIGN MUST SPECIFY AN INFILTRATION AND EXFILTRATION TEST OR A LOW-PRESSURE AIR TEST. A TEST MUST CONFORM TO THE FOLLOWING REQUIREMENTS:

(1) LOW PRESSURE AIR TEST.

(A)

(C)

A LOW PRESSURE AIR TEST MUST FOLLOW THE PROCEDURES DESCRIBED IN AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) C-828, ASTM C-924, ASTM F-1417 OR OTHER PROCEDURES APPROVED BY THE EXECUTIVE DIRECTOR, EXCEPT AS TO TESTING TIMES AS REQUIRED IN TABLE C.3 IN SUBPARAGRAPH (C) OF THIS PARAGRAPH OR EQUATION C.3 IN SUBPARAGRAPH (B)(ii) OF THIS PARAGRAPH

FOR SECTIONS OF COLLECTION SYSTEM PIPE LESS THAN 36 INCH AVERAGE INSIDE DIAMETER, THE (B) FOLLOWING PROCEDURE MUST APPLY, UNLESS A PIPE IS TO BE TESTED AS REQUIRED BY PARAGRAPH (2) OF THIS SUBSECTION.

(i) A PIPE MUST BE PRESSURIZED TO 3.5 POUNDS PER SQUARE INCH (PSI) GREATER THAN THE PRESSURE EXERTED BY GROUND WATER ABOVE THE PIPE.

(ii) ONCE THE PRESSURE IS STABILIZED THE MINIMUM TIME ALLOWABLE FOR THE PRESSURE TO DROP FROM 3.5 PSI GAUGE TO 2.5 PSI GAUGE IS COMPUTED FROM THE FOLLOWING EQUATION:

#### 0.085 *x D x K* T = --

WHERE:

EQUATION C.3

T = TIME FOR PRESSURE TO DROP 1.0 POUND PER SQUARE INCH GAUGE IN SECONDS

- $K = 0.000419 \times D \times L$ , BUT NOT LESS THAN 1.0 D = AVERAGE INSIDE PIPE DIAMETER IN INCHES
- L = LENGTH OF LINE OF SAME SIZE BEING TESTED, IN FEETQ = RATE OF LOSS, 0.0015 CUBIC FEET PER MINUTE PER SQUARE FOOTINTERNAL SURFACE WILL BE USED.

SINCE A "K" VALUE OF LESS THAN 1.0 MAY NOT BE USED, THE MINIMUM TESTING TIME FOR EACH PIPE DIAMETER IS SHOWN IN THE FOLLOWING TABLE C.3:

PIPE DIAMETER (INCHES)	MINIMUM TIME (SECONDS)	LENGTH FOR MINIMUM (FEET)	TIME FOR LONGER LENGTH (SECONDS)
6	340	398 0.855	
8	454	298	1.520
10	567	239	2.374
12	680	199	3.419
15	850	159	5.342
18	1020	133	7.693
21	1190	114	10.471
24	1360	100	13.676
27	1530	88	17.309
30	1700 80		21.369
33	1870	72	25.856

(D)	AN OWNER MAY STOP A TEST IF N CALCULATED TESTING TIME
(E)	IF ANY PRESSURE LOSS OR LEAKA THEN THE TEST MUST CONTINUE F
(F)	FAILURE. WASTEWATER COLLECTION SYSTEM BE AIR TESTED AT EACH JOINT INS
(G)	A TESTING PROCEDURE FOR PIPE
(2)	INFILTRATION/EXFILTRATION TEST.
(A)	THE TOTAL EXFILTRATION, AS DETE Gallons per inch of diameter f feet above the crown of a pip
(B)	AN OWNER SHALL USE AN INFILTRA INSTALLED BELOW THE GROUNDWAT
(C)	THE TOTAL EXFILTRATION, AS DETE GALLONS PER INCH DIAMETER PER FEET ABOVE THE CROWN OF A PIP EXISTING GROUNDWATER LEVEL, WH
(D)	FOR CONSTRUCTION WITHIN A 25- EXCEED 10 GALLONS PER INCH DIA TEST HEAD AS IN SUBPARAGRAPH
(E)	IF THE QUANTITY OF INFILTRATION OWNER SHALL UNDERTAKE REMEDI TO AN AMOUNT WITHIN THE LIMITS REMEDIATION ACTION.
(b)	IF A GRAVITY COLLECTION PIPE IS COMPO FOLLOWING PROCEDURES MUST BE FOLLO
(1) RIGID	FOR A COLLECTION PIPE WITH INSIDE DIAM MANDREL.
(A) (i)	MANDREL SIZING. A RIGID MANDREL MUST HAVE AN OUTSIE DIAMETER (ID) OR AVERAGE ID OF A PIPI AMERICAN WATER WORKS ASSOCIATION, U
(ii) (iii)	AN OD EQUAL TO 95% OF THE ID OF A DETERMINING THE OD OF THE MANDREL, WALL THICKNESSES FOR OD CONTROLLED
(III) (B)	MANDREL DESIGN.
(i) (ii) (iii) (iv)	A RIGID MANDREL MUST BE CONSTRUCTED 200 PSI WITHOUT BEING DEFORMED. A MANDREL MUST HAVE NINE OR MORE A BARREL SECTION LENGTH MUST EQUAL EACH SIZE MANDREL MUST USE A SEPAR
(C) (i) (ii) (iii)	METHOD OPTIONS. AN ADJUSTABLE OR FLEXIBLE MANDREL I A TEST MAY NOT USE TELEVISION INSPEC IF REQUESTED, THE EXECUTIVE DIRECTOR REMOVABLE LEGS OR RUNNERS ON A CA
(2) METH (3) (4) (5) (6) SECC	FOR A GRAVITY COLLECTION SYSTEM PIPE HODS MAY BE USED TO DETERMINE VERTICA A DEFLECTION TEST METHOD MUST BE ACC AN OWNER SHALL NOT CONDUCT A DEFLEC GRAVITY COLLECTION SYSTEM PIPE DEFLEC IF A PIPE SECTION FAILS A DEFLECTION TH DND TEST AFTER THE FINAL BACKFILL HAS
16. (a) (b)	ALL MANHOLES MUST BE TESTED TO MEET ALL MANHOLES MUST PASS A LEAKAGE AN OWNER SHALL TEST EACH MANHOLE INDEPENDENT OF THE COLLECTION SYSTE OR OTHER METHOD APPROVED BY THE E
(1) (A)	HYDROSTATIC TESTING. THE MAXIMUM LEAKAGE FOR HYDR
(B)	TO PERFORM A HYDROSTATIC EXFIL COMING INTO A MANHOLE WITH AN THE TEST FOR AT LEAST ONE HOU
(C)	A TEST FOR CONCRETE MANHOLES SATURATION OF THE CONCRETE.
(2) (A)	TO PERFORM A VACUUM TEST, AN NON-SHRINK GROUT AND PLUG AL
(B) (C)	NO GROUT MUST BE PLACED IN HO STUB-OUTS, MANHOLE BOOTS, AND
(D)	AN OWNER SHALL USE A MINIMUM THAT SECURE A TEST COVER TO T
(E)	A TEST HEAD MUST BE PLACED A INFLATED IN ACCORDANCE WITH TH
(F) (G) (H)	THERE MUST BE A VACUUM OF 10 A TEST DOES NOT BEGIN UNTIL AF A MANHOLE PASSES THE TEST IF AT LEAST 9.0 INCHES OF MERCUR`
17. §213 AN E REGIS AND WITH	ALL PRIVATE SERVICE LATERALS MUST BE .5(c)(3)(I). AFTER INSTALLATION OF AND, F EXISTING ORGANIZED SEWAGE COLLECTION S STERED SANITARIAN, OR APPROPRIATE CITY THE CONNECTION TO THE SEWAGE COLLEC THE APPLICABLE PROVISIONS OF THIS SEC
CERT	FICATIONS FOR FIVE YEARS AND FORWARD

AUSTIN REGIONAL OFFICE 2800 S. IH 35, SUITE 100 AUSTIN, TX 78704-5712 PHONE(512) 339-2929 FAX (512) 339-3795

TCEQ-0596 (REV. JULY 15, 2015)

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.

NO PRESSURE LOSS HAS OCCURRED DURING THE FIRST 25% OF THE

AGE HAS OCCURRED DURING THE FIRST 25% OF A TESTING PERIOD, OR THE ENTIRE TEST DURATION AS OUTLINED ABOVE OR UNTIL

PIPES WITH A 27 INCH OR LARGER AVERAGE INSIDE DIAMETER MAY STEAD OF FOLLOWING THE PROCEDURE OUTLINED IN THIS SECTION. WITH AN INSIDE DIAMETER GREATER THAN 33 INCHES MUST BE ECTOR.

RMINED BY A HYDROSTATIC HEAD TEST, MUST NOT EXCEED 50 PER MILE OF PIPE PER 24 HOURS AT A MINIMUM TEST HEAD OF 2.0 PE AT AN UPSTREAM MANHOLE.

ATION TEST IN LIEU OF AN EXFILTRATION TEST WHEN PIPES ARE TER LEVEL.

ERMINED BY A HYDROSTATIC HEAD TEST, MUST NOT EXCEED 50 MILE OF PIPE PER 24 HOURS AT A MINIMUM TEST HEAD OF TWO PE AT AN UPSTREAM MANHOLE, OR AT LEAST TWO FEET ABOVE ICHEVER IS GREATER

YEAR FLOOD PLAIN, THE INFILTRATION OR EXFILTRATION MUST NOT AMETER PER MILE OF PIPE PER 24 HOURS AT THE SAME MINIMUM (C) OF THIS PARAGRAPH.

OR EXFILTRATION EXCEEDS THE MAXIMUM QUANTITY SPECIFIED, AN AL ACTION IN ORDER TO REDUCE THE INFILTRATION OR EXFILTRATION SPECIFIED. AN OWNER SHALL RETEST A PIPE FOLLOWING A

DSED OF FLEXIBLE PIPE, DEFLECTION TESTING IS ALSO REQUIRED. THE WFD:

METER LESS THAN 27 INCHES, DEFLECTION MEASUREMENT REQUIRES A

IDE DIAMETER (OD) NOT LESS THAN 95% OF THE BASE INSIDE E, AS SPECIFIED IN THE APPROPRIATE STANDARD BY THE ASTMS, JNI-BELL, OR AMERICAN NATIONAL STANDARDS INSTITUTE, OR ANY

SPECIFIED IN THE APPROPRIATE STANDARD, THE MANDREL MUST HAVE PIPE. IN THIS CASE, THE ID OF THE PIPE, FOR THE PURPOSE OF MUST EQUAL THE AVERAGE OUTSIDE DIAMETER MINUS TWO MINIMUM PIPE AND THE AVERAGE INSIDE DIAMETER FOR ID CONTROLLED PIPE. PRIATE STANDARD.

ED OF A METAL OR A RIGID PLASTIC MATERIAL THAT CAN WITHSTAND ODD NUMBER OF RUNNERS OR LEGS.

AT LEAST 75% OF THE INSIDE DIAMETER OF A PIPE. RATE PROVING RING.

### IS PROHIBITED.

CTION AS A SUBSTITUTE FOR A DEFLECTION TEST. MAY APPROVE THE USE OF A DEFLECTOMETER OR A MANDREL WITH SE-BY-CASE BASIS

WITH AN INSIDE DIAMETER 27 INCHES AND GREATER, OTHER TEST AL DEFLECTION CURATE TO WITHIN PLUS OR MINUS 0.2% DEFLECTION.

CTION TEST UNTIL AT LEAST 30 DAYS AFTER THE FINAL BACKFILL. TION MUST NOT EXCEED FIVE PERCENT (5%). EST, AN OWNER SHALL CORRECT THE PROBLEM AND CONDUCT A BEEN IN PLACE AT LEAST 30 DAYS.

OR EXCEED THE REQUIREMENTS OF 30 TAC §217.58.

TEST (AFTER ASSEMBLY AND BACKFILLING) FOR LEAKAGE, SEPARATE AND M PIPES, BY HYDROSTATIC EXFILTRATION TESTING, VACUUM TESTING, XECUTIVE DIRECTOR.

OSTATIC TESTING OR ANY ALTERNATIVE TEST METHODS IS 0.025 FOOT OF MANHOLE DEPTH PER HOUR. LTRATION TEST, AN OWNER SHALL SEAL ALL WASTEWATER PIPES INTERNAL PIPE PLUG, FILL THE MANHOLE WITH WATER, AND MAINTAIN MAY USE A 24-HOUR WETTING PERIOD BEFORE TESTING TO ALLOW

OWNER SHALL PLUG ALL LIFT HOLES AND EXTERIOR JOINTS WITH A LL PIPES ENTERING A MANHOLE.

ORIZONTAL JOINTS BEFORE TESTING. D PIPE PLUGS MUST BE SECURED TO PREVENT MOVEMENT WHILE A 60 INCH/LB TORQUE WRENCH TO TIGHTEN THE EXTERNAL CLAMPS

THE TOP OF A MANHOLE. AT THE INSIDE OF THE TOP OF A CONE SECTION AND THE SEAL HE MANUFACTURER'S RECOMMENDATIONS. INCHES OF MERCURY INSIDE A MANHOLE TO PERFORM A VALID TEST. TER THE VACUUM PUMP IS OFF.

AFTER 2.0 MINUTES AND WITH ALL VALVES CLOSED, THE VACUUM IS

INSPECTED AND CERTIFIED IN ACCORDANCE WITH 30 TAC PRIOR TO COVERING AND CONNECTING A PRIVATE SERVICE LATERAL TO SYSTEM, A TEXAS LICENSED PROFESSIONAL ENGINEER. TEXAS INSPECTOR MUST VISUALLY INSPECT THE PRIVATE SERVICE LATERAL CTION SYSTEM, AND CERTIFY THAT IT IS CONSTRUCTED IN CONFORMITY CTION. THE OWNER OF THE COLLECTION SYSTEM MUST MAINTAIN SUCH COPIES TO THE APPROPRIATE REGIONAL OFFICE UPON REQUEST. CONNECTIONS MAY ONLY BE MADE TO AN APPROVED SEWAGE COLLECTION SYSTEM.

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

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

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 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 SEDIMENTATIONS (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 STEAMS, SENSITIVE FEATURES, ETC. 7. SEDIMENT MUST BE REMOVED FROM THE SEDIMENT TRAPS OR SEDIMENTATION BASINS NOT LATER THAN WHEN IT OCCUPIES 50% OF THE BASIN'S DESIGN CAPACITY.

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

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 EDWARD 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 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 PLATS, AND DIVERSIONARY STRUCTURES:
- B. ANY CHANGE IN NATURE OR CHARACTER OF THE REGULATED ACTIVITY FROM THAT WHICH WAS ORIGINALLY APPROVED OR A CHANGE IN 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.

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

TCEQ-0592 (REV. JULY 15, 2015)

# CITY OF NEW BRAUNFELS CONSTRUCTION NOTES (CONTINUED)

REVISED 03,

# UTILITY TRENCH COMPACTION

ALL UTILITY TRENCH COMPACTION TESTS WITHIN THE STREET PAVEMENT/SIDEWALK SECTION SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEOTECHNICAL ENGINEER. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12") LOOSE. DETERMINE THE MAXIMUM LIFT THICKNESS BASED ON THE ABILITY OF THE COMPACTING OPERATION AND EQUIPMENT USED TO MEET THE REQUIRED DENSITY. EACH LAYER OF MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% DENSITY AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEST METHODS TEX-113-E, TEX-114-E, TEX-115-E. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY THE CITY OF NEW BRAUNFFLS STREET INSPECTOR. AT A MINIMUM. TESTS SHALL BE TAKEN EVERY 200 LF FOR EACH LIFT AND EVERY OTHER SERVICE LINE. UPON COMPLETION OF TESTING THE GEOTECHNICAL ENGINEER SHALL PROVIDE THE CITY OF NEW BRAUNFELS STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FILL MATERIAL HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS. ADDITIONAL DENSITY TESTS MAY BE REQUESTED BY THE CITY OF NEW BRAUNFELS INSPECTOR.

CURB CUT DUE TO CONSTRUCTION OF NEW RIGHT-OF-WAY CONSTRUCTION (INDICATE THE 2 OPTIONS ON THE CONSTRUCTION PLANS).

1. SAWCUT EXISTING STREET AND MATCH TO NEW CONSTRUCTION.

2. SAWCUT EXISTING CURB TO TIE INTO EXISTING CONSTRUCTION. CONSTRUCTION STABILIZED ENTRANCE

SAWCUT CURB FOR CONSTRUCTION ENTRANCE.

STABILIZED CONSTRUCTION AREA SHALL BE CONSTRUCTED OF 3"X5" ROCK TO BE PLACED A MINIMUM LENGTH OF 25-FT. AND MAINTAINED SO THAT CONSTRUCTION DEBRIS DOES NOT FALL WITHIN THE CITY RIGHT-OF-WAY. RIGHT OF-WA BE CLEARED FROM MUD, ROCKS, ETC. AT ALL TIMES.

#### SIGNING AND PAVEMENT MARKING PLAN NOTES

THE CONTRACTOR SHALL FURNISH AND INSTALL ALL REGULATORY AND WARNING SIGNS, STREETS NAME SIGNS AND SIGN MOUNTS IN ACCORDANCE WITH APPROVED ENGINEERING PLANS. THE CITY WILL INSPECT ALL SIGNS AT FINAL INSPECTION.

THE CONTRACTOR SHALL INSTALL ALL PAVEMENT MARKINGS IN ACCORDANCE WITH APPROVED ENGINEERING PLANS. THE CONTRACTOR SHALL NOTIFY THE CITY AT LEAST TWENTY-FOUR (24 HOURS PRIOR TO THE INSTALLATION OF ALL SEALER AND FINAL MARKINGS. THE CITY WILL INSPECT ALL MARKINGS AT FINAL APPLICATION.

SEEDING AND ESTABLISHMENT OF VEGETATION WITHIN EARTHEN CHANNELS, STORMWATER BASINS AND DISTUR AREAS

SEEDING FOR THE PURPOSE OF ESTABLISHING VEGETATION WITHIN CONSTRUCTED EARTHEN CHANNELS, BASINS AND DISTUR AREAS SHALL BE CONDUCTED IN ACCORDANCE WITH ITEM 164 (SEEDING FOR EROSION CONTROL OF TXDOT'S STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MAINTENANCE OF HIGHWAYS, STREETS AND BRIDGES MANUAL. ONLY SEED TYPES MIXES SPECIFIED FOR THE SAN ANTONIO DISTRICT (DISTRICT 15 IN TABLES 1 AND 2 UNDER ITEM 164 SHALL BE UTILIZED. THE COOL SEASON (SEPT 1-NOV 30, CEREAL RYE AND SEED SPECIES SPECIFIED FOR THE SAN ANTONIO DISTRICT IN TABL BE USED. FOR COOL SEASON SEEDING APPLICATIONS, COOL SEASON SEED MIXES SHALL BE USED IN CONJUNCTION WITH S FOR THE SAN ANTONIO DISTRICT AS SPECIFIED IN TABLE 1 AND 2 UNDER ITEM 164.

IT MAY BE DEEMED NECESSARY TO INCORPORATE TOPSOIL AND SOIL AMENDMENTS (I.E. COMPOST/ FERTILIZER INTO EXISTI ORDER TO FACILITATE VEGETATION GROWTH. TOPSOIL, COMPOST AND FERTILIZER ADDITIONS SHALL BE CONDUCTED ACCORE ITEMS 160, 161 AND 166 OF TXDOT'S STANDARD SPECIFICATIONS MANUAL, RESPECTIVELY.

AREAS REQUIRING PERMANENT VEGETATION (EARTHEN CHANNELS, PONDS, ETC.) ARE REQUIRED TO MEET TXDOT SPECIFICA ITEM 160 TOPSOIL. TESTING PER TEX-128-E WILL BE REQUIRED AT THE CITY'S REQUEST.

WATERING MAY ALSO BE NECESSARY TO FACILITATE AND EXPEDITE THE SPROUTING AND GROWTH OF VEGETATION. ITEM 16 TXDOT'S STANDARD SPECIFICATIONS MANUAL SHALL BE ADHERED TO FOR VEGETATIVE WATERING.

IF EXTENDED DROUGHT CONDITIONS EXIST THAT HINDER OR PROHIBIT THE GROWTH AND ESTABLISHMENT OF VEGETATION, CONTRACTOR/ DEVELOPER SHALL PROVIDE A PLAN TO THE CITY OF NEW BRAUNFELS DESCRIBING THE MEASURES THAT W TAKEN TO STABILIZE EARTHEN DRAINAGE INFRASTRUCTURE UNTIL A TIME WHEN GROWING CONDITIONS BECOME MORE FAVO

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3/2020	CONSTRUCTION NOTES	NBCA EXPANSION WPAP/SCS NEW BRAUNFELS, TEXAS
RGED RGED S AND C URING C URING C URING SEED MXX55 ING SOL IN ONG TO ATIONS FOR GR OF INE WL BE DRALE.	NOLLAISON AND AND AND AND AND AND AND AND AND AND	2023 CHD CAT JTS IO.: 3
	ALL LUTS WITHIN THE SUDDIVISION WILL DE PROVIDED WATER, SEWER AND ELECTRIC SERVICE	
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	BY NEW BRAUNFELS UTILITIES. TELEPHONE AND CABLE SERVICES FOR THE SUBDIVISION WILL BE PROVIDED BY AT&T COMMUNICATIONS AND/OR SPECTRUM.	
2.	ALL BEARINGS AND COORDINATES SHOWN HEREON ARE BASED UPON THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE (4204), NORTH AMERICAN DATUM 1983, GRID. DISTANCES SHOWN HEREON ARE BASED UPON SURFACE MEASUREMENTS. TO CONVERT SURFACE DISTANCES TO GRID, APPLY A COMBINED SCALE FACTOR OF 1.00015.	
3.	MONUMENTS WERE FOUND OR SET AT EACH CORNER OF THE SURVEY BOUNDARY OF THE SUBDIVISION. MONUMENTS AND LOT MARKERS WILL BE SET WITH 1/2" IRON PINS WITH PLASTIC CAP STAMPED "HMT" IMMEDIATELY AFTER COMPLETION OF UTILITY INSTALLATION AND STREET CONSTRUCTION UNLESS NOTED OTHERWISE.	
4. 5.	THIS SUBDIVISION IS WITHIN THE EDWARDS AQUIFER RECHARGE ZONE. THIS SUBDIVISION IS WITHIN THE CITY LIMITS OF NEW BRAUNFELS, TEXAS.	
6. 7.	THIS SUBDIVISION IS WITHIN THE NEW BRAUNFELS INDEPENDENT SCHOOL DISTRICT.	
8	(100 YR. FLOOD), AS DEFINED BY THE COMAL COUNTY, TEXAS, FLOOD INSURANCE RATE MAP NUMBER 48091C0435F, EFFECTIVE DATE SEPTEMBER 2, 2009 AS PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.	
	THE LIMITS OF THE DRAINAGE EASEMENTS SHOWN ON THIS PLAT. NO LANDSCAPING, FENCES, OR OTHER TYPE OF MODIFICATIONS WHICH ALTER THE CROSS SECTIONS OF THE DRAINAGE EASEMENTS OR DECREASE THE HYDRAULIC CAPACITY OF THE EASEMENT, AS APPROVED, SHALL BE ALLOWED WITHOUT THE APPROVAL OF THE CITY ENGINEER. THE CITY OF NEW BRAUNFELS SHALL HAVE THE RIGHT OF INGRESS AND EGRESS OVER GRANTOR'S ADJACENT PROPERTY TO REMOVE ANY OBSTRUCTIONS PLACED WITHIN THE LIMITS OF SAID DRAINAGE EASEMENTS AND TO MAKE ANY MODIFICATIONS OR IMPROVEMENTS WITHIN SAID DRAINAGE EASEMENTS.	
9.	FUTURE DEVELOPMENT IS SUBJECT TO CHAPTER 114 (STREETS, SIDEWALKS AND OTHER PUBLIC SPACES) OF THE NEW BRAUNFELS CODE OF ORDINANCES.	
10	D. THIS SUBDIVISION IS SUBJECT TO SEC. 118-50, OFF-STREET BIKEWAYS AND TRAILS. THE OWNER/DEVELOPER WILL CONSTRUCT A 10-FOOT WIDE SHARED PATH WITHIN A 20-FOOT WIDE PEDESTRIAN EASEMENT AT THE TIME OF CONSTRUCTION, ALIGNMENT AND STANDARDS MUST BE APPROVED BY CITY OF NEW BRAUNFELS, PRIOR TO CONSTRUCTION.	
11	I. THE ELEVATION OF THE LOWEST FLOOR OF A STRUCTURE SHALL BE AT LEAST 10 INCHES ABOVE THE FINISHED GRADE OF THE SURROUNDING GROUND, WHICH SHALL BE SLOPED IN A FASHION SO AS TO DIRECT STORMWATER AWAY FROM THE STRUCTURE. PROPERTIES ADJACENT TO STORMWATER CONVEYANCE STRUCTURES MUST HAVE A FLOOR SLAB ELEVATION OR BOTTOM OF FLOOR JOISTS A MINIMUM OF ONE FOOT ABOVE THE 100-YEAR WATER FLOW ELEVATION IN THE STRUCTURE. DRIVEWAYS SERVING HOUSES ON THE DOWNHILL SIDE OF THE STREET SHALL HAVE A PROPERLY SIZED CROSS SWALE PREVENTING RUNOFF FROM ENTERING THE GARAGE AND SHALL PREVENT WATER FROM LEAVING THE STREET.	
12	2. NON-RESIDENTIAL SUBDIVISIONS ARE NOT SUBJECT TO PARK LAND DEDICATION AND DEVELOPMENT REQUIREMENTS. HOWEVER AT SUCH TIME ANY DWELLING UNITS ARE CONSTRUCTED, THE OWNER OF THE LOT SHALL CONTACT THE CITY AND COMPLY WITH THE ORDINANCE FOR EACH DWELLING UNIT.	
13	3. ALL DRAINAGE EASEMENTS WITHIN THE LOTS WILL BE OWNED AND MAINTAINED BY PROPERTY OWNER.	
14	4. PERMANENT WATER QUALITY CONTROLS ARE REQUIRED FOR THIS SUBDIVISION PLAT IN ACCORDANCE WITH THE CITY OF NEW BRAUNFELS DRAINAGE AND EROSION CONTROL DESIGN MANUAL.	
NEW	BRAUNFELS UTILITIES NOTES:	
NE¥ 1.	V BRAUNFELS UTILITIES NOTES: MAINTENANCE OF DEDICATED UTILITY EASEMENTS IS THE RESPONSIBILITY OF THE PROPERTY OWNER. ANY USE OF AN EASEMENT, OR ANY PORTION OF IT, INCLUDING LANDSCAPING OR DRAINAGE FEATURES, IS SUBJECT TO AND SHALL NOT CONFLICT WITH THE TERMS AND CONDITIONS IN THE EASEMENT, MUST NOT ENDANGER OR INTERFERE WITH THE RIGHTS GRANTED BY THE EASEMENT TO NEW BRAUNFELS UTILITIES, ITS SUCCESSORS AND ASSIGNS, AND SHALL BE SUBJECT TO APPLICABLE PERMIT REQUIREMENTS OF THE CITY OF NEW BRAUNFELS OR ANY OTHER GOVERNING BODY. THE PROPERTY OWNER MUST OBTAIN, IN ADVANCE WEDITED AOPEMENT WITH THE LITTLITES TO UTILITY. THE FASEMENT, OR ANY DADT	
NEW 1. 2.	W BRAUNFELS UTILITIES NOTES: MAINTENANCE OF DEDICATED UTILITY EASEMENTS IS THE RESPONSIBILITY OF THE PROPERTY OWNER. ANY USE OF AN EASEMENT, OR ANY PORTION OF IT, INCLUDING LANDSCAPING OR DRAINAGE FEATURES, IS SUBJECT TO AND SHALL NOT CONFLICT WITH THE TERMS AND CONDITIONS IN THE EASEMENT, MUST NOT ENDANGER OR INTERFERE WITH THE RIGHTS GRANTED BY THE EASEMENT TO NEW BRAUNFELS UTILITIES, ITS SUCCESSORS AND ASSIGNS, AND SHALL BE SUBJECT TO APPLICABLE PERMIT REQUIREMENTS OF THE CITY OF NEW BRAUNFELS OR ANY OTHER GOVERNING BODY. THE PROPERTY OWNER MUST OBTAIN, IN ADVANCE, WRITTEN AGREEMENT WITH THE UTILITIES TO UTILIZE THE EASEMENT, OR ANY PART OF IT. UTILITIES WILL POSSESS A 5' WIDE SERVICE EASEMENT TO THE DWELLING ALONG THE SERVICE LINE TO THE SERVICE ENTRANCE. THIS EASEMENT WILL VARY DEPENDING UPON LOCATION OF	
NEW 1. 2. 3.	A BRAUNFELS UTILITIES NOTES: MAINTENANCE OF DEDICATED UTILITY EASEMENTS IS THE RESPONSIBILITY OF THE PROPERTY OWNER. ANY USE OF AN EASEMENT, OR ANY PORTION OF IT, INCLUDING LANDSCAPING OR DRAINAGE FEATURES, IS SUBJECT TO AND SHALL NOT CONFLICT WITH THE TERMS AND CONDITIONS IN THE EASEMENT, MUST NOT ENDANGER OR INTERFERE WITH THE RIGHTS GRANTED BY THE EASEMENT TO NEW BRAUNFELS UTILITIES, ITS SUCCESSORS AND ASSIGNS, AND SHALL BE SUBJECT TO APPLICABLE PERMIT REQUIREMENTS OF THE CITY OF NEW BRAUNFELS OR ANY OTHER GOVERNING BODY. THE PROPERTY OWNER MUST OBTAIN, IN ADVANCE, WRITTEN AGREEMENT WITH THE UTILITIES TO UTILIZE THE EASEMENT, OR ANY PART OF IT. UTILITIES WILL POSSESS A 5' WIDE SERVICE EASEMENT TO THE DWELLING ALONG THE SERVICE LINE TO THE SERVICE ENTRANCE. THIS EASEMENT WILL VARY DEPENDING UPON LOCATION OF DWELLING AND SERVICE. UTILITIES SHALL HAVE ACCESS TO THE METER LOCATIONS FROM THE FRONT YARD AND METER LOCATIONS SHALL NOT BE LOCATED WITHIN A FENCED AREA.	
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NEW 1. 2. 3. 4. 5.	A BRAUNFELS UTILITIES NOTES: MAINTENANCE OF DEDICATED UTILITY EASEMENTS IS THE RESPONSIBILITY OF THE PROPERTY OWNER. ANY USE OF AN EASEMENT, OR ANY PORTION OF IT, INCLUDING LANDSCAPING OR DRAINAGE FEATURES, IS SUBJECT TO AND SHALL NOT CONFLICT WITH THE TERMS AND CONDITIONS IN THE EASEMENT, MUST NOT ENDANGER OR INTERFERE WITH THE RIGHTS GRANTED BY THE EASEMENT TO NEW BRAUNFELS UTILITIES, ITS SUCCESSORS AND ASSIGNS, AND SHALL BE SUBJECT TO APPLICABLE PERMIT REQUIREMENTS OF THE CITY OF NEW BRAUNFELS OR ANY OTHER GOVERNING BODY. THE PROPERTY OWNER MUST OBTAIN, IN ADVANCE, WRITTEN AGREEMENT WITH THE UTILITIES TO UTILIZE THE EASEMENT, OR ANY PART OF IT. UTILITIES WILL POSSESS A 5' WIDE SERVICE EASEMENT TO THE DWELLING ALONG THE SERVICE LINE TO THE SERVICE ENTRANCE. THIS EASEMENT WILL VARY DEPENDING UPON LOCATION OF DWELLING AND SERVICE. UTILITIES SHALL HAVE ACCESS TO THE METER LOCATIONS FROM THE FRONT YARD AND METER LOCATIONS SHALL NOT BE LOCATED WITHIN A FENCED AREA. EACH LOT MUST HAVE ITS OWN WATER AND SEWER SERVICE AT THE OWNER'S/DEVELOPER'S EXPENSE. DO NOT COMBINE ANY NEW UTILITY EASEMENTS (U.E.) WITH DRAINAGE EASEMENTS (D.E.) OR MAKE CHANGES IN GRADE WITHIN THE UTILITY EASEMENTS (U.E.) WITHOUT WRITTEN APPROVAL FROM NEW BRAUNFELS UTILITIES.	
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#### MINOR PLAT ESTABLISHING NEW BRAUNFELS CHRISTIAN ACADEMY BEING A 27.135 ACRE TRACT OF LAND SITUATED IN THE LUIS SALINAS SURVEY NO. 458, ABSTRACT NO. 531, COMAL COUNTY, TEXAS, BEING COMPRISED OF THE FOLLOWING TWO (2) TRACTS: ALL OF A CALLED 15.156 ACRE TRACT AND LAND RECORDED IN DOCUMENT NO. 201706030260, OFFICIAL PUBLIC RECORDS, COMAL COUNTY, TEXAS AND ALL OF A CALLED 12.016 ACRE TRACT OF LAND RECORDED IN DOCUMENT NO. 200406025466,

OFFICIAL PUBLIC RECORDS, COMAL COUNTY, TEXAS.

TXDOT NOTES:

- 1. FOR RESIDENTIAL DEVELOPM DEVELOPER SHALL BE RESP MEASURES FOR FUTURE NOI
- 2. THE OWNER/DEVELOPER IS F EXISTING DRAINAGE SYSTEM QUALITY AND/OR DETENTION DEVELOPMENT AND STRUCTURE ENCROACH BY STRUCTURE C DEDICATION. FOR PROJECTS CONTRIBUTING ZONES, PLAC PRACTICE DEVICES OR VEGE ROW RESERVATION OR DEDIC
- 3. MAXIMUM ACCESS POINTS TO DIRECTED BY TXDOT'S "ACCI APPROVED TRAFFIC IMPACT THE LOTS. WHERE TOPOGRAI NOT FEASIBLE TO CONFORM REASONABLE ACCESS WILL E ESTABLISHED PROPERTY OWN DESIGN CONSTRAINTS. THE S INTERESTS AS POSSIBLE TO HIGHWAY. IN SELECTING LOCA BE GIVEN TO PUBLIC ROADW
- IF SIDEWALKS ARE REQUIRED BE APPROVED BY TXDOT, PI LOCATIONS OF SIDEWALKS W
- ANY TRAFFIC CONTROL MEA ANY ACCESS FRONTING A S THE DEVELOPER/OWNER.

NOTARY PUBLIC, STATE OF TEXAS MY COMMISSION EXPIRES: _____

BY _____

NEW BRAUNFELS CHRISTIAN ACADEMY

BY: NICK REEVES, HEAD OF SCHOOL 220 FM 1863

NEW BRAUNFELS, TEXAS 78132

STATE OF TEXAS

COUNTY OF COMAL

STATE OF TEXAS COUNTY OF COMAL

# FOR REFERENCE ONLY

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

SHOWN FOR THE PURPOSES AND CONSIDERATION THEREIN EXPRESSED.

THIS INSTRUMENT WAS ACKNOWLEDGED BEFORE ME ON THIS

_____ DAY OF _____, 20___,

	CASTELL AVE., STE. 100 RAUNFELS, TX 78130 FIRM 1053600	
SITE SITE MARKET AND AND SITE MARKET AND AND SITE MARKET AND AND MARKET AND AND AND MARKET AND AND AND AND MARKET AND AND AND AND MARKET AND AND AND AND AND AND MARKET AND	ENGINEERING & SURVEYING TBPLS	
TOOT NOTES: FOR RESIDENTIAL DEVELOPMENT DIRECTLY ADJACENT TO STATE RIGHT-OF-WAY, THE DEVELOPER SHALL BE RESPONSIBLE FOR ADEQUATE SETBACK AND/OR SOUND ABATEMENT MEASURES FOR FUTURE NOISE MITIGATION. THE OWNER/DEVELOPER IS RESPONSIBLE FOR PREVENTING ANY ADVERSE IMPACT TO THE EXISTING DRAINAGE SYSTEM WITHIN THE HIGHWAY RIGHT-OF-WAY. OUTFALLS FOR WATER QUALITY AND/OR DETENTION PONDS TREATING IMPERVIOUS COVER RELATED TO THE DEVELOPMENT AND STRUCTURE FOR REDUCTION OF DISCHARGE VELOCITY WILL NOT ENCROACH BY STRUCTURE OR GRADING INTO ROW OR INTO AREAS ROW RESERVATION OR DEDICATION. FOR PROJECTS IN THE EDWARDS AQUIFER RECHARGE, TRANSITION, CONTRIBUTING ZONES, PLACEMENT OF PERMANENT STRUCTURAL BEST MANAGEMENT PRACTICE DEVICES OR VEGETATIVE FILTER STRIPS WITHIN STATE ROW OR INTO AREAS OF ROW RESERVATION OR DEDICATION WILL NOT BE ALLOWED. NO NEW EASEMENTS OF ANY TYPE SHOULD BE LOCATED IN AREAS OF ROW RESERVATION OR DEDICATION.	JOSEPH T. SANDOVAL JOSEPH T. SANDOVAL T. 110257 JOSEPH T. SANDOVAL T. 110257 Solonal ENG 03/10/2023	· * · · · · · · · · · · · · · · · · · ·
MAXIMUM ACCESS POINTS TO STATE HIGHWAY FROM THIS PROPERTY WILL BE REGULATED AS DIRECTED BY TXDOT'S "ACCESS MANAGEMENT MANUAL" AND DETERMINED BASED ON AN APPROVED TRAFFIC IMPACT ANALYSIS. INTERNAL ACCESS SHOULD BE PROVIDED BETWEEN THE LOTS. WHERE TOPOGRAPHY OR OTHER EXISTING CONDITIONS MAKE IT INAPPOPRIATE OR NOT FEASIBLE TO CONFORM TO THE CONNECTION SPACING INTERVALS, THE LOCATION OF REASONABLE ACCESS WILL BE DETERMINED WITH CONSIDERATION GIVEN TO TOPOGRAPHY, ESTABLISHED PROPERTY OWNERSHIP, UNIQUE PHYSICAL LIMITATION, AND/OR PHYSICAL DESIGN CONSTRAINTS. THE SELECTED LOCATION SHOULD SERVE AS MANY PROPERTIES AND INTERESTS AS POSSIBLE TO REDUCE THE NEED FOR ADDITIONAL DIRECT ACCESS TO THE HIGHWAY, IN SELECTING LOCATION FOR FULL MOVEMENT INTERSECTIONS, PREFERENCE WILL BE GIVEN TO PUBLIC ROADWAYS THAT ARE ON LOCAL THOROUGHFARE PLANS. IF SIDEWALKS ARE REQUIRED BY APPROPRIATE CITY ORDINANCE, A SIDEWALK PERMIT MUST BE APPROVED BY TXDOT, PRIOR TO CONSTRUCTION WITHIN STATE RIGHT-OF-WAY, LOCATIONS OF SIDEWALKS WITHIN STATE RIGHT OF WAY SHALL BE AS DIRECTED BY TXDOT. ANY TRAFFIC CONTROL MEASURES (LEFTURN LANE, RIGHTTURN LANE SIGNAL, ETC.) FOR ANY ACCESS FRONTING A STATE MAINTAINED ROADWAY SHALL BE THE RESPONSIBILITY OF THE DEVELOPER/OWNER.	<b>PLAT (1 OF 2)</b> BCA EXPANSION WPAP/SCS	NEW BRAUNFELS, TEXAS
APPROVED FOR ACCEPTANCE  DATE  DATE  CITY ENGINEER		
DATE NEW BRAUNFELS UTILITIES		
STATE OF TEXAS COUNTY OF COMAL	LE CISION D'	
I, DO HEREBY CERTIFY THAT THE FOREGOING INSTRUMENT WAS FILED FOR RECORD IN THE MAP AND PLAT RECORDS, DOC# OF COMAL COUNTY ON THE DAY OF, 20, ATM.		
WITNESS MY HAND OFFICIAL SEAL, THIS THE DAY OF, 20,	NOLTAINO	
COUNTY CLERK, COMAL COUNTY, TEXAS	VISION DES	
DEFOTT		
SHEET 1 OF 2		
	DATE: FEBRUARY 2023	
	DRAWN BY: CHD DESIGNED BY: CAT	
	REVIEWED BY: JTS	
	HMT PROJECT NO.: 318.003	_
	SHEET	

C1.00







lethod						
e	Q ₂ (cfs)	Q ₂ (cfs) Q ₁₀ (cfs)		Q ₅₀ (cfs)	Q ₁₀₀ (cfs)	
)	30.27	67.82	97.53	124.23	154.88	
)	14.71	32.96	47.39	60.37	75.26	
)	2.19	4.91	7.07	9.00	11.22	
)	1.48	3.30	4.75	6.05	7.55	
)	5.20	11.65	16.75	21.34	26.60	
)	2.44	5.47	7.86	1.01	12.48	
)	1.13	2.54	3.66	4.66	5.80	
)	0.44	0.98	1.41	1.80	2.24	

lue	<b>Q</b> ₂ (cfs)	Q ₁₀ (cfs)	Q ₂₅ (cfs)	<b>Q</b> ₅₀ (cfs)	Q ₁₀₀ (cfs)
00	76.60	165.90	235.61	298.64	370.88
00	16.49	38.12	53.07	66.58	84.83
00	1.44	2.75	3.76	4.66	5.70

Tab				
$Q_2$ (cfs)	Q ₁₀ (cfs)	Q ₂₅ (cfs)	Q ₅₀ (cfs)	Q ₁₀₀ (cfs)
16.49	38.12	53.07	66.58	84.83
110713	230606	323495	407113	503642
873.32	874.11	874.57	874.95	875.33
3.18	2.39	1.93	1.55	1.17



)re	oposed Conditio	ns Hydrology Ca	Iculations Ration	nal Method - City	of New Braunte	IS					
	C Value (10yr)	C Value (25yr)	C Value (50yr)	C Value (100yr)	l (2yr)	l (10yr)	l (25yr)	l (50yr)	l (100yr)	$Q_2$ (cfs)	Q ₁₀ (cfs)
	0.70	0.77	0.81	0.83	5.05	7.50	9.12	10.38	11.70	0.50	0.83
	0.70	0.77	0.81	0.83	5.05	7.50	9.12	10.38	11.70	1.10	1.82
	0.70	0.77	0.81	0.83	5.05	7.50	0.12	10.38	11.70	0.25	0.42
	0.70	0.77	0.01	0.00	5.05	7.50	0.12	10.30	11.70	0.23	0.42
	0.70	0.77	0.81	0.83	5.05	7.50	9.12	10.38	11.70	0.13	0.21
	0.70	0.//	0.81	0.83	5.05	7.50	9.12	10.38	11.70	3.84	6.36
	0.70	0.77	0.81	0.83	5.05	7.50	9.12	10.38	11.70	4.03	6.67
										4.16	6.88
	0.70	0.77	0.81	0.83	5.05	7.50	9.12	10.38	11.70	2.02	3.34
	0.70	0.77	0.81	0.83	5.05	7.50	9.12	10.38	11.70	0.69	1.15
	0.70	0.77	0.81	0.83	5.05	7.50	9.12	10.38	11.70	0.72	1.20
	0.70	0.77	0.81	0.83	5.05	7 50	9.12	10.38	11.70	0.76	1 25
	0.70	0.77	0.81	0.83	5.05	7.50	9.12	10.38	11.70	0.79	1.20
	0.70	0.77	0.01	0.03	5.05	7.50	9.12	10.30	11.70	0.79	1.30
	0.70	0.77	0.81	0.83	5.05	7.50	9.12	10.38	11.70	2.08	3.44
	0.70	0.//	0.81	0.83	5.05	7.50	9.12	10.38	11.70	5.20	8.60
	0.70	0.77	0.81	0.83	5.05	7.50	9.12	10.38	11.70	2.58	4.27
	0.70	0.77	0.81	0.83	3.57	5.23	6.29	7.12	8.01	11.23	18.32
	0.70	0.77	0.81	0.83	5.05	7.50	9.12	10.38	11.70	3.03	5.00
	0.70	0.77	0.81	0.83	5.05	7.50	9.12	10.38	11.70	1.32	2.19
	0.70	0.77	0.81	0.83	4.10	6.03	7.26	8.25	9.29	2.40	3.94
	0.70	0.77	0.81	0.83	5.05	7 50	9.12	10.38	11.70	0.66	1.09
	0.70	0.33	0.35	0.00	4.97	7.30	9.79	0.00	11.76	20.28	34.67
	0.50	0.55	0.33	0.37	4.07	7.23	0.70	7.77	10.92	10.57	34.07
	0.62	0.08	0.73	0.80	4.70	0.97	8.45	9.01	10.83	19.57	33.43
	0.74	0.82	0.87	0.87	4.8/	7.23	8.78	9.99	11.26	3.76	6.21
	0.74	0.82	0.87	0.87	5.05	7.50	9.12	10.38	11.70	2.62	4.33
	0.38	0.42	0.45	0.49	5.05	7.50	9.12	10.38	11.70	4.58	7.84
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	TREE TABLE         TREE TABLE           TREE #/ DESCRIPTION         2006         25" CEDAR         TO BE REMOVED         2206         6" OAK         TO BE REMOVED           2009         13" CEDAR         TO BE REMOVED         2206         6" OAK         TO BE REMOVED           2010         27" OAK         TO BE REMOVED         2208         19" OAK         TO BE REMOVED           2011         18" OAK         TO BE REMOVED         2209         32" OAK         TO BE REMOVED           2012         12" OAK         TO BE REMOVED         2210         18" OAK         TO BE REMOVED           2014         15" CEDAR         TO BE REMOVED         2211         10" OAK         TO BE REMOVED           2015         12" OAK         TO BE REMOVED         2211         10" OAK         TO BE REMOVED           2014         15" CEDAR         TO BE REMOVED         2211         10" OAK         TO BE REMOVED           2015         12" OAK         TO BE REMOVED         2211         10" OAK         TO BE REMOVED           2013         11" OAK         TO BE REMOVED         2211         13" OAK         TO BE REMOVED           2020         27" CEDAR         TO BE REMOVED         2211         10" OAK         TO BE REMOVED	REVISION DESCRIPTION     REVISION DATE       Revision Description     Revision Revision WPAP/SCS       Revision Description     Revision R
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THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR WILL AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE INCURRED BY THEIR FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES, STRUCTURES OR FACILITIES. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES 24-HOURS PRIOR TO COMMENCING CONSTRUCTION.

REVIEWED BY: JTS

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HMT PROJECT NO.: 318.003





### SEQUENCE OF CONSTRUCTION

- 1. INSTALL EROSION CONTROLS PER APPROVED PLAN.
- 2. TEMPORARY CONTROLS TO BE INSPECTED AND MAINTAINED WEEKLY AND PRIOR TO ANTICIPATED RAINFALL EVENTS, AND AFTER RAINFALL EVENTS, AS NEEDED. CONTRACTOR/OWNER SHALL PROVIDE A CONTACT NAME AND NUMBER FOR EROSION CONTROL ISSUES.
- 3. CONDUCT DEMOLITION ACTIVITIES, IF APPLICABLE.
- 4. CONSTRUCT DRAINAGE IMPROVEMENTS, IF APPLICABLE.
- 5. CONSTRUCT CURB INLET PROTECTION AT THE TIME OF CURB INLET INSTALLATION.
- 6. CONSTRUCT DEVELOPMENT PER APPROVED PLANS.
- INSTALL STREETSCAPE AND/OR LANDSCAPING IMPROVEMENTS.
- 8. CONTRACTOR TO VEGETATE ANY DISTURBED AREAS ONCE FINAL GRADING IS COMPLETE, AND ESTABLISH A MIN OF 70% VEGETATION PRIOR TO COMPLETION. PER TPDES REQUIREMENTS, DISTURBED AREAS ON WHICH CONSTRUCTION ACTIVITIES HAVE CEASED (TEMPORARILY OR PERMANENTLY) SHALL BE STABILIZED WITHIN 14 DAYS UNLESS ACTIVITY RESUMES WITHIN 21 DAYS. SEEDING DOES NOT CONSTITUTE AS STABILIZATION.
- 9. REMOVE ALL TEMPORARY EROSION CONTROL MEASURES.

THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING
UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR WILL
AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL
DAMAGES WHICH MIGHT BE INCURRED BY THEIR FAILURE TO
EXACTLY LOCATE AND PRESERVE ANY AND ALL
UNDERGROUND UTILITIES, STRUCTURES OR FACILITIES.
CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES
24-HOURS PRIOR TO COMMENCING CONSTRUCTION.

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#### SEQUENCE OF CONSTRUCTION

- 1. INSTALL EROSION CONTROLS PER APPROVED PLAN.
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- 8. CONTRACTOR TO VEGETATE ANY DISTURBED AREAS ONCE FINAL GRADING IS COMPLETE, AND ESTABLISH A MIN OF 70% VEGETATION PRIOR TO COMPLETION. PER TPDES REQUIREMENTS, DISTURBED AREAS ON WHICH CONSTRUCTION ACTIVITIES HAVE CEASED (TEMPORARILY OR PERMANENTLY) SHALL BE STABILIZED WITHIN 14 DAYS UNLESS ACTIVITY RESUMES WITHIN 21 DAYS. SEEDING DOES NOT CONSTITUTE AS STABILIZATION.
- 9. REMOVE ALL TEMPORARY EROSION CONTROL



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## <u>NOTE:</u>

PER TPDES REQUIREMENTS, DISTURBED AREAS ON WHICH CONSTRUCTION ACTIVITIES HAVE CEASED (TEMPORARILY OR PERMANENT) SHALL BE STABILIZED WITHIN 14 DAYS UNLESS ACTIVITY RESUMES WITHIN 21 DAYS. SEEDING DOES NOT CONSTITUTE AS STABILIZATION.

SILT FENCE AT PROPERTY LINE MAY BE SHOWN GRAPHICALLY OFFSET FROM PROPERTY LINE TO AVOID OVERLAP OF LINEWORK. CONTRACTOR SHALL NOT INSTALL EROSION CONTROL MEASURES BEYOND LIMITS OF CONSTRUCTION REGARDLESS OF GRAPHIC REPRESENTATION.

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#### CONCRETE WASHOUT AREAS

THE PURPOSE OF CONCRETE WASHOUT AREAS IS TO PREVENT OR REDUCE THE DISCHARGE OF POLLUTANTS TO STORMWATER FROM CONCRETE WASTE BY CONDUCTING WASHOUT OFFSITE, PERFORMING ONSITE WASHOUT IN A DESIGNATED AREA, AND TRAINING EMPLOYEES AND SUBCONTRACTORS.

THE FOLLOWING STEPS WILL HELP REDUCE STORMWATER POLLUTION FROM CONCRETE WASTES:

- INCORPORATE REQUIREMENTS FOR CONCRETE WASTE MANAGEMENT INTO MATERIAL SUPPLIER AND SUBCONTRACTOR AGREEMENTS.
- AVOID MIXING EXCESS AMOUNTS OF FRESH CONCRETE. • PERFORM WASHOUT OF CONCRETE TRUCKS IN DESIGNATED AREAS ONLY.
- DO NOT WASH OUT CONCRETE TRUCKS INTO STORM DRAINS, OPEN DITCHES, STREETS, OR STREAMS.
- DO NOT ALLOW EXCESS CONCRETE TO BE DUMPED ONSITE, EXCEPT IN DESIGNATED AREAS.
- FOR ONSITE WASHOUT:
- LOCATE WASHOUT AREA AT LEAST 50 FEET FROM SENSITIVE FEATURES, STORM DRAINS, OPEN DITCHES, OR WATER BODIES. DO NOT ALLOW RUNOFF FROM THIS AREA BY CONSTRUCTING A TEMPORARY PIT OR BERMED AREA LARGE ENOUGH FOR LIQUID AND SOLID WASTE.
- WASH OUT WASTES INTO THE TEMPORARY PIT WHERE THE CONCRETE CAN SET, BE BROKEN UP, AND THEN DISPOSED PROPERLY.

BELOW GRADE CONCRETE WASHOUT FACILITIES ARE TYPICAL. THESE CONSIST OF A LINED EXCAVATION SUFFICIENTLY LARGE TO HOLD EXPECTED VOLUME OF WASHOUT MATERIAL. ABOVE GRADE FACILITIES ARE USED IF EXCAVATION IS NOT PRACTICAL. TEMPORARY CONCRETE WASHOUT FACILITY (TYPE ABOVE GRADE) SHOULD BE CONSTRUCTED AS SHOWN ON THE DETAILS AT THE END OF THIS SECTION, WITH SUFFICIENT QUANTITY AND VOLUME TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS. PLASTIC LINING MATERIAL SHOULD BE A MINIMUM OF 10 MIL IN POLYETHYLENE SHEETING AND SHOULD BE FREE OF HOLES, TEARS, OR OTHER DEFECTS THAT COMPROMISE THE IMPERMEABILITY OF THE MATERIAL.

WHEN TEMPORARY CONCRETE WASHOUT FACILITIES ARE NO LONGER REQUIRED FOR THE WORK, THE HARDENED CONCRETE SHOULD BE REMOVED AND DISPOSED OF. MATERIALS USED TO CONSTRUCT TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE REMOVED FROM THE SITE OF THE WORK AND DISPOSED OF HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCE CAUSED BY THE REMOVAL OF THE TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE BACKFILLED AND REPAIRED.





### ROCK BERM

- 1. USE ONLY OPEN GRADED ROCK 3-5" DIAMETER. 2. THE ROCK BERM SHALL BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM 1" OPENINGS AND MINIMUM WIRE DIAMETER OF 20 GAUGE.
- 3. THE ROCK BERM SHALL BE INSPECTED WEEKLY OR AFTER EACH RAIN, AND THE STONE AND/OR FABRIC CORE-WOVEN WIRE SHEATHING SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED, DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT CONSTRUCTION TRAFFIC DAMAGE, ETC.
- 4. WHEN SILT REACHES A DEPTH EQUAL TO 6", THE SILT WILL BE REMOVED AND DISPOSED OF IN AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CREATE A SILTATION PROBLEM. 5. DAILY INSPECTION SHALL BE MADE ON SEVERE SERVICE ROCK BERMS
- WHEN THE SITE IS COMPLETELY STABILIZED, THE BERM AND ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.



ROCK BERM DETAIL NOT TO SCALE

# <u>SILT FENCE</u>

#### MATERIALS:

- SIŹE OF U.S. SIEVE NO. 30.
- WELDED WIRE, 12 GAUGE MINIMUM.
- INSTALLATION:
- DRAINAGE AREA IS 1/4 ACRE/100 FEET OF FENCE.
- WITH COMPACTED MATERIAL
- INSPECTION AND MAINTENANCE GUIDELINES:
- INSPECT ALL FENCING WEEKLY, AND AFTER ANY RAINFALL. REMOVE SEDIMENT WHEN BUILDUP REACHES 6 INCHES.
- THE TORN SECTION





#### 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

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"

#### 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

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

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 ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED 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

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

. REPLACE ANY TORN FABRIC OR INSTALL A SECOND LINE OF FENCING PARALLEL TO 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.

#### ~ POLYPROPYLENE, POLYETHYLENE OR POLYAMIDE WOVEN OR NON-WOVEN FABRIC.



SILT FENCE DETAI

# -OVERLAP ENDS TIGHTLY 24" MINIMUM CONTROL LOG DITCH FLOW LOG AS NEEDED TO IN PLACE (TYP)

# STABILIZED CONSTRUCTION ENTRANCE / EXIT

## MATERIALS:

- 1. THE AGGREGATE SHOULD CONSIST OF 3 TO 5 INCH WASHED STONE OVER A STABLE FOUNDATION AS SPECIFIED IN THE PLAN.
- 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
- 5. ALL SEDIMENT SHOULD BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATER COURSE BY USING APPROVED METHODS.



-DIVERSION RIDGE 8" MIN. GRADE ----->2% GEOTEXTILE FABRIC ----─**→** 15' <del>| </del> PUBLIC -PROFILE VIEW

CONSTRUCTION ENTRANCE DETAIL NOT TO SCALE

NOTE:

CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DISTURBED AREAS ON WHICH CONSTRUCTION ACTIVITIES HAVE CEASED (TEMPORARILY OR PERMANENT) AND SHALL BE STABILIZED WITHIN 14 DAYS UNLESS ACTIVITY RESUMES IN 21 DAYS, PER TPDES REQUIREMENTS.

# SEE SHEET C0.01 (CITY OF NEW BRAUNFELS CONSTRUCTION NOTES) FOR SEEDING REQUIREMENTS AND SPECIFICATIONS

		290 S. CASTELL AVE., STE. 1	NEW BRAUNFELS, TX 78130	TBPE FIRM F-10961	ENGINEERING & SURVEYING TBPLS FIRM 1053600		
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REVISION DATE							
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НМТ	PF	ROJE <b>318</b>	ICT 3.00	NO.: <b>)3</b>			
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NOTES:



1. ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE STATED.
 ALL SIDEWALKS SHALL HAVE A CROSS SLOPE OF NO GREATER THAN 2.0%.



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DATE: MARCH 2023

DRAWN BY: CHD

DESIGNED BY: CAT

REVIEWED BY: JTS

SHEET

**C5.00** 

HMT PROJECT NO.: 318.003



KEY NOTES         1       SPILL CURB         2       CATCH CURB         3       LIGHT DUTY PAVEMENT         4       HEAVY DUTY PAVEMENT         5       LANDSCAPE AREA         6       ACCESSIBLE PARKING SIGN         7       6' SIDEWALK         8       ROCK RIP-RAP         9       OVERFLOW WEIR         10       STADIUM LIGHTING		40 80 E: 1" = 40' LEGEND UTILITY EASEMENT BUILDING LINE PROPOSED FIRE LANE EDGE OF PAVEMENT EXISTING FIRE HYDRANT PROPOSED FIRE HYDRANT PROPOSED FIRE HYDRANT A.D.A. RAMPS A.D.A. PARKING ADA ROUTE TRANSFORMER WATER METER WATER METER WATER VALVE EXISTING MANHOLE CLEAN OUT	290 S. CASTELL AVE., STE. 100	NEW BRAUNFELS, TX 78130 NEW BRAUNFELS, TX 78130 TBPLS FIRM F-10961 TBPLS FIRM 1053600 TBPLS FIRM 1053600 TBPLS FIRM 1053600 TBPLS FIRM 1053600
#       PARKING COUNT		BENCHMARK OFFICIAL PUBLIC RECORDS OF COMAL COUNTY, TEXAS MAP AND PLAT RECORDS OF COMAL COUNTY, TEXAS HEAVY DUTY ASPHALT PAVEMENT LIGHT DUTY ASPHALT PAVEMENT CONCRETE PAVEMENT CONCRETE PAVEMENT CUT WALL FILL WALL 4' GUARD FENCE C FENCE EXISTING WIRE FENCE EXISTING CHAIN LINK FENCE	SITE PLAN (1 OF 3)	NEW BRAUNFELS, TEXAS
NOTES: 1. ALL DIMENSIO 2. ALL SIDEWALD	ONS ARE TO THE FACE OF CURB UN KS SHALL HAVE A CROSS SLOPE OF	LESS OTHERWISE STATED. F NO GREATER THAN 2.0%.	REVISION DESCRIPTION REVISION DATE	
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Name: N:_Projects\318 - New Braunfels Christian Academy\003 - Exapansion and Sports Fields\CDs\318.003_SITE.dwg User: corbinc Mar 10, 2023 - 11:22a

![](_page_122_Figure_0.jpeg)

KEY NOTES         1       SPILL CURB         2       CATCH CURB         3       LIGHT DUTY PAVEMENT         4       HEAVY DUTY PAVEMENT         5       LANDSCAPE AREA         6       ACCESSIBLE PARKING SIGN         7       6' SIDEWALK         8       ROCK RIP-RAP         9       OVERFLOW WEIR         10       STADIUM LIGHTING         (11)       PARKING/ROAD LIGHTING	20 40 80 20 40 80 20 40 80 20 20 20 20 SCALE: 1" = 40' LEGEND UTILITY EASEMENT BUILDING LINE PROPOSED FIRE LANE EDGE OF PAVEMENT EXISTING FIRE HYDRANT A.D.A. RAMPS A.D.A. PARKING ADA ROUTE TRANSFORMER WATER METER WATER METER WATER VALVE EXISTING MANHOLE CLEAN OUT DENOLUMARY	290 S. CASTELL AVE., STE. 100	ENGINEERING & SURVEYING TBPLS FIRM 1053600 TBPLS FIRM 1053600 TBPLS FIRM 1053600
#     PARKING COUNT	BENCHMARK OFFICIAL PUBLIC RECORDS OF COMAL COUNTY, TEXAS MAP AND PLAT RECORDS OF COMAL COUNTY, TEXAS HEAVY DUTY ASPHALT PAVEMENT LIGHT DUTY ASPHALT PAVEMENT CONCRETE PAVEMENT CONCRETE PAVEMENT CUT WALL FILL WALL 4' FENCE 8' FENCE RESIDENTIAL BUFFER FENCE EXISTING WIRE FENCE EXISTING CHAIN LINK FENCE	SITE PLAN (3 OF 3)	NEW BRAUNFELS, TEXAS
		LEG NOISINA WINDESCRIPTION NOISINA WINDESCRIPTION DESCRIPTION DESIGNED B REVIEWED B	H 2023 CHD Y: CAT

THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR HMT PROJECT NO.: SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR WILL AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE INCURRED BY THEIR FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES, STRUCTURES OR FACILITIES. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES 24- HOURS PRIOR TO COMMENCING CONSTRUCTION.

318.003

SHEET

**C5.03** 

![](_page_123_Figure_0.jpeg)

![](_page_123_Figure_2.jpeg)

![](_page_123_Figure_3.jpeg)

![](_page_123_Figure_4.jpeg)

![](_page_124_Figure_0.jpeg)

![](_page_125_Picture_0.jpeg)

#### EARTHWORK VOLUMES EXCAVATION & VOLUME (CY) EMBANKMENT CUT 30,096.93 FILL 28,590.08 NET 1506.86

### <u>NOTES:</u>

- 1. DRAINAGE IMPROVEMENTS SUFFICIENT TO MITIGATE OFFSITE IMPACT OF CONSTRUCTION MUST BE COMPLETED AND IN PLACE PRIOR TO ADDING IMPERVIOUS COVER TO THE SITE.
- EROSION FOR THE SHORTEST PERIOD OF TIME. 3. FOR ANY LOTS ADJACENT TO A DRAINAGE STRUCTURE, HOME BUILDER TO ENSURE FINISHED FLOOR HAS A MINIMUM ELEVATION AS LABELED OR AS PER NOTE 2 ABOVE,
- WHICHEVER IS GREATER. 4. STRIPPING OF VEGETATION FROM PROJECT SITES SHALL BE PHASED SO AS TO EXPOSE THE MINIMUM AMOUNT OF AREA TO SOIL EROSION FOR THE SHORTEST POSSIBLE PERIOD OF TIME PER THE NEW BRAUNFELS DRAINAGE AND EROSION CONTROL DESIGN MANUAL SEC. 12.2(N).

![](_page_125_Figure_7.jpeg)

S WPAP/SC ഗ RADING Ш ANSION Ш Ū UNFI OVERA EXP BR. NBCA Ш Z DATE: MARCH 2023 DRAWN BY: CHD DESIGNED BY: CAT EVIEWED BY: JTS HMT PROJECT NO .: 318.003 SHEET

**C6.00** 

2. WHEN POSSIBLE, CONTRACTOR SHALL PHASE GRADING SO AS TO EXPOSE THE MINIMUM AMOUNT OF AREA TO SOIL

REFER TO THE COVER SHEET FOR BENCHMARK INFORMATION.

![](_page_126_Figure_1.jpeg)

![](_page_126_Figure_2.jpeg)

## <u>NOTES:</u>

- 1. DRAINAGE IMPROVEMENTS SUFFICIENT TO MITIGATE OFFSITE IMPACT OF CONSTRUCTION MUST BE COMPLETED AND IN PLACE PRIOR TO ADDING IMPERVIOUS COVER TO THE SITE.
- EROSION FOR THE SHORTEST PERIOD OF TIME. 3. FOR ANY LOTS ADJACENT TO A DRAINAGE STRUCTURE, HOME BUILDER TO ENSURE FINISHED FLOOR HAS A MINIMUM ELEVATION AS LABELED OR AS PER NOTE 2 ABOVE,
- WHICHEVER IS GREATER. 4. STRIPPING OF VEGETATION FROM PROJECT SITES SHALL BE PHASED SO AS TO EXPOSE THE MINIMUM AMOUNT OF AREA TIME PER THE NEW BRAUNFELS DRAINAGE AND EROSION CONTROL DESIGN MANUAL SEC. 12.2(N).

![](_page_126_Figure_7.jpeg)

	LEGEND
— — 700 — —	EXISTING CONTOURS
700	PROPOSED CONTOURS
B.L.	BUILDING SETBACK LINE
U.E.	UTILITY EASEMENT
D.E.	DRAINAGE EASEMENT
	DRAINAGE FLOW DIRECTION
FF=XXX.X'	MINIMUM FINISHED FLOOR ELEVATION
	CUT WALL
	FILL WALL
_	TOP OF POND
//	4' GUARD FENCE
<u> </u>	6' FENCE
	RESIDENTIAL BUFFER FENCE
—XX	EXISTING WIRE FENCE
$\longrightarrow$	EXISTING CHAIN LINK FENCE

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JOSEPH T. SANDOVAL 11025

4. Jando 03/10/2023

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#### RETAINING WALL NOTE:

RETAINING WALL STRUCTURAL ENGINEERING SHALL BE PROVIDED BY CONTRACTOR PRIOR TO CONSTRUCTION. A SEPARATE COMMERCIAL PERMIT WILL BE REQUIRED FOR THE PROPOSED RETAINING WALLS. THE BASIN RETAINING WALLS MUST BE STRUCTURALLY DESIGNED TO WITHSTAND THE EXPECTED HYDROSTATIC AND HYDRODYNAMIC FORCES.

SHEET
HMT PROJECT NO.:
REVIEWED BY: JTS
DESIGNED BY: CAT
DRAWN BY: CHD
DATE: MARCH 2023
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2. WHEN POSSIBLE, CONTRACTOR SHALL PHASE GRADING SO AS TO EXPOSE THE MINIMUM AMOUNT OF AREA TO SOIL

TO SOIL EROSION FOR THE SHORTEST POSSIBLE PERIOD OF

# REFER TO THE COVER SHEET FOR BENCHMARK INFORMATION.

![](_page_127_Figure_0.jpeg)

![](_page_128_Figure_0.jpeg)

![](_page_128_Figure_1.jpeg)

## <u>NOTES:</u>

- 1. DRAINAGE IMPROVEMENTS SUFFICIENT TO MITIGATE OFFSITE IMPACT OF CONSTRUCTION MUST BE COMPLETED AND IN PLACE PRIOR TO ADDING IMPERVIOUS COVER TO THE SITE.
- EROSION FOR THE SHORTEST PERIOD OF TIME. 3. FOR ANY LOTS ADJACENT TO A DRAINAGE STRUCTURE, HOME BUILDER TO ENSURE FINISHED FLOOR HAS A MINIMUM ELEVATION AS LABELED OR AS PER NOTE 2 ABOVE,
- WHICHEVER IS GREATER. 4. STRIPPING OF VEGETATION FROM PROJECT SITES SHALL BE PHASED SO AS TO EXPOSE THE MINIMUM AMOUNT OF AREA TO SOIL EROSION FOR THE SHORTEST POSSIBLE PERIOD OF TIME PER THE NEW BRAUNFELS DRAINAGE AND EROSION CONTROL DESIGN MANUAL SEC. 12.2(N).

![](_page_128_Figure_6.jpeg)

700
B.L.
U.E.
D.E.
FF=XXX.X'

<u>LEGEND</u> EXISTING CONTOURS PROPOSED CONTOURS BUILDING SETBACK LINE UTILITY EASEMENT DRAINAGE EASEMENT DRAINAGE FLOW DIRECTION MINIMUM FINISHED FLOOR ELEVATION CUT WALL FILL WALL TOP OF POND

<u>NOTE:</u>

THE SITE SLOPES IN A NORTHWEST DIRECTION TO THE PROPOSED BATCH DEDTENTION AND WILL DRAIN TO THE BATCH DETENTION POND.

STE. 100 78130 ТХ, 0 ₹, 02 ΠĘ ASTE AUNI RM F IRM S. CAS BRAL FIRN S FIR 290 S. NEW E TBPE TBPLS G Z S <del>م</del> G STATE JOSEPH T. SANDOVAL 110257 1. Jane 03/10/2023 3) ОF S  $\mathbf{O}$ S (3 AP/ Ш ADING WP/ ANSION Ш NU 2 EXP Ľ Ш AILE Ш Z NBC/ H ШО DATE: MARCH 2023 DRAWN BY: CHD DESIGNED BY: CAT EVIEWED BY: JTS HMT PROJECT NO .: 318.003 SHEET

**C6.03** 

RETAINING WALL NOTE:

RETAINING WALL STRUCTURAL ENGINEERING SHALL BE PROVIDED BY CONTRACTOR PRIOR TO CONSTRUCTION. A SEPARATE COMMERCIAL PERMIT WILL BE REQUIRED FOR THE PROPOSED RETAINING WALLS. THE BASIN RETAINING WALLS MUST BE STRUCTURALLY DESIGNED TO WITHSTAND THE EXPECTED HYDROSTATIC AND HYDRODYNAMIC FORCES.

2. WHEN POSSIBLE, CONTRACTOR SHALL PHASE GRADING SO AS TO EXPOSE THE MINIMUM AMOUNT OF AREA TO SOIL

REFER TO THE COVER SHEET FOR BENCHMARK INFORMATION.

ng Name: N:_Projects\318 - New Braunfels Christian Academy\003 - Exapansion and Sports Fields\CDs\318.003_STRM.dwg User: corbinc Mar 10, 2023 - 11:24

![](_page_129_Figure_1.jpeg)

	—700 — 700 B.L. U.E.	LEGEND EXISTING CONTOURS PROPOSED CONTOURS BUILDING SETBACK LINE UTILITY EASEMENT	AVE., STE. 100	.S, 1X / 8130 961 3600
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	0 50	100 200		GINEERING & SURVEYING
	SCALE	1" = 100'	ATE OF THE	OF TETTS
PROPOSED STORM OUTFALL STRUCTURE			JOSEPH JOSEPH DO JOSEPH 1 DO SO SO SO SO SO SO SO SO SO SO SO SO SO	T. SANDOVAL 10257 CENSED DNAL ENG P.E. 0/2023
PROPOSED STORM OUTFALL STRUCTURE			VERALL STORM	A EXPANSION WPAP/SCS W BRAUNFELS, TEXAS
	DRAINAGE FEATURES AND EQUIPMENT ACC SILT SHALL BE REMO TO ORIGINAL LINES WATER CONDITIONS	<u>5. DETENTION BASIN MAINTENANCE</u> CESS REQUIREMENTS: OVED AND THE BASIN RETURNED AND GRADES WHEN STANDING OCCUR OR THE BASIN STORAGE		NBC
	A. TO LIMIT EROSI SHALL EXCEED B. ACCUMULATED SHALL BE REMINECESSARY TO C. BASINS SHALL THE MONTHS O	D BY MORE THAN 10%. ON, NO UNVEGETATED AREA 10 SQ. FT. IN EXTENT. PAPER, TRASH, AND DEBRIS OVED EVERY 6 MONTHS OR AS MAINTAIN PROPER OPERATION. BE MOWED ANNUALLY BETWEEN IF JUNE AND SEPTEMBER.	REVISION DATE	
	<ul> <li>D. CORRECTIVE MA TIME A BASIN I WITHIN 60 HOU NO STANDING V</li> <li>E. STRUCTURAL IN MAINTAINED AT</li> <li>F. MAINTENANCE V SHOULD BE A LOADER OR VE</li> </ul>	AINTENANCE IS REQUIRED ANY DOES NOT DRAIN COMPLETELY RS OR CESSATION OF INFLOW (IE: WATER IS ALLOWED). ITEGRITY OF BASINS SHALL BE ALL TIMES. VEHICLE FOR POND ACCESS BOBCAT S175 SKID STEER HICLE OF EQUAL TO LESSER SIZE.	REVISION DESCRIPTION	
	REFER TO THE COVE For benchmark inf	R SHEET Tormation.	DATE: MARCH DRAWN BY: DESIGNED BY	H 2023 CHD 7: CAT
	THE LOCATION OF ALL EXIS SHOWN IN APPROXIMATE LO SHALL DETERMINE THE EX UTILITIES BEFORE COMMENCI AGREE TO BE FULLY RE DAMAGES WHICH MIGHT BE EXACTLY LOCATE ANI UNDERGROUND UTILITIES CONTRACTOR SHALL NOTIFY 24-HOURS PRIOR TO	TING UNDERGROUND UTILITIES ARE CATIONS ONLY. THE CONTRACTOR ACT LOCATION OF ALL EXISTING NG WORK. THE CONTRACTOR WILL SPONSIBLE FOR ANY AND ALL INCURRED BY THEIR FAILURE TO D PRESERVE ANY AND ALL S, STRUCTURES OR FACILITIES. ENGINEER OF ANY DISCREPANCIES COMMENCING CONSTRUCTION.	REVIEWED BY HMT PROJECT 318.0 SH C7	<ul> <li>JTS</li> <li>T NO.:</li> <li>003</li> <li>IEET</li> <li>7.00</li> </ul>

![](_page_130_Figure_0.jpeg)

ing Name: N:_Projects\318 - New Braunfels Christian Academy\003 - Exapansion and Sports Fields\CDs\318.003_STRM.dwg User: corbinc Mar 10, 2023 - 11:24am

![](_page_131_Figure_0.jpeg)

4SD LN 3 1+70.86

TE COLLAR CAL BEND 3 0' SD LN 3 HEADWAL 1+86.29 SD LN 3 18" FL (OUT)=879. UTILITY CROSSING SD LN 3 1+70.86 FIELD HOUSE		700 B.L. U.E. D.E. S.B.C. 20 SCALE: $1$ "	LEGEND EXISTING CONTOURS PROPOSED CONTOURS BUILDING SETBACK LINE UTILITY EASEMENT SINGLE BOX CULVERT PROPOSED STORM DRAIN LINE UTILITY CROSSING	290 S. CASTELL AVE., STEL 100 290 S. CASTELL AVE., STEL 100 03/1	NEW BRAUNFELS, TX 78130 NEW BRAUNFELS, TX 78130 TBPE FIRM F-10961 TBPLS FIRM 1053600 TBPLS FIRM 1053600 TBPLS FIRM 1053600 TBPLS FIRM 1053600 TBPLS FIRM 1053600
	892 888 888 884 880 880			STORM DRAIN LINE 2	NBCA EXPANSION WPAP/SCS NEW BRAUNFELS, TEXAS
	872 868 864			REVISION DATE	
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)		REFER TO THE CON FOR BENCHMARK IN THE LOCATION OF ALL EX SHOWN IN APPROXIMATE SHALL DETERMINE THE UTILITIES BEFORE COMMENT AGREE TO BE FULLY DAMAGES WHICH MIGHT EXACTLY LOCATE UNDERGROUND UTILIT CONTRACTOR SHALL NOTIN 24-HOURS PRIOR T	VER SHEET NFORMATION. XISTING UNDERGROUND UTILITIES A LOCATIONS ONLY. THE CONTRACTO EXACT LOCATION OF ALL EXISTING NCING WORK. THE CONTRACTOR WI RESPONSIBLE FOR ANY AND ALL BE INCURRED BY THEIR FAILURE T AND PRESERVE ANY AND ALL TES, STRUCTURES OR FACILITIES. FY ENGINEER OF ANY DISCREPANC TO COMMENCING CONSTRUCTION.	DATE: MARC DRAWN BY: DESIGNED B REVIEWED B HMT PROJEC 318. LL SH IES	H 2023 CHD Y: CAT Y: JTS T NO.: .003 HEET 7.02

![](_page_132_Figure_0.jpeg)

![](_page_132_Figure_1.jpeg)

![](_page_132_Figure_2.jpeg)

![](_page_132_Figure_3.jpeg)

	LEGEND EXISTING CONTOURS PROPOSED CONTOURS BUILDING SETBACK LINE UTILITY EASEMENT DRAINAGE EASEMENT SINGLE BOX CULVERT PROPOSED STORM DRAIN LINE UTILITY CROSSING	290 S. CASTELL AVE., STE. 100	NEW BRAUNFELS, TX 78130 TBPE FIRM F-10961 TBPLS FIRM 1053600
0 20 4 5 SCALE: 1": 1"	80 40' HORZ. = 40' HORZ. = 4' VERT.		OF VEYING & SURVEYING
		JOSEPH JOSEPH Doc. ( Solution 03/1	T. SANDOVAL 110257 CENSED ONAL ENGINE ONAL ENGINE O/2023
DRAINAGE FEATURES, DETEN AND EQUIPMENT ACCESS RE SILT SHALL BE REMOVED AN TO ORIGINAL LINES AND GR/ WATER CONDITIONS OCCUR ( VOLUME IS REDUCED BY MC A. TO LIMIT EROSION, NO SHALL EXCEED 10 SQ. B. ACCUMULATED PAPER, SHALL BE REMOVED EN NECESSARY TO MAINTA C. BASINS SHALL BE MOW THE MONTHS OF JUNE D. CORRECTIVE MAINTENAL	ATION BASIN MAINTENANCE QUIREMENTS: ND THE BASIN RETURNED ADES WHEN STANDING OR THE BASIN STORAGE OR THAN 10%. UNVEGETATED AREA FT. IN EXTENT. TRASH, AND DEBRIS VERY 6 MONTHS OR AS AN PROPER OPERATION. VED ANNUALLY BETWEEN AND SEPTEMBER. NCE IS REQUIRED ANY DT DRAIN COMPLETELY	STORM DRAIN LINE	NBCA EXPANSION WPAP/ NEW BRAUNFELS, TEXA
WITHIN 60 HOURS OR A NO STANDING WATER IS E. STRUCTURAL INTEGRITY MAINTAINED AT ALL TIM F. MAINTENANCE VEHICLE SHOULD BE A BOBCAT LOADER OR VEHICLE O	CESSATION OF INFLOW (IE: S ALLOWED). ' OF BASINS SHALL BE MES. FOR POND ACCESS S175 SKID ACCESS S175 SKID STEER F EQUAL TO LESSER SIZE.	REVISION DESCRIPTION REVISION DAT	
REFER TO THE COVE FOR BENCHMARK INF THE LOCATION OF ALL EXIS SHOWN IN APPROXIMATE LC SHALL DETERMINE THE EX UTILITIES BEFORE COMMENC AGREE TO BE FULLY RE DAMAGES WHICH MIGHT DE	TING UNDERGROUND UTILITIES ARI DOCATIONS ONLY. THE CONTRACTOF ACT LOCATION OF ALL EXISTING ING WORK. THE CONTRACTOR WILL SPONSIBLE FOR ANY AND ALL	DATE: MARC DRAWN BY: DESIGNED B REVIEWED B HMT PROJEC 318	CH 2023 CHD Y: CAT Y: JTS CT NO.: .003 HEET

EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES, STRUCTURES OR FACILITIES.

CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES 24-HOURS PRIOR TO COMMENCING CONSTRUCTION. C7.03

![](_page_133_Figure_0.jpeg)

![](_page_133_Figure_1.jpeg)

![](_page_133_Figure_3.jpeg)

![](_page_134_Figure_0.jpeg)

![](_page_134_Figure_1.jpeg)

880

876

872

868

864

860

![](_page_134_Figure_2.jpeg)

![](_page_134_Figure_4.jpeg)

880

![](_page_134_Figure_5.jpeg)

— — 700 —	
700	
B.L.	
U.E.	
D.E.	
S.B.C.	

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<u>LEGEND</u> EXISTING CONTOURS ---- PROPOSED CONTOURS BUILDING SETBACK LINE UTILITY EASEMENT DRAINAGE EASEMENT SINGLE BOX CULVERT PROPOSED STORM DRAIN LINE UTILITY CROSSING

![](_page_134_Figure_8.jpeg)

876		
872		
<u>868</u>	DRA AND SILT TO ( WAT VOLU	INAGE FEATURES, DETENTION BASIN MAINTENANCE EQUIPMENT ACCESS REQUIREMENTS: SHALL BE REMOVED AND THE BASIN RETURNED DRIGINAL LINES AND GRADES WHEN STANDING ER CONDITIONS OCCUR OR THE BASIN STORAGE JME IS REDUCED BY MORE THAN 10%.
864	Α.	TO LIMIT EROSION, NO UNVEGETATED AREA SHALL EXCEED 10 SQ. FT. IN EXTENT.
860	B. C.	ACCUMULATED PAPER, TRASH, AND DEBRIS SHALL BE REMOVED EVERY 6 MONTHS OR AS NECESSARY TO MAINTAIN PROPER OPERATION. BASINS SHALL BE MOWED ANNUALLY BETWEEN THE MONTHS OF JUNE AND SEPTEMBER.
856	D.	CORRECTIVE MAINTENANCE IS REQUIRED ANY TIME A BASIN DOES NOT DRAIN COMPLETELY WITHIN 60 HOURS OR CESSATION OF INFLOW (IE: NO STANDING WATER IS ALLOWED).
	E.	STRUCTURAL INTEGRITY OF BASINS SHALL BE MAINTAINED AT ALL TIMES.
	F.	MAINTENANCE VEHICLE FOR POND ACCESS SHOULD BE A BOBCAT S175 SKID STEER LOADER OR VEHICLE OF EQUAL TO LESSER SIZE.

![](_page_134_Picture_10.jpeg)

FOR BENCHMARK INFORMATION. THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR WILL AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE INCURRED BY THEIR FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL

REFER TO THE COVER SHEET

UNDERGROUND UTILITIES, STRUCTURES OR FACILITIES. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES 24-HOURS PRIOR TO COMMENCING CONSTRUCTION.

![](_page_135_Figure_0.jpeg)

![](_page_135_Figure_10.jpeg)

![](_page_135_Figure_11.jpeg)

![](_page_136_Figure_0.jpeg)

awing Name: N:_Projects\318 - New Braunfels Christian Academy\003 - Exapansion and Sports Fields\CDs\318.003_STRM.dwg User: corbinc Mar 10, 2023 - 11:24am

![](_page_136_Picture_2.jpeg)

LEGEND EXISTING CONTOURS PROPOSED CONTOURS BUILDING SETBACK LINE UTILITY EASEMENT DRAINAGE EASEMENT SINGLE BOX CULVERT PROPOSED STORM DRAIN LINE UTILITY CROSSING

![](_page_136_Picture_4.jpeg)

	290 S. CASTELL AVE., STE. 1 290 S. CASTELL AVE. 1 290 S. CASTELLA AVE. 1 290 S. CASTELLA AVE. 1 290 S. CASTELLA AVE. 1 290 S. CA						
	BASIN A (1 OF 2) NBCA EXPANSION WPAP/SCS NEW BRAUNFELS, TEXAS						
	REVISION DATE						
	REVISION DESCRIPTION						
	NO.						
	DATE:	MAR	СН	202	3		
	DRAW	N BY:		CHI	) T		
	REVIEV	NED E	9 Y: 8Y:	JTS	 		
	HMT F	ROJE <b>318</b>	CT   .0C	NO.: <b>)3</b>			
		Sł	-16	EE			
5		27	7	.(	)7	7	

DRAINAGE FEATURES, DETENTION BASIN MAINTENANCE AND EQUIPMENT ACCESS REQUIREMENTS:

SILT SHALL BE REMOVED AND THE BASIN RETURNED TO ORIGINAL LINES AND GRADES WHEN STANDING WATER CONDITIONS OCCUR OR THE BASIN STORAGE VOLUME IS REDUCED BY MORE THAN 10%.

- A. TO LIMIT EROSION, NO UNVEGETATED AREA SHALL EXCEED 10 SQ. FT. IN EXTENT.
- B. ACCUMULATED PAPER, TRASH, AND DEBRIS SHALL BE REMOVED EVERY 6 MONTHS OR AS NECESSARY TO MAINTAIN PROPER OPERATION.
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- F. MAINTENANCE VEHICLE FOR POND ACCESS SHOULD BE A BOBCAT S175 SKID STEER LOADER OR VEHICLE OF EQUAL TO LESSER SIZE.

## REFER TO THE COVER SHEET FOR BENCHMARK INFORMATION.

![](_page_137_Figure_0.jpeg)

Table 4 - Batch Detention Basin A								
$Q_2 (cfs) \qquad Q_{10} (cfs) \qquad Q_{25} (cfs) \qquad Q_{50}$								
Discharge (cfs)	33.16	63.01	86.23	106.70				
Volume	162919	332099	463974	582978				
Water Surface Elevation	868.00	868.53	868.89	869.17				
Freeboard (ft)	3.00	2.47	2.11	1.83				
Freeboard (ft)	3.00	2.47	2.11	1.8				

	Table 7	- Water Quality	Basin Details	
	WQ Volume	WQ Volume	WQTY Storage	TSS
	Required (CUFT)	Provided(CUFT)	Depth (FT)	Req
Batch Detention Basin A	30294	31403	2.00	
Batch Detention Basin B	28748	31736	1.75	
Total				
	Inte	rmediate Phase 1 (	Conditions	
Batch Detention Basin A	30294	31403	2	

![](_page_138_Figure_0.jpeg)

+/2 35 SY 2.5' TH ROCK RIP-RAP D50 = 14" N: 13810263.66	HICK
E: 2227798.28 875.00' 4' N: 13810254.73	N: 13810272.55 E: 2227818.28 876.50'
N: 13810253.19	N: 13810269.36 E: 2227820.66 876.50'
L: 2227805.96 875.00'	
2227809.52 72.25'	
ELEV= 870.53	

B.L. U.E. D.E. S.B.C.

 $\oslash$ 

<u>LEGEND</u> EXISTING CONTOURS PROPOSED CONTOURS BUILDING SETBACK LINE UTILITY EASEMENT DRAINAGE EASEMENT SINGLE BOX CULVERT PROPOSED STORM DRAIN LINE UTILITY CROSSING

![](_page_138_Figure_6.jpeg)

	NEW BRAUNFELS, TX 78130 TBPE FIRM F-10961	ENGINEERING & SURVEYING TBPLS FIRM 1053600	
BASIN B (1 OF 2)	EPH T. SAN 110257 S/ONAL 100/2	NBCA EXPANSION WPAP/SCS	NEW BRAUNFELS, TEXAS
REVISION DATE			
REVISION DESCRIPTION			
O Z			
DATE: MA DRAWN E DESIGNEE REVIEWEE	ARCH         202           IY:         CH           BY:         CA           BY:         CA           BY:         J           JECT NO         J	2 <b>3</b> ID IT S	
3	18.003	ET	

**C7.09** 

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DRAINAGE FEATURES, DETENTION BASIN MAINTENANCE AND EQUIPMENT ACCESS REQUIREMENTS:

SILT SHALL BE REMOVED AND THE BASIN RETURNED TO ORIGINAL LINES AND GRADES WHEN STANDING WATER CONDITIONS OCCUR OR THE BASIN STORAGE VOLUME IS REDUCED BY MORE THAN 10%.

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- D. CORRECTIVE MAINTENANCE IS REQUIRED ANY TIME A BASIN DOES NOT DRAIN COMPLETELY WITHIN 60 HOURS OR CESSATION OF INFLOW (IE: NO STANDING WATER IS ALLOWED).
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- F. MAINTENANCE VEHICLE FOR POND ACCESS SHOULD BE A BOBCAT S175 SKID STEER LOADER OR VEHICLE OF EQUAL TO LESSER SIZE.

![](_page_138_Picture_16.jpeg)

UNDERGROUND UTILITIES, STRUCTURES OR FACILITIES. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES 24-HOURS PRIOR TO COMMENCING CONSTRUCTION.

![](_page_139_Figure_0.jpeg)

![](_page_139_Figure_2.jpeg)

	Table 5 - Batch Detention Basin B								
	Q ₂ (cfs)	Q ₁₀ (cfs)	Q ₂₅ (	cfs)					
Discharge (cfs)	16.49	38.12	53.0	)7					
Volume	110713	230606	3234	95					
Water Surface Elevation	873.32	874.11	874.	57					
Freeboard (ft)	3.18	2.39	1.9	3					
	Table 7 WQ Volume Required (CUFT)	<b>- Water Quality</b> WQ Volume Provided(CUFT)	<b>Basin Details</b> WQTY Storage Depth (FT)	TSS Remo Required (					
Batch Detention Basin A	30294	31403	2.00						
Batch Detention Basin B	28748	31736	1.75						
Total									
	Inte	ermediate Phase 1 (	Conditions						
Batch Detention Basin A	30294	31403	2						

B≪──

B⊲──

<u>PLAN</u>

L

5'' CLASS ''A''

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А

В

G

5.0

![](_page_139_Figure_4.jpeg)

![](_page_139_Figure_5.jpeg)

- E. STRUCTURAL INTEGRITY OF BASINS SHALL BE MAINTAINED AT ALL TIMES.
- F. MAINTENANCE VEHICLE FOR POND ACCESS SHOULD BE A BOBCAT S175 SKID STEER LOADER OR VEHICLE OF EQUAL TO LESSER SIZE.

# REFER TO THE COVER SHEET FOR BENCHMARK INFORMATION.

THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR WILL AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE INCURRED BY THEIR FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES, STRUCTURES OR FACILITIES. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES 24-HOURS PRIOR TO COMMENCING CONSTRUCTION.

DATE: MARCH 2023

DRAWN BY: CHD

DESIGNED BY: CAT

EVIEWED BY: JTS

MT PROJECT NO.:

318.003

SHEET

**C7.10** 

![](_page_140_Figure_0.jpeg)

![](_page_140_Picture_2.jpeg)

APPROVAL.

O3/	ENGINEERING & SURVEYING TBPLS FIRM F-10961 TBPLS FIRM 1053600 TBPLS FIRM 1053600
BASIN DETAILS (1 OF 2)	NBCA EXPANSION WPAP/SCS NEW BRAUNFELS, TEXAS
REVISION DATE	
REVISION DESCRIPTION	
DATE: MA DRAWN B' DESIGNED	RCH 2023           Y:         CHD           BY:         CAT
REVIEWED HMT PROJ 31	BY: JTS JECT NO.: 8.003
С	7.11

REFER TO	THE COVER SHEET	
FOR BENCI	HMARK INFORMATION	١.

![](_page_141_Figure_0.jpeg)

	C	trol.
lve		Cont
is and control the valve position in case of failure:	C	ater
otor bracket can be uninstalled together by removing the two bolts at the bottom of the motor bracket. With the motor y volve can be manually controlled with a socket wrench, or any other tool that can grip the output shaft.	-	tormw
steel riser which installs on the inlet side of the outfall pipe within the impoundment area. The perforated riser features el mesh tube. At the bottom of the 8-inch square tube, there is a female threaded fitting for a six inch PVC outfall pipe to 4" on center to the height of the impoundment.		ated S
g and calder pin. The trash cage will be comprised of steel banding and a 1.5" x 1.5" mesh to prevent floatable's and d riser. The trash cage will sit 0.5" above the bottom of the impoundment to allow the last 0.5" out of the impoundment.		Itom
extended to any length necessary for instances where the valve will be in an underground vault or manhole. The valve		A I
self which should be greased twice per year. It is also recommended that a thick, mildly heat-resistant grease be used to res.		<b>))</b>
the outfall pipe or fixture. During routine maintenance intervals, these bolts should be checked for tightness. All bolts	CONSTRUCTIO 832-4 WWW.0	NATION PLEASE CONTACT N ECO SERVICES 56-1000 COSVS.COM RUCTION
riser with time. An annual inspection of the unit is necessary to ensure that excess debris or sediment has not limited erforated riser for maintenance, lift the trash cage off of the riser, dig out any accumulated sediment, and clear all	E s e r v	
ash and debris that has accumulated on the trash cage and properly dispose.		
r panel is facing south and is well secured. The solar panel is commonly utilized by birds and insects. It is important to order to maintain optimal performance.		
r corrosion and clean as needed. The battery should be replaced every 4 to 6 years.		
riguration and should be stored likewise. The systems are transported and stored on pallets and must remain secured anel is not installed at times of transport or storage and should not be installed until the unit is ready to begin operation. moved, should never be stored on a concrete surface.	lve	
ssembled configuration. Only the solar panel should be removed during the installation process. There are several ways support.	٨a	Suc
s ground/fully assembled configuration, the weight of the unit may be supported by the steel pipe. For plastic or be supported by either a concrete pad or steel frame. For below ground installations, the upper unit (electronics and uult. For vault installations, see design details for standard vault design.	ND	catio
ı unit is in operation. xork. ining water rhes servicing a valve beneath ground.	τPO	ecifi
nwater company that has at least 5 installations of automated stormwater management devices that have been in use	narl	Spe
	Sn	
	REVI	SION NO.
ances and their assembly process shall be subject to inspection upon delivery of the system to the work site.installation ory record of performance on earthworks, pipe, welding, chamber, or pond/landfill construction projects of comparable	5/14	U 4/2019
	546	ger mol.
DESIGN.		

	290 S. CASTELL AVE., STE. 100	NEW BRAUNFELS, TX 78130 NEW BRAUNFELS, TX 78130 TBPE FIRM F-10961 TBPLS FIRM 1053600 CENSED OVER SURVEYING TOTAL SURVEY
	BASIN DETAILS (2 OF 2)	NBCA EXPANSION WPAP/SCS NEW BRAUNFELS, TEXAS
	REVISION DATE	
	REVISION DESCRIPTION	
	DATE: MARC DRAWN BY: DESIGNED B' REVIEWED B' HMT PROJEC <b>318.</b>	CHD Y: CAT Y: JTS CT NO.: 003 HEET
6	C	7.12

REFER	TO T	THE C	over	SHEET
FOR BE	INCH	MARK	INFO	RMATION.

![](_page_142_Figure_0.jpeg)

						MAX D	EPTH = 15 ft.	to top of BA	SE SLAB							MAX D	$DEPTH = 25 \ ft.$	to top of BA	SE SLAB				_	
				Base Slab			Base Unit or Riser Walls			Below Grade Reducing S	Slab (w/PJB) Slab (w/PB)			Base Slab			Base Unit or Riser Walls			Below Grade Reducing	slab (w/PJB) Slab (w/PB)		ote 3)	DIA ote 2)
4 1/2"		Size	Short Span Reinf Steel Area	Long Span Reinf Steel Area	Thickness	Short Span Reinf Steel Area	Long Span Reinf Steel Area	Thickness	Reduced Riser Size	Short Span Reinf Steel Area	Long Span Reinf Steel Area	Thickness	Short Span Reinf Steel Area	Long Span Reinf Steel Area	Thickness	Short Span Reinf Steel Area	Long Span Reinf Steel Area	Thickness	Reduced Riser Size	Short Span Reinf Steel Area	Long Span Reinf Steel Area	Thickness	Min Height (See Gen N	Max HOLE (See Fab N
		ХхҮ	Ashort	Along	BS	Bshort	Blong	W	RWSxRWL or ID	Dshort	Diong	TS	Ashort	Along	BS	Bshort	Blong	W	RWSxRWL or ID	Dshort	Diong	TS	BH MIN	HOLE DI
		ft.	in²/ft	in²/ft	in.	in²/ft	in²/ft	in.	ft. **	in²/ft	in²/ft	in.	in²/ft	in²/ft	in.	in²/ft	in²/ft	in.	ft. **	in²/ft	in²/ft	in.	ft.	in.
y rsion	(PJB)	3x3 4x4	0.23	0.23	6 6	0.19	0.19	6	N/A N/A	0.37	0.37	9	0.29 0.47	0.29	6	0.24	0.24	6	N/A N/A	0.37	0.37	9 9	3.5 4.5	<u>36</u> 48
y of al conve	1 Box	3x5	0.29	0.18	6	0.19	0.35	6	N/A	0.48	0.48	9	0.39	0.18	6	0.23	0.59	6	N/A	0.48	0.48	9	3.5	36/60
	nction	4x5 5x5	0.36	0.18	6	0.22	0.34	6	N/A N/A	0.42	0.42	9 9	0.53	0.26	6	0.39	0.59	6	N/A N/A	0.42	0.42	9	4.5 5.5	48/60
No w bility f	ast Ju	5x6	0.27	0.27	9	0.34	0.45	6	N/A	0.48	0.48	9	0.47	0.45	9	0.38	0.54	8	N/A	0.48	0.48	9	5.5	60/72
e Act".	Prec	6x6 8x8	0.27	0.27	9	0.45	0.45	6 8	N/A N/A	0.56	0.56	9 12	0.52	0.52	9	0.54	0.54	8	N/A N/A	0.56	0.56	9 12	6.5 8.5	96
practic no re	s reso	3x3	0.23	0.23	6	0.19	0.19	6	N/A	N/A	N/A	N/A	0.29	0.29	6	0.24	0.24	6	N/A	N/A	N/A	N/A	3.5	36
ering F ssumes	alliade	4x4 3x5	0.29	0.29	6	0.24	0.24	6	N/A 3x3	N/A 0.30	0.34	N/A 9	0.47	0.47	6	0.38	0.38	6	N/A 3x3	0.40	0.40	N/A 9	4.5 3.5	48
Enginee DOT as	2 0 5	4x5	0.36	0.18	6	0.22	0.34	6	3x3	0.30	0.30	9	0.53	0.26	6	0.39	0.59	6	3x3	0.46	0.37	9	4.5	48/60
exas I	Lesa	4x5 4x5	0.36	0.18	6	0.22	0.34	6	4x4 48"	0.30	0.30	9	0.53	0.26	6	0.39	0.59	6	4x4 48"	0.39	0.39	9	4.5	48/60
the "T tsoeve	ourect	4x5	0.36	0.18	6	0.22	0.34	6	3x5	0.33	0.40	9	0.53	0.26	6	0.39	0.59	6	3x5	0.48	0.48	9	4.5	48/60
ned by	5	5x5 5x5	0.36	0.36	6	0.34	0.34	6	3x3 4x4	0.34	0.34	9	0.62	0.62	6	0.59	0.59	6	3x3 4x4	0.53	0.53	9 9	5.5	60
gover pur po:	(PB)	5x5	0.38	0.38	6	0.34	0.34	6	48"	0.36	0.36	9	0.62	0.62	6	0.59	0.59	6	48"	0.64	0.64	9	5.5	60
ard is or any	Base	5x5 5x6	0.36	0.36	6 9	0.34	0.34	6	3x5 3x3	0.34	0.40	9	0.62	0.62	6 9	0.59	0.59	6 8	3x5 3x3	0.53	0.53	9	5.5	60
DOT fo	ecast	5x6	0.27	0.27	9	0.34	0.45	6	4x4	0.36	0.45	9	0.47	0.45	9	0.38	0.54	8	4x4	0.74	0.57	9	5.5	60/72
by Tx	Pr	5x6 5x6	0.29	0.29	9	0.34	0.45	6	48" 3x5	0.36	0.45	9	0.47 0.47	0.45	9	0.38	0.54	8	48" 3x5	0.74	0.57	9	5.5	60/72
AIMER: p use o made	Scand	6x6	0.29	0.29	9	0.45	0.45	6	3x3	0.41	0.41	9	0.52	0.52	9	0.54	0.54	8	3x3	0.74	0.74	9	6.5	72
DISCLA The kind is		6x6	0.27	0.27	9	0.45	0.45	6	4x4 48"	0.45	0.45	9	0.52	0.52	9	0.54	0.54	8	4x4 48"	0.87	0.87	9	6.5 6.5	72
	-	6x6	0.29	0.29	9	0.45	0.45	6	3x5	0.45	0.45	9	0.52	0.52	9	0.54	0.54	8	3x5	0.87	0.87	9	6.5	72
		8x8 8x8	0.52	0.52	9	0.51	0.51	8	3x3 4x4	0.61	0.61	12	0.91	0.91	9	0.70	0.70	10	3x3 4x4	0.85	0.85	12	8.5 8.5	96
		8x8	0.52	0.52	9	0.51	0.51	8	48"	0.70	0.70	12	0.87	0.87	9	0.70	0.70	10	48"	1.01	1.01	12	8.5	96
		8x8	0.52	0.52	9	0.51	0.51	8	3x5	0.70	0.85	12	0.87	0.87	9	0.70	0.70	10	3x5	1.01	1.01	12	8.5	96
															** Un	less otherwi.	se indicated.							
												FABRICA 1. Maximu 2. At manu maximu to prov	TION NOTES m spacing of ufacturer's op m diameter sl ide a wall wit	5: reinforcement tion, provide c nown for each. h no sectional	is 8". ast or corea When no p reduction.	d holes or thi benetration is	n wall panels required, it is	KO) to the acceptable			Тте	× xas Departr	HL93 LOA	DING sportation
												GENERAL 1. Precast	NOTES: Junction Box	consists of b	ase slab, ba:	se unit, riser	s (as required	), and below				DESI	'GN D, AST B	ATA F ASE A
												2. Precast require 3. Min Hei Smaller noted e	Base consist d), and reduce ght shown is height base Isewhere in t	s of base slab ed risers (as i for stock base units can be u he plans. Abs	, base unit, equired). S units. Use sed in speci plute minimu	risers (as re See sheet PB stock base u ial installation im height of b	equired), reduc for details. units whenever n circumstance base units is 2	ing slab (as practical. s, when '-6".				JUI	VCTIO	N BOX
																					FILE: pr ©TxD0T	estd10.dgn January 2015 REVISIONS	DN: TXDOT	
	FILE																						DIST	COUNTY

						В0	X DA	TA						
	SECTIO	DN DIME	NSIONS		Fill	м		RE	INFORCI	NG (sq.	in. / ft.	,2	-	1 Lift
	Н (ft.)	TT (in.)	TB (in.)	TS (in.)	Height (ft.)	(Min) (in.)	AS1	AS2	A53	A54	A55	A57	A58	Weight (tons)
	2	7.5	6	5	< 2	-	0.18	0.27	0.15	0.12	0.18	0.18	0.14	4.5
	2	5	5	5	3 - 5	38	0.18	0.13	0.17	0.12	-	-	-	3.6
	2	5	5	5	10	38	0.12	0.12	0.12	0.12	-	-	-	3.6
_	2	5	5	5	20	38	0.14	0.16	0.16	0.12	-	-	-	3.6
	2	5	5	5	25	38	0.23	0.25	0.25	0.12	-	-	-	3.6
	2	5	5	5	30	38	0.28	0.30	0.30	0.12	-	-	-	3.6
	3	7.5	6	5	< 2	-	0.18	0.31	0.18	0.12	0.18	0.18	0.14	5.0
	3	5 5	5 5	5 5	2 < 3	38 38	0.15	0.23 0.16	0.20 0.16	0.12	-	-	-	4.1 4.1
	3	5	5	5	10	38	0.12	0.14	0.14	0.12	-	-	-	4.1
	3	5	5	5	15	38	0.12	0.18	0.18	0.12	-	-	-	4.1
_	3	5	5	5	25	38	0.14	0.29	0.24	0.12	-	-	-	4.1
	3	5	5	5	30	38	0.21	0.35	0.35	0.12	-	-	-	4.1
	4	7.5	6	5	< 2	-	0.18	0.33	0.20	0.12	0.18	0.18	0.14	5.5
_	4	5	5	5	2 < 3	38	0.12	0.26	0.23	0.12	-	-	-	4.6
_	4	5	5	5	10	38	0.12	0.15	0.15	0.12	-	-	-	4.6
	4	5	5	5	15	38	0.12	0.19	0.20	0.12	-	-	-	4.6
	4	5	5	5	20	38	0.12	0.25	0.25	0.12	-	-	-	4.6
4	4	5	5	5	30	38	0.17	0.37	0.37	0.12	-	-	-	4.6

![](_page_142_Figure_4.jpeg)

(1) For box length = 8'-0"

![](_page_142_Figure_8.jpeg)

290 S. CASTELL AVE., STE. 100	NEW BRAUNFELS, TX 78130 NEW BRAUNFELS, TX 78130 TBPE FIRM F-10961 TBPLS FIRM 1053600 TBPLS FIRM 1053600	р.е. 23
STORM DETAILS (1 OF 3)	NBCA EXPANSION WPAP/SCS	NEW BRAUNFELS, TEXAS
REVISION DATE		
REVISION DESCRIPTION		
DATE: MAP	CH 2023	
DRAWN BY: DESIGNED E REVIEWED E	CHD BY: CAT BY: JTS	
HMT PROJE 318	CT NO.: 3.003	
C	7.13	3

![](_page_143_Figure_0.jpeg)




4. WATER MAIN SHALL HAVE A MINIMUM OF 42 INCHES OF COVER, OTHERWISE CONCRETE ENCASEMENT WILL BE REQUIRED. 5. EACH UNIT IN A DUPLEX, TRIPLEX, FOURPLEX, OR CONDOMINIUM SHALL BE PROVIDED WITH AN INDIVIDUAL WATER METER. A MASTER METER CAN BE CONSIDERED FOR SEPARATE BUILDINGS, HOWEVER, THOSE BUILDINGS MUST BE PLUMBED TO ALLOW SEPARATE METERS FOR FUTURE CONSIDERATION. 6. CONTRACTOR WILL KEEP THE AREA ON TOP OF AND AROUND THE WATER METER BOX FREE OF ALL OBJECTS AND DEBRIS. 7. INITIAL BACKFILL OF WATER LINES SHALL BE MANUFACTURED SAND OR PEA GRAVEL AS PER NBU SYSTEMS CONNECTION & CONSTRUCTION POLICY. 8. SECONDARY BACKFILL OF WATER LINES SHALL GENERALLY CONSIST OF MATERIAL REMOVED FROM THE TRENCH AND HAVING ANY DIMENSION LARGER THAN 6"INCHES AT THE LARGEST DIMENSION. 9. HYDROSTATIC TESTING IS DONE FROM VALVE TO VALVE. 10. NO METER BOXES TO BE SET IN DRIVEWAYS OR SIDEWALKS. ANY METER BOXES SET IN DRIVEWAYS OR SIDEWALKS WILL BE RELOCATED AT CONTRACTOR'S AND/OR DEVELOPER'S EXPENSE. 11. METER BOXES MUST BE SET AT THE PROPOSED GRADE. ANY METER BOXES THAT ARE NOT SET AT THE FINAL GRADE WILL BE ADJUSTED AT CONTRACTOR'S AND/OR DEVELOPER'S EXPENSE. 12. ACCEPTABLE METER BOXES ARE D13-BAMR AND D15-BAMR. NEW RESIDENTIAL LOTS ARE REQUIRED TO USE THE D15-BAMR METER BOXES (DOUBLE AMR). COMMERCIAL LOTS SHOULD CHOOSE WHICH BOX APPLIES TO THE DOMESTIC AND/OR IRRIGATION METER LAYOUT. 13. THRÚST BLOCKS WILL NOT BE ALLOWED ON THE SYSTEM WITHOUT SPECIAL APPROVAL. JOINTS WILL BE RESTRAINED WITH RESTRAINING SYSTEMS APPROVED BY NBU AND RESTRAINT LENGTH SHALL BE SUBMITTED TO NBU AT THE TIME OF PLAN SUBMITTAL 14. CONTRACTOR SHALL PLACE TRACER WIRE ON TOP OF THE WATER MAINS. TRACER WIRE SHOULD RUN FROM VALVE TO VALVE AND EXIT AT THE VALVE BOX. THE TRACER WIRE SHOULD BE ATTACHED TO THE TOP OF THE PIPE USING TAPE. EXCESS WIRE SHOULD BE LEFT WITHIN VALVE BOXES TO BE

NBU WATER CONSTRUCTION NOTES:

PLACED WITHIN LID OF COVER.

15. WATER QUALITY SHALL BE PROTECTED WITH APPROPRIATE

BACKFLOW PREVENTION ASSEMBLIES INSTALLED ON ALL

IRRIGATION SYSTEMS, FIRE SUPPRESSION SYSTEMS AND

PROPERTIES ON THE DOMESTIC METER CONTAINMENT. NBU

ASSEMBLIES ON A CASE BY CASE BASIS. CONTACT NBU

16. ALL BACKFLOW PREVENTION ASSEMBLIES SHALL BE TESTED

UPON INSTALLATION AND REPORT SENT TO NBU VIA THE

17. ALL RESIDENTIAL AND COMMERCIAL PROPERTIES SHALL HAVE

ONLINE TRACKING SYSTEM, CONTACT NBU BACKFLOW

A CUSTOMER SERVICE INSPECTION CERTIFICATE (CSI

SPECIALIST FOR MORE DETAILS. EMAIL QUESTIONS TO

18. THE POINT OF DELIVERY FOR AN NBU SYSTEM IS THE MAIN SIDE OF THE SERVICE/LATERAL/LEAD FROM THE CUSTOMER'S

METER/BACKFLOW/EASEMENT EDGE. THE CUSTOMER IS

INSTALLATION INCLUDING REVIEW, PERMITTING, AND

MAINTENANCE BEYOND THE POINT OF DELIVERY AND HAS

COMPLIANCE WITH ALL CITY PLUMBING CODES OR OTHER

SOLE CONTROL AND SUPERVISION OVER THE CUSTOMER'S

RESPONSIBLE FOR DESIGN, CONSTRUCTION, OPERATION, AND

CAN ASSIST WITH THE DECISION ON APPROPRIATE BACKFLOW

BACKFLOW PREVENTION SPECIALIST FOR MORE DETAILS. EMAIL

PREVENTION SPECIALIST FOR MORE DETAILS. EMAIL QUESTIONS

INSPECTION) COMPLETED UPON COMPLETION OF THE BUILDING

OR HOME STRUCTURE. CONTACT NBU BACKFLOW PREVENTION

MULTI-UNIT COMPLEXES ALONG WITH MULTI-LEVEL

QUESTIONS TO CROSSCONNECTION@NBUTEXAS.COM

TO CROSSCONNECTION@NBUTEXAS.COM

CROSSCONNECTION@NBUTEXAS.COM

APPLICABLE CODES.

GREATER).

1. ALL WATER MAINS SHALL BE AWWA C900 (CLASS 150 OR

3. WATER LINE IS TO BE CONSTRUCTED IN ACCORDANCE WITH

THE NBU SYSTEMS CONNECTION & CONSTRUCTION POLICY.

2. WATER SERVICES SHALL BE SINGLE 1"COPPER TUBING.



	LEGEND
700 <u></u>	EXISTING C
700	PROPOSED
U.E.	UTILITY EA
EX WEX W	EXISTING V
ww	PROPOSED
W =	PROPOSED
$\bigotimes$	UTILITY CR
	CUT WALL
	FILL WALL

<u>LEGEND</u> EXISTING CONTOURS PROPOSED CONTOURS UTILITY EASEMENT EXISTING WATER LINE PROPOSED WATER LINE PROPOSED WATER SERVICE UTILITY CROSSING CUT WALL

WATER STRUCTURE TOTALS							
PIPE SIZE	PIPE LENGTH	DOMESTIC METER SIZE	DOMESTIC METERS	FIRE HYDRANTS	FIRE LINES		
1'-0"	2230'			1	2		

UTILITY NOTES:

- 1. ALL UTILITIES TO BE CONSTRUCTED PRIOR TO THE
- STREETS. 2. NO VALVES, HYDRANTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS OR
- DRIVEWAYS. 3. THIS SITE IS IN THE KOHLENBERG PRESSURE
- ZONE ACCORDING TO NEW BRAUNFELS UTILITIES PRESSURE RECORDER LOCATIONS.
- 4. CONTRACTOR TO VERIFY EXISTING LATERAL HAS A MINIMUM LONGITUDINAL SLOPE OF 2%.
- 5. POINT OF DELIVERY SHALL BE IN ACCORDANCE
- WITH NBU WATER AND WASTEWATER DESIGN CRITERIA MANUAL, SECTION 2.3.0.
- 6. FIRE HYDRANTS ARE TO BE INSTALLED OUTSIDE OF THE SIDEWALK AND NO GREATER THAN 9 FEET FROM THE BACK OF CURB.

CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES SHALL BE FREE FROM BRUSH, DEBRIS AND TRASH OR STONES 48 HOURS PRIOR TO EXCAVATION:

NEW BRAUNFELS         UTILITIES         830-629-4           SPECTRUM         888-406-7           CENTERPOINT GAS         800-427-7           AT&T TELEPHONE         830-303-7	7063 7142 1333
TEXAS ONE CALL 811	1000

C.P.E. LOCATOR

CALL CENTER POINT ENERGY LOCATOR AT 1-800-545-6005, 48HRS BEFORE BEGINNING ANY EXCAVATION. DUE TO FEDERAL REGULATIONS TITLE 49, PART 192.181, CENTER POINT ENERGY MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVES THAT ARE IN THE PROJECT AREA.

TELEPHONE LOCATOR

THE EXISTENCE AND LOCATION OF UNDERGROUND CABLE INDICATED ON THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONTRACTOR TO CONTACT THE TELEPHONE COMPANY CABLE LOCATOR 48HRS PRIOR TO EXCAVATION AT 1-800-545-6005,, CONTRACTOR HAS THE RESPONSIBILITY TO PROTECT AND SUPPORT TELEPHONE COMPANY DURING CONSTRUCTION.

TRENCH EXCAVATION SAFETY PROTECTION

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

RESTRAINED LENGTH NOTES:

- CONTRACTOR TO COORDINATE WITH NEW BRAUNFELS UTILITIES (N.B.U.) FOR WATER, SEWER, AND ELECTRIC SERVICE TO THE
- ALL IN-LINE VALVES, BENDS & PLUGS SHALL BE RESTRAINED, RESTRAINT TO BE PROVIDED ON EACH SIDE OF THE VALVE, FITTING OR ANY REQUIRED JOINT.
- 3. RL=RESTRAINT LENGTH
- 4. CONTRACTOR SHALL DETERMINE RESTRAINT LENGTH REQUIRED FOR HORIZONTAL VERTICAL FITTINGS BASED ON RESTRAINT LENGTH TABLE SHOWN BELOW.

EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES, STRUCTURES OR FACILITIES.

CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES

24-HOURS PRIOR TO COMMENCING CONSTRUCTION.

					E	OR PIP	IGTH F	ED LEN	STRAIN	RE				
		DEAD END/	VERTICAL BENDS DEAD EN					ZONTAL BENDS			Н	MATERIAL	PIPE INSIDE	
				LOWER			UPPER		1					DIAMETER
5			11.25*	22.5°	45 <b>°</b>	11.25 <b>°</b>	22.5 <b>°</b>	45°	11.25*	22.5 <b>°</b>	45 <b>°</b>	90.		
		80	2	4	8	8	16	34	3	6	13	29	PVC	8"
		52	2	4	8	6	11	22	3	5	10	25	DUCTILE IRON	6"
		114	3	6	13	12	23	47	4	9	17	41	PVC	12"
								:	NOTES			F	TF	
	UES:	E FOLLOWING VAL	O ON TH	D BASEI TO 1 osi. UFACTUE	COMPUTE = 1.5 = 200  = MAN	E WERE ( R = E = ION =	N ABOV FACTO PRESSUR	HS SHOV ) SAFET ) TEST I ) SOIL F	LENGT 1 2 3		AL FT.	MATERIA	PIPE INSIDE DIAMETER OF BRANCH	PIPE INSIDE DIAMETER OF RUN
	)	ND UPPER BEND	YPICAL A	FEET (T	= 3.5	′ER =	OF COV	) DEPTH	4		70	PVC	8"	8"
		))	VER BENI	ET (LOV	= 5 FE = 2 FE	ER = RUN =	H ALONG	) LENGT	5 6		E 45	DUCTILI IRON	8"	8"
											64	PVC	8"	12"
ATE: MARCH 2023														
RAWN BY: CHD			EET	SHE	OVER	HE CO	O TH	er t	REF					
ESIGNED BY: CAT		•	TION	RMA	INFC	ARK	ICHN	BEN	FOR					
EVIEWED BY: JTS	ARE	UND UTILITIES	DERGRC	NG UNE	EXISTIN	)F ALL	TION C	E LOCA	ТН					
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NBU WATER CONSTRUCTION NOTES:

- FOR FUTURE CONSIDERATION. CONSTRUCTION POLICY.
- MORE DETAILS. EMAIL QUESTIONS TO CROSSCONNECTION@NBUTEXAS.COM MORE DETAILS. EMAIL QUESTIONS TO CROSSCONNECTION@NBUTEXAS.COM APPLICABLE CODES.
- PIPE SIZE 1'-0" 2230'

UTILITY TRENCH COMPACTION





BRAUNFELS STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FILL MATERIAL HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS. ADDITIONAL DENSITY TESTS MAY

JTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR WILL AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE INCURRED BY THEIR FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES, STRUCTURES OR FACILITIES. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES 24-HOURS PRIOR TO COMMENCING CONSTRUCTION.

SHEET

C8.01

- 3. WATER LINE IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE NBU SYSTEMS CONNECTION & CONSTRUCTION POLICY.
- OTHERWISE CONCRETE ENCASEMENT WILL BE REQUIRED.
- BUILDINGS MUST BE PLUMBED TO ALLOW SEPARATE METERS FOR FUTURE CONSIDERATION.
- WATER METER BOX FREE OF ALL OBJECTS AND DEBRIS.
- PEA GRAVEL AS PER NBU SYSTEMS CONNECTION & CONSTRUCTION POLICY.
- MATERIAL REMOVED FROM THE TRENCH AND SHALL BE FREE FROM BRUSH, DEBRIS AND TRASH OR STONES HAVING ANY DIMENSION LARGER THAN 6"INCHES AT THE LARGEST DIMENSION.
- BOXES THAT ARE NOT SET AT THE FINAL GRADE WILL BE ADJUSTED
- RESIDENTIAL LOTS ARE REQUIRED TO USE THE D15-BAMR METER
- SPECIAL APPROVAL. JOINTS WILL BE RESTRAINED WITH RESTRAINING SYSTEMS APPROVED BY NBU AND RESTRAINT LENGTH SHALL BE
- MAINS. TRACER WIRE SHOULD RUN FROM VALVE TO VALVE AND EXIT
- VALVE BOXES TO BE PLACED WITHIN LID OF COVER. SUPPRESSION SYSTEMS AND MULTI-UNIT COMPLEXES ALONG WITH CAN ASSIST WITH THE DECISION ON APPROPRIATE BACKFLOW ASSEMBLIES ON A CASE BY CASE BASIS. CONTACT NBU BACKFLOW
- CROSSCONNECTION@NBUTEXAS.COM INSTALLATION AND REPORT SENT TO NBU VIA THE ONLINE TRACKING
- CUSTOMER SERVICE INSPECTION CERTIFICATE (CSI INSPECTION)
- THE SERVICE/LATERAL/LEAD FROM THE CUSTOMER'S METER/BACKFLOW/EASEMENT EDGE. THE CUSTOMER IS RESPONSIBLE AND COMPLIANCE WITH ALL CITY PLUMBING CODES OR OTHER

- 3. THIS SITE IS IN THE KOHLENBERG PRESSURE
- PRESSURE RECORDER LOCATIONS.
- A MINIMUM LONGITUDINAL SLOPE OF 2%.
- WITH NBU WATER AND WASTEWATER DESIGN
- OF THE SIDEWALK AND NO GREATER THAN 9 FEET FROM THE BACK OF CURB.





NEW BRAUNFELS UTILITIES

240







ing Name: N:_Projects\318 - New Braunfels Christian Academy\003 - Exapansion and Sports Fields\CDs\318.003_WWTR.dwg User: corbinc Mar 10, 2023 - 11:26am



1+00.00 WWTR LN B 6" FL (IN)=877.36' (SE) FUTURE BÜÍLDINGS FF TO BE SET SUFFICIENTLY TO FOR CONNECTION TO EXISTING WWTR

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890

885

880

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







24-HOURS PRIOR TO COMMENCING CONSTRUCTION.

UTILITY TRENCH COMPACTION



ALS 290 S. CASTELL AVE., S 290 S. CASTELL AVE., S 02/1 290 S. CASTELL AVE., S	7SCS SURVEYING & SURVEYING TBPLS FIRM 1053600 AS 2007/0 AS 2007/0
WASTEWATER DET.	NBCA EXPANSION WPAF NEW BRAUNFELS, TEX
REVISION DATE	
REVISION DESCRIPTION	
DATE: MARC DRAWN BY: DESIGNED B REVIEWED B HMT PROJEC 318	CH 2023 CHD AY: CAT AY: JTS CT NO.: .003 HEET 9.03

TSS Removal Calculations 04-20-2009 Project Name: New Braunfels Christian Academy Date Prepared: 3/9/2023 Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell. Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348. Characters shown in red are data entry fields. Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet. 1. The Required Load Reduction for the total project: Calculations from RG-348 Pages 3-27 to 3-30 Page 3-29 Equation 3.3: L_M = 27.2(A_N x P) L_{M TOTAL PROJECT} = Required TSS removal resulting from the proposed development = 80% of increased load where: 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 * = 27.17 acres Predevelopment impervious area within the limits of the plan * = 0.00 acres Total post-development impervious area within the limits of the plan* = 15,50 acres JOSEPH T. SANDOVAL Total post-development impervious cover fraction * = 0.57 P = 33 inches 13913 LM TOTAL PROJECT = 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 = 14.30 acres Pre cres Post

Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	7.75	acres
Post-development impervious fraction within drainage basin/outfall area =	0.54	
IN THIS BASIN =	6956	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	<b>Batch Deten</b>	tion Basin
Removal efficiency =	91	percent

Aqualogic Cartridge Filter Bioretention **Batch Detention Basin** BaySeparator 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 efficience	sy) x P x (A _l x 34.6 + A _f	x 0.54
--------------------------------	----------------------------------	---------------------------------------------------	--------

where:

 1	-1 1	 	

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

A _C =	14.30	acres
A1 =	7.75	acres
A _P =	6.55	acres
L _R =	8159	lbs

Sandoral, P.E.

## Texas Commission on Environmental Quality

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

Desired L _{M THIS BASIN} =	6956	lbs.		
F=	0.85			
6. Calculate Capture Volume required by the BMP Type for this drainage be	asin / outfall	area.	Calculations from RG-3	Pages 3-34 to 3-36
Rainfall Depth = Post Development Runoff Coefficient = On-site Water Quality Volume =	1.32 0.38 26159	inches cubic feet		
	0.1.1.1	DO 040	Deces 0.00 to 0.07	
	Calculations	rom RG-348	Pages 3-36 to 3-37	
Off-site area draining to BMP = Off-site Impervious cover draining to BMP = Impervious fraction of off-site area = Off-site Runoff Coefficient =	0.00 0.00 0.00	acres		
Off-site Water Quality Volume =	0	cubic feet		
Storage for Sediment = Total Capture Volume (required water quality volume(s) x 1.20) = The following sections are used to calculate the required water quality vol The values for BMP Types not selected in cell C45 will show NA.	5232 31391 ume(s) for th	cubic feet e selected BN	IP.	20005 2 42 to 2 46
<u>r. Retention/migation system</u>	Designed as	Required in RC		ages 0.42 10 0.40
Required water Quality Volume for retention basin =	NA	CUDIC TEEL		
Irrigation Area Calculations: Soil infiltration/permeability rate = Irrigation area =	0.1 NA NA	in/hr square feet acres	Enter determined per	meability rate or assumed value of 0.1
8. Extended Detention Basin System	Designed as	Required in R	G-348 F	Pages 3-46 to 3-51
Required Water Quality Volume for extended detention basin =	NA	cubic feet		
9. Filter area for Sand Filters	Designed as	Required in R	G-348 F	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 = Minimum sedimentation basin area =	NA NA	square feet square feet	For minimum water d For maximum water o	lepth of 2 feet 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 = Minimum sedimentation basin area =	NA NA	square feet square feet	For minimum water d For maximum water o	depth of 2 feet depth of 8 feet
10. Bioretention System	Designed as	Required in R	G-348	Pages 3-63 to 3-65
Required Water Quality Volume for Bioretention Basin =	NA	cubic feet		
11. Wet Basins	Designed as	Required in R	G-348	Pages 3-66 to 3-71
Required capacity of Permanent Pool = Required capacity at WQV Elevation =	NA NA	cubic feet cubic feet	Permanent Pool Capa Total Capacity should plus a second WQV.	acity is 1.20 times the WQV d be the Permanent Pool Capacity
12. Constructed Wetlands	Designed as	Required in R	G-348	Pages 3-71 to 3-73
Required Water Quality Volume for Constructed Wetlands =	NA	cubic feet		
13. AquaLogic TM Cartridge System	Designed as	Required in R	G-348	Pages 3-74 to 3-78

** 2005 Technical Guidance Manual (RG-348) does not exempt the required	i 20% increas	se with maintenanc	e contract with AquaLo	gic™.
Required Sedimentation chamber capacity = Filter canisters (FCs) to treat WQV = Filter basin area (RIA _F ) =	NA NA NA	cubic feet cartridges square feet		
14. Stormwater Management StormFilter® by CONTECH				
Required Water Quality Volume for Contech StormFilter System =	NA	cubic feet		
THE SIZING REQUIREMENTS FOR THE FOLLOWING BMPs / LOAD REMO	VALS ARE B	ASED UPON FLOW	RATES - NOT CALCUL	ATED WATER QUALITY VOLUMES
15. Grassy Swales	Designed as	Required in RG-348	Pages	3-51 to 3-54
Design parameters for the swale:				
Drainage Area to be Treated by the Swale = A = Impervious Cover in Drainage Area = Rainfall intensity = i = Swale Stope = Side Stope (z) = Design Water Depth = y = Weighted Runoff Coefficient = C =	8.0 4.0 1 0.0 0.5	0 acres 00 acres 1 in/hr 11 ft/ft 3 33 ft 54		
$\label{eq:Acs} \begin{array}{l} A_{cs} = cross\text{-sectional area of flow in Swale} = \\ P_w = Wetted \mbox{ Perimeter} = \\ R_H = hydraulic \mbox{ radius of flow cross-section} = A_{cs}/P_w = \\ n = Manning's \mbox{ roughness coefficient} = \\ \end{array}$	13.1 40.6 0.3 0	17 sf 52 feet 32 feet .2		
15A. Using the Method Described in the RG-348				
Manning's Equation: $Q = \frac{1.49}{n} A_{CS} R_{H}^{2/3} S^{0.5}$	i			
$b = 0.134 \times Q$ - zy = $y^{1.67} S^{0.5}$	38.5	51 feet		
Q = CIA =	4.7	71 cfs		
To calculate the flow velocity in the swale:				
V (Velocity of Flow in the swale) = $Q/A_{CS}$ =	0.3	36 ft/sec		
To calculate the resulting swale length:				
L = Minimum Swale Length = V (ft/sec) * 300 (sec) =	107.2	24 feet		
If any of the resulting values do not meet the design requirement	nt set forth in I	RG-348, the design p	parameters must be mod	fied and the solver rerun.
15B. Alternative Method using Excel Solver				
Design Q = CIA =	4.1	71 cfs		
Manning's Equation Q = Swale Width=	0.1 6.0	76 cfs 00 ft	Error 1 =	3.95
Instructions are provided to the right (green comments).				
Flow Velocity Minimum Length =	0.: 107.:	36 ft/s 24 ft		
Instructions are provided to the right (blue comments).				
Design Width = Design Discharge = Design Depth = Flow Velocity = Minimum Length =	0. 0. 0. 97.	6 ft 76 cfs 33 ft 32 cfs 48 ft	Error 2 =	3.95

If any of the resulting values do not meet the design requirement set forth in RG-348, the design parameters may be modified and the solver rerun.

If any of the resulting values still do not meet the design requirement set forth in RG-348, widening the swale bottom value may not be possible.

16. Vegetated Filter Strips	C	Designed as R	equired in RC	G-348	Pages 3-55 to 3-57	
There are no calculations required for determining the load or size of vegetative filter strips. The 80% removal is provided when the contributing drainage area does not exceed 72 feet (direction of flow) and the sheet flow leaving the impervious cover is directed across 15 feet of engineered filter strips with maximum slope of 20% or across 50 feet of natural vegetation with a maximum slope of 10%. There can be a break in grade as long as no slope exceeds 20%.						
If vegetative filter strips are proposed for an interim	permanent BMP, they r	nay be sized a	as described	I on Page 3-56 of RG	-348.	
17. Wet Vaults	(	Designed as R	equired in R	3-348	Pages 3-30 to 3-32 & 3-79	
Required Load Removal Bas	ed upon Equation 3.3 =	NA	lbs			
First calculate the load removal at 1.1 in/hour						
RG-348 Page 3-30	Equation 3.4: Q = CiA					
C = runoff coefficient i = d A = d	for the drainage area = lesign rainfall intensity = lrainage area in acres =	0.37 1.1 1	in/hour acres	C = Runoff Coeffici	ent = 0.546 (IC) ² + 0.328 (IC) + 0.03	
Q = flow rate in	cubic feet per second =	0.40	cubic feet/s	ec		
RG-348 Page 3-31 E	equation 3.5: V _{OR} = Q/A					
Q = Runoff A = Water surface	rate calculated above = e area in the wet vault =	0.40 150	cubic feet/s square feet	ec		
	V _{oR} = Overflow Rate =	0.00	feet/sec			
Percent TSS Removal from Figure 3-1	1 (RG-348 Page 3-31) =	53	percent			
Load	removed by Wet Vault =	#VALUE!	lbs			
If a bypass occurs at a rainfall intensity of less than Calculate the efficiency reduction for the actual rain	1.1 in/hours fall intensity rate					
Actual Rainfall Intensity at which We	t Vault bypass Occurs =	0.5	in/hour			
Fraction of rainfall treated from Figure 3 Efficiency Reduction for A	-2 RG-348 Page 3-32 = ctual Rainfall Intensity =	0.75 0.83	percent percent			
Resultant TSS Load	removed by Wet Vault =	#VALUE!	lbs			
18. Permeable Concrete		Designed as F	Required in R	G-348	Pages 3-79 to 3-83	
PERMEABLE CONCRETE MAY ONLY BE USED ON	THE CONTRIBUTING Z	ONE				
19. BMPs Installed in a Series		Designed as F	Required in R	G-348	Pages 3-32	
Michael E. Barrett, Ph.D., P.E. recom	nmended that the coeffi	cient for E ₂ b	e changed fr	om 0.5 to 0.65 on Ma	ay 3, 2006	
E _{TOT} = [1 - ((1 - E ₁ ) X (1 - 0.65E ₂ )	x (1 - 0.25E ₃ ))] X 100 =	86.38	percent	NET EFFICIENCY	OF THE BMPs IN THE SERIES	
EFFICIENCY OF FIRST BMP	IN THE SERIES = E ₁ =	75.00	percent			
EFFICIENCY OF THE SECOND BMP	IN THE SERIES = E ₂ =	70.00	percent			
EFFICIENCY OF THE THIRD BMP	IN THE SERIES = $E_3$ =	0.00	percent			
THEREFORE, THE NET LOAD REMOMENT (A ₁ AND A ₂ VALUES ARE FROM SEC	OVAL WOULD BE: TION 3 ABOVE)					
L _R = E _{TOT} X P X	(A _i X 34.6 X A _P X0.54) =	7744.10	) Ibs			
20. Stormceptor Required TSS Removal Imperviou TSS Remov BMP Sizing Ca Actual Model Size (if multiple value	in BMP Drainage Area= s Cover Overtreatment= al for Uncaptured Area = Effective Area = alculated Model Size(s) = as provided in Calculated	Designed as I NA 0.0000 0.00 NA #N/A	Required in R Ibs ac Ibs EA	G-348	Pg. 11, Addendum	
Model Size or if you are choosing	ng a larger model size) =	0	Model Size			

	Surface Area =	#N/A	ft ²
	Overflow Rate =	#VALUE!	Vor
	Rounded Overflow Rate =	#VALUEI	V _{or}
	BMP Efficiency % =	#VALUE!	%
	L _R Value =	#VALUE!	lbs
	TSS Load Credit =	#VALUE!	lbs
	Is Sufficient Treatment Available? (TSS Credit > TSS Uncapt.)	#VALUE!	
	TSS Treatment by BMP (LM + TSS Uncapt.) =	#VALUE!	
21 Vortech		Designed as	Required in RG-348
All Folloom	Required TSS Removal in BMP Drainage Area=	NA	lbs
	Impervious Cover Overtrealment=	0.0000	ac
	TSS Removal for Uncaptured Area =	0.00	lbs
	BMP Sizing		
	Effective Area =	NA	EA
	Calculated Model Size(s) =	#N/A	
	Actual Model Size (if choosing larger model size) =	0	Pick Model Size
	Surface Area =	#N/A	ft²
	Overflow Rate =	#VALUE!	V _{or}

Pg. 19, Addendum

Rounded Overflow Rate =	#VALUE!	Vor
BMP Efficiency % =	#VALUE!	%
L _R Value =	#VALUE!	lbs
TSS Load Credit =	#VALUE!	lbs
Is Sufficient Treatment Available? (TSS Credit > TSS Uncapt.)	#VALUE!	
TSS Treatment by BMP (LM + TSS Uncapt.) =	#VALUE!	

22. Batch Dete	22. Batch Detention Basin		Required in RG-348	Pg. 28, Addendum	
	Required Water Quality Volume for batch detention basin =	31391	cubic feet		
23. BaySepara	ator	Designed as	Required in RG-348	Pg. 35, Addendum	
-	Required TSS Removal in BMP Drainage Area=	NA	lbs		
	Impervious Cover Overtreatment=	0.0000	ac		
	TSS Removal for Uncaptured Area =	0.00	lbs		
	BMP Sizing				
	Effective Area =	NA	EA		
	Calculated Model Size(s) =	#N/A			
	Actual Model Size (if multiple values provided in Calculated				
	Model Size or if you are choosing a larger model size) =	0	Model Size		
	Surface Area =	#N/A	ft ²		
	Overflow Rate =	#VALUE!	V _{or}		
	Rounded Overflow Rate =	#VALUE!	Vor		

	BMP Efficiency % =	#VALUE!	%
	L _R Value =	#VALUE!	lbs
	TSS Load Credit =	#VALUE!	lbs
Is Sufficient Treatment Available? (TSS 0	Credit ≥ TSS Uncapt.)	#VALUE!	
TSS Treatment by BMP (	LM + TSS Uncapt.) =	#VALUE!	

#### 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 corner. Place the cursor over the cell. Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348. Characters shown in red are data entry fields.

Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.

#### 1. The Required Load Reduction for the total project:

Calculations from RG-348

Pages 3-27 to 3-30

Project Name: New Braunfels Christian Academy

Date Prepared: 3/9/2023

#### Page 3-29 Equation 3.3: L_M = 27.2(A_N x P)

The second s				
where:	OJECT = R	equirea 155	s removal resul	ling from the proposed development = 80% of increased load
	$A_N = N$	et increase i	in impervious a	rea for the project
	P = A	verage annu	al precipitation	, inches
	<b>1</b> 1 1 1 1 1			TE OF TEL
Site Data: Determine Required Load Removal Based on the Entire	Project			261
	ounty =	Comal		
I otal project area included in pl	an =	27.17	acres	
Predevelopment impervious area within the limits of the p	lan =	0.00	acres	**
Total post-development impervious area within the limits of the	pian =	15.50	acres	
Total post-development impervious cover fract		0.57	-lashes	JOSEPH I. SANDUVAL
	P=L	33	linches	110057
				1.0 110257 50
L _{M TOTAL PR}	OJECT =	13913	lbs.	120
* The values entered in these fields should be for the total project a	irea.			CENSE
				ISSION ET
Number of designed basics / suffells areas locuing the slop				10000000
Number of drainage basins / outlans areas leaving the plan	alea -	4		
				Jacande Sandmal F.E.
				Sco-pre on chill,
2. Drainage Basin Parameters (This information should be provided	for each	i basin):		0 2023
				march , curs
Drainage Basin/Outfall Area	a No. =	2		11401011
Total drainage basin/outfall	area =	11.83	acres	
Predevelopment impervious area within drainage basin/outfall	area =	0.00	acres	
Post-development impervious area within drainage basin/outfall	area =	7.50	acres	
Post-development impervious fraction within drainage basin/outfall	area =	0.63		
L _{M THIS}	BASIN =	6732	lbs.	
3. Indicate the proposed BMP Code for this basin.				Aqualogic Cartridge Filter
				Bioretention
Proposed	BMP = E	Batch Deten	tion Basin	Batch Detention Basin
Removal effic	iency =	91	percent	BaySeparator

Contech StormFilter Constructed Welland 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:

Ac = 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 =	11.83	acres
A _l =	7.50	acres
A _p =	4.33	acres
L _p =	7863	lbs

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

Desired L _{M THIS} BASIN =	6732	lbs.			
F =	0.86				
6. Calculate Capture Volume required by the BMP Type for this drainage b	asin / outfa	all area.	Calculations from RG	-348	Pages 3-34 to 3-36
	uonny outre				
Rainfall Depth = Post Development Runoff Coefficient =	1.38 0.45	inches			
On-site Water Quality Volume =	26447	cubic feet			
	Calculation	is from RG-348	Pages 3-36 to 3-37		
Off-site area draining to BMP =	0.00	acres			
Impervious fraction of off-site area =	0				
Off-site Water Quality Volume =	0	cubic feet			
Storage for Sediment =	5289				
Total Capture Volume (required water quality volume(s) x 1.20) = The following sections are used to calculate the required water quality volume	31736 lume(s) for	cubic feet the selected BN	1P.		
The values for BMP Types not selected in cell C45 will show NA. 7. Retention/Irrigation System	Designed a	as Required in R	3-348	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 pe	ermeability rate	e or assumed value of 0.1
Irrigation area =	NA NA	square feet acres			
0 Fritanded Datastics Davis Custom	Destand	na Danairad in Di	2.049	Deres 0 4044	0.54
o. Extended Detention Basin System	Designed	as required in ro	3-340	Pages 3-40 to	3-51
Required water Quality volume for extended detention basin =	NA	cubic feet			
9. Filter area for Sand Filters	Designed	as Required in R	3-348	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 = Minimum sedimentation basin area =	NA NA	square feet square feet	For minimum water	depth of 2 feet depth of 8 fee	t
9B. Partial Sedimentation and Filtration System					
Water Quality Volume for combined basins =	NΔ				
	114	cubic feet			
Minimum filter basin area =	NA	cubic feet square feet			
Minimum filter basin area = Maximum sedimentation basin area = Minimum sedimentation basin area =	NA NA NA	cubic feet square feet square feet square feet	For minimum water For maximum water	depth of 2 fee depth of 8 fee	t t
Minimum filter basin area = Maximum sedimentation basin area = Minimum sedimentation basin area =	NA NA NA	cubic feet square feet square feet square feet	For minimum water For maximum water	depth of 2 fee depth of 8 fee	t t
Minimum filter basin area = Maximum sedimentation basin area = Minimum sedimentation basin area = <u>10. Bioretention System</u>	NA NA NA Designed	cubic feet square feet square feet square feet as Required in Re	For minimum water For maximum water 3-348	depth of 2 fee depth of 8 fee Pages 3-63 to	t t 3-65
Minimum filter basin area = Maximum sedimentation basin area = Minimum sedimentation basin area = <u>10. Bioretention System</u> Required Water Quality Volume for Bioretention Basin =	NA NA NA Designed NA	cubic feet square feet square feet square feet as Required in Re cubic feet	For minimum water For maximum water 3-348	depth of 2 fee depth of 8 fee Pages 3-63 to	t t 3-65
Minimum filter basin area = Maximum sedimentation basin area = Minimum sedimentation basin area = <u>10. Bioretention System</u> Required Water Quality Volume for Bioretention Basin = <u>11. Wet Basins</u>	NA NA NA Designed NA Designed	cubic feet square feet square feet as Required in Re cubic feet as Required in Re	For minimum water For maximum water G-348 G-348	depth of 2 fee depth of 8 fee Pages 3-63 to Pages 3-66 to	t 1 3-65 3-71
Minimum filter basin area = Maximum sedimentation basin area = Minimum sedimentation basin area = <u>10. Bioretention System</u> Required Water Quality Volume for Bioretention Basin = <u>11. Wet Basins</u> Required capacity of Permanent Pool = Required capacity at WQV Elevation =	NA NA NA Designed NA Designed NA	cubic feet square feet square feet square feet as Required in R cubic feet cubic feet cubic feet	For minimum water For maximum water 3-348 3-348 Permanent Pool Caj Total Capacity shou plus a second WQV	depth of 2 fee depth of 8 fee Pages 3-63 to Pages 3-66 to pacity is 1.20 ti Id be the Perm	t 3-65 3-71 imes the WQV ianent Pool Capacity
Minimum filter basin area = Maximum sedimentation basin area = Minimum sedimentation basin area = 10. Bioretention System Required Water Quality Volume for Bioretention Basin = 11. Wet Basins Required capacity of Permanent Pool = Required capacity at WQV Elevation = 12. Constructed Wetlands	NA NA NA Designed NA Designed Designed	cubic feet square feet square feet square feet as Required in Re cubic feet cubic feet cubic feet cubic feet	For minimum water For maximum water 3-348 3-348 Permanent Pool Caj Total Capacity shou plus a second WQV 3-348	depth of 2 fee depth of 8 fee Pages 3-63 to Pages 3-66 to pacity is 1.20 ti Id be the Perm Pages 3-71 to	t 3-65 3-71 imes the WQV ianent Pool Capacity 3-73
Minimum filter basin area = Maximum sedimentation basin area = Minimum sedimentation basin area = 10. Bioretention System Required Water Quality Volume for Bioretention Basin = 11. Wet Basins Required capacity of Permanent Pool = Required capacity at WQV Elevation = 12. Constructed Wetlands Required Water Quality Volume for Constructed Wetlands =	NA NA NA Designed NA Designed NA Designed NA	cubic feet square feet square feet square feet as Required in R cubic feet cubic feet cubic feet as Required in R cubic feet	For minimum water For maximum water 3-348 3-348 Permanent Pool Caj Total Capacity shou plus a second WQV 3-348	depth of 2 fee depth of 8 fee Pages 3-63 to Pages 3-66 to pacity is 1.20 ti Id be the Perm Pages 3-71 to	t 3-65 3-71 mes the WQV menent Pool Capacity 3-73

** 2005 Technical Guidance Manual (RG-348) does not exempt the required	i 20% increas	e with maintenance con	tract with AquaLo	ogic™.
Required Sedimentation chamber capacity = Filter canisters (FCs) to treat WQV = Filter basin area (RIA _F ) =	NA NA NA	cubic feet cartridges square feet		
14. Stormwater Management StormFilter® by CONTECH				
Required Water Quality Volume for Contech StormFilter System =	NA	cubic feet		
THE SIZING REQUIREMENTS FOR THE FOLLOWING BMPs / LOAD REMO	VALS ARE BA	SED UPON FLOW RATE	ES - NOT CALCUL	ATED WATER QUALITY VOLUMES
15. Grassy Swales	Designed as F	Required in RG-348	Pages	3-51 to 3-54
Design parameters for the swale;				
Drainage Area to be Treated by the Swale = A = Impervious Cover in Drainage Area = Rainfall intensity = i = Swale Stope = Side Stope (z) = Design Water Depth = y = Weighted Runoff Coefficient = C =	8.00 4.00 1. 0.0 3 0.3 0.5	) acres ) acres in/hr in/hr i ft/ft 3 ft		
$A_{CS}$ = cross-sectional area of flow in Swale = $P_W$ = Wetted Perimeter = $R_H$ = hydraulic radius of flow cross-section = $A_{CS}/P_W$ = n = Manning's roughness coefficient = 15A. Using the Method Described in the RG-348	13.1 40.6 0.3 0.3	7 sf 2 feet 2 feet 2		
Manning's Equation: Q = $1.49 A_{CS} R_{H}^{23} S^{0.5}$ n				
$b = \frac{0.134 \times Q}{y^{1.67}} - zy = y^{1.67} S^{0.5}$	38.5	1 feet		
Q = CIA =	4.7	1 cfs		
To calculate the flow velocity in the swale:				
V (Velocity of Flow in the swale) = $Q/A_{CS}$ =	0.3	3 fl/sec		
To calculate the resulting swale length:				
L = Minimum Swale Length = V (ft/sec) * 300 (sec) =	107.2	4 feet		
If any of the resulting values do not meet the design requirement	nt set forth in R	G-348, the design parame	eters must be mod	ified and the solver rerun.
15B. Alternative Method using Excel Solver				
Design Q = CiA =	4.7	1 cfs		
Manning's Equation Q = Swale Width=	0.7 6.0	3 cfs ) ft	Error 1 =	3.95
Instructions are provided to the right (green comments).				
Flow Velocity Minimum Length =	0.3 107.2	ð fl/s 4 ft		
Instructions are provided to the right (blue comments).				
Design Width = Design Discharge = Design Depth = Flow Velocity = Minimum Length =	0.7 0.3 0.3 97.4	6 ft 5 cfs 3 ft 2 cfs 3 ft	Error 2 =	3.95

If any of the resulting values do not meet the design requirement set forth in RG-348, the design parameters may be modified and the solver rerun.

If any of the resulting values still do not meet the design requirement set forth in RG-348, widening the swale bottom value may not be possible.

16. Vegetated Filter Strips	C	Designed as R	equired in R	G-348	Pages 3-55 to 3-57	
There are no calculations required for determining the load or size The 80% removal is provided when the contributing drainage area the sheet flow leaving the impervious cover is directed across 15 f across 50 feet of natural vegetation with a maximum slope of 10%	of veget does not eet of en There c	ative filter str exceed 72 fe gineered filte	ips. et (direction r strips with	of flow) and maximum slop	pe of 20% or	
If vegetative filter strips are proposed for an interim permanent BM	NP, they n	nay be sized	as described	d on Page 3-56	of RG-348.	
17. Wet Vaults		Designed as R	equired in R	G-348	Pages 3-30 to 3-32 & 3-	-79
Required Load Removal Based upon Equati	on 3.3 =	NA	lbs			
First calculate the load removal at 1.1 in/hour						
RG-348 Page 3-30 Equation 3.4:	Q = CiA					
C = runoff coefficient for the drainag i = design rainfall in A = drainage area in	e area = tensity = acres =	0.46 1.1 <mark>1</mark>	in/hour acres	C = Runoff Co	oefficient = 0.546 (IC) ² + 0.328	(IC) + 0.03
Q = flow rate in cubic feet per s	econd =	0.50	cubic feet/s	ec		
RG-348 Page 3-31 Equation 3.5: Vo	_{DR} = Q/A					
Q = Runoff rate calculated A = Water surface area in the we	above = t vault =	0.50	cubic feet/s square feet	ec		
V _{OR} = Overflov	v Rate =	0.00	feet/sec			
Percent TSS Removal from Figure 3-1 (RG-348 Page	e 3-31) =	53	percent			
Load removed by We	t Vault =	#VALUE!	lbs			
If a bypass occurs at a rainfall intensity of less than 1.1 in/hours Calculate the efficiency reduction for the actual rainfall intensity ra	ate					
Actual Rainfall Intensity at which Wet Vault bypass C	)ccurs =	0.5	in/hour			
Fraction of rainfall treated from Figure 3-2 RG-348 Pag Efficiency Reduction for Actual Rainfall In	e 3-32 = tensity =	0.75	percent percent			
Resultant TSS Load removed by We	t Vault =	#VALUE!	lbs			
18. Permeable Concrete	(	Designed as F	lequired in R	G-348	Pages 3-79 to 3-83	
PERMEABLE CONCRETE MAY ONLY BE USED ON THE CONTRIB	UTING ZO	ONE				
19. BMPs Installed in a Series	. (	Designed as F	equired in R	G-348	Pages 3-32	
Michael E. Barrett, Ph.D., P.E. recommended that t	he coeffic	cient for E ₂ be	e changed fr	om 0.5 to 0.65 d	on May 3, 2006	
E _{TOT} = [1 - ((1 - E ₁ ) X (1 - 0.65E ₂ ) x (1 - 0.25E ₃ ))]	X 100 =	86.38	percent	NET EFFICIEN	NCY OF THE BMPs IN THE SE	RIES
EFFICIENCY OF FIRST BMP IN THE SERIE	S = E ₁ =	75.00	percent			
EFFICIENCY OF THE SECOND BMP IN THE SERIE	S = E ₂ =	70.00	percent			
EFFICIENCY OF THE THIRD BMP IN THE SERIE	S = E ₃ =	0.00	percent			
THEREFORE, THE NET LOAD REMOVAL WOULD E (A ₁ AND A ₂ VALUES ARE FROM SECTION 3 ABOVE	IE: )					
$L_{R} = E_{TOT} X P X (A_{I} X 34.6 X A_{P})$	X0.54) =	7463.37	lbs			
20. Stormceptor Required TSS Removal in BMP Drainag Impervious Cover Overtre TSS Removal for Uncapture BMP Sizing Effectiv Calculated Model	ge Area= eatment= d Area = e Area = Size(s) =	Designed as F NA 0.0000 0.00 NA #N/A	Required in R Ibs ac Ibs EA	G-348	Pg. 11, Addendum	
Model Size or if you are choosing a larger mode	el size) =	0	Model Size			

Surface Area =	#N/A	ft ²
Overflow Rate =	#VALUE!	Vor
Rounded Overflow Rate =	#VALUE!	Vor
BMP Efficiency % =	#VALUE!	%
L _R Value =	#VALUE!	lbs
TSS Load Credit =	#VALUE!	lbs
Is Sufficient Treatment Available? (TSS Credit $\geq$ TSS Uncapt.)	#VALUE!	
TSS Treatment by BMP (LM + TSS Uncapt.) =	#VALUE!	

21. Vortech	Designed as	Required in RG-348	Pg. 19, Addendum
Required TSS Removal in BMP Drainage Area=	NA	lbs	
Impervious Cover Overtreatment=	0.0000	ac	
TSS Removal for Uncaptured Area =	0.00	lbs	
BMP Sizing			
Effective Area =	NA	EA	
Calculated Model Size(s) =	#N/A		
Actual Model Size (if choosing larger model size) =	0	Pick Model Size	
Surface Area =	#N/A	ft²	
Overflow Rate =	#VALUE!	Vor	
Rounded Overflow Rate =	#VALUE!	V.,	
BMP Efficiency % =	#\/ALLIEL	%	
L - Value =	#\/ALLEL	lbe	
CR Voldo	WWILCE	105	
TSS Load Credit =	#VALUE!	lbs	
Is Sufficient Treatment Available? (TSS Credit ≥ TSS Uncapt.)	#VALUE!		
TSS Treatment by BMP (LM + TSS Uncapt.) =	#VALUE!		
22. Batch Detention Basin	Designed as	Required in RG-348	Pg. 28, Addendum
Required Water Quality Volume for batch detention basin =	31736	cubic feet	
23. BaySeparator	Designed as	Required in RG-348	Pg. 35, Addendum

co. Day Separator		Designed as I	required in rro-340
	Required TSS Removal in BMP Drainage Area=	NA	lbs
	Impervious Cover Overtreatment=	0.0000	ac
	TSS Removal for Uncaptured Area =	0.00	lbs
BMP Sizing	]		
	Effective Area =	NA	EA
Actual N	Calculated Model Size(s) = Model Size (if multiple values provided in Calculated	#N/A	
Mod	el Size or if you are choosing a larger model size) =	0	Model Size
	Surface Area =	#N/A	ft ²
	Overflow Rate =	#VALUE!	V _{or}
	Rounded Overflow Rate =	#VALUE!	Vor
	BMP Efficiency % =	#VALUE!	%
	L _R Value =	#VALUE!	lbs
	TSS Load Credit =	#VALUE!	lbs
Is Sufficien	t Treatment Available? (TSS Credit ≥ TSS Uncapt.)	#VALUE!	
	TSS Treatment by BMP (LM + TSS Uncapt.) =	#VALUE!	

#### PERMANENT STORMWATER SECTION ATTACHMENT G Inspection, Maintenance, Repair and Retrofit Plan

The contractor will be directed to inspect and maintain all permanent BMPs during construction. One year after construction is complete the permanent BMPs will be turned over to the New Braunfels Christian Academy. Any deficiency noted must be corrected immediately by the New Braunfels Christian Academy. The maintenance guidelines were pulled from the TCEQ Document "Complying with the Edwards Aquifer Rules Technical Guidance on Best Management Practices" and its addendum sheet, the documents can be referenced for a more indepth explanation of maintenance guidelines.

Maintenance and Inspection:

- (1) Specification of routine and non-routine maintenance activities to be performed;
  - a. Batch Detention Basins
    - i. Inspection- Inspect basin at least twice a year, once during wet weather to evaluate detention and drawdown time. The remaining inspections should occur between storms when the valve and controller can be verified. The level sensor in the basin should be inspected and any debris or sediment in the area should be removed. The outlet structure and the trash screen should be inspected for signs of clogging. Debris and sediment should be removed from the orifice and outlet(s) as described in previous sections. Debris obstructing the valve should be removed. During each inspection, erosion areas inside and downstream of this BMP should be identified and repaired/revegetated immediately.
    - ii. Mowing- Grass areas in and around basins must be mowed at least twice annually to limit vegetation height to 18 inches. When mowing is performed, a mulching mower should be used, or grass clippings should be caught and removed. Vegetation on the pond embankments should be mowed as appropriate to prevent the establishment of woody vegetation.
    - iii. Debris and Litter Removal- Debris and litter should be removed during regular mowing operations and inspections. Attention should be paid to floating debris that can eventually clog the control device or riser. The outlet should be checked for possible clogging or obstruction and debris removed.
    - iv. Erosion- During each inspection, erosion areas on basin side-slopes and embankments must be identified and repaired, regraded or revegetated immediately.
    - v. Nuisance Control- Standing water or soggy conditions may occur in the basin. Twice a year, the facility should be evaluated in terms of nuisance control (insects, weed, odors, algae, etc.).
    - vi. Structural Repairs Replacement- With each inspection, any damage to structural elements of the basin (pipes, concrete drainage structures, retaining walls, etc.) should be identified and repaired immediately. The

various inlet/outlet structures in a basin will eventually deteriorate and must be replaced.

- vii. Sediment Removal- Remove sediment when the depth reaches 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 basin at least every 5 years.
- viii. Logic Controller- The Logic Controller should be inspected as part of the twice-yearly investigations. Verify that the external indicators (active, cycle in progress) are operating properly by turning the controller off and on, and by initiating a cycle by triggering the level sensor in the basin. The valve should be manually opened and closed using the open/close switch to verify valve operation and to assist in inspecting the valve for debris. The solar panel should be inspected and any dust or debris on the panel should be carefully removed. The controller and all other circuitry and wiring should be inspected for signs of corrosion, damage from insects, water leaks, or other damage. inspection.
- (2) A schedule for maintenance activities;
  - a. Inspection and maintenance will be held quarterly and after rainfall events of more than one inch
- (3) The batch detention basin can be accessed by vehicle as they are directly adjacent to a paved roadway.
- (4) Check Depth of Vegetation
  - a. Grassy areas in and around the basin must be mowed at least twice annually. Vegetation in the basin shall not exceed 18-inches in depth. When vegetation needs to be cut, it shall be cut to an approximately 4-inch height. When mowing is performed, a mulching mower should be used, or grass clippings should be caught and then removed. A written record will be kept of inspection results and maintenance performed.
- (5) Removal of Debris and Trash
  - a. Debris and litter will accumulate near the basin sump and should be removed during regular mowing operations and inspections. Particular attention should be paid to floating debris that can eventually clog the irrigation system. The basin and inlet structure shall be checked for the accumulation of debris and trash such as brush, limbs, leaves, paper cups, aluminum cans, plastic bottles etc. Accumulated trash and debris shall be raked or collected from the basin and inlet structure and disposed of properly. Written record will be kept of inspection results and maintenance performed.
- (6) Cut-off Valve
  - a. The cut-off valve shall be turned to confirm full opening and full closure. Prior to operating the valve, the valve setting shall be checked to determine the position to which the valve is to be returned (which should limit drawdown time of the basin between 24- hours and 72-hours). Count should be kept of number of turns to open and close the valve so that the valve can be reset to the starting position. Defects in the operation of the cut-off valve shall be corrected within 7 working days. A written record will be kept of inspection results and maintenance performed.

#### (7) Inlet Splash Pad

a. The filter area around the inlet splash pad shall be checked for erosion and for the condition of the rock rubble. Erosion or disturbance of the rock rubble should be corrected by removal and/or replacement of the rock rubble. If the condition persists in subsequent inspections, the size of the rock rubble should be increased. Rubble should be placed to a density that minimizes the amount of exposed soil between the rock rubble. Deficiencies should be corrected within seven working days. A written record will be kept of inspection results and maintenance performed.

### (8) Structural Integrity

a. Observe the height of the confining berm for visible signs of erosion or potential breach. Signs of erosion and/or slumping of basin walls should be corrected within 2 weeks or immediately in case of emergency conditions. Regrading and vegetation may be required to correct the problems. Corrective measures include but are not limited to addition of topsoil or appropriate soil material so as to restore the original berm height of the basin. Restored areas shall be protected through placement of solid block sod. Written record will be kept of inspection results and maintenance performed.

#### (9) Discharge Pipe

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

### (10) Detention Time

a. The irrigation schedule should allow for complete drawdown of the water quality volume within 72 hours. Irrigation should not begin within 12 hours of the end of rainfall. If detention time exceeds 72 hours or begins prior to 12 hours after end of rainfall, check wet well and irrigation system. A written record of the inspection findings and corrective actions performed will be made.

#### (11) Irrigation Areas

a. Vegetation must be maintained in the irrigation area such that it does not impede the spray of water from the irrigation heads. Tree and shrub trimmings and other large debris should be removed from the irrigation area. Written record will be kept of inspection results and maintenance performed.

#### (12) For Pump Stations

a. Check wet well discharge pipe to confirm flow through the pump system. If flow is not present, allow sufficient time for pump to cycle on and off. If flow does not occur, the wet well should be checked for the level of water. The wet well should be opened and the on/off float switches should be moved up and down to activate the pump. If the pump does not start, a repair technician shall be called in to repair the malfunction within 5 working days.

Check the wet well for accumulation for trash, debris and silt. Trash and debris shall be removed and disposed of properly. Silt depth can be checked by probing the

bottom of the wet well with a stick or PVC pipe. Silt accumulations should be removed when silt collects to a depth of three (3) inches over the entire wet well bottom. Silt can be removed by vacuum pump or other methods.

Visually check aboveground pump wiring and connections for damage. Damaged or loose connections should be repaired within 5 working days. Written record will be kept of inspection results and maintenance performed.

- (13) Irrigation System
  - a. The irrigation system, including pumps, should be inspected and tested (or observed while in operation) to assure proper operation at least 6 times annually. Two of these inspections should occur during or immediately following wet weather. Any leaks, broken spray heads, or other malfunctions with the irrigation system should be repaired immediately. In particular, sprinkler heads must be checked to determine if they are broken, clogged, or not spraying properly. A written record will be kept of inspection results and the maintenance performed. All inspection and testing reports will be kept on site and accessible to inspectors.
- (14) Visually Inspect Security Fencing for Damage or Breach
  - a. Check the basin maintenance access gates for proper operation. Damage to fencing or gates shall be repaired within 5 working days. A written record will be kept of inspection results and maintenance performed.
- (15) Recordkeeping Procedures for Inspections, Maintenance, Repairs, and Retrofits
  - a. Written records shall be kept by the party responsible for maintenance or a designated representative.
  - b. Written records shall be retained for a minimum of five years.
- The New Braunfels Christian Academy will be in charge of the oversight and (16)scheduling of inspections and maintenance. Nicholas Reeves of New Braunfels Christian Academy will sit on the Board of Directors for as long as New Braunfels Academy is named Declarant and will establish the inspection and maintenance plans for the Organization; and
- Inspection records will be maintained at the New Braunfels Christian Academy (17)offices.

19/2023

Des por Sanderal, P.E. Party Responsible for Maintenance Avthorized Agent for Owner.

#### PERMANENT STORMWATER SECTION ATTACHMENT I Measures for Minimizing Surface Stream Contamination

There is one type of proposed Permanent BMPs for the on-site stormwater for New Braunfels Academy. The BMPs include two batch detention basins. The permanent BMPs will be constructed to TCEQ standards and the design plans and details can be found on sheets C7.12 through C7.12 of the New Braunfels Academy Site Construction Plans.

#### PERMANENT POLLUTION ABATEMENT MEASURES MAINTENANCE SCHEDULE AND MAINTENANCE PROCEDURES

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

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

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

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

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

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

I	Nicholas J. Reeves Print Name	,
Resis	ited Agent/ Head of School Title - Owner/President/Other	ı
of	New Braunfels Christian Academy Corporation/Partnership/Entity Name	,
have authorized	Joseph Sandoval, P.E. Print Name of Agent/Engineer	
of	HMT Surveying & Engineering 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:

vin the

- 1. The applicant is responsible for compliance with 30 Texas Administrative Code Chapter 213 and any condition of the TCEQ's approval letter. The TCEQ is authorized to assess administrative penalties of up to \$10,000 per day per violation.
- 2. For those submitting an application who are not the property owner, but who have the right to control and possess the property, additional authorization is required from the owner.
- 3. Application fees are due and payable at the time the application is submitted. The application fee must be sent to the TCEQ cashier or to the appropriate regional office. The application will not be considered until the correct fee is received by the commission.
- 4. A notarized copy of the Agent Authorization Form must be provided for the person preparing the application, and this form must accompany the completed application.
- 5. No person shall commence any regulated activity on the Edwards Aquifer Recharge Zone, Contributing Zone or Transition Zone until the appropriate application for the activity has been filed with and approved by the Executive Director.

SIGNATURE PAGE:

4 6 1 B 6

Applicant's Signature

22

THE STATE OF Texas \$ County of Comal \$

BEFORE ME, the undersigned authority, on this day personally appeared, <u>*Micholas Accule.s*</u>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.



Michelle Lyn. Reidy <u>MichelleLyn Leidy</u> Typed or Printed Name of Notary

MY COMMISSION EXPIRES: December 21, 2023

# **Application Fee Form**

Texas Commission on Environmental Quality										
Name of Proposed Regulated Entity: New Braunfels Chrisian Academy										
Regulated Entity Location: 220 FM 1863 New Braunfels, Texas 78130										
Name of Customer: New Braunfels	<u>Chrisian Academy</u>									
Contact Person: Nicholas J. Reeves	Phon	e: <u>(830) 629-1821</u>								
Customer Reference Number (if iss	ued):CN <u>602851750</u>									
<b>Regulated Entity Reference Numbe</b>	r (if issued):RN <u>10463</u> 4	<u>4530</u>								
Austin Regional Office (3373)										
Hays	Hays Travis Williamson									
San Antonio Regional Office (3362	)									
Bexar	Medina	Uv	alde							
🖂 Comal	 Kinney									
Application fees must be paid by ch	eck, certified check, o	or money order, payab	le to the <b>Texas</b>							
Commission on Environmental Qu	ality. Your canceled c	heck will serve as you	r receipt. This							
form must be submitted with your	fee payment. This pa	ayment is being submi	tted to:							
Austin Regional Office	🖂 Sa	an Antonio Regional O	ffice							
Mailed to: TCEQ - Cashier	o	Overnight Delivery to: TCEQ - Cashier								
Revenues Section	1	2100 Park 35 Circle								
Mail Code 214	В	uilding A, 3rd Floor								
P.O. Box 13088	A	Austin, TX 78753								
Austin, TX 78711-3088	(5	512)239-0357								
Site Location (Check All That Apply	/):									
Recharge Zone	Contributing Zone	🗌 Transi	tion Zone							
Type of Plan		Size	Fee Due							
Water Pollution Abatement Plan, C	ontributing Zone									
Plan: One Single Family Residential	Dwelling	Acres	\$							
Water Pollution Abatement Plan, C	ontributing Zone									
Plan: Multiple Single Family Reside	ntial and Parks	Acres	\$							
Water Pollution Abatement Plan, C	ontributing Zone									
Plan: Non-residential	27.17 Acres \$ 6,500									
Sewage Collection System	L.F.	\$								
Lift Stations without sewer lines	Acres	\$								
Underground or Aboveground Stor	age Tank Facility	Tanks	\$							
Piping System(s)(only)		Each	\$							
Exception		Each	\$							
Extension of Time		Each	\$							
	1 0	200 D. 202								

Signature: Joseph Sandonel, P.E. Date: March 9, 2023

# **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 Area in	
Project	Acres	Fee
One Single Family Residential Dwelling	< 5	\$650
Multiple Single Family Residential and Parks	< 5	\$1,500
	5 < 10	\$3,000
	10 < 40	\$4,000
	40 < 100	\$6,500
	100 < 500	\$8,000
	≥ 500	\$10,000
Non-residential (Commercial, industrial, institutional,	< 1	\$3,000
multi-family residential, schools, and other sites	1 < 5	\$4,000
where regulated activities will occur)	5 < 10	\$5,000
	10 < 40	\$6,500
	40 < 100	\$8,000
	≥ 100	\$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 Pining System	Minimum Fee- Maximum Fee	
110/200	r iping system	in aximum ree	
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

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 Per	New Permit, Registration or Authorization (Core Data Form should be submitted with the program application.)													
🗌 Renewa	l (Core Dat	a Form should b	e submitted w	ith the	renewal	form	)	$\boxtimes$	Othe	er A	\dde	ndum	to existin	ng permit
2. Customer	Reference	e Number <i>(if i</i> ss	ued)	Follow	this link	to sea	arch	3. R	egula	ated E	ntity R	eferenc	e Number (	if issued)
CN 6028	51750			<u>for CN</u> <u>Ce</u>	<u>l or RN n</u> ntral Reg	umbe gistry*	<u>rs in</u> 	R	N 10	)4634	1530			
<b>SECTION</b>	SECTION II: Customer Information													
4. General C	ustomer In	formation	5. Effective	Date f	or Cust	omer	· Infor	matio	on Up	odates	(mm/c	ld/yyyy)		
New Cust	omer			Update	to Custo	omer	Inform	nation	1			nange in	Regulated I	Entity Ownership
Change in	Legal Nam	ne (Verifiable witl	n the Texas S	ecretar	y of Stat	te or [·]	Texas	Com	ptrolle	er of P	ublic A	ccounts	)	
The Custo	mer Nam	e submitted	here may l	be upo	dated a	auto	matic	cally	bas	sed o	n wha	at is cu	rrent and	active with the
Texas Sec	retary of	State (SOS)	or Texas C	ompti	roller o	of Pi	ublic	Acco	ount	ts (Cl	РА).			
6. Customer	Legal Nam	ne (If an individual	, print last nam	e first: e	g: Doe, J	lohn)			lf new	v Custo	omer, e	nter prev	ious Custom	er below:
New Drees	ufala Ch	uintion A and	T											
New Brau	niels Cn	ristian Acad	emy, Inc.	Tay ID					<u>о г.</u>					C. Normalia and an and a
7. 1X 505/CI		lumber	8. 1X State	I ax ID (11 digits)         9.           0.1.0.7         7			9. Federal Tax ID (9 digits) 10. DUNS NUMber (it applicable)							
00343309	01		1/42133	218/	/4-2155218									
11. Type of C	Sustomer:	Corporati	on		🗌 Ir	ndivid	ual	Partnership:  General  Limited						
Government:	🗌 City 🔲 C	ounty 🗌 Federal 🗌	] State 🗌 Other	r	□s	ole P	ropriet	orshi	р	0 🖂	ther:			
12. Number of	of Employe	es		13. Independently Owned and Operated?				ated?						
□ 0-20 ≥	21-100	101-250	251-500		501 and	l high	er		X Y	es				
14. Custome	r Role (Pro	posed or Actual) –	as it relates to	the Reg	ulated E	ntity li	sted on	n this f	form. I	Please	check d	one of the	following	
Owner		Operat	or		Ow 🛛	ner &	Opera	ator						
	nal License	e 🗌 Respo	nsible Party			untar	y Clea	nup A	Applic	cant		ther:		
	220 FN	1 1863												
15. Mailing														
Address.	City New Braunfels State TX						ZIP	7	/8130	)		ZIP + 4	3700	
16. Country I	Mailing Info	ormation (if outsid	de USA)	I			17. E	-Mail	l Add	dress (	if applica	able)	ı	I
18. Telephon	e Number			19. Ex	ctensior	n or (	Code				20. Fax	(Numbe	er (if applica	ble)
(830)62	9-1821											)	-	
L														

## **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
 □ Update to Regulated Entity is and at a set of the set

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.)

New Braunfels Christian Academy

220 FM 1863												
23. Street Address of	5. Street Address of											
the Regulated Entity: (No PO Boxes)	City	New Braunfels			State TX		X	ZIP	78132		ZIP + 4	
24. County	Comal											
Enter Physical Location Description if no street address is provided.												
25. Description to Physical Location:	N/A											
26. Nearest City									State		Ne	arest ZIP Code
27. Latitude (N) In Decim	nal:						28. L	ongitude (\	N) In Dec	imal:		
Degrees	Minutes			Secon	lds		Degree	es	Ν	linutes		Seconds
29		4.	3		7.38			98		1	0	59.71
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)									NCS Code			
8211						61	1110					
33. What is the Primary I	Busines	s of t	this entity?	(Do no	ot repeat the SIC	or NAI	ICS desc	cription.)				
School												
							220	F.M. 1863				
34. Mailing												
Address:	City	/	New Braunfe	ls	State		ТΧ	ZIP	7	8132	ZIP + 4	
35. E-Mail Address:												
36. Telepho	ne Num	nber			37. Extensio	n or	Code		38. Fax Number (if applicable)			licable)
( )	-									(	) -	
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			Industria	al Hazardous Waste
	104634530											
Municipal Solid Waste	New Source Review Air							Petroleum Storage Tank PWS				
Sludge	Sto	Storm Water					Tires Used Oil				il	
				_	<b></b>							
Voluntary Cleanup	U Wa	aste W	Vater		Wastewater A	gricul	ture	U Water	Rights		Other:	

## **SECTION IV: Preparer Information**

40. Name:	Joseph San	doval, P.E.		41. Title:	Authorized Agend/Project Manager			
42. Tele	phone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address				
(830)	625-8555		() -	Josephs(	2)hmtnb.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:	HMT Engineering & Surveying	Job Title:	Project Manager			
Name (In Print):	Joseph Sandoval, P.E.			Phone:	( 830 ) 625- <b>8555</b>	

Signature:	Sandara	2	P.E.	Date:	3	3	12023
		(			1	-1	

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