O'Connor High School

Organized Sewage Collection System (OSCS) Plan Modification

KCI Job # 762301481

Prepared for:

Northside Independent School District
5900 Evers Road
San Antonio, TX 78238

Prepared by:

KCI Technologies Inc.
Paul A. Mathis, P.E., PMP, LEED Green Assoc., MBA
2806 W. Bitters Rd., Suite 218
San Antonio, TX 78248

April 15, 2024

Updated May 28, 2204

Texas Commission on Environmental Quality (TCEQ)

Organized Sewage Collection System (OSCS) Plan Modification

O'Connor High School Agricultural Science and Technology

KCI Job # 762301481

April 15, 2024

Prepared by:

Paul A. Mathis, P.E., PMP, LEED Green Assoc., MBA
Practice Leader \ Senior Associate

KCI Technologies, Inc.
2608 W. Bitters Road, Suite 218
San Antonio, TX 78248
Phone: (210) 641-9999
FAX: (210) 641-6440
Registration #F-10573 / #101943-65

Prepared for:

Northside Independent School District
5900 Evers Road
San Antonio, TX 38248

Table of Contents

Edwards Aquifer Application Cover (TCEQ-20705)

Texas Commission on Environmental Quality

Edwards Aquifer Application Cover Page

Our Review of Your Application

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

Administrative Review

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

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

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

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

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

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

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

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

Technical Review

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

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

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

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

Mid-Review Modifications

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

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

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

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

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

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

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

1. Regulated Entity Name: O'Connor High School Agricultural Area						**2. Regulated Entity No.:** 104754304			
3. Customer Name: Leroy San Miguel, Assistant Superintendent for Facilities and Operations						**4. Customer No.:** 601104169			
5. Project Type: **(Please circle/check one)**	New		Modification			Extension		Exception	
6. Plan Type: **(Please circle/check one)**	WPAP	CZP	SCS	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures
7. Land Use: **(Please circle/check one)**	Residential		Non-residential			**8. Site (acres):**		27.269 out of 157.652	
9. Application Fee:	$650		**10. Permanent BMP(s):**			1			
11. SCS (Linear Ft.):	1254		**12. AST/UST (No. Tanks):**			0			
13. County:	Bexar		**14. Watershed:**			Leon Creek			

Application Distribution

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

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

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

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

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

I certify that to the best of my knowledge, that the application is complete and accurate. This application is hereby submitted to TCEQ for administrative review and technical review. Paul A. Mathis, P.E., PMP, LEED Green Assoc., MBA (KCI Technologies)
Print Name of Customer/Authorized Agent  April 14, 2024
Signature of Customer/Authorized Agent Date

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

General Information Form (TCEQ-0587)

General Information Form

Texas Commission on Environmental Quality

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

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

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

Signature

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

Print Name of Customer/Agent: Paul A. Mathis, P.E., PMP, LEED Green Assoc., MBA

Practice Leader | Senior Associate

Date: 04/15/2024

Signature of Customer/Agent:

Project Information

1. Regulated Entity Name: O'Connor High School Agricultural Science and Technology
2. County: Bexar
3. Stream Basin: Helotes Creek
4. Groundwater Conservation District (If applicable): Edwards Aquifer Authority
5. Edwards Aquifer Zone:

   ☒ Recharge Zone
   ☐ Transition Zone

6. Plan Type:

   ☐ WPAP ☒ SCS

☒ Modification
☐ AST
☐ UST
☐ Exception Request

7. Customer (Applicant):

Contact Person: Jacob Villarreal, Executive Director of Construction and Engineering
Entity: Northside Independent School District
Mailing Address: 5900 Evers Road
City, State: San Antonio, TX Zip: 78238
Telephone: (210) 397-8500 FAX: (210) 397-8500
Email Address: jacob.villarreal@nisd.net

8. Agent/Representative (If any):

Contact Person: Paul A. Mathis, P.E. LEED Green Assoc., MBA, Pratice Leader \ Senior Associate
Entity: KCI Technolgies, Inc.
Mailing Address: 2806 W. Bitters Rd., Ste. 218
City, State: San Antonio, TX Zip: 78248
Telephone: (210) 641-9000 FAX: (210) 41-6440
Email Address: paul.mathis@kci.com

9. Project Location:

☒ The project site is located inside the city limits of Helotes.
☐ 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.

O'Connor High School is located in southwest corner of intersection of Bandera Road and Leslie Road. The addition of the new buildings will be in the southwest corner of the school property.

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

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

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

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

    ☐ Survey staking will be completed by this date: _____

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

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

15. Existing project site conditions are noted below:

    ☐ Existing commercial site
    ☐ Existing industrial site
    ☐ Existing residential site
    ☐ Existing paved and/or unpaved roads
    ☐ Undeveloped (Cleared)
    ☐ Undeveloped (Undisturbed/Uncleared)
    ☒ Other: Existing O'Connor High School Campus

Prohibited Activities

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

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

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

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

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

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

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

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

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

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

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

Administrative Information

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

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

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

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

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

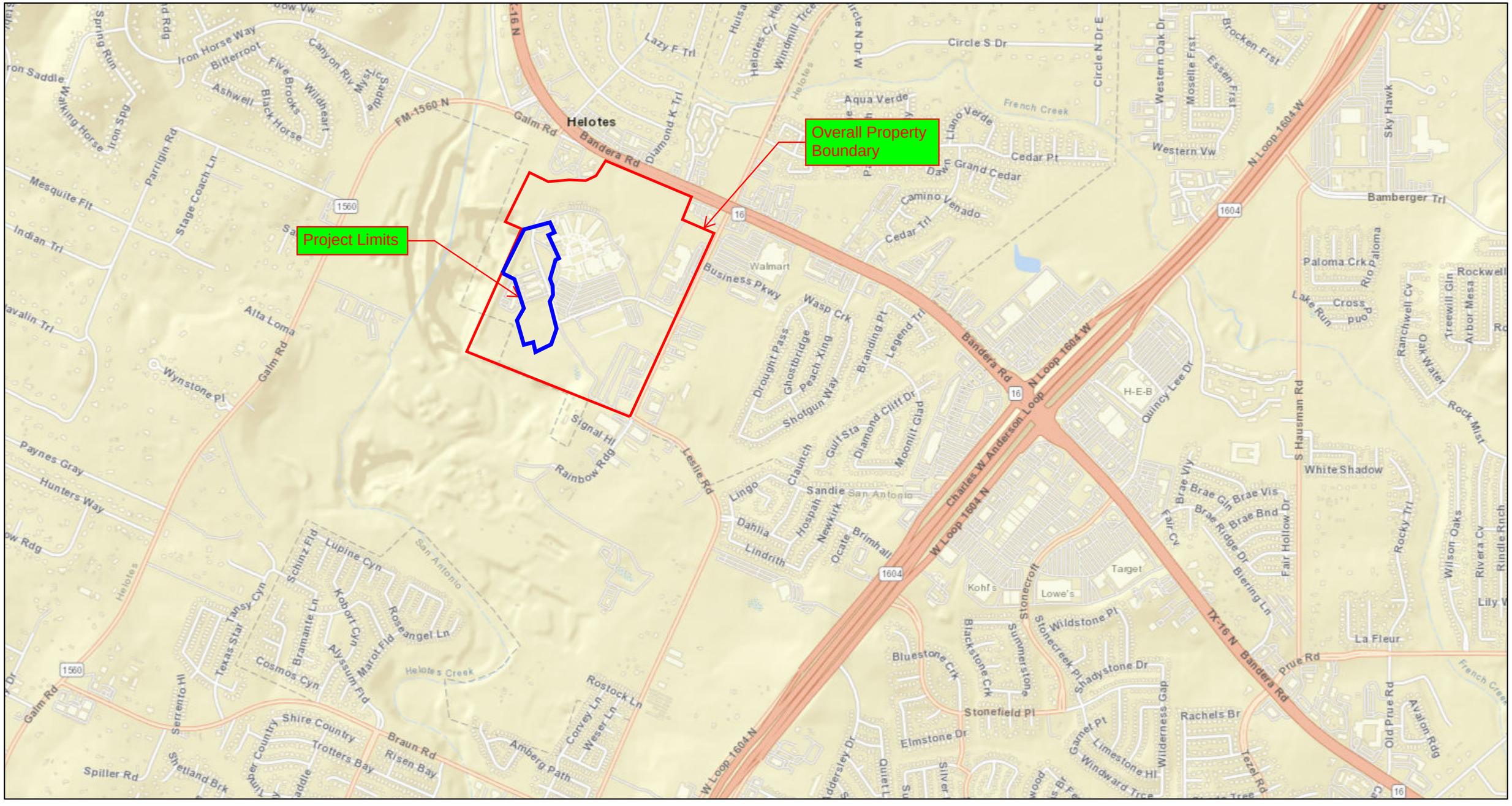
21. ☒ No person shall commence any regulated activity until the Edwards Aquifer Protection Plan(s) for the activity has been filed with and approved by the Executive Director.

Attachment A

Road & Aerial Maps

Road Map

O'Connor High School – Organized Sewage Collection System (OSCS) Modification-KCI Job # 762301481



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0 0.2 0.4 0.8 mi

0 0.3 0.6 1.2 km

BCAD, Esri, HERE, Garmin, INCREMENT P, NGA, USGS

USGS
2021 USGS

GRAPHIC SCALE

200 0 100 200 400

(IN FEET)
1 INCH = 200 FT

LEGEND:

▬ ▪ ▪ ▬	OVERALL PROPERTY BOUNDARY
▬ ▬ ▬ ▬	PROJECT LIMITS
▬▬▬▬	LIMITS OF DRAINAGE AREAS ANALYZED

REV	DATE	DESCRIPTION

KCI TECHNOLOGIES, INC.
11550 IH 10 WEST, SUITE 395
SAN ANTONIO, TEXAS 78230-1037
PHONE: (210) 641-9999
FAX: (210) 641-6440
REGISTRATION #F-10573 / #101943-65

O'CONNOR HIGH SCHOOL AGRICULTURAL AREA
12221 LESLIE RD,
HELOTES, TX 78023
SITE LOCATION

DRAFTING:	JKZ	CHECK:	PAM
DESIGN:	JKZ	CHECK:	PAM
SUBMITTAL PHASE:			
DATE:			06/2023
KCI JOB #:			762301481

SHEET:
EXH A

O'Connor High School – Organized Sewage Collection System (OSCS) Modification-KCI Job # 762301481

Date: Feb 25, 2024, 9:03pm User ID: John.Zalfow File: L:\develop\Proj_2023_KCI\762301481_NISD_ATAS-O'Connor_HS_Design\CAD\Exhibits\EX A – Location Map.dwg

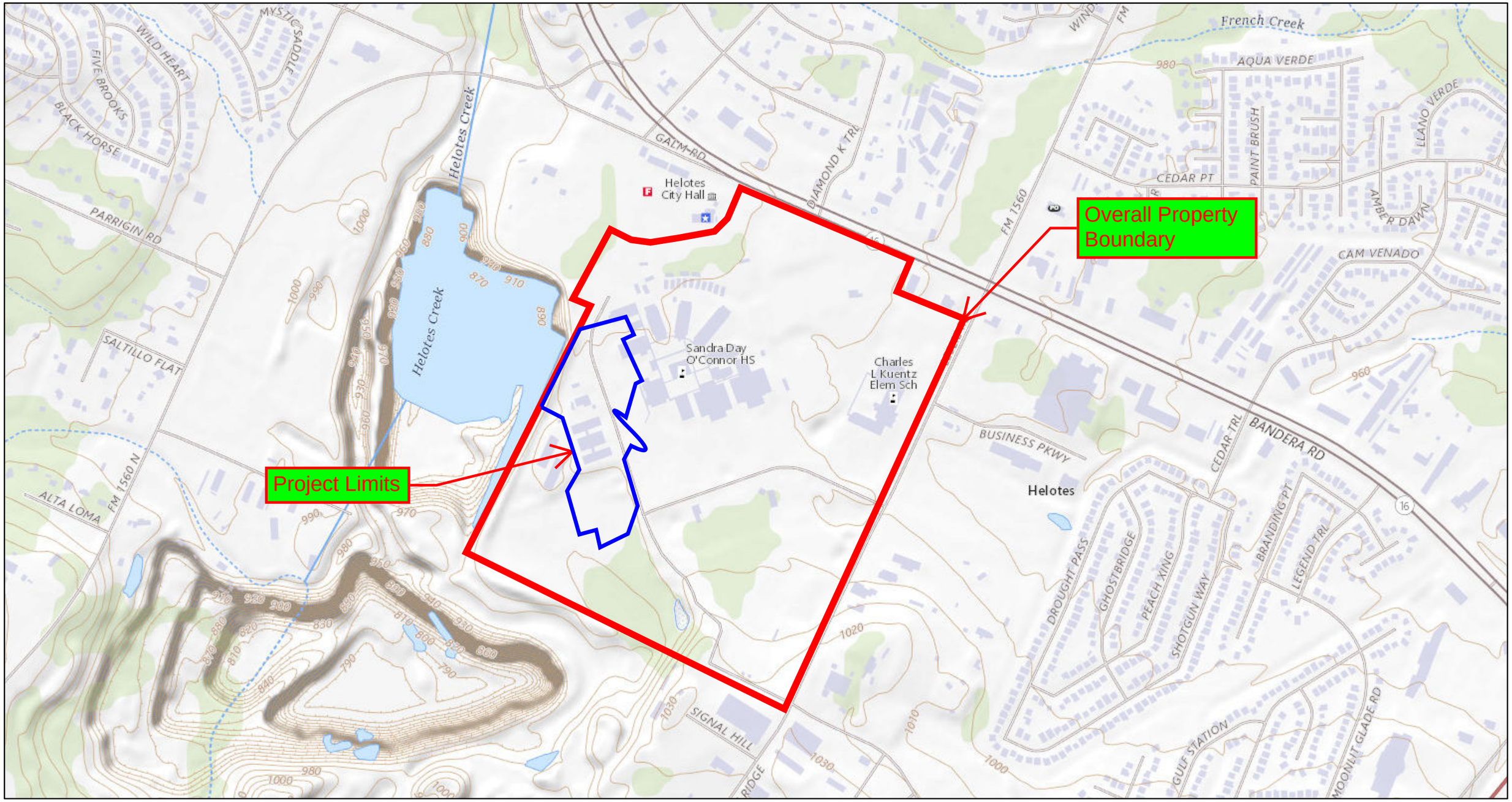
THIS DOCUMENT HAS BEEN PRODUCED FROM MATERIAL THAT WAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED. RELY ONLY ON FINAL HARD COPY MATERIALS BEARING THE CONSULTANT'S ORIGINAL SIGNATURE AND SEAL.

Attachment B

USGS & Edwards Recharge Zone Maps

USGS Map

O'Connor High School – Organized Sewage Collection System (OSCS) Modification-KCI Job # 762301481



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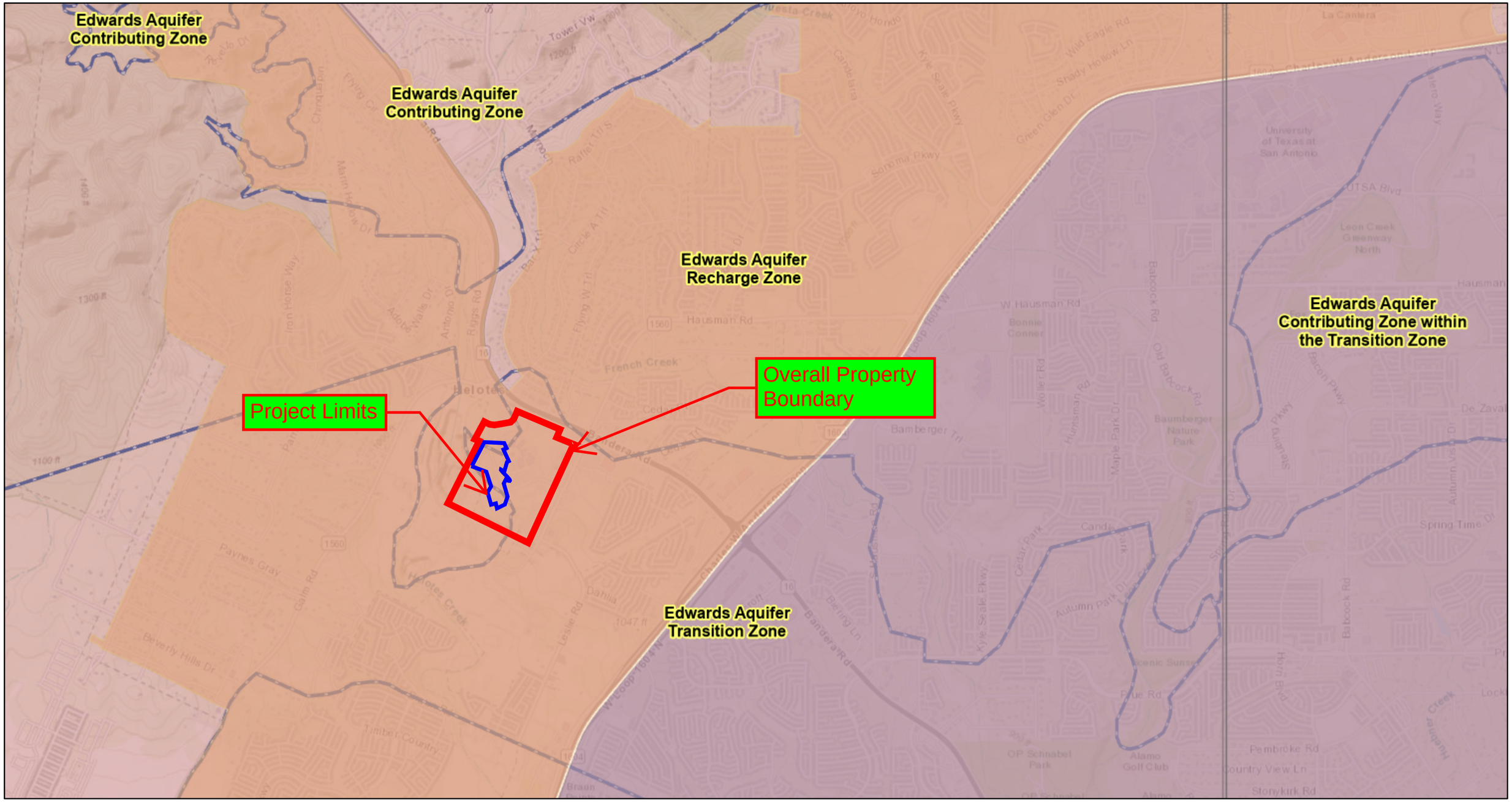
0 0.15 0.3 0.6 km

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

USGS
2021 USGS

Edwards Aquifer Map

O'Connor High School – Organized Sewage Collection System (OSCS) Modification-KCI Job # 762301481



9/21/2023, 8:23:39 AM

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0 0.4 0.8 1.6 mi

0 0.5 1 2 km

- Edwards Aquifer Label
- Edwards Aquifer Boundary
- Edwards Aquifer Boundary central line
- City/Place
- Groundwater Conservation Districts
- Edwards Aquifer Authority
- Trinity Glen Rose GCD
- TX Counties
- 7.5 Minute Quad Grid
- TCEQ_EDWARDS_OFFICIAL_MAPS

TCEQ, BCAD, Texas Parks & Wildlife, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, EPA, USDA

Web AppBuilder for ArcGIS

BCAD, Texas Parks & Wildlife, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, EPA, USDA | TCEQ |

Attachment C

Project Description

Project Overview

The Project is located inside O'Connor High School at 12221 Leslie Rd, Helotes, TX 78023 (Southwest corner of High School Property which is located at southwest corner of intersection of Bandera Road and Leslie Road), refer to the enclosed aerial photo. The project is within the City limits of Helotes with the legal description CB 4480B BLK 1 LOT 4 EXC NE IRR 5FT HELOTES AREA HIGH SCHOOL, Bexar County, Texas. The site is entirely located within Leon Creek Watershed. A portion of this tract is within the 100-year FEMA floodplain, Firm Panel 48029C0220G effective September 29, 2010, as shown in Exhibits A of this report.

Proposed Sewer Line

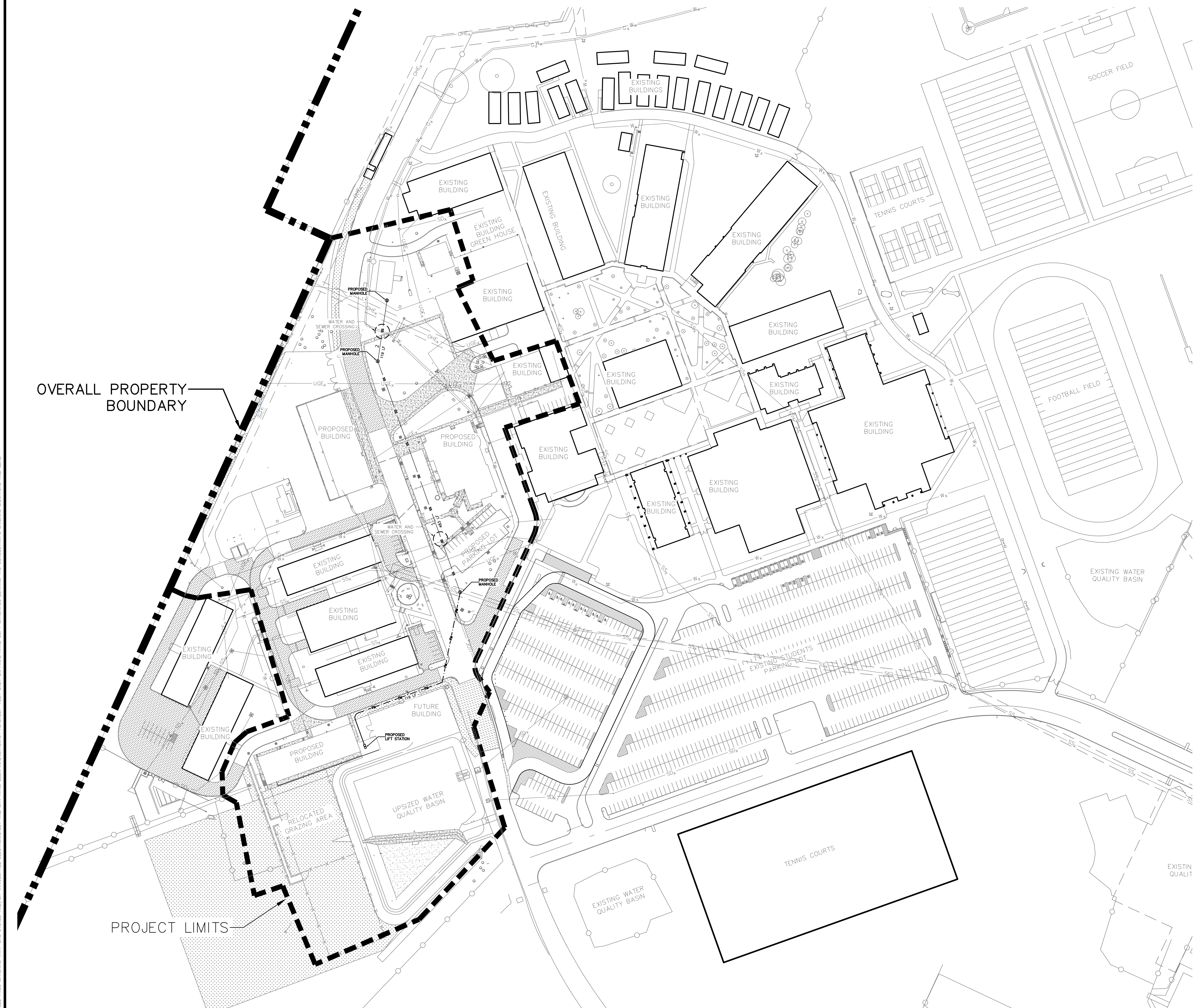
The addition of new parking lots, a food science building, a barn, a greenhouse, a storage, and a shop building will require extension of sewer line and laterals to these proposed new buildings. The total length of the proposed 8-inch PVC SDR 26 sewer gravity line is 611.48 linear feet. 3 new manholes will be added to the site with one intercepting the existing SCS as shown in enclosed Utility and Drainage Plan North (C5.02) and Utility and Drainage Plan Mid (C5.03) as well as SS-1 (Proposed Sanitary Sewer Plan and Profile). This modification addresses one minor change to the sewer main and laterals previously approved on March 1, 2024, to raise the entire main 4" due to existing field conditions once the tie in location was excavated.

Proposed Lift Station and Force Main

The addition of the 436.14 LF of 3" SDR 26 force main and a duplex lift station to capture sanitary waste from Barn T and a future barn and discharge the sanitary waste to the previously approved SCS sanitary sewer main. Refer to the previously approved SCS sanitary sewer main as shown in enclosed Utility and Drainage Plan Mid (C5.03) and SS-3 (Proposed Sanitary Sewer Force Main Plan and Profile). This modification addresses the addition of the lift station and force main (as designed by DBR with force main routing shown by KCI) to the previously approved on March 1, 2024 OSCS and WPAP Modifications.

Attachment D

Site Plan with Sanitary Sewer



GRAPHIC SCALE

(IN FEET)
1 INCH = 100 FT

LEGEND

- OVERALL PROPERTY BOUNDARY
- PROJECT LIMITS
- WATER AND SEWER CROSSING

O'Connor HS Sewer Line

Line	LF	Description
1	493.00	8" Gravity Main PVC SDR 26
2	119	8" Gravity Main PVC SDR 26
3	436.5	3" Force Main PVC SDR 26
Total 8" Main	**1048.50**	

REV	DATE	DESCRIPTION

KCI TECHNOLOGIES, INC.
11550 IH 10 WEST, SUITE 395
SAN ANTONIO, TEXAS 78230-1037
PHONE: (210) 641-9999
FAX: (210) 641-6440
REGISTRATION #F-10573 / #101943-65

O'CONNOR HIGH SCHOOL AGRICULTURAL AREA
12221 LESLIE RD,
HELOTES, TX 78023
SITE PLAN WITH SANITARY SEWER

DRAFTING:	JKZ	CHECK:	PAM
DESIGN:	JKZ	CHECK:	PAM
SUBMITTAL PHASE:			
DATE:	06/2023		
KCI JOB #:	762301481		

SHEET:
EXH D

Geologic Assessment (TCEQ-0585)

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: Richard V. Klar, P.G. Telephone: 210-699-9090

Date: October 25, 2023 Fax: 210-699-6426

Representing: **Raba Kistner, Inc.**, TBPG Firm #50220 / TBPE Firm #3257 for KCI Technologies, Inc. on Behalf of Northside Independent School District (Name of Company and TBPG or TBPE registration number)

Signature of Geologist: _____ ***10/26/2023***

STATE OF TEXAS
RICHARD V. KLAR
GEOLOGY
259
LICENSED
PROFESSIONAL GEOSCIENTIST

Regulated Entity Name: O'Connor High School Water Pollution Abatement Plan (WPAP) Modification

Project Information

1. Date(s) of Geologic Assessment was performed: May 18, 2023
2. Type of Project:

☒ WPAP ☐ AST
☒ SCS ☐ UST

3. Location of Project:

   ☒ Recharge Zone
   ☒ Transition Zone
   ☐ Contributing Zone within the Transition Zone

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

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

Table 1 - Soil Units, Infiltration Characteristics and Thickness

Soil Name	Group*	Thickness (feet)
Crawford Clay, 0 to 1 percent slopes (Ca)	D	~1 to 3
Crawford and Bexar stony soils, 0 to 5 percent slopes (Cb)	D	~1 to 3
Lewisville silty clay, 0 to 1 percent slopes (LvA)	B	~4+
Lewisville silty clay, 1 to 3 percent slopes (LvB)	B	~2 to 3
Patrick soils, 3 to 5 percent slopes (PaC)	B	~1 to 1.5

**Soil Group Definitions (Abbreviated)*

A. Soils having a high infiltration rate when thoroughly wetted.
B. Soils having a moderate infiltration rate when thoroughly wetted.
C. Soils having a slow infiltration rate when thoroughly wetted.
D. Soils having a very slow infiltration rate when thoroughly wetted

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

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

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

   Applicant's Site Plan Scale: 1" = 80'
   Project Geologic Map Scale: 1" = 80'
   Site Soils Map Scale (if more than 1 soil type): 1" = 200'

9. Method of collecting positional data:

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

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

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

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

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

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

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

    ☒ There are 15 (#) test holes present on the project site and the locations are shown and labeled. (Check all of the following that apply.)
    - ☒ The test holes are not in use and have been properly abandoned.
    - ☐ The well is not in use and will be properly abandoned.
    - ☐ The well is in use and complies with 16 TAC Chapter 76.

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

Administrative Information

☒ 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.

ATTACHMENTS

ATTACHMENT A

GEOLOGIC ASSESSMENT TABLE
(TCEQ-0585-TABLE)

COMMENTS TO GEOLOGIC ASSESSMENT TABLE

SOIL PROFILE

PROJECT SOILS MAP

GEOLOGIC ASSESSMENT TABLE

PROJECT NAME: ***O' Connor High School Water Pollution Abatement Plan (WPAP) Modification***
Helotes, Bexar County, Texas *(**RKI** Project No. ASF23-091-00)*

LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						<40	>40	<1.6	>1.6	
S-1	29°33'33.77"N	98°41'15.54"W	MB (SS)	30	Qt/Kep	3,450.0	3.0-4.0	8.0-10.0					X	8	38	✓		✓		Hilltop
S-2	29°33'29.28"N	98°41'18.05"W	MB (SS)	30	Kep	222.0	3.0-4.0	8.0-10.0					X	8	38	✓		✓		Hilltop
S-3	29°33'34.40"N	98°41'17.62"W	MB (W)	30	Qt/Kep	2,655.0	2.0	3.0-4.0					X	6	36	✓		✓		Hilltop
S-4	29°33'34.52"N	98°41'16.40"W	MB (E)	30	Qt/Kep	3,394.0	2.0	2.0-3.0					X	6	36	✓		✓		Hilltop
S-5	29°33'32.66"N	98°41'20.17"W	MB (G)	30	Qt/Kep	2,208.0	2.0	3.0-4.0					X	6	36	✓		✓		Hilltop
S-6	29°33'37.98"N	98°41'18.71"W	MB (SD-A1)	30	Qt/Kep	830.0	2.0-3.0	3.0-4.0					X	6	36	✓		✓		Hilltop
S-7	29°33'27.90"N	98°41'14.84"W	MB (SD-A2)	30	Qt/Kep	1,146.0	2.0-3.0	3.0-4.0					X	6	36	✓		✓		Hilltop
S-8	29°33'25.94"N	98°41'13.79"W	MB (SD-A3)	30	Qt/Kep	681.0	2.0-3.0	3.0-4.0					X	6	36	✓		✓		Hilltop
S-9	29°33'26.38"N	98°41'17.33"W	MB (WQ Pond A)	30	Qt/Kep	174.0	75.0	8.0					X	8	38	✓			✓	Hilltop
S-10	29°33'27.40"N	98°41'22.13"W	MB (SD-B1)	30	Qt	670.0	2.0-3.0	3.0-4.0					X	6	36	✓		✓		Hilltop
S-11	29°33'26.11"N	98°41'24.36"W	MB (WQ Pond B)	30	Qt	70.0	48.0	4.0					X	8	38	✓			✓	Hilltop
S-12	29°33'27.17"N	98°41'20.02"W	MB (test hole B-1)	30	Kep	0.5	0.5	38.7					Z	6	36	✓		✓		Hilltop
S-13	29°33'26.75"N	98°41'21.81"W	MB (test hole B-2)	30	Kep	0.5	0.5	28.7					Z	6	36	✓		✓		Hilltop
S-14	29°33'32.38"N	98°41'19.75"W	MB (test hole B-3)	30	Kep	0.5	0.5	38.6					Z	6	36	✓		✓		Hilltop
S-15	29°33'33.82"N	98°41'20.40"W	MB (test hole B-4)	30	Kep	0.5	0.5	38.6					Z	6	36	✓		✓		Hilltop
S-16	29°33'36.66"N	98°41'18.07"W	MB (test hole B-5)	30	Kep	0.5	0.5	38.6					Z	6	36	✓		✓		Hilltop
S-17	29°33'33.43"N	98°41'17.11"W	MB (test hole B-6)	30	Kep	0.5	0.5	38.6					Z	6	36	✓		✓		Hilltop
S-18	29°33'32.25"N	98°41'16.64"W	MB (test hole B-7)	30	Kep	0.5	0.5	39.0					Z	6	36	✓		✓		Hilltop
S-19	29°33'33.15"N	98°41'17.99"W	MB (test hole B-8)	30	Kep	0.5	0.5	38.6					Z	6	36	✓		✓		Hilltop
S-20	29°33'32.12"N	98°41'17.31"W	MB (test hole B-9)	30	Kep	0.5	0.5	38.6					Z	6	36	✓		✓		Hilltop
S-21	29°33'30.99"N	98°41'22.89"W	MB (test hole P-1)	30	Kep	0.5	0.5	10.0					Z	6	36	✓		✓		Hilltop
S-22	29°33'34.29"N	98°41'21.18"W	MB (test hole P-2)	30	Kep	0.5	0.5	9.3					Z	6	36	✓		✓		Hilltop
S-23	29°33'33.96"N	98°41'18.30"W	MB (test hole P-3)	30	Kep	0.5	0.5	8.5					Z	6	36	✓		✓		Hilltop
S-24	29°33'31.10"N	98°41'17.01"W	MB (test hole P-4)	30	Kep	0.5	0.5	8.5					Z	6	36	✓		✓		Hilltop
S-25	29°33'26.52"N	98°41'20.54"W	MB (test hole RW-1)	30	Kep	0.5	0.5	19.4					Z	6	36	✓		✓		Hilltop
S-26	29°33'27.23"N	98°41'18.29"W	MB (test hole RW-2)	30	Kep	0.5	0.5	19.5					Z	6	36	✓		✓		Hilltop

*** DATUM:** ***NAD83***

Formations: Qt = Quaternary terrace deposits; Kep = Person Formation
Features: SS = sanitary sewer line; W = potable water line; E = underground electric; G = natural gas; SD = storm drain system; WQ Pond = water quality pond.
Note: Designations to distinguish the several storm drains and water quality ponds are for this reporting discussion purposes.

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

	8A INFILLING
N	None, exposed bedrock
C	Coarse - cobbles, breakdown, sand, gravel
O	Loose or soft mud or soil, organics, leaves, sticks, dark colors
F	Fines, compacted clay-rich sediment, soil profile, gray or red colors
V	Vegetation. Give details in narrative description
FS	Flowstone, cements, cave deposits
X	Other materials: ***Granular bedding materials for utility lines (Features S-1 through S-5), sand filter media with impermeable liner (Features S-9 and S-11), and cuttings/bentonite (Features S-12 through S-26).***

12 TOPOGRAPHY
Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

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

STATE OF TEXAS
RICHARD V. KLAR
GEOLOGY
259
LICENSED
PROFESSIONAL GEOSCIENTIST

Date: ***October 26, 2023***

Sheet 1 of 1

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

COMMENTS TO GEOLOGIC ASSESSMENT TABLE
O' Connor High School Water Pollution Abatement Plan (WPAP) Modification
Helotes, Bexar County, Texas

The locations of the following features are indicated on the ***Project Geologic Map*** provided as ***Attachment D*** of this report. The following utility trenches (i.e., sanitary sewer, potable water, electric, and natural gas), in addition to an extensive storm drain system were identified within the WPAP assessment area and plotted based on field observations of manholes, valves, meters and fire hydrants, in addition to storm drain inlets and water quality basins. The utility locations and storm drain segments were also taken from the Overall Utility and Drainage Exhibit (i.e., PDF) provided by the project engineer, KCI Technologies, Inc. (KCI, 2023).

Manmade Features in Bedrock (MB)

Feature S-1

Feature S-1 consists of a trench for an existing 6 to 8-inch sanitary sewer line owned by San Antonio Water System (SAWS). The location of this utility was identified based on review of the referenced utility exhibit (KCI, 2023), in addition to field observations of manholes and cleanouts. On the basis of our observations and available utility information, it is inferred that the trench hosting the utility line is approximately 3-4 feet wide and installed to approximately 8-10 feet terminating in the underlying Quaternary terrace deposits (Qt) and Person Formation (Kep). The combined length of the utility trench segment within the Project area is estimated on the order of 3,450 linear feet.

Feature S-2

Feature S-2 consists of a trench for an existing sanitary sewer line. The location of this utility was based on review of the referenced utility exhibit (KCI, 2023). On the basis of available utility information, it is inferred that the trench hosting the utility line is approximately 3-4 feet wide and installed to approximately 8-10 feet terminating in the underlying Person Formation (Kep). The length of the utility trench within the Project area is estimated on the order of 222 linear feet.

Feature S-3

Feature S-3 consists of trenches for existing 6- and 8-inch polyvinyl chloride (PVC) potable water lines owned by SAWS. The utility trenches were plotted based on review of the referenced utility exhibit (KCI, 2023) and field observations of fire hydrants and water meters near Buildings D and P. On the basis of our observations, it is inferred that the trenches hosting the utility lines are approximately 2-feet wide and installed 3-4 feet or more, terminating in the Qt and Kep. The length of the combined utility trenches within the project area is estimated on the order of 2,655 linear feet.

Feature S-4

Feature S-4 consists of trenches for electric lines owned by City Public Service (CPS) Energy. The utility trenches were identified based on observations of ground-mounted transformers during reconnaissance activities and review of the referenced utility exhibit (KCI, 2023). On the basis of our observations and available utility information, it is inferred that the trenches hosting the utility lines are approximately 2 feet wide and installed to approximately 2-3 feet, terminating in the underlying Qt and Kep. The trenches extend: (i) east from the Central Plant (Building D) to the agriculture barns; and (ii) north and south Buildings F and C, respectively. The length of the combined utility trenches within the Project area is estimated on the order of 3,394 linear feet.

Feature S-5

Feature S-5 consists of trenches for 1-1/4- and 4-inch natural gas lines owned by CPS Energy. The location of these utilities were based on observations of gas meters during reconnaissance activities and review of the referenced utility exhibit (KCI, 2023). On the basis of our observations and available utility information, it is inferred that the trenches hosting the utility lines are approximately 2 feet wide and installed to approximately 3-4 feet, terminating in the underlying Kep. The trenches extend from Building D to the west and follows main campus roadway to the agricultural barns. The combined length of the utility trenches within the Project area is estimated on the order of 2,208 linear feet.

Features S-6 through S-11

Features S-6, S-7. S-8, and S-10 consist of trenches hosting individual segments of a storm drain system that services the O' Connor High School campus. This drainage system discharges to water quality ponds, which ultimately discharge to Helotes Creek that is located approximately 1,230 to the southwest of the Project area. These trenches are inferred to be approximately 3-4 feet in depth, terminating into the underlying Qt and Kep.

- ***Feature S-6*** consists of an 18 and 24 inch storm drain reinforced concrete pipes (RCP) in various locations that extend from Building F and follow drainage swales south to a 24-inch corrugated metal pipe and daylights to an open drainage field located north of Water Quality Pond A (***Feature S-8***). The length of the utility trench segment within the Project area is estimated on the order of 830 linear feet.
- ***Feature S-7*** consists of a storm drain pipe mapped from a manhole near Building L, extending through the parking lots to the southwest to a diversion structure and into a 48-inch inlet pipe to Water Quality Pond A (***Feature S-9***). The length of the utility trench segment within the Project area is estimated on the order of 1,146 linear feet.
- ***Feature S-8*** consists of a storm drain pipe mapped from a grassy area at the south edge of the student parking lot that extends to the southwest manhole in the student parking lot that further extends west to an outlet that opens to a drainage field south of the Water Quality Pond A (***Feature S-9***). The length of the utility trench within the Project area is estimated on the order of 681 linear feet.
- ***Feature S-10*** consists of a 21-inch storm drain pipe mapped from manholes surrounding the agricultural barns, which are located near the southwest corner of the assessment area. The stormwater drains to Water Quality Pond B (***Feature S-11***). The length of the utility trench segment within the Project area is estimated on the order of 670 linear feet.

Features S-9 and S-11 consist of stormwater basins (i.e., water quality ponds). After treatment through sand filter media via either Water Quality Pond A or Water Quality Pond B, stormwater is ultimately discharged to Helotes Creek, which is located approximately 1,230 feet to the southwest.

- ***Feature S-9*** consists of a sedimentation and filtration pond system (Pond A). The dimensions for this feature are approximately 174 feet long and 75 feet wide. The floor of the basin is approximately 8 feet below the top of the concrete headwall through which the detention pond connects to the concrete-lined stormwater collection system. This stormwater basin is underlain by the Kep.


- ***Feature S-11*** consists of a sand filtration basin and detention pond (Pond B). The dimensions for this feature are approximately 70 feet long and 48 feet wide. The floor of the basin is approximately 4 feet below the top of the concrete headwall through which the detention pond connects to the concrete lined stormwater collection system. This stormwater basin is underlain by the Qt.

<u>Features S-12 through S-26</u>

Features S-12 through S-26 consist of test holes installed in June 2023 to support various proposed improvements within the WPAP assessment area at O' Connor High School (i.e., additional buildings, paved areas, and a retaining wall) by **Raba Kistner, Inc.** *(i.e., Project No. ASA23-041-00)*. A total of fifteen borings were drilled using a straight flight auger and air rotary methods to depths ranging from approximately 8-1/2 to 39 feet below existing ground surface. In general, the majority of the borings encountered a surficial layer of dark brown clay approximately 1.25 to 4.5 feet in depth underlain by either a reddish-tan sandy silt, silty sand, or calcareous clay stratum to depths up to 16.5 feet. These strata are underlain by hard tan limestone comprising the top of the Limestone (Person Formation). Fill material consisting of brown clayey sand was encountered to depths ranging from 6 to 19.4 feet at several borings near the southwest portion of the WPAP assessment area, west and south of Buildings P and N, respectively. Shallow groundwater was not observed during drilling operations.

Based on the referenced geotechnical borings logs and observations in conjunction with field reconnaissance activities, the borings were effectively plugged and abandoned following completion of drilling activities using granular bentonite.

SOIL PROFILE
O' Connor High School Water Pollution Abatement Plan (WPAP) Modification
Helotes, Bexar County, Texas

SOIL SERIES	THICKNESS ON SITE	DESCRIPTION
Crawford	**~1 to 3 feet**	***Crawford clay, 0 to 1 percent slopes (Ca):*** Crawford soil patches are scattered throughout the hard limestone area, mostly in the uplands with few in the valleys. The surface layer consists of dark brown or dark reddish-brown noncalcareous clay and is typically 8-10 inches thick. The subsurface layer is also noncalcareous and is redder than the surface layer. Limestone typically occurs at a depth of 24-36 inches.
	~1 to 3 feet	***Crawford and Bexar stony soils, 0 to 5 percent slopes (Cb):*** These soils occur as large areas and form a nearly continuous belt extending to the west from the northeast portion of Bexar County to south of Helotes. Crawford Soils comprise approximately 51% of the series. The surface layer of Crawford soils is comprised of dark gray to dark reddish-brown, non-calcareous clay and is typically 8-9 inches thick. The subsoil contains chert fragments and limestone flags. Hard limestone below depth of 24-36 inches. Bexar soils comprise approximately 36% of the series. The surface layer is comprised of cherty clay loam and is on the order of 14-22 inches in thickness. The subsoil is cherty clay and is approximately 6-14 inches thick.
Lewisville	**~4+ feet**	***Lewisville silty clay, 0 to 1 percent slopes (LvA):*** These soils occur as nearly level, broad terraces along rivers and creeks. The surface layer is approximately 24 inches thick and comprised of silty clay or light clay. The subsurface layer is a very firm but crumbly when moist brown silty clay, which is approximately 24 inches thick. This layer has a few worm casts and a few hard and soft lime concretions.
	~2 to 3 feet	***Lewisville silty clay, 1 to 3 percent slopes (LvB):*** Lewisville soils occur along long narrow sloping areas that separate nearly level terrace from soils on the uplands and also occurs on slopes along drainageways. The surface layer consists of dark grayish brown clay and is typically 20 inches thick. The subsoil consists of firm but crumbly limy brown clay and is approximately 17 inches thick.
Patrick	**~1 to 1.5 feet**	***Patrick soils, 3 to 5 percent slopes (PaC):*** Patrick soils occupy escarpments between terraces, above floodplains of streams that drain the limestone prairies. The slopes are moderate and complex. The surface layer is a grayish-brown to dark brown, calcareous clay loam approximately 12 inches thick. The subsurface layer is a brown, calcareous, granular clay loam approximately 5 inches thick. The layers are friable when moist.

The preceding table was prepared based on *Soil Survey of Bexar County, Texas (1962, reissued June 1991)* in addition to field observations. As presented on the attached ***Project Soils Map***, native soils mapped from east to west at the Project are the Lewisville silty clay, 1-3% slopes (LvB), Crawford clay (Ca) soils, Crawford and Bexar stony soils (Cb), Patrick soils, 3 to 5 percent slopes (PaC), and Lewisville silty clay, 0 to 1% slopes (LvA). The soil types are not readily observable owing to existing landscaping, pavements, hardscapes, and buildings that comprise the O' Connor High School. Below is a brief description of the mapped soil units within the WPAP assessment area.

- LvB soils are mapped at the southeast portion of the assessment area along the O Connor High school roadway entrance, which is located south of the band parade ground. This soil unit is associated with older terrace deposits along primary drainage features (i.e., river and creeks) in Bexar County. Lewisville soils are characterized as having a moderately slow permeability ranging on the order of 1.0 to 2.0 inches per hour.

- Ca soils are mapped within the main portion of the high school campus extending from the north portion of the assessment to the southwest in the student parking lot. These soils are naturally well drained, water intake is slow, and water erosion is a hazard. In addition, Ca soils have a very slow permeability, ranging on the order of 0.2 to 0.5 inches per hour. This soil unit is also described as having a high shrink swell potential.

- Cb soils are mapped west of Ca soils within the assessment area that follows the main campus roadway. These soils are weakly-developed and relatively thin, occurring over weathered limestone units of the Person Formation (Kep). These soils have a measured permeability of 1.0 to 1.5 in./hr. and are described as slow. The Crawford Series is further described as having a high shrink-swell potential.

- PaC soils are mapped along Buildings N, O, and P. The parent material is calcareous clay loam. A typical vertical profile consists of a thin surface soil layer ranging from a veneer to a few feet in thickness, typically consisting of gravelly clay loam underlain at shallow depths by hard limestone. Patrick soils are characterized as having a moderate infiltration rate with permeability on the order of 2.0 to 3.0+ in./hr. These soils are more susceptible to erosion.

- LvA soils are mapped at the southwest portion of the WPAP assessment area. LvA soils are typically associated with terrace deposits along as rivers and creek. These soils are characterized as having slow to moderate permeability and infiltration capacity on the order of 1 to 1.2 inches per hour.

As native soils were not directly observable owing to existing improvements, the geotechnical report prepared by **Raba Kistner, Inc.** (2023) was reviewed to evaluate soil and rock conditions, which were generally consistent with the soil types and conditions described above.

10/26/23

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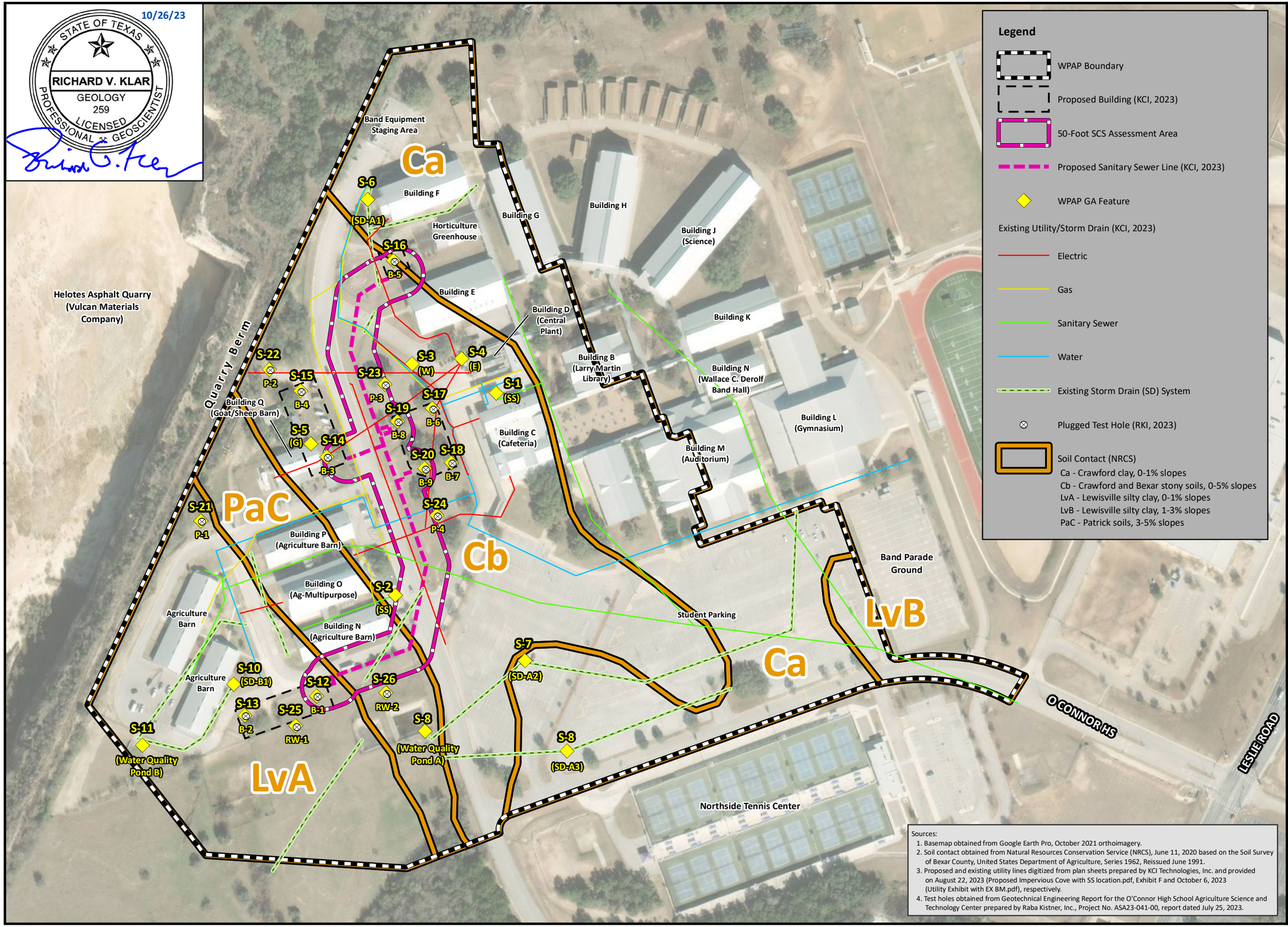

Legend

- WPAP Boundary
- Proposed Building (KCI, 2023)
- 50-Foot SCS Assessment Area
- Proposed Sanitary Sewer Line (KCI, 2023)
- WPAP GA Feature

Existing Utility/Storm Drain (KCI, 2023)

- Electric
- Gas
- Sanitary Sewer
- Water
- Existing Storm Drain (SD) System
- Plugged Test Hole (RKI, 2023)

Soil Contact (NRCS)

- Ca - Crawford clay, 0-1% slopes
- Cb - Crawford and Bexar stony soils, 0-5% slopes
- LvA - Lewisville silty clay, 0-1% slopes
- LvB - Lewisville silty clay, 1-3% slopes
- PaC - Patrick soils, 3-5% slopes

Sources:
1. Basemap obtained from Google Earth Pro, October 2021 orthoimagery.
2. Soil contact obtained from Natural Resources Conservation Service (NRCS), June 11, 2020 based on the Soil Survey of Bexar County, United States Department of Agriculture, Series 1962, Reissued June 1991.
3. Proposed and existing utility lines digitized from plan sheets prepared by KCI Technologies, Inc. and provided on August 22, 2023 (Proposed Impervious Cove with SS location.pdf, Exhibit F and October 6, 2023 (Utility Exhibit with EX BM.pdf), respectively.
4. Test holes obtained from Geotechnical Engineering Report for the O'Connor High School Agriculture Science and Technology Center prepared by Raba Kistner, Inc., Project No. ASA23-041-00, report dated July 25, 2023.

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PROJECT SOILS MAP

O' CONNOR HIGH SCHOOL
WATER POLLUTION ABATEMENT PLAN (WPAP) MODIFICATION
HELOTES, BEXAR COUNTY, TEXAS

REVISIONS:

No.	DATE	DESCRIPTION

PROJECT No.:	ASF23-091-00
ISSUE DATE:	10/26/2023
DRAWN BY:	LAW
CHECKED BY:	RAS
REVIEWED BY:	RVK

N W E S

0 100 200 FEET

1 INCH = 200 FEET

NOTE: This Drawing is Provided for Illustration Only, May Not be to Scale and is Not Suitable for Design or Construction Purposes

ATTACHMENT B

STRATIGRAPHIC COLUMN

STRATIGRAPHIC COLUMN
O' Connor High School Water Pollution Abatement Plan (WPAP) Modification
Helotes, Bexar County, Texas

STRATIGRAPHIC FORMATION	THICKNESS	DESCRIPTION
Fluviatile Terrace Deposits (Qt)	~4–8 feet	Unit consists of sand, silt, and clay sediments and gravels that contain limestone, dolomite, and chert. ***Not exposed in the WPAP assessment area owing to soil cover.***
Del Rio Clay (Kdr)	40-50 feet	Unit consists of blocky gray calcareous clay that weathers light gray to yellowish gray. Identified in the field by the presence of *Ilymatogyra arietina.* ***Not exposed in the WPAP assessment area owing to soil cover.***
Edwards Aquifer **Georgetown Formation (Kgt)**	<10 feet	Unit consists of gray to light tan marly limestone. Identified in the field by the presence of *Waconella wacoensis.* ***Not locally present in the WPAP assessment area.***
Edwards Limestone (Ked) **Person Formation (Kep)**	180-224 feet	
Cyclic and Marine Members, undivided	80-100 feet	Unit consists of massive mudstone to packstone; *miliolid* grainstone; and chert. Identified in the field by cycles of massive beds to relatively thin beds. ***The Kep is inferred to underlie the majority of the WPAP assessment area. Isolated exposures observed along the north side of Building Q. Kep was reported in the geotechnical boring logs (RKI, 2023)***
Leached and Collapsed Members, undivided	80-100 feet	Unit consists of crystalline limestone, mudstone to grainstone and chert. Identified in the field by bioturbated iron-stained beds separated by massive limestone beds. ***Reported to underlie the WPAP assessment area at depth.***
Regional Dense Member	20-24 feet	Unit consists of dense, argillaceous mudstone. Identified in the field by wispy iron-oxide stains. ***Reported to underlie the WPAP assessment area at depth.***

Note: Stratigraphic Column adapted from Collins (2000).

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ATTACHMENT C

NARRATIVE OF PROJECT SPECIFIC GEOLOGY

SITE GEOLOGY NARRATIVE
O' Connor High School Water Pollution Abatement Plan (WPAP) Modification
Helotes, Bexar County, Texas

Introduction

The following is a project-specific discussion of existing geological conditions and potential recharge features for the Edwards Aquifer identified within the west-central portion of the Sandra Day O' Connor High School campus that will host planned improvements (hereinafter referred to as Project or WPAP assessment area). The improvements will include a new greenhouse, shop, administrative and food science building, and animal pens. New pavement areas are proposed around the new shop and a retaining wall is proposed southeast of the new proposed animal pens. In addition, vegetation filter strip overlay in areas and the expansion of the student parking lot water quality basin is proposed for drainage improvements across the west side of the campus. This assessment was performed by **Raba Kistner, Inc. (RKI)** for KCI Technologies, Inc. (CLIENT) on behalf of Northside Independent School District (NISD) pursuant to applicable Edwards Aquifer Protection Program Rules as specified in *Title 30 of the Texas Administrative Code, Section 213 (30 TAC §213*, *effective April 24, 2008).*

This assessment report is in the format required by the Texas Commission on Environmental Quality (TCEQ) for the Geologic Assessment portion of the Water Pollution Abatement Plan and Sewage Collection System (SCS) plan submittal and was prepared in accordance with the revised *Instructions to Geologists for Geologic Assessments on the Edwards Aquifer Recharge/Transition Zones (TCEQ-0585)*, which are applicable to submittals received by the TCEQ after October 1, 2004. This geologic assessment report documents conditions observed by **RKI** within the Project boundaries on October 9, 2023. As further discussed herein, no naturally-occurring geologic features were identified as a result of assessment activities.

Project Description

Project Location. The Project comprises approximately 38.8 acres of land within the west-central portion of the existing NISD Sandra Day O'Connor High School campus, which is locally addressed at 12221 Leslie Road in Helotes (Bexar County). In accordance with TCEQ requirements, the full extent of the Project and, including the proposed SCS alignment and surrounding 50-foot buffer zone, was fully assessed in conjunction with Geologic Assessment activities. The Project area is fully developed and currently hosts existing classroom and agricultural buildings, asphalt parking lots, roadways, hardscape and landscaping improvements, in addition to existing utilities and drainage systems (i.e., storm drains and water quality basins). The Project is bounded to the north by Helotes City Hall and Police Department, west by the Vulcan Materials Helotes Asphalt quarry, NISD tennis center to the south, and existing school classroom buildings/portables and a band parade ground to the east.

Based on review of official maps prepared by TCEQ that are available from the Edwards Aquifer Protection Program website (http://www.tceq.texas.gov/field/eapp/program.html), the north and southwest portions of the Project are located within the Edwards Aquifer Recharge Zone (EARZ) and the central portion of the assessment area is within the Edwards Aquifer Transition Zone (EATZ) as depicted on the ***Project Geologic Map***. As such, the performance of a geologic assessment is required to facilitate planned

WPAP and SCS construction activities in accordance with applicable provisions set forth in the EAPP rules as specified in *Title 30 of the Texas Administrative Code, Section 213 (30 TAC 213, effective April 24, 2008).*

Topography and Drainage. Topographic information for the Project was obtained from the *Helotes, Texas Topographic Quadrangle Ma*p prepared by the United States Geological Survey (USGS, 2022) and 2-foot topographic contours obtained from the City of San Antonio (CoSA, 2015). These sources indicate that the natural surface topography may be characterized as gently sloping to the south and southwest. The 2-foot topographic contours obtained from CoSA are provided on the attached ***Project Geologic Map*** and indicate an approximate 10-12 foot drop in elevation (i.e., 1004 to 992 feet relative to mean sea level) from north to south across the Project. A review of U.S. Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM, Map Nos. 48029C0215G and 48029C0220G) indicate that no part of the Project is located within the designated 100-year floodplain, although 100-year floodplain associated with Helotes Creek is located approximately to the west within the adjacent quarry property. Surface runoff across the Project generally occurs as sheetflow to the southwest with connection to existing storm water conveyances that discharge to existing water quality basins located within the Sandra Day O'Connor High School campus with ultimate discharge to Helotes Creek

Historical Property Use. Although research pertaining historical land use activities was beyond the scope of this assessment, historical aerial imagery was reviewed to evaluate past property conditions and the presence of lineations that could indicate the presence of normal faulting. The following aerial photographs from United Aerial Mapping and Google Earth™ were reviewed: 1981, 1995, 2002 through 2006, 2008, 2010, and 2012 through 2023. Below is a list of land development activities observed within the Project area in the aerial photographs.

- The high school property was undeveloped in the 1981 and 1995 aerial photographs.
- The high school facility was completely developed in the 2002 aerial photograph.
- The 2004 and 2008 aerial photographs indicate the addition of several structures near the southwest portion of the Project.
- The 2010 aerial photograph indicates a fenced-in asphalt parking area (i.e., band equipment staging) along the north extent of the Project

Classification of Recharge Features: As further described herein, 26 manmade recharge features were identified within Project boundaries, which include sanitary sewer lines, potable water lines, underground electric lines, gas lines, retention ponds, storm drain system, in addition to test holes. The significance of these features was assessed using definitions and guidance provided in *Instructions to Geologists (TCEQ-0585-Instructions, revised October 1, 2004)*. All features within the Project that met the criteria presented in this reference were mapped. The characteristics of all mapped features and the assessments of these features, as defined by the TCEQ, are presented in the attached ***Geologic Assessment Table (TCEQ-0585)***.

Stratigraphy

As presented in the attached ***Stratigraphic Column***, information pertaining to the lithologies and thickness of geologic units underlying the Project was adapted from Collins (2000). Published data referenced indicate

that the Project is underlain by the following geological formations (youngest to oldest): Quaternary Terrace Deposits (Qt), Del Rio Clay (Kdr) formation, Georgetown Formation (Kgt), and the Upper Edwards Limestone (Person Formation [Kep]) as presented on ***Project Geologic Map***. These formations are described below.

- Qt is mapped primarily within the southwest portion of the assessment area that is located adjacent (i.e., west of the Project limits) to the floodplain for Helotes Creek. Qt consists of varying proportions of gravel, sand, silt, and clay sediments, which are predominantly limestone, dolomite, and chert.
- Kdr overlies the Georgetown Formation and consists of calcareous, blocky, gray clay that weathers light gray to yellowish-gray. This unit is typically considered as an upper confining unit for the Edwards Aquifer in the San Antonio Area (Maclay, 1995).
- Kgt typically consists of thin exposures (i.e., erosional remnants) of gray to tan marly or shaley dense limestone sometimes exhibiting significant iron staining. The total thickness of the Kgt is typically on the order of 10 feet or less in Bexar County. No erosional remnants of the Kgt within Project boundaries and immediate surrounding area were identified or in the geotechnical boring logs.
- The Kep, which underlies the Kgt, is commonly divided into three distinct members: (i) Cyclic and Marine Member, undivided – mudstone to packstone, grainstone, and chert; (ii) Leached and Collapsed Member, undivided - unit includes crystalline limestone, mudstone to grainstone, and chert; and (iii) Regional Dense Member - unit consists of dense, carbonate mudstone. The total thickness of the Kep is on the order of 180 to 224 feet. The uppermost or Cyclic and Marine member of the Kep represents the portion of the Edwards Limestone directly underlying the west portion of the Project to depths on the order of 80 to 100 feet. Based upon the work of Maclay (1995), this unit contains many open fractures and possesses low matrix permeability with total porosity on the order of 5 to 10%. Patchy outcrops of the weathered Kep were observed north of sheep/goat barn (i.e., Building Q).

Structure

The Project is located within the Balcones Fault Zone and as such, limestone strata exposed within the vicinity possess a distinct structural trend. This zone consists of a northeast-southwest trending, *en echelon* normal fault system, which juxtaposes Upper Cretaceous lithologies in the southeast with Lower Cretaceous lithologies in the northwest. As a result of this larger-scale, regional faulting, minor internal fault sequences and fractures exist within this zone, which follow the same structural trend and accommodate localized displacement, particularly within the extent of the EARZ.

In order to evaluate the presence of normal fault zones that could transect property boundaries, **RKI** reviewed historical aerial photographs and published maps. No faults were mapped within the Project limits and no evidence of structural features (e.g., lineations in vegetation, changes in soil type, fractured rock exposures, etc.) were observed during reconnaissance activities. Field observations are consistent with most recently published geological information for the Project vicinity (Collins, 2000).

Karst

Although weathered exposures of the Kep were observed, north of the goat/sheep barn (i.e., Building Q), there were no potential recharge features identified within Project boundaries that may be attributed to karstification of the underlying limestone terrain. Owing to the presence of soil cover and existing improvements, limestone strata of the Kep, which are prone to karst forming processes, are not present within the near-surface interval at the Project. Reconnaissance efforts did not indicate the presence or indirect evidence of natural recharge features that may be attributed to karstification of the underlying limestone terrain.

Manmade Features

As presented on the ***Project Geologic Map***, 26 manmade features were identified that may potentially serve to enhance the transmission of surface runoff to the subsurface. The features consist of trenches for underground utilities including the following: sanitary sewer, potable water, electric, and natural gas. Additionally, manmade features include existing storm drain systems and stormwater basins, in addition to plugged geotechnical borings. All of these features meet the criteria for assessment as manmade features in bedrock. Information regarding the locations of the existing manmade features was taken from field observations, review of geotechnical borings logs (**RKI**, July 2023), and utility plans provided by KCI Technologies, Inc. (October 2023). The following features were identified:

- ***Feature S-1*** consists of interconnected trenches for a 6- to 8-inch existing sanitary sewer lines owned by San Antonio Water System (SAWS).
- ***Feature S-2*** consists of a trench for an existing sanitary sewer line.
- ***Feature S-3*** consists of interconnected trenches for existing 6- to 8-inch polyvinyl chloride (PVC) potable water lines owned by City Public Service (CPS) Energy.
- ***Feature S-4*** consists of interconnected trenches for an existing natural gas utility CPS Energy.
- ***Feature S-5*** consists of interconnected trenches for existing 1-1/4- to 4-inch electrical utility owned CPS Energy.
- ***Features S-6, S-7, S-8,*** *and* ***S-10*** consists of trenches for storm drain pipes that service O'Connor High School campus.

Although not directly observable, it is inferred that the subgrade trenches for these subgrade installations are backfilled in accordance with standard construction practices that include the use of structural fill soils (e.g., base course materials, limestone gravel, compacted clay soils, etc.) overlain by native or fill soils, depending upon location and surface improvements. The trenches were not observed in conjunction with any naturally-occurring recharge features. Although the backfilled trenches may exhibit somewhat greater relative infiltration rate than the surrounding soil/rock strata underlying the project boundaries, these manmade features are collectively classified as not sensitive, having a low potential of preferentially transmitting fluids into the Edwards Aquifer. This classification is based upon the point assignment criteria presented in the ***Geologic Assessment Table (TCEQ-0585)*** and professional judgment.

RKI identified two stormwater basins, ***Features S-9*** and ***S-11*** that treat stormwater originating within the high school campus (i.e., parking lot and agriculture barn area). The probability for rapid infiltration into the subsurface is considered low for these best management practices (BMPs) as basins are designed to capture, filter, and convey water downstream with typical detention times on the order of 24-72 hours. Additionally, a stormwater basin within the Edwards Aquifer Recharge Zone are typically required to have an impermeable liner. As such, these features are classified as not sensitive

Features S-12 *through* ***S-26*** consist of geotechnical borings installed as part of the recent geotechnical engineering study in support of proposed improvements (**RKI**, 2023). These were reportedly installed to depths ranging from 8-1/2 to 39 feet, terminating in limestone of the Kep. No shallow groundwater was observed during drilling operations. These borings were plugged with granular bentonite immediately following drilling activities. These features are collectively classified as not sensitive as they have been plugged and no longer exist.

Potential for Fluid Migration to the Edwards Aquifer

Based on a review of Project geology, topography and drainage conditions, and the results of our mapping efforts, the overall potential for direct fluid migration (i.e., surface-derived flow) to the Edwards Aquifer via infiltration is considered to be low to moderate. The following assessment findings support this conclusion:

- There were no naturally-occurring recharge features identified within the Project area that may be attributed to karstification of the underlying limestone terrain. The majority of the Project is overlain by clay soils approximately 2 feet or greater in thickness with reported slow to moderate infiltration rates (i.e., Group D and B soils, respectively). Owing to soil cover and improvements, limited exposures of the Kep were observed.
- Manmade features present at the Project are collectively classified as not sensitive based on consideration of typical construction details and application of point assignment criteria and professional judgment.
- The Project is almost completely developed with impervious cover and landscaping improvements, which is expected to promote runoff to established water quality basins and limit infiltration.

References

Barnes, V. L., 1974 Revised 1983, Geologic Atlas of Texas San Antonio Sheet; Bureau of Economic Geology, The University of Texas at Austin, Austin, Texas.

Collins, Edward W., 2000, Geologic Map of the New Braunfels, Texas, 30 X 60 Minute Quadrangle: Geologic Framework of an Urban-Growth Corridor along the Edwards Aquifer, South-Central Texas: Bureau of Economic Geology, The University of Texas at Austin, Austin, Texas.

Maclay, R. W., 1995, Geology and hydrogeology of the Edwards aquifer in the San Antonio area, Texas: U.S. Geological Survey Water Resources Investigations Report 95-4186, 64 p.

Google Earth Pro, Version 7.3.6.9345. Aerial images: January 1995, July 2002, December 2003, February 2004, October 2005, December 2006, May 2008, January 2010, April and November 2012, February 2013, February 2014, January and December 2015, May 2016, January 2017, December 2018, November 2019, April 2020, October 2021, and January 2022.

National Flood Insurance Program, 2010, Flood Insurance Rate Map, Bexar County, Texas and Incorporated Areas; U.S. Federal Emergency Management Agency, Map Nos. 48029C0215G and 48029C0220G.

Raba Kistner, Inc. (RKI), 2023, *Geotechnical Engineering Study For O'Connor High Schoo Agriculture Science and Technology Center. Project No.: ASA23-041-00.* Report dated July 25, 2023.

Stein, W. G., and G. B. Ozuna, 1996, Geologic framework and hydrogeologic characteristics of the Edwards aquifer recharge zone, Bexar County, Texas: U.S. Geological Survey Water Resources Investigations Report 95-4186.

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Texas Water Development Board (TWDB), Water Data Interactive (WDI) Groundwater Data Viewer, https://www2.twdb.texas.gov/apps/WaterDataInteractive/GroundwaterDataViewer/?map=sdr, accessed October 16, 2023.

United Aerial Mapping (UAM), Aerial Imagery: May 11, 1981.

United States Geological Survey (USGS), 2022, Helotes Quadrangle; USGS, Denver, Colorado.

United States Department of Agriculture (USDA), 1962, Soil Survey of Bexar County, Texas; USDA / Soil Conservation Service / Texas Agricultural Experiment Station, Reissued June 1991

United States Department of Agriculture (USDA), 1986, Urban Hydrology for Small Watersheds; USDA / Natural Resource Conservation Service, Technical Release (TR-55), June 1986.

ATTACHMENT D

FEATURE POSITION TABLE (GPS COORDINATES)

PROJECT GEOLOGIC MAP

FEATURE POSITION TABLE

O' Connor High School Water Pollution Abatement Plan (WPAP) Modification

Helotes, Bexar County, Texas

RKI Project No. ASF23-091-00

Feature Designation	Feature Type	Date Collected	North Latitude	West Longitude	UTM Northing (meters)	UTM Easting (meters)
S-1	Manmade feature in bedrock (Sanitary Sewer Line)	10/9/2023	29°33'33.77"N	98°41'15.54"W	3270003	530258
S-2	Manmade feature in bedrock (Sanitary Sewer Line)	10/9/2023	29°33'29.28"N	98°41'18.05"W	3269865	530190
S-3	Manmade feature in bedrock (Water Line)	10/9/2023	29°33'34.40"N	98°41'17.62"W	3270023	530202
S-4	Manmade feature in bedrock (Electric Line)	10/9/2023	29°33'34.52"N	98°41'16.40"W	3270027	530234
S-5	Manmade feature in bedrock (Gas Line)	10/9/2023	29°33'32.66"N	98°41'20.17"W	3269969	530133
S-6	Manmade feature in bedrock (Storm Drain)	10/9/2023	29°33'37.98"N	98°41'18.71"W	3270133	530172
S-7	Manmade feature in bedrock (Storm Drain)	10/9/2023	29°33'27.90"N	98°41'14.84"W	3269823	530277
S-8	Manmade feature in bedrock (Storm Drain)	10/9/2023	29°33'25.94"N	98°41'13.79"W	3269763	530305
S-9	Manmade feature in bedrock (Water Quality Pond A)	10/9/2023	29°33'26.38"N	98°41'17.33"W	3269976	530210
S-10	Manmade feature in bedrock (Storm Drain)	10/9/2023	29°33'27.40"N	98°41'22.13"W	3269807	530082
S-11	Manmade feature in bedrock (Water Quality Pond A)	10/9/2023	29°33'26.11"N	98°41'24.36"W	3269768	530022
S-12	MB (test hole B-1)	6/21/2023	29°33'27.17"N	98°41'20.02"W	3269800	530138
S-13	MB (test hole B-2)	6/21/2023	29°33'26.75"N	98°41'21.81"W	3269787	530090
S-14	MB (test hole B-3)	6/16/2023	29°33'32.38"N	98°41'19.75"W	3269960	530145
S-15	MB (test hole B-4)	6/16/2023	29°33'33.82"N	98°41'20.40"W	3270005	530127
S-16	MB (test hole B-5)	6/23/2023	29°33'36.66"N	98°41'18.07"W	3270092	530189
S-17	MB (test hole B-6)	6/22/2023	29°33'33.43"N	98°41'17.11"W	3269993	530215
S-18	MB (test hole B-7)	6/20/2023	29°33'32.25"N	98°41'16.64"W	3269957	530228
S-19	MB (test hole B-8)	6/16/2023	29°33'33.15"N	98°41'17.99"W	3269984	530192
S-20	MB (test hole B-9)	6/20/2023	29°33'32.12"N	98°41'17.31"W	3269953	530210
S-21	MB (test hole P-1)	6/21/2023	29°33'30.99"N	98°41'22.89"W	3269917	530060
S-22	MB (test hole P-2)	6/23/2023	29°33'34.29"N	98°41'21.18"W	3270019	530106
S-23	MB (test hole P-3)	6/20/2023	29°33'33.96"N	98°41'18.30"W	3270009	530184
S-24	MB (test hole P-4)	6/20/2023	29°33'31.10"N	98°41'17.01"W	3269921	530219
S-25	MB (test hole RW-1)	6/21/2023	29°33'26.52"N	98°41'20.54"W	3269780	530124
S-26	MB (test hole RW-2)	6/21/2023	29°33'27.23"N	98°41'18.29"W	3269802	530184

NOTES:

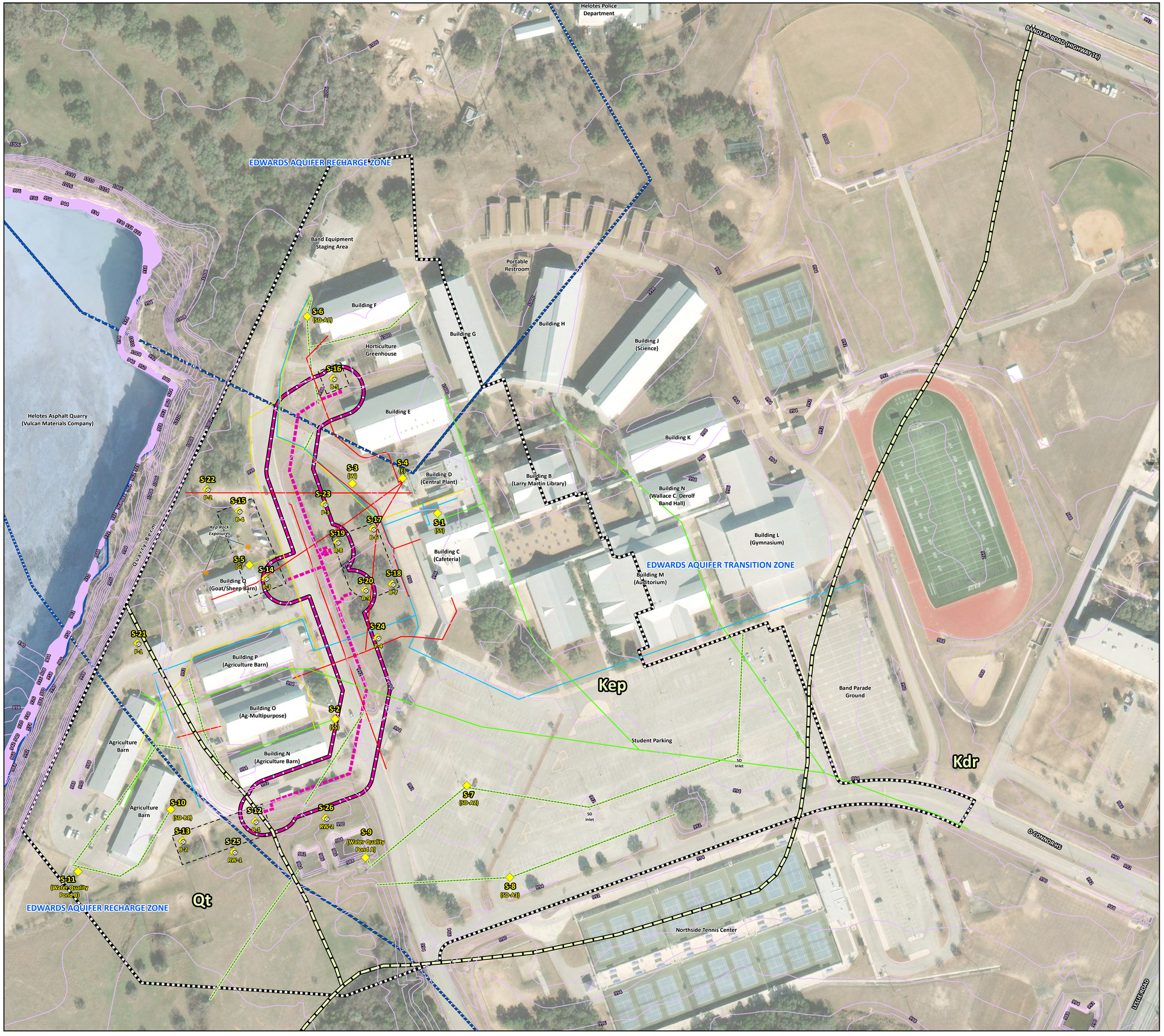
1. Geographic coordinates are presented Degrees, Minutes, Decimal Seconds
2. Reference Datum is NAD 83
3. Data were collected utilizing a Garmin GPS 60cx Global Positioning System.
4. Horizontal Accuracy: RMS Value < 3 meter ground resolution
5. GPS data was collected by Rick Sample (**RKI** Project Professional).
6. June 2023 GPS data was collected for the test holes by a **RKI** Geotechnical Professional.
7. GPS coordinates correlate to the points on the map for each feature.

Legend

- WPAP Boundary
- Proposed Building (KCI, 2023)
- 50-Foot SCS Assessment Area
- Proposed Sanitary Sewer Line (KCI, 2023)
- Edwards Aquifer Boundary (TCEQ, 2005)
- 2- Ft Contour (CoSA, 2015)
- 100-Year Floodplain
- WPAP GA Feature

Existing Utility/Storm Drain (KCI, 2023)

- E - Electric
- G - Gas
- SS - Sanitary Sewer
- W - Water
- Existing Storm Drain (SD) System
- Plugged Test Hole (RKI, 2023)
- Adapted Geology Contact (Collins, 2000)
  - Qt = Quaternary Terrace Deposits
  - Kdr = Del Rio Clay
  - Kep = Person Formation



SOURCES:

1. Basemap from Environmental Systems Research Institute (ESRI), dated January 2023.
2. Geology adapted from Collins, 2000, Geologic Map of the New Braunfels, Texas, 30 X 60 Minute Quadrangle: Geologic Framework of an Urban-Growth Corridor along the Edwards Aquifer, South-Central Texas: Bureau of Economic Geology, The University of Texas at Austin.
3. Topographic contours downloaded from the City of San Antonio, 2015.
4. Proposed and existing utility lines digitized from plan sheets prepared by KCI Technologies, Inc. and provided on August 22, 2023 (Proposed Impervious Cove with SS location.pdf, Exhibit F and October 6, 2023 (Utility Exhibit with EX BM.pdf), respectively.
5. The Project is located on the Edwards Aquifer Recharge Zone (EARZ) and the Edwards Aquifer Transition Zone (EATZ), TNRCC Edwards Aquifer Protection Program, 1998, Edwards Aquifer Recharge Zone Map, Helotes Quadrangle, September 1998 and obtained from TCEQ, 2005.
6. No portion of the Project is within the 100-Year Floodplain. Data from the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), Panel Nos. 48029C0215G and 48029C0220G, September 2010.
7. Test holes obtained from Geotechnical Engineering Report for the O'Connor High School Agriculture Science and Technology Center prepared by Raba Kistner, Inc., Project No. ASA23-041-00, report dated July 25, 2023.

NOTE: This Drawing is Provided for Illustration Only, May Not be to Scale and is Not Suitable for Design or Construction Purposes

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STATE OF TEXAS
RICHARD V. KLAR
GEOLOGY
259
LICENSED
PROFESSIONAL GEOSCIENTIST
10/26/23

PROJECT GEOLOGIC MAP

O' CONNOR HIGH SCHOOL WATER POLLUTION ABATEMENT PLAN (WPAP) MODIFICATION
HELOTES, BEXAR COUNTY, TEXAS

REVISIONS:

No.	DATE	DESCRIPTION

PROJECT No.: ASF23-091-00

ISSUE DATE:	10/26/2023
DRAWN BY:	LAW
CHECKED BY:	RAS
REVIEWED BY:	RVK

N W E S

0 40 80 FEET

1 INCH = 80 FEET

Modification of a Previously Approved Plan (TCEQ-0590)

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: Paul A. Mathis, P.E., PMP, LEED Green Assoc., MBA

Practice Leader | Senior Associate

Date: 05/28/2024

Signature of Customer/Agent:

Project Information

1. Current Regulated Entity Name: O'Connor High School Agricultural Area
   Original Regulated Entity Name: O'Connor High School Agricultural Area
   Regulated Entity Number(s) (RN): 104754304
   Edwards Aquifer Protection Program ID Number(s): 1611
   ☒ The applicant has not changed and the Customer Number (CN) is: 601104169
   ☐ 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***	***Proposed Modification***
Acres	196.24 - TxDOT ROW Dedi. - Sold Prop. = 157.625	N/A
Type of Development	School	_____
Number of Residential Lots	0	_____
Impervious Cover (acres)	20.135	_____
Impervious Cover (%	73.84%	_____
Permanent BMPs	WQB, VFS	_____
Other	_____	_____

SCS Modification Summary	***Approved Project***	***Proposed Modification***
Linear Feet	611.48	436.14
Pipe Diameter	8"	3"
Other	N/A	N/A

AST Modification Summary	***Approved Project***	***Proposed Modification***
Number of ASTs	_____	_____
Volume of ASTs	_____	_____
Other	_____	_____

UST Modification Summary	***Approved Project***	***Proposed Modification***
Number of USTs	_____	_____
Volume of USTs	_____	_____
Other	_____	_____

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.

Attachment A

Original Approval Letter

Jon Niermann, *Chairman*
Bobby Janecka, *Commissioner*
Catarina R. Gonzales, *Commissioner*
Kelly Keel, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

March 1, 2024

Mr. Jacob Villarreal
Northside Independent School District
5900 Evers Rd
San Antonio, Texas 78238

Re: Modification of an approved Water Pollution Abatement Plan (WPAP) and Approval of an Organized Sewage Collection System (SCS) Plan
OConnor High School; Located at 12221 Leslie Rd; Helotes, Bexar County, Texas
Edwards Aquifer Protection Program ID: 13001819 and 13001820, Regulated Entity No. RN104754304

Dear Mr. Villarreal:

The Texas Commission on Environmental Quality (TCEQ) has completed its review on the applications for the above-referenced project submitted to the Edwards Aquifer Protection Program (EAPP) by KCI Technologies, Inc. on behalf of the applicant, Northside Independent School District on December 11, 2023. Final review of the applications was completed after additional material was received on February 5, 2024, and February 26, 2024.

As presented to the TCEQ, the application was prepared in general compliance with the requirements of 30 Texas Administrative Codes (TAC) Chapter §213 and Chapter §217. The permanent best management practices (BMPs), engineering design report, technical specifications and final design plans were prepared by a Texas licensed professional engineer (PE). All construction plans and design information were sealed, signed, and dated by a Texas licensed PE. Therefore, the application for the construction of the proposed project and methods to protect the Edwards Aquifer are hereby **approved,** subject to applicable state rules and the conditions in this letter.

This approval expires two 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 officially requested. This approval or extension will expire, and no extension will be granted if more than 50 percent of the project has not been completed within ten years from the date of 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 in accordance with 30 TAC §50.139.

BACKGROUND

The high school was originally approved by letter dated September 6, 1996, with multiple subsequent WPAP modifications.

PROJECT DESCRIPTION

WPAP DESCRIPTION

The proposed commercial project will have an area of approximately 27.269 acres within the overall 157.652-acre campus. The modification will include demolition of some existing improvements and the addition of six new buildings, parking, drives, sidewalks, utilities, and a previously approved sand filter basin shall be modified and expanded to accommodate the new improvements. The impervious cover will be 20.135 acres (73.838 percent).

SCS DESCRIPTION

The proposed sewage collection system will provide disposal service for commercial development. The system includes gravity lines and other appurtenance necessary for conveying wastewater to a treatment plant. The proposed SCS will consist of 611.49 linear feet of 8 inch, SDR 26 PVC (ASTM D3034) piping with pressure rated pipe segments centered at waterline crossings.

TREATMENT FACILITY

The system will be connected to an existing City of San Antonio wastewater line for conveyance to the Leon Creek Wastewater Treatment Plant for treatment and disposal. **The proposed system shall be connected for conveyance prior to use of the development.** The project will conform to all applicable codes, ordinances, and requirements of the City of San Antonio.

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, a full sedimentation/filtration basin, one existing (13-90071601) and three new vegetative filter strips, designed using the TCEQ technical guidance, *RG-348, Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices,* will be constructed to treat stormwater runoff. The required total suspended solids (TSS) treatment for this project is 16,430 pounds of TSS generated from the 20.135 acres of impervious cover. The approved permanent BMPs and measures meet the required 80 percent removal of the increased load in TSS caused by the project.

The permanent BMPS shall be operational prior to occupancy or use of the proposed project. Inspection, maintenance, repair, and retrofit of the permanent BMPs shall be in accordance with the approved application.

A previously approved Vortech treatment system will no longer be used for TSS treatment purposes with the TSS treatment being provided by the expanded sand filter basin.

GEOLOGY

According to the Geologic Assessment (GA) included with the application, the surficial units of the site are the Quaternary Terrace Deposits, Del Rio Clay formation, Georgetown Formation, and Person Formation. No sensitive geologic features were identified in the GA. The site assessment conducted on January 25, 2024, by TCEQ staff determined the site to be generally as described by the GA.

SPECIAL CONDITIONS

I. This modification is subject to all the special and standard conditions listed in the approval letter dated September 6, 1996 and all subsequent WPAP modification approval letters.

II. A lift station/force main application will be submitted in a subsequent organized sewage collection system application which will serve to convey wastewater from proposed building 'T.' No wastewater may be generated by building 'T' until the subsequent organized sewage collection system application for the lift station/force main is submitted to TCEQ for approval and the lift station/force main is installed and operational in accordance with the subsequent approval.

STANDARD CONDITIONS

1. The plan holder (applicant) must comply with all provisions of 30 TAC Chapter §213 and technical specifications contained in the approved plan. The plan holder should also acquire and comply with additional and separate approvals, permits, registrations or authorizations from other TCEQ Programs (i.e., Stormwater, Water Rights, Dam Safety, Underground Injection Control, Water Quality) as required based on the specifics of the plan.

2. In addition to the rules of the Commission, the plan holder must also comply with state and local ordinances and regulations providing for the protection of water quality as applicable.

Prior to Commencement of Construction:

3. Within 60 days of receiving written approval of an Edwards Aquifer protection plan, the plan holder must submit to the EAPP proof of recordation of notice in the county deed records, with the volume and page number(s) of the county record. A description of the property boundaries shall be included in the deed recordation in the county deed records. TCEQ form, Deed Recordation Affidavit (TCEQ-0625), may be used.

4. The plan holder of any approved Edwards Aquifer protection plan must notify the EAPP and obtain approval from the executive director prior to initiating any modification to the activities described in the referenced application following the date of the approval.

5. The plan holder must provide written notification of intent to commence construction, replacement, or rehabilitation of the referenced project. Notification must be submitted to the EAPP no later than 48 hours prior to commencement of the regulated activity. 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.

6. Temporary erosion and sedimentation (E&S) controls as described in the referenced application, 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. 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.

7. 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 or gravel. 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.

During Construction:

8. This approval does not authorize the installation of temporary or permanent aboveground storage tanks on this project that will have a total storage capacity of 500 gallons or more

of static hydrocarbons or hazardous substances without prior approval of an Aboveground Storage Tank facility application.

9. If any sensitive feature is encountered during construction, replacement, or rehabilitation on this project, all regulated activities must be **immediately** suspended near it and notification must be made to TCEQ EAPP staff. Temporary BMPs must be installed and maintained to protect the feature from pollution and contamination. 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.

10. All water wells, including injection, dewatering, and monitoring wells shall be identified in the geologic assessment and must be in compliance with the requirements of the Texas Department of Licensing and Regulation 16 TAC Chapter §76 and all other locally applicable rules, as appropriate.

11. 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.

12. Intentional discharges of sediment laden water are not allowed. If dewatering becomes necessary, the discharge must be filtered through appropriately selected BMPs.

13. 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.

14. 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.

<u>After Completion of Construction:</u>

15. Owners of permanent BMPs and temporary measures must ensure that the BMPs and measures are constructed and function as designed. A Texas licensed PE **must certify** in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the EAPP within 30 days of site completion.

16. 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 or the ownership of the property is transferred to the entity. A copy of the transfer of responsibility must be filed with the executive director through the EAPP within 30 days of the transfer. TCEQ form, Change in Responsibility for Maintenance on Permanent BMPs and Measures (TCEQ-10263), may be used.

17. No part of the organized sewage collection system may be used as a sewage holding tank, as defined in 30 TAC §213.3 (excluding lift stations), over the Edwards Aquifer recharge zone.

18. A Texas licensed PE **must certify** in writing that the new sewage collection system (including force mains) has passed all required testing. The certification shall be submitted to the EAPP within 30 days of test completion and prior to the new sewage collection system being put into service.

19. A Texas licensed PE **must certify** subsequent testing required every five years of the existing sewage collection system after being put into use to determine types and locations of structural damage and defects such as offsets, open joints, or cracked or crushed lines that would allow exfiltration to occur. The test results must be retained by the plan holder for five years and made available to the executive director upon request.

The holder of the approved Edwards Aquifer protection plan is responsible for compliance with Chapter §213 and any condition of the approved plan through all phases of plan implementation. Failure to comply with any condition within this approval letter is a violation of Chapter §213 and is subject to administrative rule or orders and penalties as provided under §213.10 of this title (relating to Enforcement). Such violations may also be subject to civil penalties and injunction. Upon legal transfer of this property, the new owner is required to comply with all terms of the approved Edwards Aquifer protection plan.

This action is taken as delegated by the executive director of the Texas Commission on Environmental Quality. If you have any questions or require additional information, please contact Mr. Joshua Vacek of the Edwards Aquifer Protection Program at 210-403-4028 or the regional office at 512-339-2929.

Sincerely,

Lillian Butler

Lillian I. Butler, Section Manager
Edwards Aquifer Protection Program
Texas Commission on Environmental Quality

LIB/jv

cc: Mr. Paul A. Mathis, P.E., KCI Technologies, Inc.

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

June 4, 2012

Mr. Leroy San Miguel
Assistant Superintendent of Facilities and Operations
Northside Independent School District
5900 Evers Road
San Antonio, Texas 78238

Re: Edwards Aquifer, Bexar County

Name of Project: NISD Sandra Day O'Connor High School; Located at 12221 Leslie Road; Helotes, Texas

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

Edwards Aquifer Protection Program (EAPP) San Antonio File No. 335.07; Investigation No. 996385; Regulated Entity No. RN104754304

Dear Mr. San Miguel:

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 M.W. Cude Engineers, LLC on behalf of Northside Independent School District on March 28, 2012. Final review of the WPAP was completed after additional material was received on May 31, 2012. 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

The high school was originally approved by letter dated September 6, 1996 for the construction of 25.91 acres of impervious cover within a 72.83 acre site. The permanent best management practices approved were a sand filter basin and vegetated filter strips.

Seven modifications have been subsequently approved. The most recent modification was approved by letter dated May 27, 2011 for the construction of a building expansion, parking, and sidewalks. The impervious cover increased to 32.15 ac (44.14 percent).

Project Description

The proposed commercial project will have an area of approximately 15.07 acres within the 72.83 acre school site. It will include the construction of a tennis center consisting of tennis courts, a pro-shop, associated parking, access drives, sidewalks, and two sediment/filtration basins. The project will increase the impervious cover by 5.90 acres. The total impervious cover for the site will be 38.05 (52.24 percent). Project wastewater will be disposed of by conveyance to the existing Leon Creek Water Recycling Center owned by the San Antonio Water System.

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, two single chamber, sediment/filtration basins, designed using the TCEQ technical guidance document, Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices (2005), will be constructed to treat stormwater runoff. The required total suspended solids (TSS) treatment for this project is 4,814 pounds of TSS generated from the 5.90 acres of impervious cover. The approved measures meet the required 80 percent removal of the increased load in TSS caused by the project.

The individual treatment measures will consist of; Basin 5, a clay lined, partial sedimentation/filtration basin designed to capture the first 1.38 inches of stormwater runoff from 2.99 acres of impervious cover within a 3.71 acre catchment area. The basin has been sized to remove approximately 2,395 pounds of TSS annually, providing a total capture volume of 14,455 cubic feet (14,097 cubic feet required). The filtration system for the basin will consist of 1,480 square feet of sand (1,410 square feet required) with an ASTM rating of C-33, which is 18 inches thick and an underdrain piping system covered with a minimum two inch gravel layer.

Basin 6 is a clay lined, partial sedimentation/filtration basin designed to capture the first 2 inches of stormwater runoff from 2.82 acres of impervious cover within a 3.69 acre catchment area. The basin has been sized to remove approximately 2,420 pounds of TSS annually and to account for 0.09 acres of impervious cover that was not able to be directed into the basin, providing a total capture volume of 26,150 cubic feet (18,554 cubic feet required). The filtration system for the basin will consist of 1,990 square feet of sand (1,855 square feet required) with an ASTM rating of C-33, which is 18 inches thick and an underdrain piping system covered with a minimum two inch gravel layer.

Geology

According to the geologic assessment included with the application, the site is underlain by the Del Rio Clay formation. One manmade feature, existing sanitary sewer line, was reported and assessed as not sensitive. The San Antonio Regional Office did not conduct a site assessment.

Special Conditions

1. This modification is subject to all Special and Standard Conditions listed in the approval letters of the previously approved WPAP and subsequent modifications.

2. All permanent pollution abatement measures shall be operational prior to occupancy of the facility.

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

Standard Conditions

1. Pursuant to Chapter 7 Subchapter C of the Texas Water Code, any violations of the requirements in 30 TAC Chapter 213 may result in administrative penalties.

2. The holder of the approved Edwards Aquifer protection plan must comply with all provisions of 30 TAC Chapter 213 and all best management practices and measures contained in the approved plan. Additional and separate approvals, permits, registrations and/or authorizations from other TCEQ Programs (i.e., Stormwater, Water Rights, UIC) can be required depending on the specifics of the plan.

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

Prior to Commencement of Construction:

4. Within 60 days of receiving written approval of an Edwards Aquifer Protection Plan, the applicant must submit to the San Antonio Regional Office, proof of recordation of notice in the county deed records, with the volume and page number(s) of the county deed records of the county in which the property is located. A description of the property boundaries shall be included in the deed recordation in the county deed records. A suggested form (Deed Recordation Affidavit, TCEQ-0625) that you may use to deed record the approved WPAP is enclosed.

5. All contractors conducting regulated activities at the referenced project location shall be provided a copy of this notice of approval. At least one complete copy of the approved WPAP and this notice of approval shall be maintained at the project location until all regulated activities are completed.

6. Modification to the activities described in the referenced WPAP application following the date of approval may require the submittal of a plan to modify this approval, including the payment of appropriate fees and all information necessary for its review and approval prior to initiating construction of the modifications.

7. The applicant must provide written notification of intent to commence construction, replacement, or rehabilitation of the referenced project. Notification must be submitted to the San Antonio Regional Office no later than 48 hours prior to commencement of the regulated activity. Written notification must include the date on which the regulated activity will commence, the name of the approved plan and program ID number for the regulated

activity, and the name of the prime contractor with the name and telephone number of the contact person. The executive director will use the notification to determine if the approved plan is eligible for an extension.

8. Temporary erosion and sedimentation (E&S) controls, i.e., silt fences, rock berms, stabilized construction entrances, or other controls described in the approved WPAP, must be installed prior to construction and maintained during construction. Temporary E&S controls may be removed when vegetation is established and the construction area is stabilized. If a water quality pond is proposed, it shall be used as a sedimentation basin during construction. The TCEQ may monitor stormwater discharges from the site to evaluate the adequacy of temporary E&S control measures. Additional controls may be necessary if excessive solids are being discharged from the site.

9. All borings with depths greater than or equal to 20 feet must be plugged with non-shrink grout from the bottom of the hole to within three (3) feet of the surface. The remainder of the hole must be backfilled with cuttings from the boring. All borings less than 20 feet must be backfilled with cuttings from the boring. All borings must be backfilled or plugged within four (4) days of completion of the drilling operation. Voids may be filled with gravel.

During Construction:

10. During the course of regulated activities related to this project, the applicant or agent shall comply with all applicable provisions of 30 TAC Chapter 213, Edwards Aquifer. The applicant shall remain responsible for the provisions and conditions of this approval until such responsibility is legally transferred to another person or entity.

11. This approval does not authorize the installation of temporary aboveground storage tanks on this project. If the contractor desires to install a temporary aboveground storage tank for use during construction, an application to modify this approval must be submitted and approved prior to installation. The application must include information related to tank location and spill containment. Refer to Standard Condition No. 6, above.

12. If any sensitive feature (caves, solution cavities, sink holes, etc.) is discovered during construction, all regulated activities near the feature must be suspended immediately. The applicant or his agent must immediately notify the San Antonio Regional Office of the discovery of the feature. Regulated activities near the feature may not proceed until the executive director has reviewed and approved the methods proposed to protect the feature and the aquifer from potentially adverse impacts to water quality. The plan must be sealed, signed, and dated by a Texas Licensed Professional Engineer.

13. No wells exist onsite. 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 storm water are not allowed. If dewatering becomes necessary, the discharge will be filtered through appropriately selected best management practices. These may include vegetated filter strips, sediment traps, rock berms, silt fence rings, etc.

16. The following records shall be maintained and made available to the executive director upon request: the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.

17. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, and construction activities will not resume within 21 days. When the initiation of stabilization measures by the 14th day is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable.

After Completion of Construction:

18. A Texas Licensed Professional Engineer must certify in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the San Antonio Regional Office within 30 days of site completion.

19. The applicant shall be responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation, an owner's association, a new property owner or lessee, a district, or municipality) or the ownership of the property is transferred to the entity. The regulated entity shall then be responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred. A copy of the transfer of responsibility must be filed with the executive director through San Antonio Regional Office within 30 days of the transfer. A copy of the transfer form (TCEQ-10263) is enclosed.

20. Upon legal transfer of this property, the new owner(s) is required to comply with all terms of the approved Edwards Aquifer protection plan. If the new owner intends to commence any new regulated activity on the site, a new Edwards Aquifer protection plan that specifically addresses the new activity must be submitted to the executive director. Approval of the plan for the new regulated activity by the executive director is required prior to commencement of the new regulated activity.

21. An Edwards Aquifer protection plan approval or extension will expire and no extension will be granted if more than 50 percent of the total construction has not been completed within ten years from the initial approval of a plan. A new Edwards Aquifer protection plan must be submitted to the San Antonio Regional Office with the appropriate fees for review and approval by the executive director prior to commencing any additional regulated activities.

22. At project locations where construction is initiated and abandoned, or not completed, the site shall be returned to a condition such that the aquifer is protected from potential contamination.

This action is taken under authority delegated by the Executive Director of the Texas Commission on Environmental Quality. If you have any questions or require additional information, please contact Mr. Javier Anguiano of the Edwards Aquifer Protection Program of the San Antonio Regional Office at (210) 490-3096.

Sincerely,

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

LMB/JA/eg

Enclosure: Deed Recordation Affidavit, Form TCEQ-0625

Change in Responsibility for Maintenance of Permanent BMPs, Form TCEQ-10263

cc: Mr. Kevin P. Hunt, P.E., M.W. Cude Engineers, LLC
The Honorable Thomas Schoolcraft, City of Helotes
Ms. Renee Green, P.E., Bexar County Public Works
Mr. Scott Halty, P.E., San Antonio Water System
Mr. Karl J. Dreher, General Manger, Edwards Aquifer Authority
Mr. George Wissmann, General Manager, Trinity Glen Rose Conservation District
TCEQ Central Records, Building F, MC 212

Bryan W. Shaw, Ph.D., P.E., *Chairman*
Toby Baker, *Commissioner*
Jon Niermann, *Commissioner*
Richard A. Hyde, P.E., *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

August 1, 2017

Mr. Leroy San Miguel
Northside Independent School District
5900 Evers Road, Building C
San Antonio, Texas 78238

Re: Edwards Aquifer, Bexar County

NAME OF PROJECT: Sandra Day O'Connor High School; Located on the west side of Leslie Road, approximately 1500 feet south of Bandera Road; Helotes, Texas

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

Edwards Aquifer Protection Program ID No. 13000443; Regulated Entity No. RN104754304

Dear Mr. San Miguel:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAP application for the above-referenced project submitted to the San Antonio Regional Office by Mr. Rolando Ramirez on behalf of Moy Tarin Ramirez Engineers, LLC on June 15, 2017. As presented to the TCEQ, the Temporary and Permanent Best Management Practices (BMPs) were selected and construction plans were prepared by a Texas Licensed Professional Engineer to be in general compliance with the requirements of 30 TAC Chapter 213. These planning materials were sealed, signed and dated by a Texas Licensed Professional Engineer. Therefore, based on the engineer's concurrence of compliance, the planning materials for construction of the proposed project and pollution abatement measures are hereby approved subject to applicable state rules and the conditions in this letter. The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Edwards Aquifer Protection Plan. A motion for reconsideration must be filed no later than 23 days after the date of this approval letter. *This approval expires two (2) years from the date of this letter unless, prior to the expiration date, more than 10 percent of the construction has commenced on the project or an extension of time has been requested.*

BACKGROUND

The original WPAP for a 169.74 acre multi-use facility was approved by letter dated September 26, 1990. By letter dated September 6, 1996, a WPAP modification was approved for a 125 acre multi-use facility that included the high school stadium and a bus maintenance facility. The 1996 modification included 72.83 acres that comprised the high school and associated buildings. Since September 1996 there have been eight modifications of the WPAP to add additional buildings, pads, track improvements and additional vegetated filter strips (VFS). The most recent site plan update, approved on November 13, 2012, included improvements made to the running track.

The permanent BMP's approved for the high school include six sedimentation/filtration basins and multiple VFS.

PROJECT DESCRIPTION

The proposed project area will be limited to 4.3 acres of the 72.83 acre site. The project will include the construction of a new portable building and new bleacher pads at the south baseball and softball fields. The impervious cover will increase 0.21 acres to 32.73 acres (44.94 percent). Project wastewater will be disposed of by conveyance to the existing Leon Creek Water Recycling Center owned by the San Antonio Water System.

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 existing sedimentation/filtration basin (Basin No. 4), designed using the TCEQ technical guidance document, Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices (2005), will be utilized to treat stormwater runoff. The required total suspended solids (TSS) treatment for the 0.21 acres of impervious cover is 171 pounds of TSS. The total required TSS removal for Basin No. 4 is now 6,911 pounds of TSS generated from 8.47 acres of impervious cover. Basin No. 4 was designed with a removal capability of 8,005 pounds of TSS. The approved measures meet the required 80 percent removal of the increased load in TSS caused by the project. The updated capture volume and filtration area for Basin No. 4 is shown below.

Project Submittal/Date	Total Area (ac)	Total IC (ac)	Min. Capture Volume (ft^3)	Design Capture Volume (ft^3)	Min. Filter Area (ft^2)	Design Filter Area (ft^2)	Required TSS Removal (lb/yr)	Design TSS Removal (lb/yr)
Bleacher Pads & Portable Classroom June 15, 2017	57.53	8.47	45,996	53,100	4,600	5,612	6,911	8,005

GEOLOGY

According to the geologic assessment included with the application, the site is mostly on the Edwards Person Formation with small portions of the site assessed as Buda Limestone and Quaternary alluvium. No natural or manmade features were identified by the project geologist. The San Antonio Regional Office site assessment conducted on July 6, 2017 revealed that the site was generally as described in the application.

SPECIAL CONDITIONS

I. 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.

II. Basin No. 4 shall be inspected and completely operational prior to use of the newly constructed facilities located within the respective drainage area of the BMP.

STANDARD CONDITIONS

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

Prior to Commencement of Construction:

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

During Construction:

10. During the course of regulated activities related to this project, the applicant or agent shall comply with all applicable provisions of 30 TAC Chapter 213, Edwards Aquifer. The applicant shall remain responsible for the provisions and conditions of this approval until such responsibility is legally transferred to another person or entity.
11. This approval does not authorize the installation of temporary aboveground storage tanks on this project. If the contractor desires to install a temporary aboveground storage tank for use during construction, an application to modify this approval must be submitted and approved prior to installation. The application must include information related to tank location and spill containment. Refer to Standard Condition No. 6, above.
12. If any sensitive feature (caves, solution cavities, sink holes, etc.) is discovered during construction, all regulated activities near the feature must be suspended immediately. The applicant or his agent must immediately notify the San Antonio Regional Office of the discovery of the feature. Regulated activities near the feature may not proceed until the executive director has reviewed and approved the methods proposed to protect the feature and the aquifer from potentially adverse impacts to water quality. The plan must be sealed, signed, and dated by a Texas Licensed Professional Engineer.
13. No wells exist on site. All water wells, including injection, dewatering, and monitoring wells must be in compliance with the requirements of the Texas Department of Licensing and Regulation under Title 16 TAC Chapter 76 (relating to Water Well Drillers and Pump Installers) and all other locally applicable rules, as appropriate.
14. If sediment escapes the construction site, the sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain). Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50 percent. Litter, construction debris, and construction chemicals shall be prevented from becoming stormwater discharge pollutants.
15. Intentional discharges of sediment laden water are not allowed. If dewatering becomes necessary, the discharge will be filtered through appropriately selected best management practices. These may include vegetated filter strips, sediment traps, rock berms, silt fence rings, etc.
16. The following records shall be maintained and made available to the executive director upon request: the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.
17. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, and construction activities will not resume within 21 days. When the initiation of stabilization measures by the 14th day is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable.

After Completion of Construction:

18. A Texas Licensed Professional Engineer must certify in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the San Antonio Regional Office within 30 days of site completion.
19. The applicant shall be responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation, an owner's

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

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

This action is taken under authority delegated by the Executive Director of the Texas Commission on Environmental Quality. If you have any questions or require additional information, please contact Don Vandertulip, PE, BCEE 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
Texas Commission on Environmental Quality

LB/DV/eg

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

cc: Mr. Rolando Ramirez, P.E., Moy Tarin Ramirez Engineers, LLC
The Honorable Thomas Schoolcraft, City of Helotes
Ms. Renee Green, PE, Bexar County Public Works
Mr. Roland Ruiz, Edwards Aquifer Authority
Mr. George Wissman, Trinity Glen Rose Groundwater Conservation District

Jon Niermann, *Chairman*
Emily Lindley, *Commissioner*
Bobby Janecka, *Commissioner*
Toby Baker, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

March 20, 2020

Mr. Henry Acosta
Northside Independent School District
5900 Evers Road, Bldg. E
San Antonio, Texas 78238

Re: Edwards Aquifer, Bexar County

NAME OF PROJECT: NISD Sandra Day O'Connor High School; Located approximately 1,625 feet south of the Bandera Road and Leslie Road intersection on the west side of Leslie Road; Helotes, Texas

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

Regulated Entity No. RN104754304; Additional ID. No. 13001049

Dear Mr. Acosta:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAP Modification Application for the above-referenced project submitted to the San Antonio Regional Office by Moy Tarin Ramirez Engineers, LLC on behalf of Northside Independent School District on January 28, 2020. Final review of the WPAP Modification was completed after additional material was received on March 12, 2020 and March 17, 2020. As presented to the TCEQ, the Temporary and Permanent Best Management Practices (BMPs) were selected and construction plans were prepared by a Texas Licensed Professional Engineer to be in general compliance with the requirements of 30 TAC Chapter 213. These planning materials were sealed, signed and dated by a Texas Licensed Professional Engineer. Therefore, based on the engineer's concurrence of compliance, the planning materials for construction of the proposed project and pollution abatement measures are hereby approved subject to applicable state rules and the conditions in this letter. The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Edwards Aquifer Protection Plan. A motion for reconsideration must be filed no later than 23 days after the date of this approval letter. *This approval expires two (2) years from the date of this letter unless, prior to the expiration date, more than 10 percent of the construction has commenced on the project or an extension of time has been requested.*

BACKGROUND

The WPAP was approved by letter dated September 6, 1996 for construction of the NISD Multi-Use Facility (Helotes High School) later renamed as NISD Sandra Day O'Connor High School. Subsequent WPAP modifications for campus expansion on the 72.83-acre site were approved by

letters dated November 1, 1996, October 12, 1999, February 27, 2003, November 1, 2006, January 3, 2008 and August 1, 2017. Permanent BMPs include six water quality ponds and engineered vegetative filter strips.

PROJECT DESCRIPTION

This modification proposes the replacement of the existing natural turf football field with new synthetic turf and the resurfacing of the existing track surface within a 16.50-acre project area of the 72.83-acre site. Impervious cover totals 4.41 acres (26.72 percent) with 2.14 acres being new impervious cover. Total site impervious cover increases to 34.87 acres (47.87 percent). No wastewater will be generated by this project.

PERMANENT POLLUTION ABATEMENT MEASURES

To prevent the pollution of stormwater runoff originating on-site or up-gradient of the site and potentially flowing across and off the site after construction, an existing single chamber sedimentation filtration basin, designed using the TCEQ technical guidance document, Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices (2005), will treat stormwater runoff. The required total suspended solids (TSS) treatment for this project is 3,599 pounds of TSS generated from the 4.41 acres of impervious cover. The approved measure meets the required 80 percent removal of the increased load in TSS caused by the project.

GEOLOGY

According to the geologic assessment included with the application, the site lies within the Del Rio Clay. Five (5) non-sensitive manmade features in bedrock and one (1) non-sensitive geologic feature were noted by the project geologist within the project limits. The site assessment conducted on March 11, 2020 revealed that the site was generally as described in the application.

SPECIAL CONDITIONS

I. This modification is subject to all Special and Standard Conditions listed in the original plan approval letter dated September 6, 1996 and subsequent WPAP modifications dated November 1, 1996, October 12, 1999, February 27, 2003, November 1, 2006, January 3, 2008 and August 1, 2017.

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

STANDARD CONDITIONS

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

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

Prior to Commencement of Construction:

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

During Construction:

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

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

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

After Completion of Construction:

18. A Texas Licensed Professional Engineer must certify in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the San Antonio Regional Office within 30 days of site completion.
19. The applicant shall be responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation, an owner's association, a new property owner or lessee, a district, or municipality) or the ownership of the property is transferred to the entity. The regulated entity shall then be responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred. A copy of the transfer of responsibility must be filed with the executive director through San Antonio Regional Office within 30 days of the transfer. A copy of the transfer form (TCEQ-10263) is enclosed.
20. Upon legal transfer of this property, the new owner(s) is required to comply with all terms of the approved Edwards Aquifer protection plan. If the new owner intends to commence any new regulated activity on the site, a new Edwards Aquifer protection plan that

specifically addresses the new activity must be submitted to the executive director. Approval of the plan for the new regulated activity by the executive director is required prior to commencement of the new regulated activity.

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

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

Sincerely,

Robert Sadlier, Section Manager
Edwards Aquifer Protection Program
Texas Commission on Environmental Quality

RCS/dpm

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

cc: Mr. Nicholas Van Delist, P.E., Moy Tarin Ramirez Engineers, LLC
Mr. Thomas Schoolcraft, City of Helotes
Ms. Renee Green, P.E., Bexar County Public Works
Mr. Roland Ruiz, Edwards Aquifer Authority
Mr. Scott Halty, San Antonio Water System
Mr. George Wissmann, Trinity Glen Rose Groundwater Conservation District

EXHIBIT A

Barry R. McBee, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
John M. Baker, *Commissioner*
Dan Pearson, *Executive Director*

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

September 6, 1996

Mr. James Martin
Northside Independent School District
7522 Mainland
San Antonio, TX 78250

Re: EDWARDS AQUIFER, Bexar County
PROJECT: NISD Multi-Use Facility (Helotes High School), Located at the SW corner of S.H. 16 and Leslie Road, Helotes, Texas
TYPE: Request for Approval of Water Pollution Abatement Plan (WPAP); 30 Texas Administrative Code (TAC) §313.4; Edwards Aquifer Protection Program

Dear Mr. Martin:

The Texas Natural Resource Conservation Commission (TNRCC) has completed their review of the WPAP application for the referenced project that was submitted on behalf of Northside Independent School District (NISD) by M.W. Cude Engineers, L.L.C. and received by the San Antonio office on June 14, 1996. Final review was completed after additional material was received on August 7, 1996, August 12, 1996, and August 29, 1996.

PROJECT DESCRIPTION

This site was previously approved by letter dated September 26, 1996 as a multi-use facility on approximately 125 acres which would include a bus maintenance facility, stadium, and high school. This WPAP approval replaces the previous approval for that portion of the site which does not include the bus maintenance facility.

Book Volm Page
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The proposed 72.83 acre multi-use facility is to be developed as a school project and will consist of a high school with associated buildings, including a greenhouse, parking, and athletic fields. The site is located within the City of Helotes, and will conform with applicable codes and requirements of the City of Helotes.

The normal population of the development is estimated to be 3200 persons. 64,000 gallons per day of domestic wastewater is to be generated by this project. It will be disposed of by conveyance to the existing Leon Creek Wastewater Treatment Plant for treatment and disposal.

The proposed impervious cover for the development, approximately 25.91 acres (36%), includes roof tops, driveways, sidewalks, athletic fields, and parking lots.

GEOLOGY ON SITE

According to the geologic assessment included with the submittal, three (3) potential recharge features were found on the project site. All three (3) features were assessed as having a none/low relative infiltration rate. The site investigation performed by the San Antonio office on July 23, 1996, revealed no additional potential recharge features.

GEOLOGY DOWNGRADIENT OF SITE

According to the geologic assessment included with the submittal, one (1) potential recharge feature was found downgradient of the project site.

POLLUTION ABATEMENT

I. During Construction:

The following measures will be taken to prevent pollution of stormwater originating on-site or up-gradient from the project site and potentially flowing across and off the site during construction:

A. Stabilized construction entrances shall be installed at all sites of ingress and egress prior to initiation of any other regulated activity.

B. Temporary erosion and sedimentation controls (silt fences and rock berms) shall be installed prior to initiation of any other regulated activity.

II. After Construction:

Book Volm Page
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The following measures will be taken to prevent pollution of stormwater originating on-site or up-gradient from the project site and potentially flowing across and off the site after construction:

A. The full sedimentation/filtration basin is designed in accordance with the City of Austin Environmental Criteria Manual and is sized to capture the first ½ inch of stormwater run-off from 9.77 acres, providing a total capture volume of approximately 19000 cubic feet. The filtration system will consist of :

1. approximately 1932 square feet of sand, which is 18 inches thick,
2. an underdrain piping wrapped with geotextile membrane, and
3. an impervious liner.

B. There are five (5) vegetated filter strips planned for this project to treat stormwater run-off from parking lots and driveways. All vegetated filter strips are designed in accordance with the Lower Colorado River Authority (LCRA) Lake Travis Nonpoint Source Pollution Control Ordinance Technical Manual.

The 2.20 acre filter strip for drainage area 1 will:

1. be contiguous with developed area,
2. be at the same elevation as the developed area,
3. have a level spreading device, and
4. be sized to filter stormwater run-off from 1.04 acres of impervious cover.

The 4.03 acre filter strip for drainage area 2 will:

1. be contiguous with developed area,
2. be at the same elevation as the developed area,
3. have a level spreading device, and
4. be sized to filter stormwater run-off from 1.30 acres of impervious cover.

The 2.70 acre filter strip for drainage area 3 will:

1. be contiguous with developed area,
2. be at the same elevation as the developed area,
3. have a level spreading device, and
4. be sized to filter stormwater run-off from 1.52 acres of impervious cover.

The 1.70 acre filter strip for drainage area 4 will:

1. be contiguous with developed area,
2. be at the same elevation as the developed area,
3. have a level spreading device, and
4. be sized to filter stormwater run-off from 0.72 acres of impervious cover.

The 1.90 acre filter strip for drainage area 5 will:

1. be contiguous with developed area,
2. be at the same elevation as the developed area,
3. have a level spreading device, and
4. be sized to filter stormwater run-off from 0.97 acres of impervious cover.

APPROVAL

The plan for this project has been reviewed for compliance with 30 TAC §313.4 which sets forth pollution abatement criteria for any development on the recharge zone of the Edwards Aquifer. The proposed water pollution abatement plan is in general agreement with 30 TAC §313.4; therefore, approval of the plan is hereby granted subject to the specific conditions listed below.

Failure to comply with any of the following conditions, the deed recordation requirement, or any other specific conditions of approval is a violation of these rules. Pursuant to §26.136 of the Texas Water Code, any violations of the Edwards Aquifer Rules may result in administrative penalties of up to $10,000 for each act of violation and for each day of violation.

SPECIAL CONDITIONS OF APPROVAL

1. If any potential recharge features are encountered during construction, a geologist shall evaluate the significance of the features. The evaluation shall include representative photographs and a description of the feature forwarded to the San Antonio office. Construction in the vicinity of the features may only continue with written approval from the TNRCC.

2. Placement of hydrocarbon or hazardous substance storage facilities regulated pursuant to 313.10 and 313.11, requires submittal of all appropriate applications with appropriate fees and must receive prior approval from the TNRCC.

3. The sedimentation/filtration basin is designed in accordance with the City of Austin Environmental Criteria Manual. The basin will incorporate sedimentation and filtration as described above.

4. All permanent pollution abatement measures shall be operational prior to completion of construction.

5. Any chemicals or hazardous substances used on-site, whether for instructional purposes, maintenance activities, or any other use shall be used as specified by the manufacturer, and shall be stored and disposed of properly.

STANDARD CONDITIONS OF APPROVAL

1. Please be reminded that 30 TAC §313.4(c) requires the owner/developer to: (1) record in the county deed records that this property is subject to the approved WPAP; and (2) submit to the Executive Director through the San Antonio office, within 30 days of receiving this

written notice of approval of the water pollution abatement plan and prior to commencing construction, proof of application for recordation of notice in the county deed records. Enclosed is a suggested format you may use to deed record your approved WPAP.

2. Prior to commencing construction, the applicant/agent shall submit to the San Antonio office copies of any changes made to the plans and specifications for this project which have been required by the TNRCC review and/or all other permitting authorities.

3. **Please note, following this approval of the regulated activities described in the referenced WPAP submittal, any amendment to these activities required by some other regulating authority or desired by the applicant will require the submittal of a WPAP application to amend this approval. And, as indicated in 30 TAC §313.4 and 30 TAC §313.27, an application to amend any approved regulated activity shall include payment of appropriate fees and all information necessary for its review and Executive Director approval.**

4. Additionally, all contractors conducting regulated activities associated with this proposed regulated project shall be provided with copies of this approval letter and the entire contents of the submitted WPAP so as to convey to the contractors the specific conditions of this approval. During the course of these regulated activities, the contractors shall be required to keep on-site copies of the WPAP and this approval letter.

5. The temporary erosion and sedimentation (E&S) controls for the entire project shall be installed prior to beginning any other construction work on this project.

6. The appropriate E&S control(s) that shall be used during the construction of the project should be determined as follows: (1) **Silt fences** should be used when the drainage area is less than 2 acres and the slope is less than 10%. (2) **Rock berms with filtration** should be used when the drainage areas are greater than two acres or when the slopes are in excess of 10%. The bottom edge of the filter fabric must be buried a minimum of 6 inches below grade.

7. The TNRCC may monitor stormwater discharges from the site to evaluate the adequacy of the temporary and permanent erosion and sedimentation control measures. Additional protection may be necessary if excessive solids or other contaminants are being discharged from the site.

8. Also, 30 TAC §313.4(d)(2) requires that if any significant recharge features, such as solution openings or sinkholes, are discovered during construction, all regulated activities near the significant recharge feature must be suspended immediately and may not be resumed until

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the Executive Director has reviewed and approved the methods proposed to protect the aquifer from any potential adverse impacts. Upon discovery of the significant recharge features, the developer shall immediately notify the San Antonio office.

9. Temporary erosion and sedimentation controls must be installed prior to construction, maintained during construction, and removed when vegetation is established and the construction area is stabilized.

10. If any abandoned wells exist on the site or are found during construction of the proposed development, they shall be plugged in accordance with the local underground water conservation district's plugging procedures, if applicable, or 30 TAC §287.50(a) of this title (relating to Standards for Plugging Wells that Penetrate Undesirable Water Zones), or an equivalent method, as approved by the Executive Director. Pursuant to 30 TAC §287.48(e), the person that plugs such a well shall, within 30 days after plugging is complete, submit a Water Well Completion and Plugging Report to the Executive Director, through the San Antonio office and to the Edwards Aquifer Authority.

    Any drill holes resulting from core sampling on-site or down-gradient of the site shall be plugged with cement slurry, from the bottom of the hole to the top of the hole, so as to not allow water or contaminants to enter the subsurface environment.

11. No waste-disposal wells, new confined animal feeding operations, land disposal of Class I wastes, or use of sewage holding tanks as parts of organized collection systems shall be allowed on the recharge zone of this regulated development.

12. During the course of the construction related to the referenced regulated project, the owner/developer shall comply with all applicable provisions of 30 TAC §313.4. Construction which is initiated and abandoned, or not completed, shall be returned to a permanent condition such that groundwater in the Edwards Aquifer is protected from potential contamination. Additionally, the applicant, NISD, shall remain responsible for the provisions and special conditions of this approval until such responsibility is legally transferred to another person or entity, upon which that person or entity shall assume responsibility for all provisions and specific conditions of this approval.

13. **Pursuant to 30 TAC §313.4(d)(1) and prior to commencing regulated activities, the applicant must provide the San Antonio office with the date on which the regulated activity will commence.**

14. Please note that 30 TAC §313.4(g) states that this approval expires two years from this date unless, prior to the expiration date, construction has commenced on the regulated project.

Book Volm Page
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15. Approval of the design of the sewage collection system for this proposed subdivision shall be obtained from the Texas Natural Resources Conservation Commission prior to the commencement of construction of any sewage collection system, the design of which shall be in accordance with 30 TAC §313.5 and 30 TAC §317.

16. The developer shall ensure that construction debris, such as but not limited to scrap wood, bricks, paint, adhesives, containers, paper, etc. is disposed of properly at an authorized landfill off of the Edwards Aquifer Recharge Zone.

17. If asphaltic materials such as "seal coat", emulsion or other asphaltic products used for paving, roofing, etc. wash off or leave the project site the developer shall notify the TNRCC immediately and commence clean-up.

18. Each purchaser or occupant of an individual lot within this development shall be informed in writing about best management practices of pesticide and fertilizer application. The applicant may use Preventing Groundwater Pollution, A Practical Guide to Pest Control, available from the Edwards Aquifer Authority (210/222-2204), or equivalent information produced by recognized authorities such as the Soil Conservation Service, Texas Dept. of Agriculture, U.S. Dept. of Agriculture, etc. The applicant may develop their own educational information (with review by the TNRCC prior to use).

Should clarification of this letter be desired or if we may be of any other assistance, please contact Julie Rogers of our San Antonio office at 210/490-3096.

Sincerely,

Dan Pearson,
Executive Director

Book D Volm 07033 Page 01173

DP/JPR

Enclosure: Deed Recordation Form

cc: Steven Eklund, M.W. Cude Engineers, L.L.C.
Vivian Hails, Mayor, City of Helotes
Renee Green, Bexar County Public Works
Rick Illgner, Edwards Aquifer Authority
TNRCC Field Operations, Austin

Kathleen Hartnett White, *Chairman*
Larry R. Soward, *Commissioner*
Martin A. Hubert, *Commissioner*
Glenn Shankle, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

November 1, 2006

Mr. James Martin
Superintendent, Facilities & Operations
Northside Independent School District
5900 Evers Road
San Antonio, Texas 78238-1699

Re: EDWARDS AQUIFER, Bexar County
PROJECT: O'Conner/Clark Reliever High School, Project No. 2401.03
TYPE: Solution Feature/Sensitive Feature; 30 Texas Administrative Code (TAC) §213.5(f)(2); Edwards Aquifer Protection Program, Regulated Entity No. RN104754304, Investigation No. 517839

Dear Mr. Martin:

The Texas Commission on Environmental Quality (TCEQ) received a plan which addresses protection of solution features encountered during grading for the above referenced project. It was submitted on behalf of the Northside Independent School District by Raba-Kistner Consultants, Inc. and received by the San Antonio Regional Office on October 26, 2006. Feature locations and assessments are outlined in Table I below.

TABLE I

Type of Solution Feature	Location	Case*
Cave	Located within a fire lane trench west of Area "C" on the vicinity map submitted with the protection plan.	Case: NA Sensitivity: Sensitive
* For SCS & Storm Sewer lines, see TABLE II (enclosed). For other types of utility excavations, "Case" is not applicable.		

The San Antonio office conducted a site investigation on October 30, 2006. The field investigator agrees with the case assessment and sensitivity (sensitive). The plan submitted by Raba-Kistner Consultants, Inc. has been reviewed and was found to conform to the treatment outlined for this case in Table II (enclosure).

The resolution submitted for this situation is described and illustrated in the enclosure entitled, "Attachment 3 - Narrative Description of Proposed Protection Measure" (2 pages).

Based on the information provided, your protection plan is approved with the following conditions:

1. The location of the solution feature shall be shown on the "as-built" plans.

2. Any concrete or concrete encasement shall meet or exceed City of San Antonio/ San Antonio Water System specifications for minimum thickness and compression strength.

3. A site plan shall be provided showing the location of this geologic feature. It shall be updated and provided when additional features are discovered and reported.

Should clarification of this letter be desired or if we may be of any other assistance, please contact John Mauser of our San Antonio Regional office at 210/403-4024.

Sincerely,

Bobby D. Caldwell
Water Section Manager
San Antonio Regional Office

BDC/JKM/eg

Enclosure: Table II (Minimum Standards for Closing Solution Features in Sewer Line Trenches)
Attachment 3 Narrative Description of Proposed Protection Measure (2 pages).

cc: Richard Klar, PG, Raba-Kistner Consultants, Inc. (fc: 210/699-6426)
Brian Jones, Bartlett Cocke General Contractors (fc: 210/655-1327)
Scott Halty, San Antonio Water System
Renee D. Green, P.E., Bexar County Public Works
Robert J. Potts, Edwards Aquifer Authority
TCEQ Central Records, Building F, MC 212

EXHIBIT "A"

Robert J. Huston, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
Kathleen Hartnett White, *Commissioner*
Margaret Hoffman, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

February 27, 2003

RECEIVED
MAR - 5 2003
FACILITIES AND OPERATIONS

Mr. James G. Martin
Northside Independent School District
5615 Grissom Road
San Antonio, TX, 78238

Re: Edwards Aquifer, Bexar County
NAME OF PROJECT: Sandra Day O'Connor High School; Located on the northwest corner of State Highway 16 and Leslie Road; Helotes, Texas
TYPE OF PLAN: Request for Modification of a Water Pollution Abatement Plan (WPAP); 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer
Edwards Aquifer Protection Program File No. 1321.01

Dear Mr. Martin:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the request for modification of the approved WPAP for the referenced project submitted to the San Antonio Regional Office by Rolando Ramirez, P.E. of M.W. Cude Engineers, L.L.C. on behalf of Northside Independent School District on December 5, 2002. Final review of the WPAP submittal was completed after additional material was received on February 24, 2003. 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 20 days after the date of this approval letter. *This approval expires two (2) years from the date of this letter unless, prior to the expiration date, more than 10 percent of the construction has commenced on the project or an extension of time has been requested.*

PROJECT DESCRIPTION

This facility was previously approved by letters dated October 12, 1999, November 1, 1996, and September 6, 1996. As presented, the proposed modification to the site will consist of the following items. Phase one will include a cafeteria addition, 0.024 acres impervious cover (IC), a new band facility, 0.174 acres IC, a new multi-purpose building agriculture facility, 0.492 acres IC, new parking lot for event parking and band practice, 1.487 acres IC, a covered walkway, 0.009 acres IC, covering of existing walkways, no change in IC , a feed lot pad, 0.01 acres IC, and construction of vegetated filter strips 1, 2, & 3. Phase two will include an agricultural barn, 0.0279 acres IC, utility building expansion, 0.374 acres IC, pole barn, 0.018 acres IC, and portable classroom buildings, 0.355 acres IC. The proposed impervious cover for the entire development is approximately 29.44 acres (40.4 percent) of the total area of the site.

Book 10275 Page 1339

PERMANENT POLLUTION ABATEMENT MEASURES

Vegetated Filter Strip 1 (VFS1)

This filter strip will incorporate the required area necessary to treat storm water run-off from the impervious cover approved on September 6, 1996, and run-off from additional impervious cover included in this modification. VFS1 will treat storm water run-off from the event parking, athletic parking and bleachers (1.731 acres of new impervious cover) in addition to the previously approved impervious cover 1.034 acres which includes the driveway next to the football field. The additional vegetated filter strip of 1.65 acres will be added to the existing 1.9 acres of vegetative filter strip yielding at total area of 3.55 acres of required treatment area. The provided 3.64 acre vegetated filter strip is treating 2.765 acres of IC.

Vegetated Filter Strip 2 (VFS2)

The proposed band hall, covered walk, cafeteria addition, and portable classrooms are not in close proximity to an area suitable for treating the associated storm water run-off. It is proposed to treat the storm water run-off from approximately half of the existing vocational education building and all of the general classroom building in lieu of the proposed band hall, covered walk, cafeteria addition, and portable classrooms. This option of providing equivalent treatment is feasible since the treatment of rooftops was not required when the September 1996 WPAP approval was granted. Calculations of the impervious cover from the previously mentioned proposed improvements yield a total of 24,610 ft^2. One half of the vocational education building, and all the general classroom building impervious cover combine for a total 33,630 ft^2. VFS2 will provide equivalent treatment of runoff from the proposed band hall (7,600 ft^2), covered walk (470 ft^2), cafeteria addition (1,060 ft^2), and portable classrooms (15,480 ft^2). The required vegetated filter strip is 0.55 acres. The provided 0.74 acre vegetated filter strip is treating 0.772 acres of IC.

Vegetated Filter Strip 3 (VFS3)

There are 6.08 acres of impervious cover situated through out 18.55 acre drainage area. The structures included in the impervious cover calculation are the following: greenhouse (7,000 ft^2), agriculture building (20,000 ft^2), central plan (9,600 ft^2), a portion of the cafeteria (9,000 ft^2), security housing (1,450 ft^2), utility building (5,000 ft^2), pens (24,000 ft^2), paving/sidewalk 138,000 ft^2), feed lot pad (450 ft^2), multi purpose building, also known as agriculture building, (21,450 ft^2), utility building expansion (16,300 ft^2), pole barn (800 ft^2), and future barn (12,140 ft^2). A vegetated filter strip of 7.30 acres is required. The provided 10.63 acre vegetated filter strip is treating 6.08 acres of IC. All previously dedicated vegetated filter strips located within the contributing drainage area per the previous WPAP and modification approvals are being replaced by VFS3.

The approved measures have been presented to meet the required 80 percent removal of the increased load in total suspended solids caused by the project.

GEOLOGY

According to the original geologic assessment included with this application, three geologic features not assessed as sensitive were identified on the site. The San Antonio Regional Office did not conduct a site assessment investigation.

SPECIAL CONDITIONS

I. All permanent pollution abatement measures shall be operational prior to use of any of the facilities within the contributing drainage area.

Book 10275 Page 1340

II. The request to use the geologic assessment provided with the original WPAP is granted.

STANDARD CONDITIONS

1. Pursuant to §26.136 of the Texas Water Code, any violations of the requirements in 30 TAC Chapter 213 may result in administrative penalties.

Prior to Commencement of Construction:

2. 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, covered by the Edwards Aquifer protection plan, 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.

3. 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.

4. 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.

5. The applicant must provide written notification of intent to commence construction, replacement, or rehabilitation of the referenced project. Notification must be submitted to the San Antonio Regional Office no later than 48 hours prior to commencement of the regulated activity. Written notification must include the date on which the regulated activity will commence, the name of the approved plan and file 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 of an approved plan.

6. 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.

7. Abandoned injection wells must be closed under the requirements of 30 TAC Chapter 331 (relating to Underground Injection Control).

8. All borings with depths greater than or equal to 20 feet must be plugged with a 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:

9. During the course of regulated activities related to this project, the applicant or his 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.

10. If any sensitive feature 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 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.

11. 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.

12. 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%. 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).

13. 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.

14. 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.

15. To the maximum extent practicable, BMPs and measures must maintain flow to naturally-occurring sensitive features identified in either the geologic assessment, executive director review, or during excavation, blasting, or construction. The 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. A request to temporarily seal the feature must include a justification that no reasonable and practicable alternative exists. The request will be evaluated by the executive director on a case-by-case basis.

After Completion of Construction:

16. Owners of permanent BMPs and measures must insure that the 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 San Antonio Regional Office within 30 days of site completion.

17. 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

Book 10275 Page 1342

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. A copy of the transfer of responsibility must be filed with the executive director through the San Antonio Regional Office within 30 days of the transfer. A copy of the transfer form (TCEQ-10263) is enclosed.

18. 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.

19. An Edwards Aquifer protection plan approval or extension will expire and no extension will be granted if more than 50% 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.

20. 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.

If you have any questions or require additional information, please contact Lynn M. Bumguardner of the Edwards Aquifer Protection Program of the San Antonio Regional Office at 210/403-4023.

Sincerely,

Bobby D. Caldwell

for Margaret Hoffman
Executive Director
Texas Commission on Environmental Quality

MH/LMB/eg

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

cc: Mr. Rolando Ramirez, P.E., M.W. Cude Engineers, L.L.C.
Mr. Steven Hodges, City of Helotes
Mr. John Bohuslav, TXDOT San Antonio District
Ms. Renee Green, Bexar County Public Works
Mr. Greg Ellis, Edwards Aquifer Authority
TCEQ Central Records, Building F, MC 212

Book 10275 Page 1343

Kathleen Hartnett White, *Chairman*
Larry R. Soward, *Commissioner*
Martin A. Hubert, *Commissioner*
Glenn Shankle, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

November 1, 2006

Mr. James G. Martin
Northside Independent School district
5900 Evers Road
San Antonio, Texas 78238-1699

Re: Edwards Aquifer, Bexar County
NAME OF PROJECT: Sandra Day O'Connor Ag. Addition; Located on the northwest corner of State Hwy 16 and Leslie Road, Texas
TYPE OF PLAN: Request for Modification of a Water Pollution Abatement Plan (WPAP); 30 Texas Administrative Code (TAC) Chapter 213 and Chapter 317 Edwards Aquifer; Edwards Aquifer Protection Program ID No. 335.04, Investigation No. 511849, Regulated Entity No. RN102772001

Dear Mr. Martin:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the request for modification of the approved WPAP for the referenced project submitted to the San Antonio Regional Office by M.W. Cude Engineers, LLC on behalf of the Northside Independent School District on September 01, 2006. Final review of the WPAP submittal was completed after additional material was received on October 20 and October 30, 2006. 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.*

PROJECT DESCRIPTION

This facility was previously approved by letters dated October 12, 1999, November 1, 1996 and September 6, 1996. As presented, the proposed modification to the site will consist of the following items. The proposed commercial project will have an area of approximately 4.7 acres (total site area is 72.83 acres). The modification to the existing high school will consist of the following:

1. Two new agricultural barns with adjacent sidewalks.
2. New asphalt parking area.
3. New loop drive to accommodate fire truck access.
4. A new water quality pond and a detention pond.

The modification will also include a partial relocation of vegetated filter strip #3 approved by letter dated February 27, 2003. The table below summarizes modification to the existing vegetated filter #3

Filter Strip Status	Watershed Area (acres)	Impervious Cover (acres)	Filter Strip Area (square feet)	Required TSS Removal (lbs)
Existing	18.55	6.5*	317,912.20	5549
Future	15.95	6.8	319,135.00	5549

*the impervious cover approved by February 27, 2003 letter was to be 6.8 acres, however 0.3 acres (pole barn and future barn) were not constructed

The impervious cover will be 1.73 acres (36.8% of the 4.7 acres disturbed). Impervious cover for the entire 72.83 acre site will become 31.57 acres. Project wastewater will be disposed of by conveyance to the existing Leon Creek Wastewater Treatment Plant.

PERMANENT POLLUTION ABATEMENT MEASURES

To prevent pollution of stormwater runoff originating on-site or up-gradient of the site and potentially flowing across and off the site after construction, a partial sedimentation/filtration basin designed using the TCEQ technical guidance document, Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices (BMPs)(July 2005) will be constructed. The basin is designed to provide treatment of 1413 pounds (lbs) of Total Suspended Solids (TSS) from 6.01 acres with a capture volume of 9,018 cubic feet and a sand filter area of 2,066 square feet. The approved measures have been presented to meet the required 80 percent removal of the increased load in TSS caused by the project.

GEOLOGY

According to the geologic assessment included with the application, no geologic or manmade features were found on the project site. The San Antonio Regional Office did not conduct a site investigation.

SPECIAL CONDITIONS

1. The sedimentation/filtration basin shall be operational prior to the use of any of the facilities approved by this letter.

2. All sediment and/or media removed from the sedimentation/filtration basin during maintenance activities shall be properly disposed of according to 30 TAC 330 or 30 TAC 335 as applicable.

3. Intentional discharges of sediment laden stormwater are not allowed. If dewatering becomes necessary, the discharge will be filtered through appropriately selected best management practices. These may include vegetative filter strips, sediment traps, rock berms, silt fence rings, etc.

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.

4. This modification is subject to all Special and Standard Conditions listed in the WPAP approval letters of February 27, 2003, October 12, 1999, November 1, 1996, and September 6, 1996.

5. The applicant shall provide all contractors with a copy of pages 1-35 through 1-60 of TCEQ TGM RG-348 (2005) as a guide for soil stabilization practices and assure that any soil stabilization is performed in accordance with these practices and the approved plan.

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.

Prior to Commencement of Construction:

2. 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.

3. 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.

4. 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.

5. The applicant must provide written notification of intent to commence construction, replacement, or rehabilitation of the referenced project. Notification must be submitted to the San Antonio Regional Office no later than 48 hours prior to commencement of the regulated activity. Written notification must include the date on which the regulated activity will commence the name of the approved plan and program ID number for the regulated activity, and the name of the prime contractor with the name and telephone number of the contact person. The executive director will use the notification to determine if the approved plan is eligible for an extension.

6. 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.

7. 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:

8. 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.

9. 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.

10. No wells exist on the site. All water wells, including injection, dewatering, and monitoring wells must be in compliance with the requirements of the Texas Department of Licensing and Regulation under Title 16 TAC Chapter 76 (relating to Water Well Drillers and Pump Installers) and all other locally applicable rules, as appropriate.

11. 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.

12. 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.

13. 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:

14. 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.

15. 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 the San Antonio Regional Office within 30 days of the transfer. A copy of the transfer form (TCEQ-10263) is enclosed.

16. 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.

17. 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.

18. 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.

If you have any questions or require additional information, please contact Agnieszka Hobson of the Edwards Aquifer Protection Program of the San Antonio Regional Office at 210/403-4075.

Sincerely,

Bobby D. Caldwell

for Glenn Shankle
Executive Director
Texas Commission on Environmental Quality

GS/AMH/eg

Enclosures: Deed Recordation Affidavit, TCEQ-0625
Change in Responsibility for Maintenance on Permanent BMPs, TCEQ-10263

cc: Mr. Rolando "Ron" Ramirez, P.E., M.W. Cude Engineers, LLC
Mr. Jon Allan, City of Helotes
Mr. Scott Halty, San Antonio Water System
Ms. Renee Green, Bexar County Public Works
Mr. Robert J. Potts, Edwards Aquifer Authority
TCEQ Central Records, MC 212

Bryan W. Shaw, Ph.D., *Chairman*
Buddy Garcia, *Commissioner*
Carlos Rubinstein, *Commissioner*
Mark R. Vickery, P.G., *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

May 27, 2011

Mr. Vernon Dunagin
Northside Independent School District
5900 Evers Road
San Antonio, TX 78238

Re: Edwards Aquifer Protection Program, Bexar County

Name of Project: NISD Sandra Day O'Conner High School ROTC Addition; Located at the southwest corner of Hwy. 16 and Leslie Rd., Helotes, Texas

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

Edwards Aquifer Protection Program San Antonio File No. 335.06; Investigation No. 906329; Regulated Entity No. RN104754304

Dear Mr. Dunagin:

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 M.W. Cude Engineers, LLC on behalf of Northside Independent School District on March 15, 2011. Final review of the WPAP was completed after additional material was received on May 17, 2011. 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

The high school was originally approved by letter dated September 6, 1996 for construction of 25.91 acres of impervious cover within the 72.83 acre site. The permanent best management practices approved was a sand filter basin and vegetated filter strips.

Since the first approval, six modifications have been approved. The most recent modification was approved by letter dated January 3, 2008 and resulted in removing vegetated filters strips and adding a sand filter basin. The impervious cover remained at 31.57 acres.

Project Description

The proposed school project will have an area of 2.68 acres within the larger 72.83 acre site. It will include the construction of a new building expansion with new parking and sidewalk and the relocation of an existing driveway. The impervious cover will increase by 0.579 acres and now totals 32.15 acres (44.14 percent). Project wastewater will be disposed of by conveyance to the existing Leon Creek Water Recycling Center owned by the San Antonio Water System.

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, a Vortechs system, designed using the TCEQ technical guidance document, Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices (2005), will be constructed to treat stormwater runoff. The required total suspended solids (TSS) treatment for this project is 1,060 pounds of TSS generated from the 0.579 acre increase in impervious cover (472 lbs) and from removing the vegetated filter strip that was treating 0.72 acres of impervious cover (588 lbs). The approved measures meet the required 80 percent removal of the increased load in TSS caused by the project.

The precast Vortechs Vx16000 unit will have a drainage area of 2.10 acres with 1.27 acres of impervious cover. The unit has been sized for 1,060 pounds of TSS.

Geology

According to the geologic assessment included with the application, the site is located on the Del Rio Clay. One manmade feature in bedrock (boring) was evaluated as non-sensitive by the project geologist since the feature had been backfilled. The San Antonio Regional Office did not conduct a site assessment.

Special Conditions

1. This modification is subject to all Special and Standard Conditions listed in the approval letters of the previously approved WPAPs.

2. The permanent BMP shall be operational prior to occupancy of the facility.

3. All sediment and/or media removed from the permanent BMP during maintenance activities shall be properly disposed of according to 30 TAC 330 or 30 TAC 335, as applicable.

Standard Conditions

1. Pursuant to Chapter 7 Subchapter C of the Texas Water Code, any violations of the requirements in 30 TAC Chapter 213 may result in administrative penalties.

2. The holder of the approved Edwards Aquifer protection plan must comply with all provisions of 30 TAC Chapter 213 and all best management practices and measures contained in the approved plan. Additional and separate approvals, permits, registrations and/or authorizations from other TCEQ Programs (i.e., Stormwater, Water Rights, UIC) can be required depending on the specifics of the plan.

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

Prior to Commencement of Construction:

4. Within 60 days of receiving written approval of an Edwards Aquifer Protection Plan, the applicant must submit to the San Antonio Regional Office, proof of recordation of notice in the county deed records, with the volume and page number(s) of the county deed records of the county in which the property is located. A description of the property boundaries shall be included in the deed recordation in the county deed records. A suggested form (Deed Recordation Affidavit, TCEQ-0625) that you may use to deed record the approved WPAP is enclosed.

5. All contractors conducting regulated activities at the referenced project location shall be provided a copy of this notice of approval. At least one complete copy of the approved WPAP and this notice of approval shall be maintained at the project location until all regulated activities are completed.

6. Modification to the activities described in the referenced WPAP application following the date of approval may require the submittal of a plan to modify this approval, including the payment of appropriate fees and all information necessary for its review and approval prior to initiating construction of the modifications.

7. The applicant must provide written notification of intent to commence construction, replacement, or rehabilitation of the referenced project. Notification must be submitted to the San Antonio Regional Office no later than 48 hours prior to commencement of the regulated activity. Written notification must include the date on which the regulated activity will commence, the name of the approved plan and program ID number for the regulated activity, and the name of the prime contractor with the name and telephone number of the contact person. The executive director will use the notification to determine if the approved plan is eligible for an extension.

8. Temporary erosion and sedimentation (E&S) controls, i.e., silt fences, rock berms, stabilized construction entrances, or other controls described in the approved WPAP, must be installed prior to construction and maintained during construction. Temporary E&S controls may be removed when vegetation is established and the construction area is stabilized. If a water quality pond is proposed, it shall be used as a sedimentation basin during construction. The TCEQ may monitor stormwater discharges from the site to evaluate the adequacy of temporary E&S control measures. Additional controls may be necessary if excessive solids are being discharged from the site.

9. All borings with depths greater than or equal to 20 feet must be plugged with non-shrink grout from the bottom of the hole to within three (3) feet of the surface. The remainder of the hole must be backfilled with cuttings from the boring. All borings less than 20 feet must

be backfilled with cuttings from the boring. All borings must be backfilled or plugged within four (4) days of completion of the drilling operation. Voids may be filled with gravel.

During Construction:

10. During the course of regulated activities related to this project, the applicant or agent shall comply with all applicable provisions of 30 TAC Chapter 213, Edwards Aquifer. The applicant shall remain responsible for the provisions and conditions of this approval until such responsibility is legally transferred to another person or entity.

11. This approval does not authorize the installation of temporary aboveground storage tanks on this project. If the contractor desires to install a temporary aboveground storage tank for use during construction, an application to modify this approval must be submitted and approved prior to installation. The application must include information related to tank location and spill containment. Refer to Standard Condition No. 6, above.

12. If any sensitive feature (caves, solution cavities, sink holes, etc.) is discovered during construction, all regulated activities near the feature must be suspended immediately. The applicant or his agent must immediately notify the San Antonio Regional Office of the discovery of the feature. Regulated activities near the feature may not proceed until the executive director has reviewed and approved the methods proposed to protect the feature and the aquifer from potentially adverse impacts to water quality. The plan must be sealed, signed, and dated by a Texas Licensed Professional Engineer.

13. No wells are located within the project limits. 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 storm water are not allowed. If dewatering becomes necessary, the discharge will be filtered through appropriately selected best management practices. These may include vegetated filter strips, sediment traps, rock berms, silt fence rings, etc.

16. The following records shall be maintained and made available to the executive director upon request: the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.

17. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, and construction activities will not resume within 21 days. When the initiation of stabilization measures by the 14th day is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable.

After Completion of Construction:

18. A Texas Licensed Professional Engineer must certify in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the San Antonio Regional Office within 30 days of site completion.

19. The applicant shall be responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation, an owner's association, a new property owner or lessee, a district, or municipality) or the ownership of the property is transferred to the entity. The regulated entity shall then be responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred. A copy of the transfer of responsibility must be filed with the executive director through San Antonio Regional Office within 30 days of the transfer. A copy of the transfer form (TCEQ-10263) is enclosed.

20. Upon legal transfer of this property, the new owner(s) is required to comply with all terms of the approved Edwards Aquifer protection plan. If the new owner intends to commence any new regulated activity on the site, a new Edwards Aquifer protection plan that specifically addresses the new activity must be submitted to the executive director. Approval of the plan for the new regulated activity by the executive director is required prior to commencement of the new regulated activity.

21. An Edwards Aquifer protection plan approval or extension will expire and no extension will be granted if more than 50 percent of the total construction has not been completed within ten years from the initial approval of a plan. A new Edwards Aquifer protection plan must be submitted to the San Antonio Regional Office with the appropriate fees for review and approval by the executive director prior to commencing any additional regulated activities.

22. At project locations where construction is initiated and abandoned, or not completed, the site shall be returned to a condition such that the aquifer is protected from potential contamination.

If you have any questions or require additional information, please contact Charly Fritz of the Edwards Aquifer Protection Program of the San Antonio Regional Office at (210) 403-4065.

Sincerely,

for

Mark R. Vickery, P.G., Executive Director
Texas Commission on Environmental Quality

MRV/CEF/eg

Enclosure: Deed Recordation Affidavit, Form TCEQ-0625

Change in Responsibility for Maintenance of Permanent BMPs, Form TCEQ-10263

cc: Mr. Jeffrey Randow, P.E., CFM, M.W. Cude Engineers, LLC

Mr. Scott Halty, San Antonio Water System
Ms. Renee Green, P.E., Bexar County Public Works
Mr. George Wissmann, Trinity Glen Rose UCD
Mr. Karl Dreher, General Manager, Edwards Aquifer Authority
TCEQ Central Records, Building F, MC 212

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

November 13, 2012

Mr. Leroy San Miguel
Northside ISD
5900 Evers Road
San Antonio, Texas 78250

Re: Edwards Aquifer, Bexar County
NAME OF PROJECT: NISD Sandra Day O'Connor High School, 12221 Leslie Road; Helotes, Texas
TYPE OF PLAN: Request for Technical Clarification on a Water Pollution Abatement Plan (WPAP); 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer; Edwards Aquifer Protection Program San Antonio File No. 335.08; Regulated Entity No. RN104754304; Investigation No. 1035681

Dear Mr. San Miguel:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the request for technical clarification of the approved WPAP for the above-referenced project submitted to the San Antonio Regional Office by CUDE Engineers on behalf of Northside ISD on August 29, 2012. Final review of the request was completed after additional material was received on September 25, 2012.

As presented to the TCEQ, the submitted request describes a proposed change to the site layout from the previously approved site plan. The request includes the demolition of the existing track, site grading, reconstruction of the track, and placement of sidewalks. The resulting impervious cover for the site will increase by 0.37 acres (16,117 square feet) from the previously approved 7.89 acres to 8.26 acres. The drainage area within the site has not been revised and routes storm water to the previously approved partial sedimentation/filtration basin. The previously approved basin has been constructed as approved and is sufficiently sized to accommodate the proposed changes without modification to the basin. Due to the net increase in impervious cover, an additional 302 pounds of Total Suspended Solids (TSS) will be generated by the track improvements.

Basin	Total Area (ac)	Total IC (ac)	Min. Capture Volume (ft^3)	Design Capture Volume (ft^3)	Min. Filter Area (ft^2)	Design Filter Area (ft^2)	Required TSS Removal (lb/yr)	Design TSS Removal (lb/yr)
Sand Filtration Basin	57.53	8.26	45,211	53,100	4,521	5,612	6,740	8,005

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Based on the engineer's concurrence of compliance, and the submitted planning materials, the proposed project does not include any activities outlined in 30 TAC 213.4(j) that would require a modification to the approved WPAP. The above referenced file will be updated with the submitted information. Please note the activities described in the submitted request are subject to all Special and Standard Conditions listed in the WPAP approval letter dated January 3, 2008.

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, P.E. of the Edwards Aquifer Protection Program of the San Antonio Regional Office at 210-403-4057.

Sincerely,

for Lynn Bumguardner
Water Section Manager
San Antonio Regional Office
Texas Commission on Environmental Quality

LMB/MI/eg

cc: Mr. Kevin Hunt, P.E., CUDE Engineers
The Honorable Thomas Schoolcraft, City of Helotes
Ms. Renee Green, P.E., Bexar County Public Works
Mr. Scott Halty, P.E., San Antonio Water System
Mr. Karl J. Dreher, General Manger, Edwards Aquifer Authority
Mr. George Wissmann, Trinity Glen Rose Conservation District
TCEQ Central Records, MC 212

Attachment B

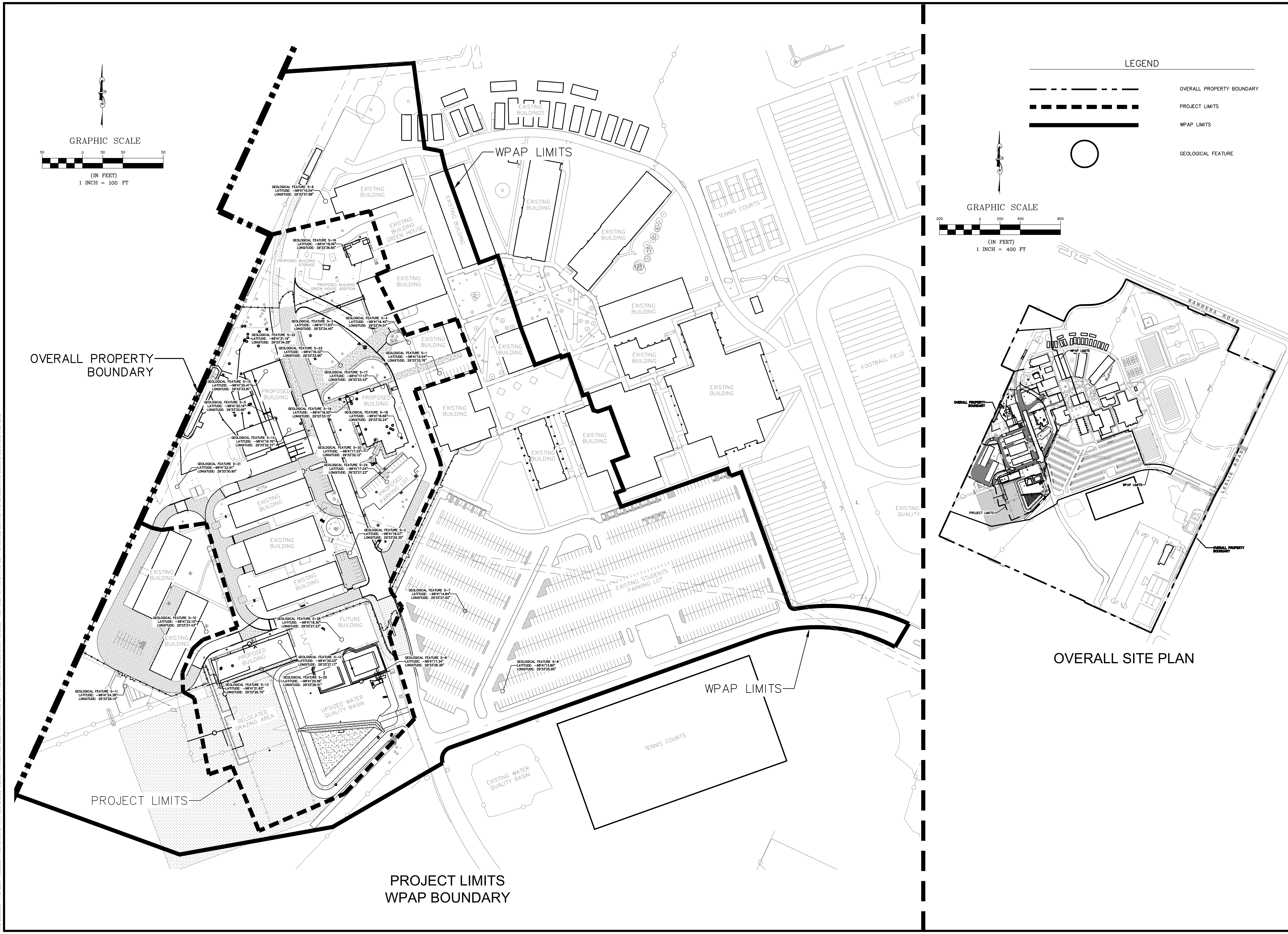
Narrative of Proposed Modification

Narrative of Proposed Modification

The addition of the 436.14 LF of 3” SDR 26 force main and a duplex lift station to capture sanitary waste from Barn T and a future barn and discharge the sanitary waste to the previously approved SCS sanitary sewer main. Refer to the previously approved SCS sanitary sewer main as shown in enclosed Utility and Drainage Plan Mid (C5.03) and SS-3 (Proposed Sanitary Sewer Force Main Plan and Profile). This modification addresses the addition of the lift station and force main (as designed by DBR with force main routing shown by KCI) to the previously approved OSCS and WPAP Modifications on March 1, 2024.

Attachment C

Current Site Plan of Approved Project



REV	DATE	DESCRIPTION

KCI TECHNOLOGIES, INC.
11550 IH 10 WEST, SUITE 395
SAN ANTONIO, TEXAS 78230-1037
PHONE: (210) 641-9999
FAX: (210) 641-6440
REGISTRATION #F-10573 / #101943-65

KCI TECHNOLOGIES

O'CONNOR HIGH SCHOOL AGRICULTURAL AREA
12221 LESLIE RD,
HELOTES, TX 78023
SITE PLAN

DRAFTING:	JKZ	CHECK:	PAM
DESIGN:	JKZ	CHECK:	PAM
SUBMITTAL PHASE:			
DATE:			06/2023
KCI JOB #:			762301481
SHEET:			EX B

Sewage Collection System Application - Checklist (TCEQ-0582)

Organized Sewage Collection System Application

Texas Commission on Environmental Quality

For Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(c), 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.

Regulated Entity Name: O'Connor High School Agricultural Science and Technology

1. ☒ **Attachment A – SCS Engineering Design Report**. This Engineering Design Report is provided to fulfill the requirements of 30 TAC Chapter 217, including 217.10 of Subchapter A, §§217.51 – 217.70 of Subchapter C, and Subchapter D as applicable, and is required to be submitted with this SCS Application Form.

Customer Information

2. The entity and contact person responsible for providing the required engineering certification of testing for this sewage collection system upon completion (including private service connections) and every five years thereafter to the appropriate TCEQ region office pursuant to 30 TAC §213.5(c) is:

   Contact Person: Jacob Villarreal, Executive Director of Construction and Engineering
   Entity: Northside Independent School District
   Mailing Address: 5900 Evers Road
   City, State: San Antonio, TX Zip: 78238
   Telephone: (210) 397-8500 Fax: (210) 397-8500
   Email Address: jacob.villarreal@nisd.net
   The appropriate regional office must be informed of any changes in this information within 30 days of the change.

3. The engineer responsible for the design of this sewage collection system is:

   Contact Person: Paul A. Mathis, P.E., PMP, LEED Green Assoc., MBA
   Practice Leader | Senior Associate
   Texas Licensed Professional Engineer's Number: 105075
   Entity: KCI Technolgies
   Mailing Address: 2806 W Bitters Rd Suite 218
   City, State:San Antonio, TX Zip: 78248
   Telephone:(210) 641-9999 Fax:(210) 641-6440

Email Address:paul.mathis@kci.com

Project Information

4. Anticipated type of development to be served (estimated future population to be served, plus adequate allowance for institutional and commercial flows):

   ☐ Residential: Number of single-family lots: 0
   ☐ Multi-family: Number of residential units: 0
   ☐ Commercial
   ☐ Industrial
   ☐ Off-site system (not associated with any development)
   ☒ Other: Educational

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

   100% Domestic — 1500 gallons/day
   _____% Industrial — _____ gallons/day
   _____% Commingled — _____ gallons/day

   Total gallons/day: 1500

6. Existing and anticipated infiltration/inflow is 0 gallons/day. This will be addressed by: _____.

7. A Water Pollution Abatement Plan (WPAP) is required for construction of any associated commercial, industrial or residential project located on the Recharge Zone.

   ☒ The WPAP application for this development was approved by letter dated 03/01/2024. A copy of the approval letter is attached.
   ☐ The WPAP application for this development was submitted to the TCEQ on _____, but has not been approved.
   ☐ A WPAP application is required for an associated project, but it has not been submitted.
   ☐ There is no associated project requiring a WPAP application.

8. Pipe description:

Table 1 - Pipe Description

Pipe Diameter(Inches)	*Linear Feet (1)*	*Pipe Material (2)*	*Specifications (3)*
8	611.49	PVC	SDR 26
3 (Force Main)	436.14	PVC	SDR 26

Total Linear Feet: 1,047.63

(1) Linear feet - Include stub-outs and double service connections. Do not include private service laterals.

(2) Pipe Material - If PVC, state SDR value.
(3) Specifications - ASTM / ANSI / AWWA specification and class numbers should be included.

9. The sewage collection system will convey the wastewater to the Leon Creek (name) Treatment Plant. The treatment facility is:

☒ Existing
☐ Proposed

10. All components of this sewage collection system will comply with:

☒ The City of Helotes and SAWS standard specifications.
☐ Other. Specifications are attached.

11. ☐ No force main(s) and/or lift station(s) are associated with this sewage collection system.

☒ A force main(s) and/or lift station(s) is associated with this sewage collection system and the **Lift Station/Force Main System Application** form (TCEQ-0624) is included with this application.

Alignment

12. ☒ There are no deviations from uniform grade in this sewage collection system without manholes and with open cut construction.

13. ☐ There are no deviations from straight alignment in this sewage collection system without manholes.

☐ **Attachment B - Justification and Calculations for Deviation in Straight Alignment without Manholes**. A justification for deviations from straight alignment in this sewage collection system without manholes with documentation from pipe manufacturer allowing pipe curvature is attached.

☐ For curved sewer lines, all curved sewer line notes (TCEQ-0596) are included on the construction plans for the wastewater collection system.

Manholes and Cleanouts

14. ☒ Manholes or clean-outs exist at the end of each sewer line(s). These locations are listed below: (Please attach additional sheet if necessary)

Table 2 - Manholes and Cleanouts

Line	*Shown on Sheet*	*Station*	*Manhole or Clean-out?*
1	SS-1 Of Enclosed Construction Plans	10+00	MH-1
1	SS-1 Of Enclosed Construction Plans	14+99.30	MH-2
1	SS-1 Of Enclosed Construction Plans	16+24.48	MH-3

Line	*Shown on Sheet*	*Station*	*Manhole or Clean-out?*
	Of		
	Of		
	Of		
	Of		
	Of		
	Of		
	Of		

15. ☒ Manholes are installed at all Points of Curvature and Points of Termination of a sewer line.

16. ☒ The maximum spacing between manholes on this project for each pipe diameter is no greater than:

Pipe Diameter (inches)	Max. Manhole Spacing (feet)
6 - 15	500
16 - 30	800
36 - 48	1000
≥54	2000

☐ **Attachment C – Justification for Variance from Maximum Manhole Spacing**. The maximum spacing between manholes on this project (for each pipe diameter used) is greater than listed in the table above. A justification for any variance from the maximum spacing is attached, and must include a letter from the entity which will operate and maintain the system stating that it has the capability to maintain lines with manhole spacing greater than the allowed spacing.

17. ☐ All manholes will be monolithic, cast-in-place concrete.

☒ The use of pre-cast manholes is requested for this project. The manufacturer's specifications and construction drawings, showing the method of sealing the joints, are attached.

Site Plan Requirements

Items 18 - 25 must be included on the Site Plan.

18. ☒ The Site Plan must have a minimum scale of 1" = 400'.

Site Plan Scale: 1" = 400'.

19. ☒ The Site Plan must include the sewage collection system general layout, including manholes with station numbers, and sewer pipe stub outs (if any). Site plan must be overlain by topographic contour lines, using a contour interval of not greater than ten

feet and showing the area within both the five-year floodplain and the 100-year floodplain of any drainage way.

20. Lateral stub-outs:

☐ The location of all lateral stub-outs are shown and labeled.
☒ No lateral stub-outs will be installed during the construction of this sewer collection system.

21. Location of existing and proposed water lines:

☒ The entire water distribution system for this project is shown and labeled.
☐ If not shown on the Site Plan, a Utility Plan is provided showing the entire water and sewer systems.
☐ There will be no water lines associated with this project.

22. 100-year floodplain:

☒ After construction is complete, no part of this project will be in or cross a 100-year floodplain, either naturally occurring or manmade. (Do not include streets or concrete-lined channels constructed above of sewer lines.)
☐ After construction is complete, all sections located within the 100-year floodplain will have water-tight manholes. These locations are listed in the table below and are shown and labeled on the Site Plan. (Do not include streets or concrete-lined channels constructed above sewer lines.)

Table 3 - 100-Year Floodplain

Line	*Sheet*	*Station*
	of	to
	of	to
	of	to
	of	to

23. 5-year floodplain:

☒ After construction is complete, no part of this project will be in or cross a 5-year floodplain, either naturally occurring or man-made. (Do not include streets or concrete-lined channels constructed above sewer lines.)
☐ After construction is complete, all sections located within the 5-year floodplain will be encased in concrete or capped with concrete. These locations are listed in the table below and are shown and labeled on the Site Plan. (Do not include streets or concrete-lined channels constructed above sewer lines.)

Table 4 - 5-Year Floodplain

Line	*Sheet*	*Station*
	of	to
	of	to

Line	*Sheet*	*Station*
	of	to
	of	to

24. ☒ Legal boundaries of the site are shown.

25. ☐ The ***final plans and technical specifications*** are submitted for the TCEQ's review. Each sheet of the construction plans and specifications are dated, signed, and sealed by the Texas Licensed Professional Engineer responsible for the design on each sheet.

Items 26 - 33 must be included on the Plan and Profile sheets.

26. ☒ All existing or proposed water line crossings and any parallel water lines within 9 feet of sewer lines are listed in the table below. These lines must have the type of pressure rated pipe to be installed shown on the plan and profile sheets. Any request for a variance from the required pressure rated piping at crossings must include a variance approval from 30 TAC Chapter 290.

☐ There will be no water line crossings.
☐ There will be no water lines within 9 feet of proposed sewer lines.

Table 5 - Water Line Crossings

Line	*Station or Closest Point*	*Crossing or Parallel*	*Horizontal Separation Distance*	*Vertical Separation Distance*
1	11+11.89 of Sheet SS-1 of Construction Plans	Crossing	0'	0.88'
2	13+11.60.07 of Sheet SS-1 Construction Plans	Crossing	0'	2.27'
3	15+61.45 of Sheet SS-1 of Construction Plans	Crossing	0'	2.23'

27. Vented Manholes:

☒ **No part** of this sewer line is within the 100-year floodplain and vented manholes are not required by 30 TAC Chapter 217.

☐ **A portion** of this sewer line is within the 100-year floodplain and vented manholes will be provided at less than 1500 foot intervals. These water-tight manholes are listed in the table below and labeled on the appropriate profile sheets.

☐ **A portion** of this sewer line is within the 100-year floodplain and an alternative means of venting shall be provided at less than 1500 feet intervals. A description of the alternative means is described on the following page.

☐ **A portion** of this sewer line is within the 100-year floodplain; however, there is no interval longer than 1500 feet located within. No vented manholes will be used.

Table 6 - Vented Manholes

Line	*Manhole*	*Station*	*Sheet*

28. Drop manholes:

☒ There are no drop manholes associated with this project.

☐ Sewer lines which enter new or existing manholes or "manhole structures" higher than 24 inches above the manhole invert are listed in the table below and labeled on the appropriate profile sheets. These lines meet the requirements of 30 TAC §217.55(l)(2)(H).

Table 7 - Drop Manholes

Line	*Manhole*	*Station*	*Sheet*

29. Sewer line stub-outs (For proposed extensions):

☐ The placement and markings of all sewer line stub-outs are shown and labeled.

☒ No sewer line stub-outs are to be installed during the construction of this sewage collection system.

30. Lateral stub-outs (For proposed private service connections):

☐ The placement and markings of all lateral stub-outs are shown and labeled.
☒ No lateral stub-outs are to be installed during the construction of this sewage collection system.

31. Minimum flow velocity (From Appendix A)

☒ Assuming pipes are flowing full; all slopes are designed to produce flows equal to or greater than 2.0 feet per second for this system/line.

32. Maximum flow velocity/slopes (From Appendix A)

☒ Assuming pipes are flowing full, all slopes are designed to produce maximum flows of less than or equal to 10 feet per second for this system/line.
☐ **Attachment D – Calculations for Slopes for Flows Greater Than 10.0 Feet per Second.** Assuming pipes are flowing full, some slopes produce flows which are greater than 10 feet per second. These locations are listed in the table below. Calculations are attached.

Table 8 - Flows Greater Than 10 Feet per Second

Line	*Profile Sheet*	*Station to Station*	*FPS*	*% Slope*	*Erosion/Shock Protection*

33. Assuming pipes are flowing full, where flows are ≥ 10 feet per second, the provisions noted below have been made to protect against pipe displacement by erosion and/or shock under 30 TAC §217.53(l)(2)(B).

☐ Concrete encasement shown on appropriate Plan and Profile sheets for the locations listed in the table above.
☐ Steel-reinforced, anchored concrete baffles/retards placed every 50 feet shown on appropriate Plan and Profile sheets for the locations listed in the table above.
☒ N/A

Administrative Information

34. ☒ The final plans and technical specifications are submitted for TCEQ review. Each sheet of the construction plans and specifications are dated, signed, and sealed by the Texas Licensed Professional Engineer responsible for the design on each sheet.

35. ☒ Standard details are shown on the detail sheets, which are dated, signed, and sealed by the Texas Licensed Professional Engineer, as listed in the table below:

Table 9 - Standard Details

Standard Details	*Shown on Sheet*
Lateral stub-out marking **[Required]**	N/A of

Standard Details	***Shown on Sheet***
Manhole, showing inverts comply with 30 TAC §217.55(l)(2) **[Required]**	C2.02 and C2.03 and SS-1 of Enclosed Construction Plans
Alternate method of joining lateral to existing SCS line for potential future connections **[Required]**	C2.01 of Enclosed Construction Plans
Typical trench cross-sections **[Required]**	C2.05 of Enclosed Construction Plans
Bolted manholes **[Required]**	C2.05 of Enclosed Construction Plans
Sewer Service lateral standard details **[Required]**	C2.05 of Enclosed Construction Plans
Clean-out at end of line **[Required, if used]**	N/A of
Baffles or concrete encasement for shock/erosion protection **[Required, if flow velocity of any section of pipe >10 fps]**	N/A of
Detail showing Wastewater Line/Water Line Crossing **[Required, if crossings are proposed]**	SS-1 of Enclosed Construction Plans
Mandrel detail or specifications showing compliance with 30 TAC §217.57(b) and (c) **[Required, if Flexible Pipe is used]**	C2.05 of Enclosed Construction Plans
Drop manholes **[Required, if a pipe entering a manhole is more than 24 inches above manhole invert]**	N/A of

36. ☒ All organized sewage collection system general construction notes (TCEQ-0596) are included on the construction plans for this sewage collection system.

37. ☒ All proposed sewer lines will be sufficiently surveyed/staked to allow an assessment prior to TCEQ executive director approval. If the alignments of the proposed sewer lines are not walkable on that date, the application will be deemed incomplete and returned.

    ☐ Survey staking was completed on this date: _____

38. ☒ 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.

39. ☒ Any modification of this SCS application will require TCEQ approval, prior to construction, and may require submission of a revised application, with appropriate fees.

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 **Organized Sewage Collection System Application** is hereby submitted for TCEQ review and executive director approval. The system was designed in accordance with the requirements of 30 TAC §213.5(c) and 30 TAC §217 and prepared by:

Print Name of Licensed Professional Engineer: Paul A. Mathis (KCI - Gravity Main) and Zac Morton (DBR - Lift Station / Force Main)

Date: 04/15/2024

Place engineer's seal here:

Signature of Licensed Professional Engineer:

KCI

DBR

Appendix A-Flow Velocity Table

Flow Velocity (Flowing Full) All gravity sewer lines on the Edwards Aquifer Recharge Zone shall be designed and constructed with hydraulic slopes sufficient to give a velocity when flowing full of not less than 2.0 feet per second, and not greater than 10 feet per second. The grades shown in the following table are based on Manning's formula and an n factor of 0.013 and shall be the minimum and maximum acceptable slopes unless provisions are made otherwise.

Table 10 - Slope Velocity

Pipe Diameter(Inches)	*% Slope required for minimum flow velocity of 2.0 fps*	*% Slope which produces flow velocity of 10.0 fps*
6	0.50	12.35
8	0.33	8.40
10	0.25	6.23
12	0.20	4.88
15	0.15	3.62
18	0.11	2.83
21	0.09	2.30
24	0.08	1.93
27	0.06	1.65
30	0.055	1.43
33	0.05	1.26
36	0.045	1.12
39	0.04	1.01
>39	*	*

**For lines larger than 39 inches in diameter, the slope may be determined by Manning's formula (as shown below) to maintain a minimum velocity greater than 2.0 feet per second when flowing full and a maximum velocity less than 10 feet per second when flowing full.*

$$v = \frac{1.49}{n} \times R_h^{0.67} \times \sqrt{S}$$

Figure 1 - Manning's Formula

Where:

v = velocity (ft/sec)
n = Manning's roughness coefficient (0.013)
Rh = hydraulic radius (ft)
S = slope (ft/ft)

Attachment A

SCS Engineering Report

APPENDIX A
SEWAGE COLLECTION SYSTEM
ENGINEERING REPORT FOR PVC SDR 26 PIPE
MAX DEPTH OF 20 FEET

FLEXIBLE PIPE COMPUTATIONS

The computations which follow validate 8-inch diameter PVC SDR 26 pipe design for direct burial of sewer gravity systems to a depth of 20 feet. Included in the computations are calculations for long term deflection, buckling, wall crushing, and strain. The Handbook of PVC Pipe, Design, and Construction by the Uni-Bell PVC Pipe Association, Formulae, Tables, and Constants were used in preparing this report.

Pipe Characteristics (SDR 26 Pipe):

1. Average Burial Depth (6-20')
2. Outside Pipe Diameter (8")
3. Pipe Wall Thickness (***0.332***")
4. Trench Width (2.5 to 2.7') (Approximate)
5. Modulus of Elasticity (400,000 psi)
6. Pipe Stiffness (115 psi)

W =135 lb/cf (dry unit weight) x 1.06 (moisture content)

= 143 lb/cf

Prism Load Calculation:

$W_c = H * W * B_c$ (Martson's Equation)

Where:	W_c	=	Load on Conduit (lb/lf)
	W	=	Unit Weight of Backfill (143 lb/cf)
	H	=	Depth at Which Pressure is Desired (20 ft)
	B_c	=	Horizontal Width of Conduit (varies)

8-inch Pipe: (up to 20 feet)

W_c = (20 ft) (143 lb/ft^3) (0.70 ft) = 2002 lb/ft

or in terms of soil pressure

$$P = W * H = \frac{W_c}{B_c} = \frac{(2002 lb/ft)}{(0.70 ft)} = \frac{(2974\ 1b/ft)}{(1.04\ ft)} = \frac{(44621b/ft)}{(1.56\ ft)} = 2{,}860\ \frac{lb}{sf}$$

$$P = \frac{2{,}860\ lb/sf}{144\ in^2/sf} = 19.9\ psi$$

Prism Load is based on soil pressures with a soil unit weight of 135 pcf based on the Geotech report for this project for the sanitary sewer installation resulted in an interpolated median unit weight of 150 pcf. This unit weight corresponds to the undisturbed limestone of the area, which then 90% of that unit weight was used in the calculated tables as follows. These calculations are in addition to those outlined in Tables within this report.

$P = wxH / 144$, where P is in psi
$W_d = wxHxB_D / (12\ in/ft)$, where Wd is in lbs / ft.

Prism Load Calculation Table (SDR 26 PVC - ASTM D-3034)

Cover, H (ft)	Soil Unit Weight, w (pcf)	Prism Load, P (psi)	Outer Diameter of Pipe, B_D (in)	W_d(lbs./ft.)
4	135	3.75	8.400	278
5	135	4.69	8.400	473
6	135	5.63	8.400	567
7	135	6.56	8.400	662
8	135	7.50	8.400	756
10	135	9.38	8.400	945
12	135	11.25	8.400	1134
14	135	13.13	8.400	1323
16	135	15.00	8.400	1512
18	135	16.88	8.400	1701

Prism Load Calculation Table (SDR 26 PVC - ASTM D-2241)

Cover, H (ft)	Soil Unit Weight, w (pcf)	Prism Load, P (psi)	Outer Diameter of Pipe, B_D (in)	W_d(lbs./ft.)
4	135	3.75	8.625	388
5	135	4.69	8.625	485
6	135	5.63	8.625	582
7	135	6.56	8.625	679
8	135	7.50	8.625	776
10	135	9.38	8.625	970
12	135	11.25	8.625	1164
14	135	13.13	8.625	1358
16	135	15.00	8.625	1553
18	135	16.88	8.625	1747

Live Load:

From Table 6.6, and based on the H20 Highway Loading and the Holl Equation for Live Loads, at a 6 ft. depth,

Live Load= 1.39 psi (max)

Live Load = 0 psi at a depth of 20 ft.

The minimum bury of the portion of the sanitary sewer main is 5 feet. Live loading negligible after 8 feet.

The live load, W_L shown in the table below is derived from the following equation:

$W_L = W'xB_D$, where W_L is in lbs / in. and is converted to lbs / ft by multiplying by 12.

Live Load Calculation Table (SDR 26 PVC - ASTM D-3034)

Cover (ft)	Live Load Transferred to Pipe, W' (psi)	Outer Diameter of Pipe, B_D (in)	W_L(lbs./in.)	W_L(lbs./ft.)
4	2.78	8.400	23.4	281
5	1.74	8.400	14.6	175
6	1.39	8.400	11.7	140
7	1.22	8.400	10.3	124
8	0.69	8.400	5.8	70

Live Load Calculation Table (SDR 26 PVC - ASTM D-2241)

Cover (ft)	Live Load Transferred to Pipe, W' (psi)	Outer Diameter of Pipe, B_D (in)	W_L(lbs./in.)	W_L(lbs./ft.)
4	2.78	8.625	24.0	288
5	1.74	8.625	15.0	180
6	1.39	8.625	12.0	144
7	1.22	8.625	10.5	126
8	0.69	8.625	6.0	72

Total loading on the pipe is sum of live load and prism load.

(SDR 26 PVC - ASTM D-3034)

Cover (ft)	Live Load (psi)	Live Load (lbs./ft.)	Prism Load (psi)	Prism Load (lbs./ft.)	Total Load (psi)	Total Load (lbs./ft.)
4	2.78	281	3.75	278	6.53	559
5	1.74	175	4.69	473	6.43	648
6	1.39	140	5.63	567	7.02	707
7	1.22	124	6.56	662	7.78	786
8	0.69	70	7.50	756	8.19	826
10	0	0	9.38	945	9.38	945
12	0	0	11.25	1134	11.25	1134
14	0	0	13.13	1323	13.13	1323
16	0	0	15.00	1512	15.00	1512
18	0	0	16.88	1701	16.88	1701

(SDR 26 PVC - ASTM D-2241)

Cover (ft)	Live Load (psi)	Live Load (lbs./ft.)	Prism Load (psi)	Prism Load (lbs./ft.)	Total Load (psi)	Total Load (lbs./ft.)
4	2.78	288	3.75	388	6.53	676
5	1.74	180	4.69	485	6.43	665
6	1.39	144	5.63	582	7.02	726
7	1.22	126	6.56	679	7.78	805
8	0.69	72	7.50	776	8.19	848
10	0	0	9.38	970	9.38	970
12	0	0	11.25	1164	11.25	1164
14	0	0	13.13	1358	13.13	1358
16	0	0	15.00	1553	15.00	1553
18	0	0	16.88	1747	16.88	1747

WITHIN THE AREA OF THE SCS, THE DEPTH OF BURY VARIES FROM 5 UP TO 20 FEET. THE MAXIMUM LOAD IS AT A DEPTH OF 8.5 FEET WITH 0.69 PSI LIVE LOAD AND A PRISM LOAD OF 7.5 PSI. DUE TO THE CONSTRUCTION AREA LIMITATIONS FOR STOCKPILING MATERIALS, IT IS ANTICIPATED THAT AT SOME POINTS IN TIME, THERE WILL BE ROUGHLY 20 FEET OF MATERIAL OVER THE MAIN AT ANY ONE TIME AND THEREFORE THE MAXIMUM PRISM LOAD OF 16.88 PSI IS EXPECTED FOR SHORT DURATIONS.

Long Term Deflection Calculation:

Employing Spangler's Modified Deflection Formula, and incorporating a deflection lag factor of 1.0. Long Term Deflection is calculated as follows at a depth of 20 ft.

$$\frac{\Delta Y}{D} = \frac{DL*K*P+K*W_1}{[2E/3(DR-1)^3]+0.061E_1}$$

Where,

P = Prism Load, (19.9 psi at 20')

K = Bedding Constant, (0.096 for 90°) (See Table 7.2)

W_1 = Live Load, at 20 Foot Depth (0 psi)

DR = Dimension Ratio (SDR 26)

E = PVC Modulus of Elasticity (400,000 psi)

E1 = Modulus of Soil Reaction, (400 psi at 20') (See Table 7.3, Unibell Handbook of PVC Pipe Design and Construction" for slight <85% proctor, 40% relative density

DL = Deflection Lag Factor (1.0)

Up to 20'

$$\frac{\Delta Y}{D} = \frac{(1.0)(0.096)(19.9)+(0.096)(0)}{[2(400,000)/(3(26-1))^3]+0.061(400)}$$

$$\frac{\Delta Y}{D} = 4.61\% \text{ Long Term Deflection}$$

As compared to an allowable long term deflection of 5%.

4.61%<5.00%, Therefore O.K.

It should be noted that the effective modulus of soil reaction equates to the bedding reaction modulus since the natural soil (in this case rock) can sustain greater lateral loads than the bedding material can normally produce.

Buckling Calculation:

Employing the Timoshenko Equation below, the Critical Buckling Pressure (P_{cr}) for a circular ring subjected to a uniform external pressure or internal vacuum can be found as follows:

$$P_{cr} = \frac{2 * E}{(1—V^2)(DR—l)^3}$$

Where "v" is Poisson's ratio of unit lateral contraction to unit axial elongation, (0.38 for PVC conduits).

$$P_{cr} = \frac{2\ (400{,}000)}{(1—(0.38)^2)(26—l)^3}$$

And compensating for soil resistance to buckling, the True Buckling Pressure, (P_b), is

$$Pb = 1.15\sqrt{P_{cr} * E_1} = 1.15\sqrt{59.8 * 400} = 178 \text{ psi}$$

$H = P_b/W$ Calculated Depth of Buckling

$$H = P_b / W = \frac{178 psi * 144 in^2/ft^2}{143 \text{ lb/ft}} = 179'$$

for a failure soil pressure depth of approximately 179'.

20' < 179' Therefore O.K.

Wall Crushing Calculation:

In accordance with White and Layer's Ring Compression Theory for design of buried flexible pipe, and assuming a highly compacted backfill or minimal deflection, wall crushing can be defined as follows:

$$\oplus_c = \frac{P_y * D}{2*A} = \frac{\text{Yield Strength}}{\text{Safety Factor}}$$

Where,

$\oplus_c$ = Compressive Stress (4,000 psi)

P_y = Prism Load (19.9 psi)

A = Cross Sectional Area of Conduit Wall Per Unit Length

D = Outside Pipe Diameter (varies)

Solve for Cross Sectional Area of Conduit Wall Per Unit Length:
8-inch:

$A = 0.323in * 12in/ft$

$A = 3.876in^2/ft$

Solving for the Allowable P_y,

8-inch:

$$P_y = \frac{\oplus_c * 2 * A}{D} = \frac{(4{,}000\ lb/in^2)(2)(3.876\ in^2/ft)(1\ ft/12in)}{8.4\ in} = 307.6\ psi$$

$H = P_y / W$ = Calculated Depth of Wall Crushing

$$H = \frac{(307.6\ psi)(144\ in^2/sf^2)}{143\ lb/cf} = 310$$

for a crushing failure depth of approximately 310'.

$20' \leq 310'$, O.K.

Strain Calculation:

Strain is caused by the flexure of the pipe as it deforms and by hoop stress in the pipe wall. Strain is calculated as follows at a depth of 20 ft.:

$$\in_h = \frac{P*D}{2 * t* E}$$, Where $\in_h$ is the maximum hoop strain a 20 foot depth.

8-inch:

$$\in_h = \frac{(19.9)(8.4)}{2(0.323)(400{,}000)} = 0.00065 \text{ in/in}$$

$$\in_f = \frac{t}{D} = \frac{[3*\Delta Y/D]}{[1-2(\Delta Y/D)]}$$

Where $\in_f$ is the maximum strain a pipe wall due to ring deflection or flexture

8-inch:

$$\in_f = \frac{t}{D} = \frac{[3(.0461)]}{[1-2(0.0461)]} = 0.0059 \text{ in/in}$$

In a buried pipeline, these strain components act simultaneously

$\in = \in_f + \in_h = 0.0066$ in/in

Deflection test samples have experienced a pipe wall strain of up to 0.025 in/in and have not "showed any cracks or failures". Based on information from Uni-Bell PVC Pipe Association.

0.0066 in/in < 0.025 in/in Therefore O.K.

Leonhardt's Zeta Factor

- Zeta = 1.44 / [f + (1.44-f)(E_b / E'_n)]
- f = (B/D-1) / [1.154 + 0.444(B/D-1)]
  - D = outer pipe diameter, in = 8.625 inches
  - B = trench width, in = 48 inches
  - E_b = modulus of soil reaction for bedding material (psi) = 1000 (see reference 6 in Section 5 of this report)
  - E'_n = modulus of soil reaction for in-situ soil (psi) = 3000 (see reference 6 in Section 5 of this report)
  - E' = modulus of soil reaction, E'=E_b x Zeta

- f = (48 / 8.625 – 1) / [1.154 + 0.444 (48 / 8.625 – 1)]
- f = 1.435
- Zeta = 1.44 / [1.435 + (1.44 – 1.435)(1000 / 3000)]
- Zeta = 1.0
- E' = E_b x Zeta
- E' = 1000 psi x 1 = 1000 psi

Pipe Stiffness

- For SDR 26, pipe stiffness (PS) is 115 psi
  Reference: North American Pipe stiffness.
  (See "Leonhardt's Zeta Factor and Pipe Stiffness to Soil Stiffness Factor Ratio" above)
- Pipe Stiffness to Soil Stiffness Factor Ratio
- SSF = 0.061xZetax E_b, Ratio is PS / SSF
  - Zeta = Leonhardt's Zeta Factor = 1.0
  - E_b = modulus of soil reaction for bedding material (psi) = 1000 (see reference 6 in Section 5 of this report)
  - PS = 115 psi
- SSF = 0.061 x 1.0 x 1000 = 61 psi
- PS / SSF = 115/61 = 1.9

Jointing Material

All polyvinyl chloride (PVC) sewer pipe and fittings shall be joined by a bell and spigot assembly and shall incorporate a rubber compression ring gasket at the pipe and pipe to manhole entrance interface.

All joints shall be in compliance with the requirements of ASTM D-3212. All gaskets shall be lock-in type meeting ASTM F-477. Solvent cement joints will not be permitted. Pipe and fittings shall conform to ASTM D-3034.

Pressure rated conduit specified for the project shall, at a minimum, conform to ASTM D2241 while fittings will meet or exceed ASTM D-3139.

Pipe and Manhole Testing

A low pressure air test and mandrel deflection test will be performed in accordance with

TCEQ 217.57 (a) and City of San Antonio Standard Specifications for Public Works

Construction. Mandrel design and sizing information is contained within the

standard detail sheet at the end of the submitted plans.

A manhole vacuum test in accordance with 30 TAC 217 Subchapter C Rule 217.58. A vacuum test will be used for evaluation of manhole leakage. A qualified inspector will observe pipe and manhole testing. A Professional Engineer registered in the State of Texas will certify that construction was performed substantially in accordance with the plans and specifications and will provide deflection testing certification for the flexible pipe.

BEDDING AND BACKFILL

A minimum of 6-inch and maximum of 12-inch space shall be allowed between the outside diameter of the pipe and the trench wall.

Bedding and initial backfill material selection and installation will be carried out in accordance with ASTM D-2321 and applicable governing procedures contained within the City of San Antonio Standard Specifications for Public Works Construction.

For pipes at depths greater than 20', backfill must comply with San Antonio Water System Specification 804.4.

Secondary backfill, from a point 1 foot above the pipe to the finished surface, will be comprised of suitable material removed during excavation which is smaller than 6-inches in diameter. Brush, debris, and deleterious materials shall not be utilized as a backfilling material.

Trench compaction will be carried out in accordance with the City of Helotes Standard Specifications for Public Work Construction. To allow for proper and safe compaction of the backfill, the trench width will be a minimum of 6-inches / maximum of 12-inches on either side of the pipe and will vary in overall width as identified below. For the 8-inch pipe, the width is expected to range from 21 inches to 33 inches wide along the length of the typical pipe segments and at locations of the bell end will range from 23 inches to 35 inches wide to maintain the 6" minimum / 12" maximum to each side of the pipe.

Typical trench and pipe scenarios are addressed within the standard detail sheet included at the end of the design plans. The trench walls will be vertical to a height of at least 1-foot above the sewer pipe. The trench floor should be excavated deep enough to allow for

a 6" minimum depth or 1/8 O.D. of the pipe, whichever is greater as per SAWS Detail DD-804-01 for Unstable or Unacceptable Conditions. For an 8 inch pipe, the 6" bedding zone should be used, thus allowing a clearance of 4.5 inches below the pipe (straight pipe section or at bell location) to the trench floor. A minimum trench width of approximately 3 feet to a maximum width of 4 feet will allow for safe installation with the appropriate trench excavation safety protection, preserve the pipe's structural integrity, allow the pipe to be laid and jointed properly and allow for proper placement and compaction of backfill.

Design Capacity / Flow

The design flow is estimated from the projected use of the buildings and existing campus flows. A peak factor of 4 is used to determine the design flow for the proposed sewer main (30 TAC 217.32(a) (2)).

Pipe Capacity Equations

- $Q = VA$
  - Q = flow in cfs
  - V = velocity in fps
  - A = cross sectional area in sf
- $V = (1.486 / n)\ r^{2/3}s^{1/2}$
  - V = velocity in fps
  - n = mannings number (n = 0.013 per 30 TAC 217 C Rule 217.53)
  - r = hydraulic radius in ft
  - s = slope in ft / ft

Average Flow

Qavg = 1,500 gal per day (gpd)

Convert to cfs …

1,500 gpd x 1/24 (day/hr) x 1/3600 (hr/sec) x 1/7.48 (cf/gal) = 0.00232 cfs

Peak Flow

Qpeak = 0.00232 cfs x 4 = **0.00923 cfs**

Pipe Nominal Diameter (in)	Pipe O.D. (in)	Wall Thickness (in)	Pipe Inner Diameter (in)	Mean Pipe Diameter (in)	Pipe Material	National Standard Specification for Pipe Material
8	8.400	0.323	7.754	8.077	SDR 26 PVC	ASTM D-3034
8	8.625	0.332	7.961	8.293	SDR 26 PVC	ASTM D-2241

Reference: North American Pipe dimensions.

Full Flow Capacity of Pipe

Qcap = Ax $(1.49/n)xR^{2/3}xS^{1/2}$
n=0.013
R=radius/2
S=0.005 ft/ft (minimum pipe slope)
pipe diameter=7.754”
maximum capacity calculated at 90% per SAWS Utility Regulations

Qcap = $[\pi/4x(7.754”/12)^2]x[(1.49/0.013)x((7.754/2)”/12/2)^{2/3}x0.005^{1/2}]$ x 0.9 = **0.705 cfs**

Pipe full flow capacity at minimum slope is greater than the anticipated peak flow.

For a full build out situation, the assumption is that there will be a possibility of one more building, with which this SCS accounts for, of similar design flows, that could be built upon this site that would use the same sewer system within the 50-year lifespan. The expected total average flow at the end of the 50-year life would be 1,500 gpd or 0.00232 cfs. The peak flow at the end of the 50-year life would then be 0.064 cfs. This is in turn far less than the full flow capacity of the pipe as noted in the previous calculation.

Pipe Design Velocities

- The proposed 8-inch sanitary sewer main slope is 0.50%. **The corresponding velocity within the sewer main is 2.39 per second (fps) as demonstrated in the calculations below.**

  Velocity in Pipe
  Vmin = $(1.49/n)xR^{2/3}xSmin^{1/2}$
  n=0.013
  R=radius/2
  Smin=0.005 ft/ft (minimum pipe slope)
  Pipe diameter=7.754”

  Vmin = $[(1.49/0.013)x((7.754/2)”/12/2)^{2/3}x0.005^{1/2}]$ = **2.39 fps**

Inflow and Infiltration

- The proposed sanitary sewer main is to have watertight, size on size resilient connectors conforming to ASTM C-923 at the manholes. Sanitary sewer pipe is to have a watertight gasket for pipe-to-pipe connections and conform to the following standards:

Pipe Size	Pipe Material	National Standard Specification for Pipe Material	National Standard for Pipe Joints
8	SDR 26 PVC	ASTM D-3034	ASTM D-3212
8	SDR 26 PVC	ASTM D-2241	ASTM D-3139

Note: Gaskets meet ASTM F477.

No part of the project is within the 100-year floodplain. Manholes are to be bolted and have gaskets. Bore samples within the general vicinity of the proposed sanitary sewer main did not identify ground water. Based on the proposed watertight construction and lack of ground water at the site, inflow and infiltration into the sanitary sewer system is not anticipated. No storm water discharge from storm water related piping is to be combined with the proposed sanitary sewer collection system. A storm sewer system exists on the campus for the storm water discharge from the project.

Pipe Components and Structural Analysis

The proposed sewage collection system does not contain components susceptible to deterioration due to the corrosive effects of an anaerobic sewage environment that would shorten the 50-year structural life cycle of the system.

The pipe material and associated national standard specifications are summarized in the table below:

Pipe Size	Pipe Material	National Standard Specification for Pipe Material	Cell Class	Tensile Strength	Stiffness
8	SDR 26 PVC	ASTM D-3034	124524B	7000 psi	115 psi
8	SDR 26 PVC	ASTM D-2241	124524B	7000 psi	115 psi

- Rigid pipe will not be used on this project.
- Pipe will be installed at uniform horizontal and vertical alignments between manholes such that there are no curves or bends in the piping.
- No sag piping or inverted siphons are proposed with this project.
- Bridge sections will not be used on this project.

Manholes

Manhole construction will be limited to precast concrete and no brick will be allowed. Manholes are provided at all locations where the pipe changes sizes, horizontal and vertical alignment and slope. Manholes are also provided at the ends of the sewage collection system. Where unequal pipe sizes enter a manhole and where feasible, the crowns of the pipes have been placed at an equal elevation and the slope of the flow channel connects to the invert of each pipe. The maximum manhole spacing proposed on

this project is 499.30-feet from center to center for the 8-inch pipe to be installed. The proposed spacing is in compliance with 30 TAC Subchapter C Rule 217.55. There are no manhole covers within the 100-year floodplain or drainage ways or streets, but over the Edwards Aquifer Recharge Zone and will be gasketed and sealed to provide protection against inflow. Ventilation will be provided at every third manhole. No new manholes within the scope of this project will be vented. The inside diameter of the proposed manholes is 48-inches (4-feet) and no manholes are drops with more than 24-inches being used on this project. A U-shaped channel with a depth equal to or greater than half the pipe diameter has been provided for the 8-inch sewer pipe. A bench above the channel with a slope of ½" per foot is provided. A 30-inch minimum clear width opening is being provided for access. Steps and / or ladder rungs will not be constructed within manholes. Access will be acquired by means of a portable ladder. The contractor will be responsible for providing gas detectors for safety purposes. Manholes for this project will be watertight with watertight rings and covers as per 30 TAC 213.5 (c)(3)(A). Manhole – pipe connections must use watertight, size-on-size resilient connectors that allow for differential settlement and must conform to ASTM C-923.

Separation Distances

Separation distances between water and sanitary sewer collection systems will be maintained in accordance with 30 TAC 217 Subchapter C Rule 217.53(d). No portion of the sanitary sewer main is running parallel and no portion of the pipe walls are within 9 feet of any potable water main. All 8" SDR 26 PVC pipe will be used for the main with gaskets at the fittings and rated for 160 psi. The main will be at least two feet below the proposed and existing water mains and services where feasible on upstream stationing of the new main per 30 TAC 217.35(d) except at one location where the existing main is below the alignment of the proposed sanitary sewer main. The existing and proposed water mains are C900 DR 18 PVC with a pressure rating of 235 psi. There is a smaller 2" water service crossing that will be Schedule 40 PVC with a pressure rating of 280 psi. For the location near STA 11+12, the water is over a half foot below the sewer main pipe and the sewer pipe will be constructed of a 20 foot segment of SDR 26 PVC (160 psi) that will be centered over the water main as per 30 TAC 217.35(d)(5)(B) and meets the minimum of 150 psi.

Odor Mitigation

Odor causing conditions will be minimized by providing a vented pipe at the end of the main after the third proposed manhole closest to the proposed greenhouse as part of the private lateral for the greenhouse.

SWPPP

Silt fencing will be provided down gradient of the project and inlet protection is to be used in addition to placement of spoils upgradient of the trench in addition to the other temporary BMPs placed at access points to the project roadways to control erosion and sediment transport due to runoff.

Miscellaneous

No lift stations, force mains, or on site sewerage facilities are proposed with this SCS.

Attachment E

Construction Plans

GENERAL NOTES:

1. VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD BEFORE COMMENCING ANY WORK. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPORT ANY DISCREPANCIES TO THE ARCHITECT IN A TIMELY MANNER. CHANGES IN HORIZONTAL OR VERTICAL ALIGNMENT REQUIRE APPROVAL BY THE ENGINEER.
2. CONTRACTOR SHALL CONTACT THE BEXAR COUNTY INSPECTION DEPARTMENT AT LEAST 48 HOURS BEFORE BEGINNING ANY SITE WORK.
3. ANY WORK IN PUBLIC RIGHT-OF-WAY SHALL BE PERFORMED TO THE STANDARDS OF THE GOVERNING AUTHORITY.
4. THE TEXAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS, AND BRIDGES (2014) SHALL BE CONSIDERED PART OF THESE PLANS AND USED AS THE SPECIFICATIONS FOR ITEMS EXCEPT AS OTHERWISE SHOWN ON THE PLANS OR IN THE PROJECT SPECIFICATIONS.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL APPLICABLE CITY, COUNTY, STATE, AND FEDERAL PERMITS AT NO ADDITIONAL COST TO THE OWNER.
6. THE CONTRACTOR SHALL COORDINATE HIS CONSTRUCTION SCHEDULE WITH THE OWNER PRIOR TO BEGINNING WORK.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF ALL WASTE MATERIAL GENERATED DURING CONSTRUCTION. WASTE MATERIAL MUST BE REMOVED FROM THE WORK SITE AND DISPOSED OF IN SUCH A MANNER TO MEET ALL APPLICABLE REGULATIONS. (NO SEPARATE PAY ITEM.)
8. CONDITION OF THE ROAD AND/OR RIGHT-OF-WAY UPON COMPLETION OF JOB SHALL BE AS GOOD OR BETTER THAN PRIOR TO STARTING WORK.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING REQUIRED SECURITY TO PROTECT HIS OWN PROPERTY, EQUIPMENT, AND WORK IN PROCESS.
10. TREES NOT NOTED FOR REMOVAL SHALL BE PROTECTED BY CONTRACTOR. CONTRACTOR SHALL PROVIDE TEMPORARY FENCE AROUND PROTECTED TREES TO DRIP LINE OF TREE CANOPY. THE ARCHITECT SHALL BE NOTIFIED IN ADVANCE OF ANY TRIMMING OR LANDSCAPE WORK TO BE DONE IN THE AREA OF PROTECTED TREES.
11. CONTRACTOR SHALL PROVIDE AND INSTALL PVC CONDUITS UNDER PAVEMENT/SIDEWALK AREAS FOR SITE IRRIGATION SYSTEM AND SITE LIGHTING PLANS AS SHOWN ON SITE UTILITY PLAN, MEP PLANS, AND LANDSCAPE IRRIGATION PLANS.
12. THE GRADING PLAN INDICATES FINISHED GRADES. FINISHED GRADING SHALL BE HAND SMOOTHED, READY FOR SOD AND THE INSTALLATION OF OTHER LANDSCAPING FOR THE ENTIRE SITE, WITHIN THE "LIMITS OF WORK".
13. THE TOP SOIL FINISH GRADE SHALL BE 2 INCHES BELOW THE TOP OF THE SIDEWALK. SOD, ONCE INSTALLED, SHALL BE FLUSH WITH THE TOP OF THE SIDEWALK. WHERE AREAS ARE TO BE HYDROMULCHED THE TOP SOIL GRADE SHALL BE AT SIDEWALK GRADE.
14. SLABS SHALL TYPICALLY HAVE AT LEAST A 8" EXPOSURE UNLESS SHOWN OTHERWISE.
15. THE LIMITS FOR WORK ON THIS PROJECT ARE SHOWN ON THE PLANS.

TRAFFIC NOTES

16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTROLLING TRAFFIC IN THE IMMEDIATE VICINITY OF CONSTRUCTION. ALL WORK SHALL BE PERFORMED IN SUCH A MANNER AND SEQUENCE AS TO PROVIDE MAXIMUM PROTECTION TO TRAFFIC AND PEDESTRIANS. CONTROLS SHALL BE CONSISTENT WITH THE TYPE OF WORK BEING PERFORMED.
17. CONSTRUCTION WHICH BLOCKS TRAFFIC OF ANY STREET, ALLEY, OR DRIVEWAY IS SUBJECT TO APPROVAL OF AND RESTRICTION IMPOSED BY BEXAR COUNTY.
18. INGRESS AND EGRESS SHALL BE PROVIDED AT ALL TIMES FOR THE PROPERTY OWNERS AND BUSINESSES OF THE ABUTTING PROPERTY AND THE CROSS STREETS WHICH ARE AFFECTED BY THE CONSTRUCTION OF THIS PROJECT.
19. DURING THE ENTIRE CONSTRUCTION PERIOD, THE CONTRACTOR SHALL MAINTAIN CONSTRUCTION WARNING SIGNS AT EACH END OF THE PROJECT TO WARN MOTORING AND PEDESTRIAN TRAFFIC THAT CONSTRUCTION IS IN PROGRESS AND OF POSSIBLE HAZARDOUS CONDITION GENERATED BY THE CONSTRUCTION.
20. DELINEATORS SHALL BE INSTALLED ALONG THE PAVEMENT EDGE TO WARN TRAFFIC OF ANY ROADSIDE OBJECTS OR HAZARDS AND TO DELINEATE THE ROADWAY EDGE DURING HOURS OF DARKNESS.

UTILITIES

21. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES IN THE AREA A MINIMUM OF 48 HOURS PRIOR TO COMMENCING WORK IN ANY RIGHT-OF-WAY OR EXISTING EASEMENT.

    SANITARY SEWER (SAWS) – 210-704-7297

    WATER (SAWS) – 210-704-7297

    ELECTRIC AND GAS (CPS ENERGY) – 210-353-3500

    TELEPHONE (A.T.&T.) – 210-288-5127

    GAS (GREY FOREST UTILITIES) – 210-695-8781

    CATV – SPECTRUM – 210-352-4672 (OR 4673)

    TEXAS STATE WIDE ONE CALL LOCATOR – 1-800-545-6005

22. OVERHEAD POWER LINES EXIST IN THE AREA OF THE PROJECT. CONTRACTOR SHALL MAINTAIN RECOMMENDED CLEARANCE REQUIREMENTS OF PROVIDER. TEXAS LAW ARTICLE 1436C, PROHIBITS ALL ACTIVITIES IN WHICH PERSONS OR EQUIPMENT MAY COME WITHIN SIX (6) FEET OF ENERGIZED OVERHEAD POWER LINES. FEDERAL REGULATIONS, TITLE 29, PART 1910.180(I) AND PART (1926.550(A)(15) REQUIRE A MINIMUM OF TEN (10) FEET FROM THESE FACILITIES WHERE CONTRACTOR MUST WORK NEAR OVERHEAD POWER LINES. LINES WITHIN THESE LIMITS SHALL BE DE-ENERGIZED AND/OR MOVED AT CONTRACTOR'S EXPENSE.
23. IN THE EVENT OF DAMAGE TO UNDERGROUND UTILITIES OR FACILITIES, WHETHER SHOWN OR NOT ON THE DRAWINGS, THE CONTRACTOR SHALL MAKE THE NECESSARY REPAIRS TO REPLACE THE UTILITY OR FACILITY BACK IN SERVICE AT THE CONTRACTOR'S EXPENSE.
24. THE CONTRACTOR SHALL UNCOVER ALL EXISTING UTILITIES AND VERIFY EXISTING ELEVATION OF SAME AT ALL UTILITY CROSSINGS BEFORE COMMENCING ANY OTHER WORK. CONFLICTS SHALL BE REPORTED TO THE MANAGING ARCHITECT IMMEDIATELY.
25. CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF ALL PROPOSED UTILITIES EXITING BUILDING PRIOR TO COMMENCING WORK ON SITE UTILITIES. UPON DISCOVERY OF ANY DISCREPANCIES, THE MANAGING ARCHITECT SHALL BE NOTIFIED.
26. GAS AND ELECTRIC METER AND SERVICE LINE INSTALLATION TO BE COORDINATED WITH CITY PUBLIC SERVICE.
27. ON-SITE WATER AND SEWER SERVICES SHALL BE INSPECTED AS REQUIRED BY BEXAR COUNTY.
28. WATER SERVICE LINES LESS THAN 4" DIAMETER SHALL BE SCHEDULE 40 PVC. LINES GREATER THAN 4" IN DIAMETER SHALL BE C900 PVC DR18. LINE SHALL BE BEDDED IN AND BACKFILLED WITH A MINIMUM OF 6" OF WASHED SAND.
29. ALL SANITARY SEWER LINES PROPOSED ON THE SITE SHALL BE SDR 26 PVC. BEDDING AND INITIAL BACKFILL (12" ABOVE THE PIPE) SHALL BE GRAVEL (3/4" MAX TO DUST).
30. MISCELLANEOUS PVC FITTINGS REQUIRED TO ROUTE SANITARY SEWER OUTSIDE OF BUILDING ARE NOT CALLED FOR ON PLANS BUT SHALL BE FURNISHED BY CONTRACTOR AT NO ADDITIONAL COST TO OWNER.
31. TIE-INS TO EXISTING MANHOLES SHALL BE MADE SUCH THAT THE FINAL CONDITION UPON COMPLETION OF THE JOB SHALL COMPLY WITH THE REQUIREMENTS OF THE GOVERNING CODE.

EARTHWORK

32. THE CONTRACTOR SHALL COMPLY WITH OSHA REGULATIONS, LOCAL BUILDING CODE REQUIREMENTS AND STATE OF TEXAS LAW CONCERNING EXCAVATION, TRENCHING AND SHORING.
33. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING, MAINTAINING AND RESTORING THE DRAINAGE SYSTEM TO ITS ORIGINAL CONDITION. THE CONTRACTOR SHALL MAINTAIN ADEQUATE DRAINAGE AT ALL TIMES DURING CONSTRUCTION.
34. THE CONTRACTOR MUST CLEAN MUD, DIRT OR DEBRIS TRACKED ONTO EXISTING STREETS BY ANY VEHICLE THAT EXITS OR ENTERS THE SITE.
35. ADEQUATE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION TO MEET GEOTECHNICAL AND STRUCTURAL ENGINEER RECOMMENDATIONS.
36. ON-SITE SOILS UPON APPROVAL OF GEOTECH MAY BE PLACED UNDER PROPOSED PAVEMENT AREAS IF PLACED IN LOOSE LIFTS NOT EXCEEDING 6" IN THICKNESS AND COMPACTED TO AT LEAST 95% OF THE MAXIMUM DENSITY AS DETERMINED BY TXDOT, TEX-114-E. THE MOISTURE CONTENT SHALL BE WITHIN THE RANGE OF OPTIMUM WATER CONTENT TO 3% ABOVE THE OPTIMUM WATER CONTENT UNTIL PERMANENTLY COVERED.
37. PLACE BACKFILL AS PROMPTLY AND AS PRACTICAL AFTER COMPLETION OF EACH STRUCTURE OR PORTION OF A STRUCTURE. DO NOT PLACE BACKFILL AGAINST CONCRETE WALLS OR SIMILAR STRUCTURES UNTIL CONCRETE HAS CURED AT LEAST SEVEN (7) DAYS.
38. ANY DRAINAGE STRUCTURE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO THE SATISFACTION OF THE OWNING AUTHORITY.
39. CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING FINAL GRADES TO ASSURE POSITIVE DRAINAGE.
40. GRAVEL SUBGRADE FILLER SHALL CONSIST OF A WELL GRADED, CRUSHED STONE OR GRAVEL, APPROVED BY THE ENGINEER, ONE HUNDRED PERCENT (100%) PASSING A 1 3/4" SIEVE, AT LEAST NINETY-FIVE PERCENT (95%) PASSING A 1 1/2" SIEVE AND AT LEAST NINETY PERCENT (90%) RETAINED ON A ONE QUARTER INCH (1/4") SIEVE. THE CRUSHED STONE OR GRAVEL SHALL HAVE AN ABRASION OF NOT MORE THAN FORTY (40) WHEN SUBJECTED TO THE LOS ANGELES ABRASION TEST.
41. INITIAL BACKFILL: INITIAL BACKFILL IS DEFINED AS BACKFILL HAVING A THICKNESS IN ITS COMPACTED STATE FROM THE SURFACE OF THE BEDDING TO A POINT ONE FOOT (1') ABOVE THE TOP OF THE PIPE. SELECT INITIAL BACKFILL MATERIAL SHALL CONFORM TO THE GRAVEL REQUIREMENTS OF BEDDING. FOR PIPES LESS THAN 24" IN DIAMETER, SELECT INITIAL BACKFILL SHALL BE PLACED IN TWO LIFTS. THE FIRST LIFT SHALL BE SPREAD UNIFORMLY AND SIMULTANEOUSLY ON EACH SIDE OF AND UNDER THE SHOULDERS OF THE PIPE TO ITS SPRING LINE. THE SECOND LIFT OF INITIAL BACKFILL SHALL EXTEND FROM THE SPRING LINE OF THE PIPE TO A DEPTH SUFFICIENT TO PRODUCE A COMPACTED DEPTH OF MATERIAL A MINIMUM OF ONE FOOT ABOVE MINIMUM OF ONE FOOT ABOVE THE TOP OF THE PIPE.
42. FOR PIPES 24" IN DIAMETER AND LARGER, SELECT INITIAL BACKFILL MATERIAL SHALL BE EVENLY AND SIMULTANEOUSLY SPREAD ALONGSIDE, UNDER THE SHOULDERS OR HAUNCHES OF THE PIPE AND OVER THE PIPE IN SIX INCH (6") LIFTS TO A POINT SUFFICIENT TO PRODUCE A COMPACTED DEPTH OF MATERIAL A THE TOP OF THE PIPE.
43. SECONDARY BACKFILL: SECONDARY BACKFILL IS DEFINED AS BACKFILL FROM ONE FOOT (1') ABOVE THE TOP OF THE PIPE TO THE TOP OF THE TRENCH. SECONDARY BACKFILL SHALL GENERALLY CONSIST OF MATERIALS REMOVED FROM THE TRENCH AND SHALL BE FREE OF BRUSH, DEBRIS AND JUNK. NO ROCK OR STONES HAVING ANY DIMENSION LARGER THAN 6 INCHES AT THE LARGEST DIMENSION SHALL BE USED IN THE SECONDARY BACKFILLING ZONE AND SHALL BE AT LEAST 1 FOOT BELOW FINISHED GRADE. SECONDARY BACKFILL MATERIAL SHALL BE COMPOSED OF PRIMARILY COMPACTIBLE SOIL MATERIALS.
44. WATER JETTING OR WATER FLOODING WILL NOT BE PERMITTED AS A METHOD OF COMPACTION. SECONDARY BACKFILL SHALL BE COMPACTED TO THE REQUIRED DENSITY OF NINETY-THREE PERCENT (93%) USING ANY SIZE AND TYPE OF EQUIPMENT WHICH WILL GIVE THE REQUIRED COMPACTION WITHOUT DAMAGING THE PIPE, BEDDING OR STRUCTURES. THE DEPTH OF LAYER, PRIOR TO COMPACTION, SHALL DEPEND UPON THE TYPE OF SPRINKLING AND COMPACTING EQUIPMENT USED TO ACHIEVE THE REQUIRED DENSITY AND THE TEST RESULTS THEREBY OBTAINED AND SHALL BE A MAXIMUM OF TWENTY FOUR INCHES (24"). PRIOR TO AND IN CONJUNCTION WITH THE COMPACTION OPERATION, EACH LAYER SHALL BE BROUGHT TO THE MOISTURE CONTENT NECESSARY TO OBTAIN THE REQUIRED DENSITY AND SHALL BE KEPT LEVEL TO INSURE UNIFORM COMPACTION OVER THE ENTIRE LAYER. ESTABLISHMENT OF THE OPTIMUM MOISTURE AND DENSITY WILL BE IN ACCORDANCE WITH TXDOT TEST METHOD TEX-113-E. DENSITY SHALL BE TESTED IN ACCORDANCE WITH THE REQUIREMENT OF ASTM D 2922. EACH LAYER OF BACKFILL MUST PROVIDE THE DENSITY AS REQUIRED HEREIN. IF THE MATERIAL FAILS TO MEET THE DENSITY INDICATED, THE COURSE SHALL BE REWORKED AS NECESSARY TO OBTAIN THE INDICATED COMPACTION.
45. ALL WORK WITHIN THE COUNTY STREET OR STATE HIGHWAY RIGHT OF WAY MUST MEET THE INDICATED REQUIREMENTS IN THIS SECTION AS A MINIMUM AND SHALL MEET THE REQUIREMENTS INDICATED IN THE PLANS OR THE PERMIT ISSUED BY THE COUNTY, CITY, OR STATE WHEN THEIR REQUIREMENTS ARE MORE STRINGENT. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR WILL BE RESPONSIBLE FOR CONTACTING THE APPROPRIATE TXDOT, CITY, OR COUNTY OFFICE AND FOR COORDINATING HIS ACTIVITIES WITH THE OPERATING PROCEDURE IN EFFECT FOR UTILITY CUT PERMITS AND PAVEMENT REPAIR UNDER THEIR JURISDICTION. APPROVAL FOR ALL COMPETED WORK IN THE CITY, STATE OR COUNTY RIGHT OF WAY MUST BE OBTAINED FROM THE APPROPRIATE OFFICIAL PRIOR TO FINAL ACCEPTANCE.

Sheet List Table

Sheet Number	Sheet Title
C0.01	GENERAL NOTES
C1.00	OVERALL EXISTING AND DEMOLITION PLAN AND NOTES
C2.00	SWPPP NOTES
C2.01	OVERALL SWPPP
C2.02	SWPPP DETAILS
C3.00	OVERALL SITE DIMENSION PLAN AND KEYED NOTES
C3.01	SITE AND DIMENSION PLAN NORTH
C3.02	SITE AND DIMENSION PLAN MID
C3.03	SITE AND DIMENSION PLAN SOUTH
C3.04	OVERALL ALTERNATE PLAN
C3.05	EXISTING AND DEMOLITION PLAN FOR BUS LOOP RE-ROUTE
C3.06	DIMENSION PLAN FOR BUS LOOP RE-ROUTE
C4.00	OVERALL GRADING PLAN
C4.01	GRADING PLAN NORTH
C4.02	GRADING PLAN MID
C4.03	GRADING PLAN SOUTH
C4.04	GRADING DETAILS 1
C4.05	GRADING DETAILS 2
C4.06	GRADING DETAILS 3
C5.00	UTILITY AND DRAINAGE KEYED NOTES
C5.01	OVERALL UTILITY AND DRAINAGE PLAN
C5.02	UTILITY AND DRAINAGE PLAN NORTH
C5.03	UTILITY AND DRAINAGE PLAN MID
C5.04	UTILITY AND DRAINAGE PLAN SOUTH
C5.05	ADMIN BLDG UTILITIES
C5.06	WATER QUALITY BASIN PLAN
C5.07	UTILITY AND DRAINAGE DETAILS 1
C5.08	UTILITY AND DRAINAGE DETAILS 2
C5.09	SAWS WATER DETAILS 1
C5.10	SAWS WATER DETAILS 2
C5.11	SAWS SANITARY SEWER DETAILS
C5.12	COSA DRAINAGE DETAILS
C6.00	OVERALL FIRE PROTECTION PLAN
C6.01	OVERALL FIRE PROTECTION PLAN DETAILS
C7.00	OVERALL STRIPPING AND SIGNAGE PLAN
C7.01	TRAFFIC SIGNAGE DETAILS
SS-1	PROPOSED SANITARY SEWER PLAN AND PROFILE
SS-2	TCEQ OSCS GENERAL CONSTRUCTION NOTES

FLATWORK

46. ALL FLATWORK WITHIN PUBLIC R.O.W. SHALL BE DONE IN ACCORDANCE WITH BEXAR COUNTY AND HELOTES COUNTY.
47. CONTRACTOR SHALL ENSURE THAT THE SLOPE ON THE FINISHED SURFACE OF THE CONCRETE IN THE FIRST FIVE FEET OUTSIDE DOORS DOES NOT EXCEED 2%.
48. SEE GRADING PLANS FOR DROPS AT DOORS.
49. THE SLOPE OF SITE SIDEWALKS SHALL NOT EXCEED A LONGITUDINAL SLOPE OF 5% OR A CROSS-SLOPE OF 2%
50. THE PORTLAND CEMENT CONCRETE SHALL HAVE A MAXIMUM SLUMP OF 5" AND A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI. A LIQUID MEMBRANE-FORMING CURING COMPOUND SHALL BE APPLIED AS SOON AS PRACTICAL AFTER BROOM FINISH IS APPLIED TO CONCRETE.
51. PRIOR TO BEGINNING PAVEMENT CONSTRUCTION, THE CONTRACTOR SHALL MEET WITH THE OWNER'S REPRESENTATIVE TO ESTABLISH A JOINT PATTERN.
52. FLY ASH CONTENT OF CONCRETE FLATWORK OR PAVEMENT SHALL NOT EXCEED 20% OF CEMENT CONTENT.

PAVING NOTES

54. REFERENCE PAVEMENT DETAILS AND NOTES ON DETAIL SHEET C4.04..
55. NO RAP OR RAS SHALL BE USED IN ASPHALT SURFACE COURSE.

CPS ENERGY NOTES

WHAT TO DO BEFORE/DURING EXCAVATION

- WHITE LINING THE JOB SITE BEFORE YOU CALL 811 IS RECOMMENDED
- CALL 811– 2 BUSINESS DAYS BEFORE YOU DIG. EACH EXCAVATOR MUST HAVE THEIR OWN LOCATE REQUEST
- WAIT FOR A POSITIVE RESPONSE BEFORE YOU DIG. A POSITIVE RESPONSE INCLUDES MARKS ON GROUND, EMAIL NOTIFICATION, OR PHONE CALL
- IF NO POSITIVE RESPONSE IS GIVEN THE EXCAVATOR MUST MAKE A SECOND CALL TO 811 (THE EXCAVATOR MUST WAIT 4 HOURS AFTER THE SECOND CALL IS MADE PRIOR DIGGING
- THE EXCAVATOR IS ALSO RESPONSIBLE FOR MAKING A SECOND CALL TO 811 IF THERE ARE NO LOCATES BUT THERE IS VISUAL INDICATION OF GAS OR ELECTRIC FACILITIES
- THE EXCAVATOR SHALL PROTECT AND PRESERVE LOCATE MARKINGS THROUGHOUT THE LIFE OF THE TICKET
- THE LOCATE REQUEST IS VALID FOR 14 BUSINESS DAYS OR WHEN MARKS ARE NO LONGER VISIBLE. REFRESHING THE LOCATE TICKET ON THE TWELFTH DAY IS RECOMMENDED
- MECHANIZED EQUIPMENT IS NOT ALLOWED WITHIN THE EXCAVATION TOLERANCE ZONE. THIS AREA IS 18-INCHES ON EITHER OUTSIDE OF EDGE OF EITHER SIDE OF THE GAS OR ELECTRIC FACILITY
- SIGNING AN EXCAVATORS AGREEMENT IS ALSO RECOMMENDED FOR LARGE PROJECTS WHERE THE SCOPE OF WORK IS TOO LARGE TO WHITE-LINE. THE LOCATE TICKET STILL NEEDS TO BE UPDATED EVERY 14 BUSINESS DAYS

IN CASE OF PIPELINE DAMAGE

- CALL 811 IMMEDIATELY BUT NO LATER THAN 2 HRS FOLLOWING THE DAMAGE. FOR CPS ENERGY GAS OR ELECTRIC DAMAGES CALL IMMEDIATELY 210-353-HELP (4357)
- DAMAGE INCLUDES THE FOLLOWING: DEFACING, SCRAPING, DISPLACEMENT, PENETRATION, DESTRUCTION, PARTIAL OR COMPLETE SEVERANCE OF AN UNDERGROUND PIPELINE OR OF ANY PROTECTIVE COATING, HOUSE/CASING, OR OTHER PROTECTIVE DEVICE OF AN UNDERGROUND PIPELINE
- REPORT ANY BROKEN GAS TRACER WIRE TO CPS ENERGY AT 210-353-HELP (4357)
- DO NOT TRY AND FIX DAMAGED LINE OR STOP PRODUCT FROM LEAKING
- DO NOT BACKFILL THE IMMEDIATE AREA OF DAMAGE, UTILITY OWNER WILL GIVE THAT ORDER
- MAKE AREA SAFE FOR CREW AND PUBLIC, KEEP SOURCES OF IGNITION AWAY FROM INCIDENT AREA
- KEEP UPWIND FROM PLUME OR VAPOR CLOUD
- MUST FILE A GAS DAMAGE REPORT WITHIN 10 BUSINESS DAYS OF INCIDENT ONLINE AT http://webapps.rrc.state.tx.us/TPD/publicHomeAction.do
- FOR CPS ENERGY RELATED EVENTS OR NATURAL GAS ODOR COMPLIANTS THE EMERGENCY NUMBER IS 210-353-HELP (4357)

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY PAUL A. MATHIS, P.E. NO. #105075 ON MARCH 14, 2024 DATE

PAUL A. MATHIS 105075 LICENSED PROFESSIONAL ENGINEER STATE OF TEXAS

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NORTHSIDE INDEPENDENT SCHOOL DISTRICT

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12221 LESLIE ROAD, HELOTES, TX 78023

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Date Issued:	03/14/24

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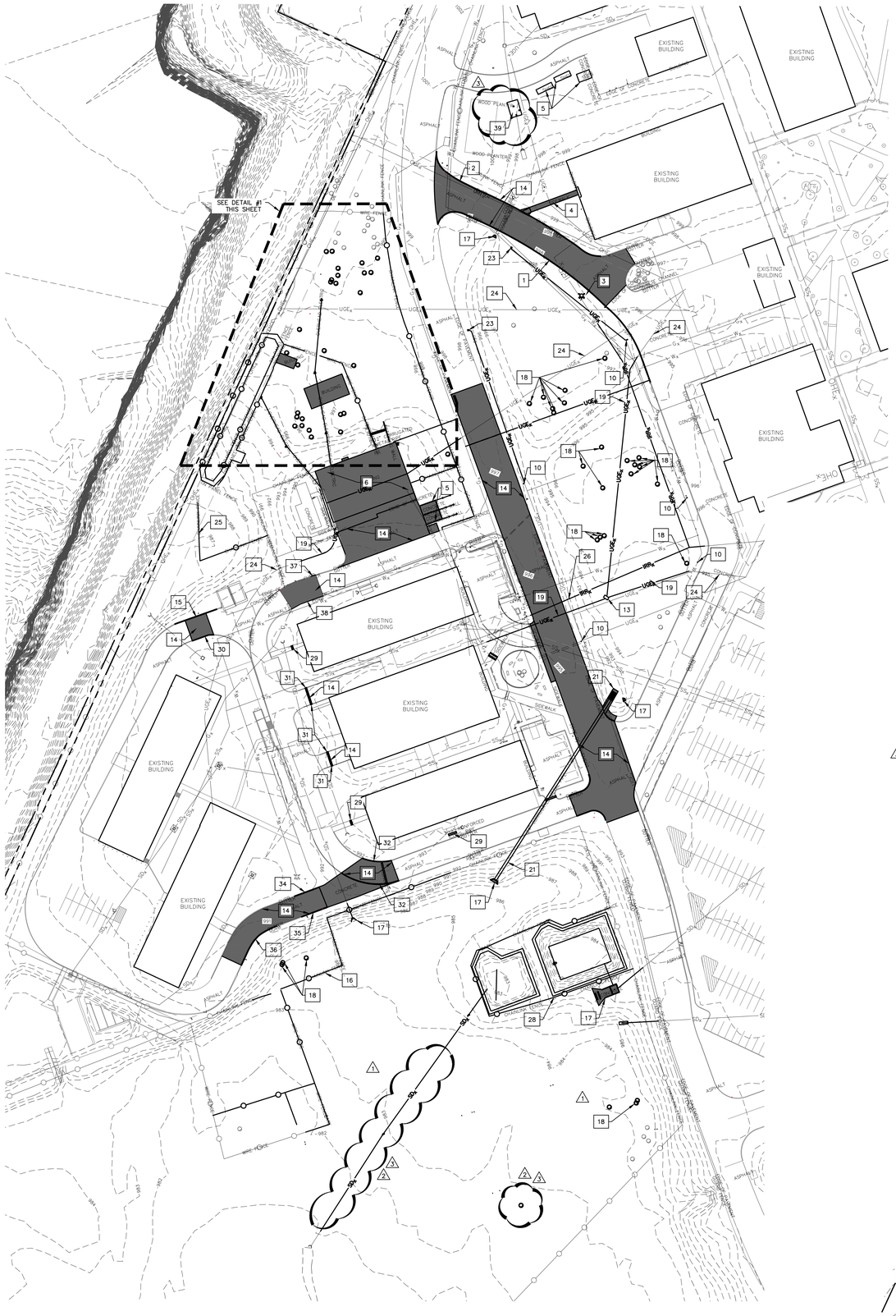
1 – TCEQ 2024 02 02	
2 – TCEQ 2024 02 23	
1 PR 006	03/07/24
2 PR 008	03/14/24

GENERAL NOTES

C0.01



PLAN NOTES:

1	SAWCUT AND REMOVE ~350 L.F. OF EXISTING CURB.
2	SAWCUT AND REMOVE ~240 L.F. OF EXISTING CURB.
3	CONTRACTOR TO RELOCATE EXISTING FIRE HYDRANT. REFER TO CIVIL UTILITY PLANS FOR PROPOSED LOCATION OF NEW FIRE HYDRANT.
4	EXISTING SIDEWALK TO BE REMOVED.
5	EXISTING BUILDINGS TO BE REMOVED.
6	EXISTING BUILDING TO BE REMOVED, AFTER PHASE 1 OF NEW SHOP.
7	CONTRACTOR TO REMOVE EXISTING POWER POLES, DOWN WIRES, AND OVERHEAD LINES. REFERENCE MEP PLANS FOR DETAILS.
8	~380 L.F. OF FENCE AND GATE TO BE REMOVED.
9	~180 L.F. OF FENCE AND GATE TO BE REMOVED.
10	LIGHT POST TO REMAIN/BE PROTECTED.
11	~860 L.F. OF FENCE AND GATES TO BE REMOVED.
12	EXISTING RETAINING WALL AND CORRUGATED METAL PIPES TO BE REMOVED.
13	EXISTING LOW AND HIGH VOLTAGE ELECTRICAL VAULT TO BE REMOVED. REFERENCE MEP DRAWINGS FOR NEW LOCATION.
14	EXISTING PAVEMENT TO BE REMOVED.
15	SAWCUT AND REMOVE ~53 L.F. OF EXISTING CURB.
16	~650 L.F. OF FENCE AND GATES TO BE REMOVED.
17	EXISTING DRAINAGE STRUCTURE TO BE REMOVED.
18	TREES TO BE REMOVED. REFERENCE LANDSCAPING PLANS FOR PLANTING, INCLUDING NEW, REMOVED, AND SAVED TREES.
19	CONTRACTOR TO REMOVE EXISTING UNDERGROUND ELECTRICAL LINES.
20	CONTRACTOR TO REMOVE EXISTING UNDERGROUND GAS LINES.
21	CONTRACTOR TO REMOVE WINGWALL DRAINAGE STRUCTURE. CONTRACTOR TO REMOVE 24" CORRUGATED METAL PIPE HAS NECESSARY FOR THE INSTALLATION OF NEW STORM DRAIN SYSTEM. CONTRACTOR TO CAP AND LEAVE IN PLACE THE REST OF 24" CORRUGATED METAL PIPE.
22	CONTRACTOR TO REROUTE OVERHEAD ELECTRIC TO SERVE THE EXISTING SECURITY OFFICE. REFER TO MEP DRAWINGS.
23	LIGHT POST AND CONCRETE BASE TO BE DEMOLISHED. REMOVE EXISTING CIRCUIT BACK TO LIGHT POST THAT IS TO REMAIN.
24	EXISTING ELECTRIC LINES TO REMAIN AND BE REUSED.
25	~155 L.F. OF FENCE TO BE REMOVED.
26	CONTRACTOR TO CAP AND ABANDONED ~225 L.F. OF 6" IRRIGATION LINE.
27	GAS METER TO BE REMOVED.
28	~440 L.F. OF FENCE AND GATE TO BE REMOVED.
29	CONTRACTOR TO REMOVED AND PLACE SIDEWALK AT FULL PANEL WIDTH.
30	SAWCUT AND REMOVE ~30 L.F. OF EXISTING CURB.
31	SAWCUT AND REMOVE ~2 L.F. OF EXISTING CURB.
32	SAWCUT AND REMOVE ~35 L.F. OF EXISTING CURB.
33	SAWCUT AND REMOVE ~72 L.F. OF EXISTING CURB.
34	SAWCUT AND REMOVE ~22 L.F. OF EXISTING CURB.
35	SAWCUT AND REMOVE ~34 L.F. OF EXISTING CURB.
36	SAWCUT AND REMOVE ~65 L.F. OF EXISTING CURB.
37	SAWCUT AND REMOVE ~5 L.F. OF EXISTING CURB.
38	SAWCUT AND REMOVE ~40 L.F. OF EXISTING CURB.
39	EXISTING STORM VORTECH SYSTEM TO BE REMOVED.

3

GRAPHIC SCALE

60 0 30 60 120

(IN FEET)
1 INCH = 60 FT

GENERAL NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING IRRIGATION SYSTEM IN AREAS WHERE IT IS REMOVED OR DAMAGED DURING CONSTRUCTION.
2. WHERE FENCES ARE REMOVED THEY SHALL BE REMOVED BACK TO THE FIRST COLUMN OR POST OUTSIDE OF DEMO AREA.
3. NO WORK SHALL BE DONE UNTIL BEXAR COUNTY HAS ISSUED A SWPPP PERMIT.
4. CONTRACTOR MAY SALVAGE AND REUSE EXISTING FENCE MATERIALS IF THEY ARE NOT DAMAGED.

DETAIL #1
SCALE: 1" = 20'

THE SEAL APPEARING ON
THIS DOCUMENT WAS
AUTHORIZED BY:
PAUL A. MATHIS, P.E.
NO. #105075

ON: MARCH 7, 2024
DATE

PAUL A. MATHIS
105075

Paul A. Mathis 3-7-2024

NORTHSIDE INDEPENDENT
SCHOOL DISTRICT

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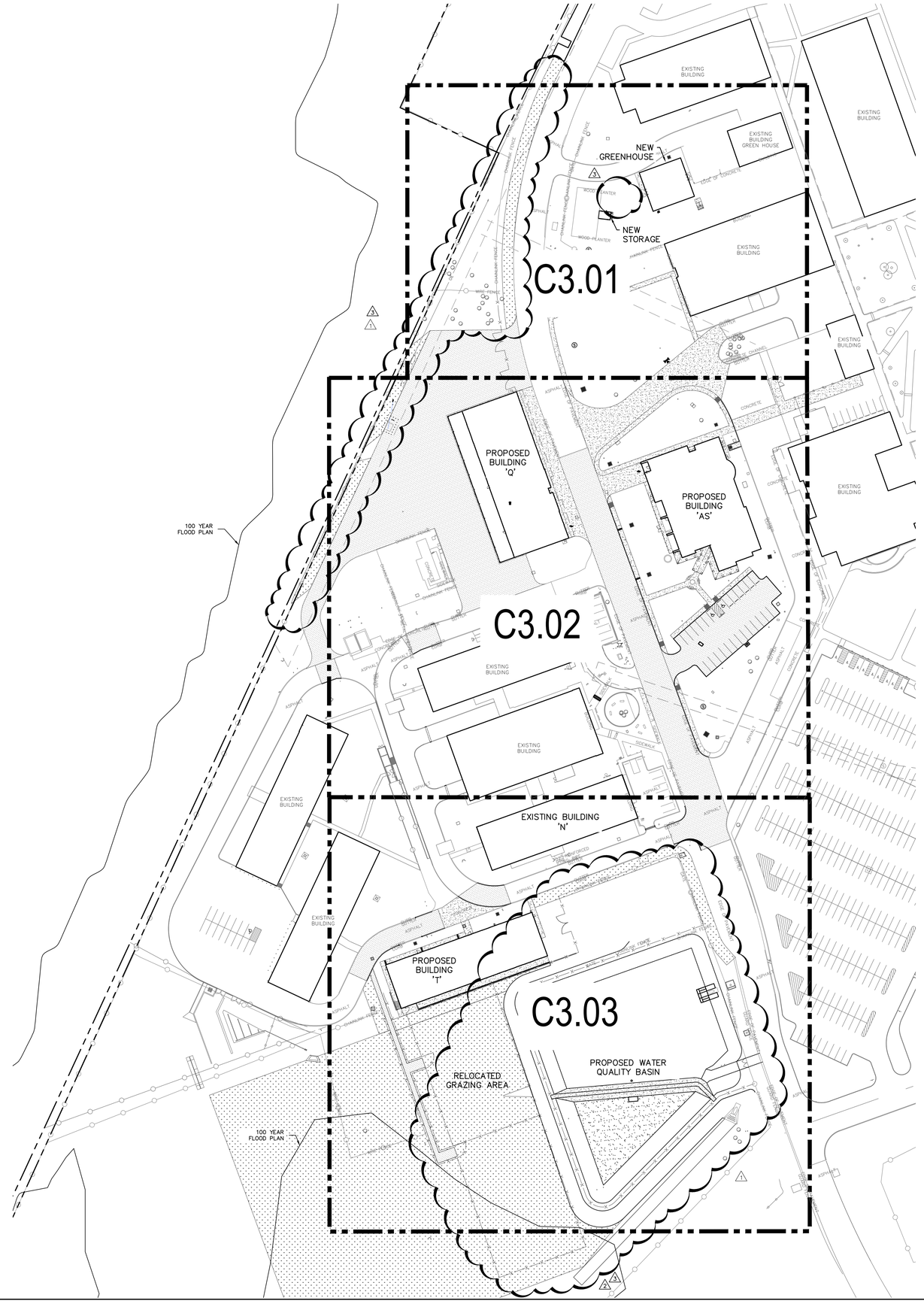
1 – TCEQ 2024 02 02
2 – TCEQ 2024 02 23
3 PR 006 03/07/24

OVERALL EXISTING
AND DEMOLITION
PLAN AND NOTES

C1.00



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60 0 30 60 120

(IN FEET)
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SITE DIMENSION KEYED NOTES:

SHEETS C3.02 – C3.05

1. ASPHALTIC PAVEMENT. SEE DETAIL A–1 ON SHEET C4.04.
2. CONCRETE PAVEMENT. SEE DETAIL A–2 ON SHEET C4.04.
3. PAVEMENT JUNCTION. SEE DETAIL A–3 ON SHEET C4.04.
4. CONCRETE/ASPHALT PAVEMENT JUNCTION. SEE DETAIL A–4 ON SHEET C4.04.
5. CONCRETE FLATWORK. SEE DETAIL A–5 ON SHEET C4.04.
6. CONCRETE SIDEWALK. SEE DETAIL A–6 ON SHEET C4.04.
7. CONCRETE SIDEWALK ABUTTING CURB. SEE DETAIL A–7 ON SHEET C4.04.
8. SIDEWALK ADJACENT TO BUILDING. SEE DETAIL A–8 ON SHEET C4.04.
9. SIDEWALK ADJACENT TO COVERED WALK. SEE DETAIL A–9 ON SHEET C4.04.
10. CONCRETE PAVEMENT CONTROL JOINT. SEE DETAIL A–17 ON SHEET C4.04.
11. EDGE OF PAVEMENT (NO CURB). SEE DETAIL A–11 ON SHEET C4.04.
12. SIDEWALK AT ASPHALT. SEE DETAIL A–12 ON SHEET C4.04.
13. CONCRETE OR ASPHALT PAVEMENT/COVERED WALK DETAIL (6" CURB). SEE DETAIL A–13 ON SHEET C4.04.
14. CONCRETE OR ASPHALT PAVEMENT/COVERED WALK DETAIL (FLUSH CURB). SEE DETAIL A–14 ON SHEET C4.04.
15. PAVEMENT EXPANSION JOINT SMOOTH DOWEL. SEE DETAIL A–15 ON SHEET C4.04.
16. SIDEWALK DRAIN AND COVER – PRIVATE WORK. SEE DETAIL A–16 ON SHEET C4.04.
17. DOWNSPOUT BOOT. SEE DETAIL A–20 ON SHEET C4.04.
18. CONCRETE WHEEL STOP. SEE DETAIL A–22 ON SHEET C4.04.
19. PUBLIC WHEELCHAIR RAMPS. SEE DETAIL B–1 ON SHEET C4.05.
20. 18" RIBBON CURB DETAIL. SEE DETAIL B–2 ON SHEET C4.05.
21. CONCRETE FLUME. SEE DETAIL B–3 ON SHEET C4.05.
22. CONCRETE PIPE BOLLARD. SEE DETAIL B–4 ON SHEET C4.05.
23. MACHINE LAID CURB–COMMERCIAL USE. SEE DETAIL B–5 ON SHEET C4.05.
24. HEADER CURB. SEE DETAIL B–6 ON SHEET C4.05.
25. MOUNTABLE CURB. SEE DETAIL B–7 ON SHEET C4.05.
26. CURB DETAIL FOR CONCRETE PAVEMENT. SEE DETAIL B–8 ON SHEET C4.05.
27. 1:1 CURB TRANSITION DETAIL. SEE DETAIL B–9 ON SHEET C4.05.
28. TAPERED CURB TRANSITION DETAIL. SEE DETAIL B–10 ON SHEET C4.05.
29. TOEDOWN DETAIL. SEE DETAIL B–11 ON SHEET C4.05.
30. GATES/CHAIN LINK FENCE. SEE DETAIL C–1 ON SHEET C4.05.
31. HANDICAP MARKINGS. SEE DETAIL E–1 ON SHEET C7.01.
32. HANDICAP SIGN AND PIPE SUPPORT. SEE DETAIL E–2 ON SHEET C7.01.
33. CONCRETE PAD TURN DOWN SEE DETAIL B–12 SHEET C4.05

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY PAUL A. MATHIS, P.E. NO. #105075 ON MARCH 7, 2024 DATE

PAUL A. MATHIS 105075 LICENSED PROFESSIONAL ENGINEER

DESIGNED BY:	PAM
DRAWN BY:	LNC
APPROVED:	PAM
JOB NO.:	762301481

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NORTHSIDE INDEPENDENT SCHOOL DISTRICT

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12221 LESLIE ROAD, HELOTES, TX 78023

CONSTRUCTION/PERMIT DOCUMENTS

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Project No.: 762301481
Drwn. By: LNC
Chkd By: PAM
Date Issued: 03/07/24

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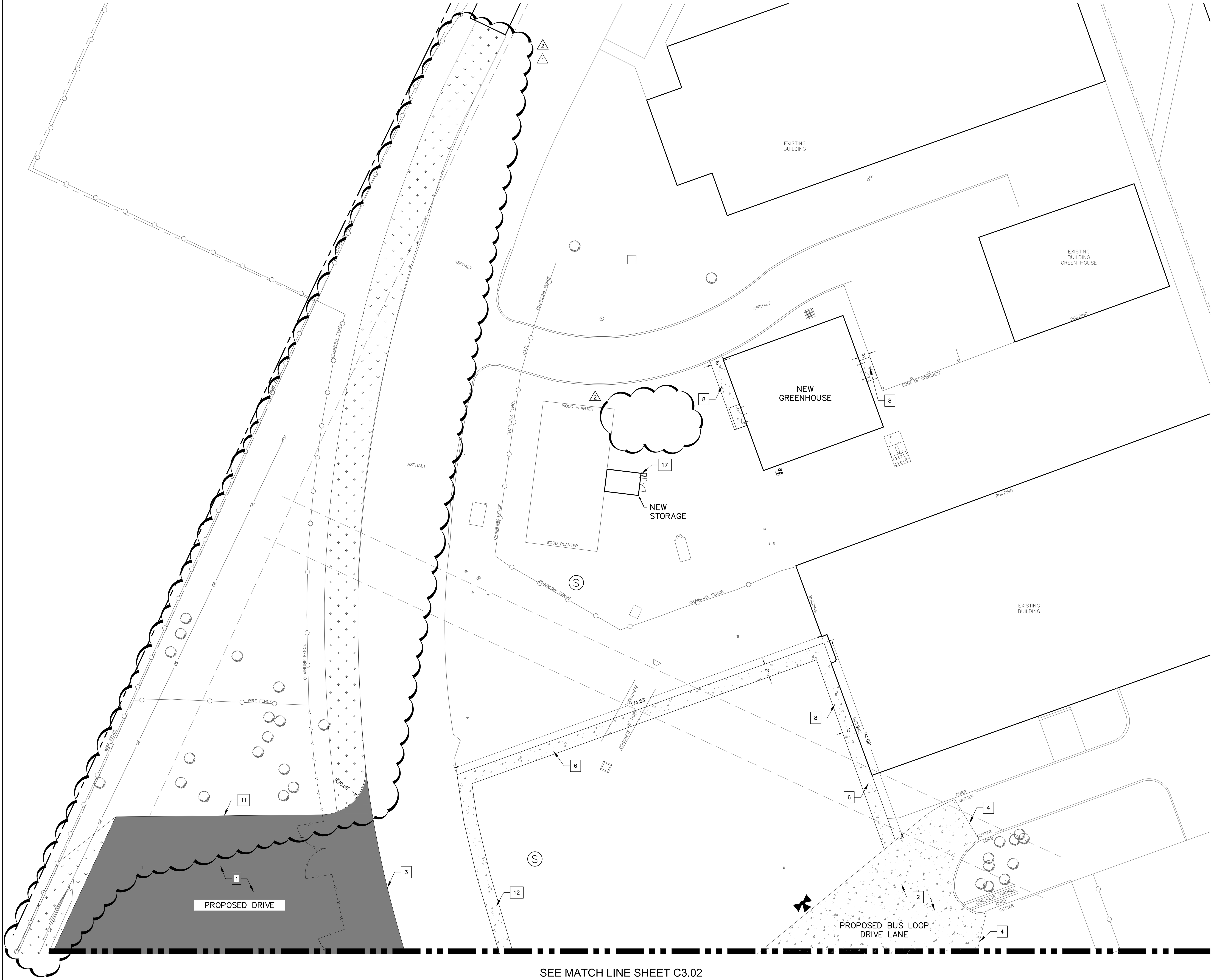
1 – TCEQ 2024 02 02	
2 – TCEQ 2024 02 23	
3 PR 006	03/07/24

OVERALL SITE DIMENSION PLAN AND KEYED NOTES

C3.00



GRAPHIC SCALE

20 0 10 20 40

(IN FEET)
1 INCH = 20 FT

LEGEND:

- CONCRETE PAVEMENT
- CONCRETE DRIVEWAY
- HEAVY DUTY ASPHALT PAVEMENT
- LIGHT DUTY ASPHALT PAVEMENT
- # REFER TO SHEET C3.00 FOR GENERAL AND KEYED NOTES.

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STATE OF TEXAS PAUL A. MATHIS 105075 LICENSED PROFESSIONAL ENGINEER

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CONSTRUCTION/PERMIT DOCUMENTS

Project No.:	762301481
Drwn. By:	LNC
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Date Issued:	03/07/24
Revisions:	
1 – TCEQ 2024 02 02	
2 PR 006	03/07/24

SITE AND DIMENSION PLAN NORTH

C3.01

SEE MATCH LINE SHEET C3.01

GRAPHIC SCALE

20 0 10 20 40

(IN FEET)
1 INCH = 20 FT

GENERAL NOTE:

ALL STRIPPING PAINT SHALL BE ACRYLIC EXCEPT SYMBOLS (WORDS AND ARROWS) AND CROSS WALK STRIPPING SHALL BE THERMOPLASTIC.

LEGEND:

- CONCRETE PAVEMENT
- CONCRETE DRIVEWAY
- HEAVY DUTY ASPHALT PAVEMENT
- LIGHT DUTY ASPHALT PAVEMENT
- PERMEABLE GRASS PAVERS. REFER TO THIS SHEET FOR DETAILS.
- [#] REFER TO SHEET C3.00 FOR GENERAL AND KEYED NOTES.
- REFER TO SHEET C7.00 FOR SIGN CALLOUTS

PROPOSED BUILDING 'Q'

PROPOSED BUS LOOP DRIVE LANE

PROPOSED BUILDING 'AS'

EXISTING CAFETERIA BUILDING

EXISTING LIVESTOCK BARN BUILDING

EXISTING MULTI-PURPOSE BUILDING

DETAIL #1
SEE THIS SHEET FOR DETAILS

DETAIL #1
SCALE: 1" = 10'

SEE MATCH LINE SHEET C3.03

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NORTHSIDE INDEPENDENT SCHOOL DISTRICT

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12221 LESLIE ROAD, HELOTES, TX 78023

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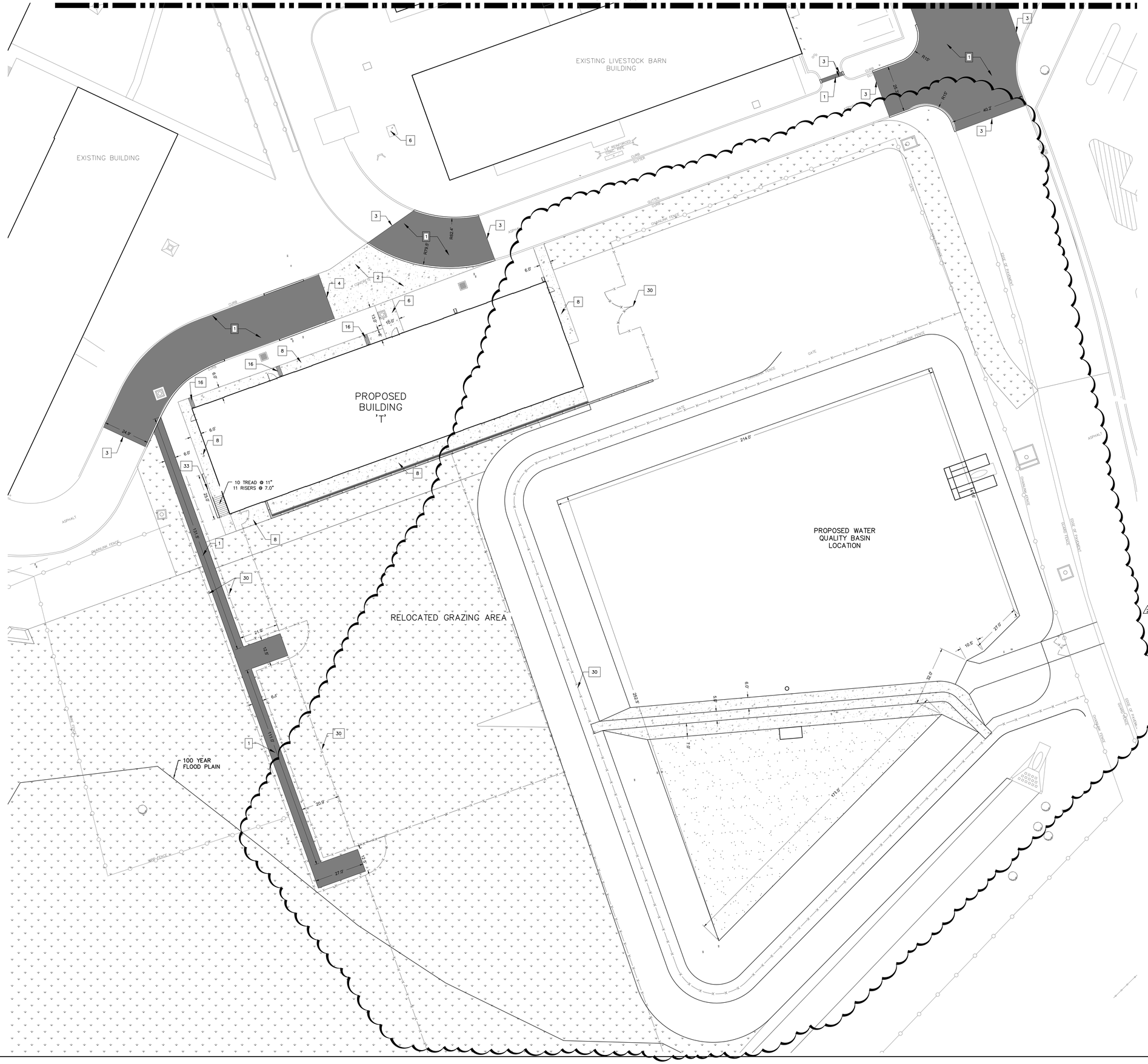
1	TCEQ 2024 02 02
2 PR 006	03/07/24

SITE AND DIMENSION PLAN MID

C3.02

SEE MATCH LINE SHEET C3.02



GRAPHIC SCALE

20 0 10 20 40

(IN FEET)
1 INCH = 20 FT

GENERAL NOTE:

ALL STRIPPING PAINT SHALL BE ACRYLIC EXCEPT SYMBOLS (WORDS AND ARROWS) AND CROSS WALK STRIPPING SHALL BE THERMOPLASTIC.

LEGEND:

- CONCRETE PAVEMENT
- CONCRETE DRIVEWAY
- HEAVY DUTY ASPHALT PAVEMENT
- LIGHT DUTY ASPHALT PAVEMENT
- PERMEABLE GRASS PAVERS. REFER TO THIS SHEET FOR DETAILS.
- (#) REFER TO SHEET C3.00 FOR GENERAL AND KEYED NOTES.
- REFER TO SHEET C7.00 FOR SIGN CALLOUTS

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STATE OF TEXAS · PAUL A. MATHIS · 105075 · LICENSED · PROFESSIONAL ENGINEER

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AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

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Drwn. By:	LNC
Chkd By:	PAM
Date Issued:	03/07/24

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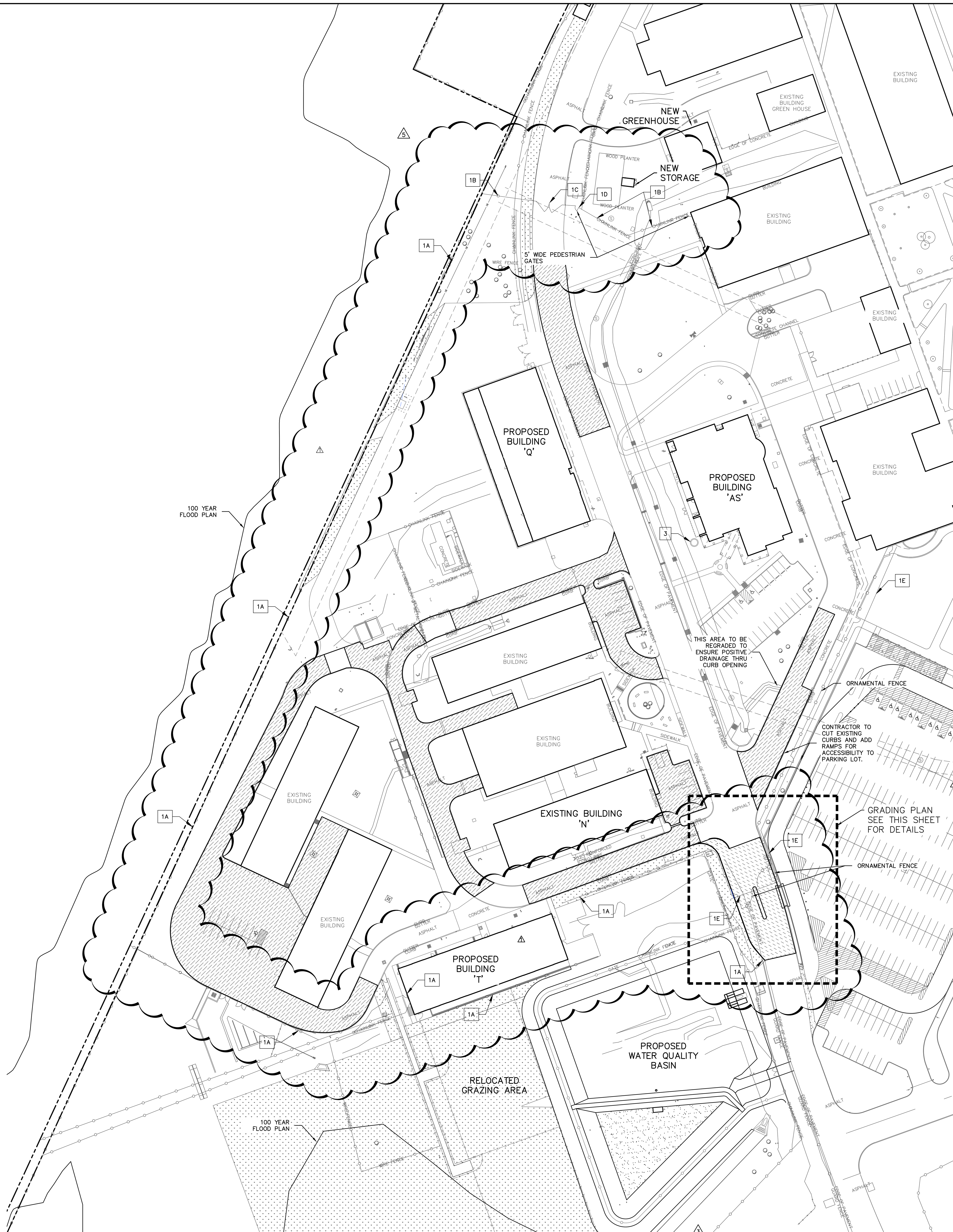
SITE AND DIMENSION PLAN SOUTH

C3.03



GRAPHIC SCALE

(IN FEET)
1 INCH = 60 FT

LEGEND

1A	PROVIDE 8' TALL CHAIN LINK FENCE WITH 2-1/4" FABRIC.
1B	NEW 6' TALL CHAIN LINK FENCE WITH 1" FABRIC AND REPLACE EXISTING 5' WIDE GATE (DEMO EXISTING AS REQUIRED).
1C	EXISTING 6' TALL GATES/FENCING WITH 1" FABRIC TO REMAIN. INSTALL NEW 5' WIDE PEDESTRIAN GATE.
1D	NEW 5' WIDE PEDESTRIAN GATE. CONTRACTOR TO DEMO PORTION OF EXISTING FENCING AS REQUIRED TO INSTALL THIS GATE.
1E	EXTENDED DRIVEWAY PAVEMENT ALTERNATE BID 1 (CONTRACTOR TO INSTALL 3 – 2" CONDUITS FOR FUTURE SECURITY INSTALLATION.)
2	SEAL COAT ASPHALT PAVEMENT ALTERNATE BID 2
3	NEW CISTERN ALTERNATE BID 3 (SEWER LINE COMING FROM THE CISTERN TO THE MAIN WILL ONLY BE INSTALLED WITH THIS BID ITEM.)

GRADING PLAN
SCALE: 1" = 20'

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY: PAUL A. MATHIS, P.E. NO. #105075
ON: APRIL 25, 2024
DATE

STATE OF TEXAS — PAUL A. MATHIS — 105075 — LICENSED PROFESSIONAL ENGINEER

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DESIGNED BY: PAM
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JOB NO.: 762301481

NORTHSIDE INDEPENDENT SCHOOL DISTRICT

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12221 LESLIE ROAD, HELOTES, TX 78023

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Project No.:	762301481
Drwn. By:	LNC
Chkd By:	PAM
Date Issued:	04/25/24

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2 – TCEQ 2024 02 23		
3	PR 006	03/07/24
4	ASI 003	03/26/24
5	PR 009	04/25/24

OVERALL ALTERNATE PLAN

C3.04

DEMOLITION PLAN KEYED NOTES:

1	EXISTING PAVEMENT STRIPING TO BE BLACKED OUT.
2	EXISTING WHEEL STOP TO BE REMOVED.
3	EXISTING LIGHTPOLE TO REMAIN AND BE PROTECTED.
4	CONTRACTOR TO SAW-CUT AND DEMO EXISTING CURB AND SIDEWALK.
5	EXISTING HANDICAP SIGNS TO BE REMOVED.

GRAPHIC SCALE

(IN FEET)
1 INCH = 20 FT

0 10 20 40

CONSTRUCTION/PERMIT DOCUMENTS

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DESIGNED BY: PAM
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APPROVED: PAM
JOB NO.: 762301481

STATE OF TEXAS
PAUL A. MATHIS
105075
LICENSED
PROFESSIONAL ENGINEER
5-14-2024

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY: PAUL A. MATHIS, P.E. NO. 105075

ON: MARCH 14, 2024
DATE

C3.05

EXISTING AND DEMOLITION PLAN FOR BUS LOOP RE-ROUTE

Revisions:	Date Issued: 03/14/24
1 PR 108 03/14/24	Chkd By: PAM
	Dwn. By: LNC
	Project No.: 762301481

KNRG

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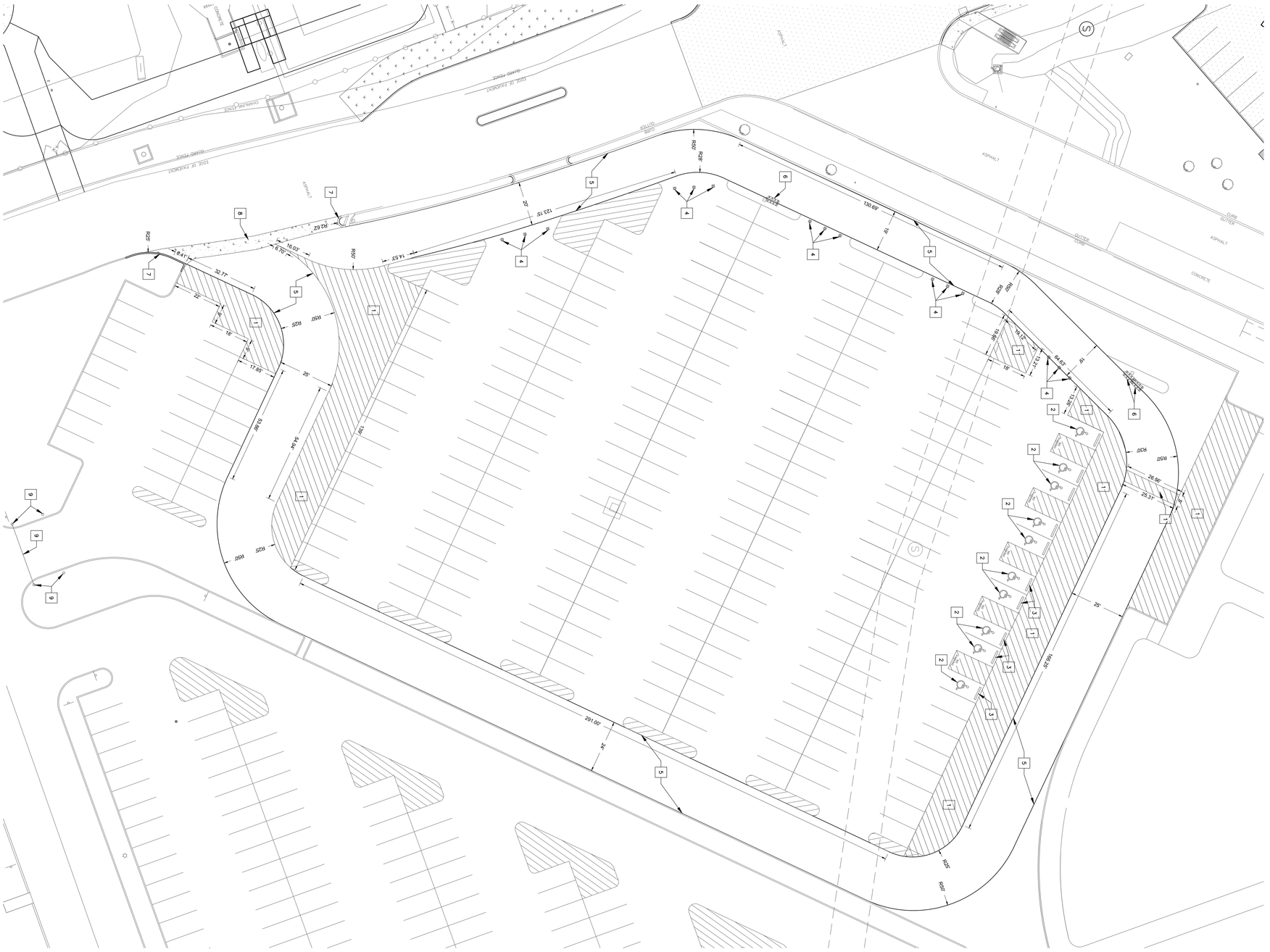
AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12221 LESLIE ROAD, HELOTES, TX 78023

NORTHSIDE INDEPENDENT SCHOOL DISTRICT



GRAPHIC SCALE

20 0 10 20 40

(IN FEET)
1 INCH = 20 FT

DIMENSION PLAN KEYED NOTES:

1	PAVEMENT STRIPING.
2	HANDICAP MARKINGS (SEE DETAIL E–1 ON SHEET 7.01).
3	CONCRETE WHEEL STOP (SEE DETAIL A–18 ON SHEET 4.04).
4	TRAFFIC CONE.
5	PROPOSED 4" WIDE WHITE STRIPING.
6	WATER FILLED BARRIER.
7	PROPOSED MACHINE LAID CURB – COMMERCIAL USE (SEE DETAIL B–5 ON SHEET 4.05).
8	PROPOSED CONCRETE PAVEMENT (SEE DETAIL A–2 ON SHEET 4.04).
9	PROPOSED MANUAL DOUBLE LEAF SWING BARRIER GATE ARM (CONTRACTOR TO MATCH EXISTING GATE LOCATED AT THE DRIVE ACROSS FROM THE TENNIS COURTS.)

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY: PAUL A. MATHIS, P.E. NO. #105075

ON: MARCH 14, 2024
DATE

PAUL A. MATHIS
105075

3-14-2024

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NORTHSIDE INDEPENDENT SCHOOL DISTRICT

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

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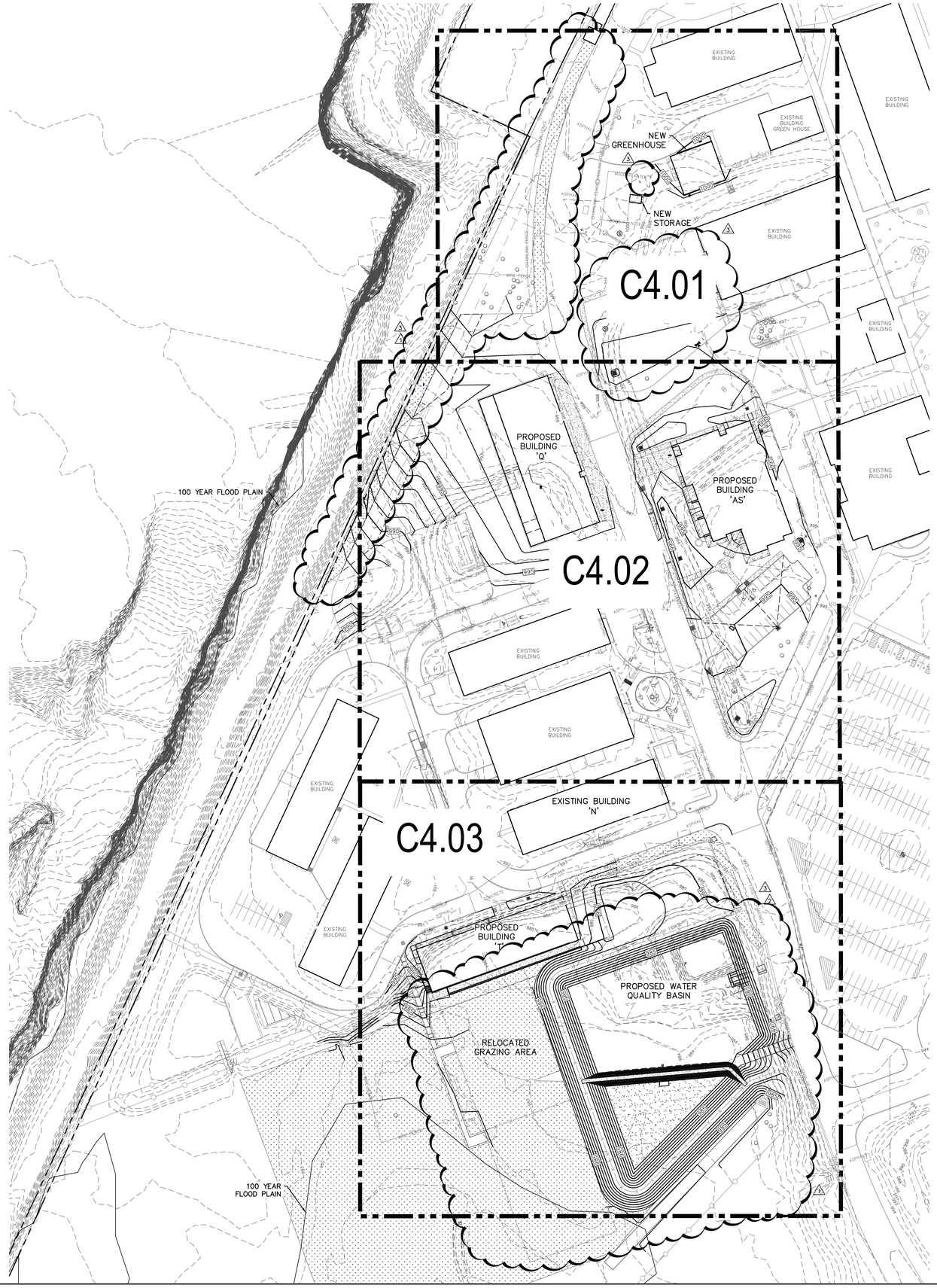
KNRG 1921 ARCH

Project No.:	762301481
Drwn. By:	LNC
Chkd By:	PAM
Date Issued:	03/14/24
Revisions:	
1 PR 008	03/14/24

DIMENSION PLAN FOR BUS LOOP RE-ROUTE

1

C3.06



GRAPHIC SCALE

60 0 30 60 120

(IN FEET)
1 INCH = 60 FT

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ON: MARCH 7, 2024
DATE

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NORTHSIDE INDEPENDENT SCHOOL DISTRICT

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

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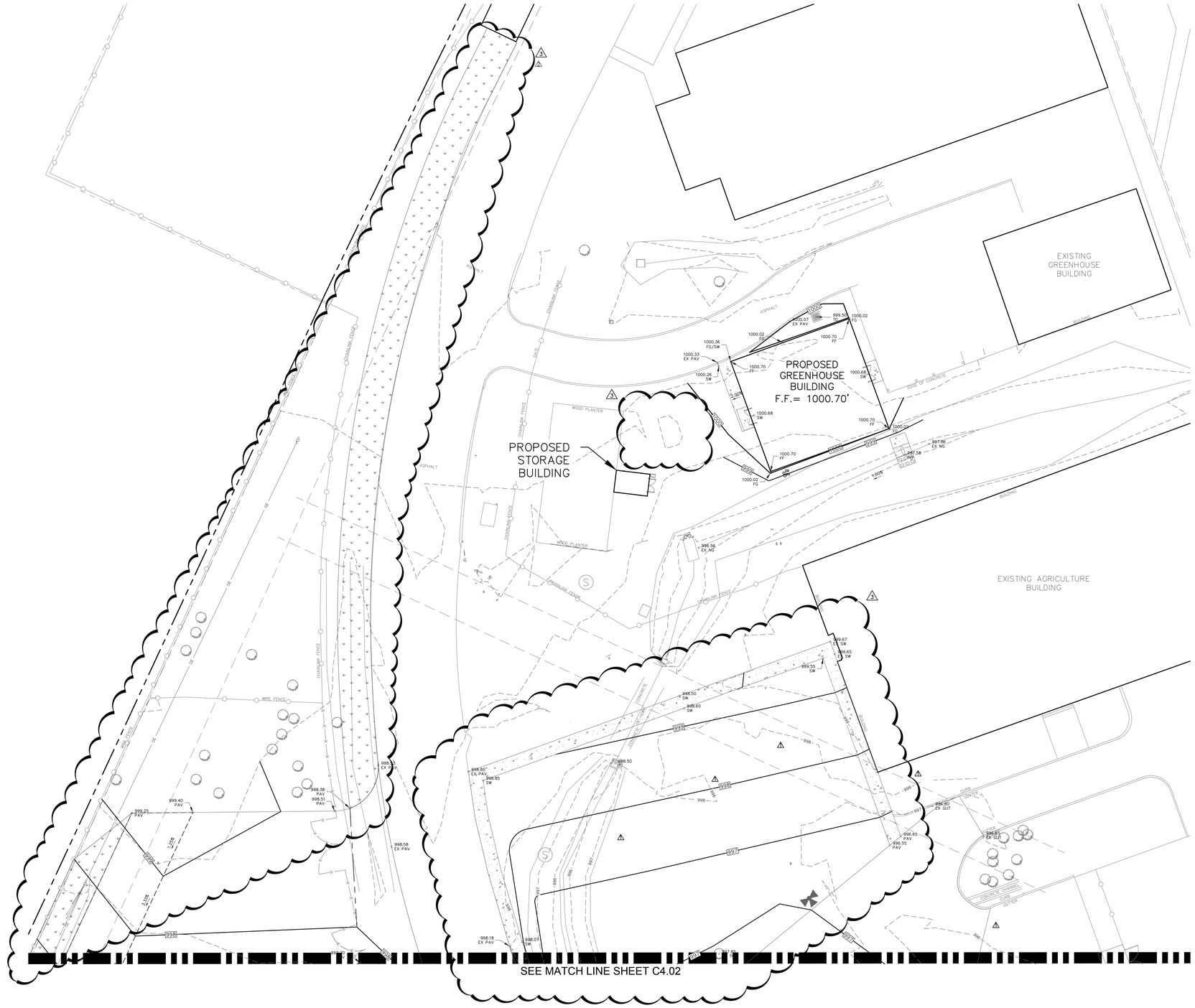
Date Issued: 03/07/24
Revisions:

1 – TCEQ 2024 02 02	
2 – TCEQ 2024 02 23	
3 PR 006	03/07/24

OVERALL GRADING PLAN

C4.00



GRAPHIC SCALE

20 0 10 20 40

(IN FEET)
1 INCH = 20 FT

LEGEND:

- ELEV# DESC — PROPOSED POINT ELEVATION AND DESCRIPTION
- PROPOSED DRAINAGE SWALE/ CHANNEL INVERT
- PROPOSED GRADE BREAK
- XXX — EXISTING CONTOURS
- XXX — PROPOSED CONTOURS

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NORTHSIDE INDEPENDENT SCHOOL DISTRICT

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

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Chkd By: PAM
Date Issued: 03/07/24
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2 – TCEQ 2024 02 02	
3 PR 006	03/07/24

GRADING PLAN NORTH

C4.01

SEE MATCH LINE SHEET C4.01

GRAPHIC SCALE

20 0 10 20 40

(IN FEET)
1 INCH = 20 FT

LEGEND:

ELEV# DESC	
	PROPOSED POINT ELEVATION AND DESCRIPTION
	PROPOSED DRAINAGE SWALE/ CHANNEL INVERT
	PROPOSED GRADE BREAK
XXX	EXISTING CONTOURS
XXX	PROPOSED CONTOURS

PROPOSED BUILDING 'Q' F.F.= 998.00'

PROPOSED BUILDING 'AS' F.F.= 996.50'

EXISTING CAFETERIA BUILDING

PROPOSED BUS LOOP DRIVE LANE

EXISTING LIVESTOCK BARN BUILDING

EXISTING MULTI-PURPOSE BUILDING

SEE MATCH LINE SHEET C4.03

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NORTHSIDE INDEPENDENT SCHOOL DISTRICT

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12221 LESLIE ROAD, HELOTES, TX 78023

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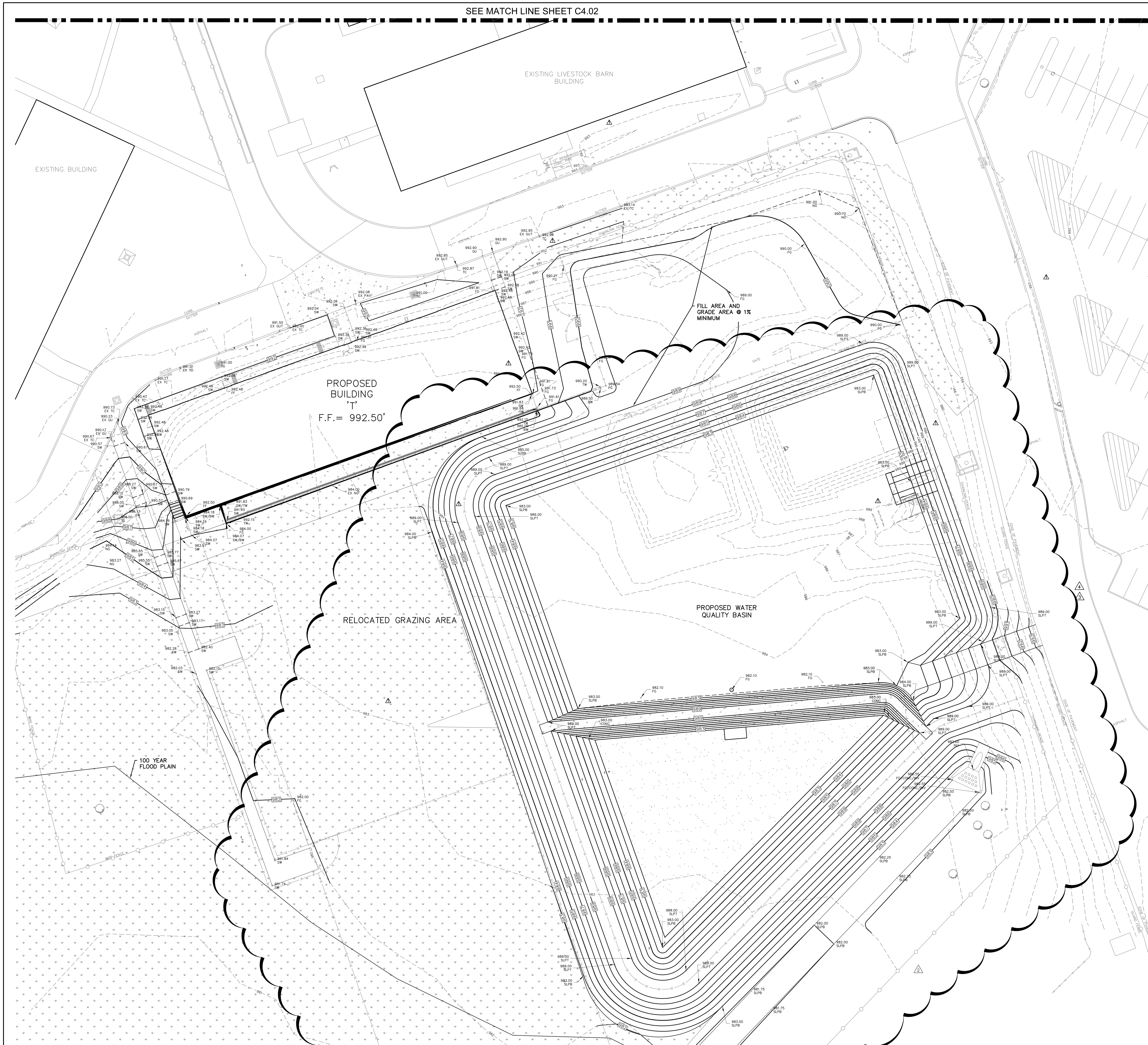
	2 – TCEQ 2024 02 02
2	PR 006 03/07/24

GRADING PLAN MID

C4.02



GRAPHIC SCALE

(IN FEET)
1 INCH = 20 FT

LEGEND:

ELEV# DESC	PROPOSED POINT ELEVATION AND DESCRIPTION
	PROPOSED DRAINAGE SWALE/ CHANNEL INVERT
	PROPOSED GRADE BREAK
XXX	EXISTING CONTOURS
XXX	PROPOSED CONTOURS

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PAUL A. MATHIS 105075 LICENSED PROFESSIONAL ENGINEER

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4 PR 006	03/07/24

GRADING PLAN SOUTH

C4.03

EXISTING STORM DRAIN PIPE KEYED NOTES

XSD1 EXISTING 18" R.C.P. @ 0.6% TO REMAIN

XSD2 EXISTING 12" R.C.P. @ 0.5% TO REMAIN

3 XSD3 EXISTING STORM VORTECH SYSTEM TO BE REMOVED.

XSD4 EXISTING STORM DRAIN STRUCTURE TO REMAIN.

XSD5 EXISTING STORM DRAIN TO REMAIN.

XSD6 EXISTING 18" STORM DRAIN PIPE TO REMAIN.

STORM DRAIN PIPE KEYED NOTES
SHEETS C5.02 – C5.05

4 SD1 172.82 L.F. ~ 36" SPIRAL RIBBED CMP (N=0.012) @ 1.00%

SD2 155.60 L.F. ~ 36" SPIRAL RIBBED CMP (N=0.012) @ 1.00%

SD3 125.00 L.F. ~ 24" SPIRAL RIBBED CMP (N=0.012) @ 1.00%

SD4 11.30 L.F. ~ 18" SPIRAL RIBBED CMP (N=0.012) @ 4.00%

5 SD5 216.8 L.F. ~ 36" SPIRAL RIBBED CMP (N=0.012) @ 0.54%

SD6 64.20 L.F. ~ 36" SPIRAL RIBBED CMP (N=0.012) @ 0.54%

3 SD7 80.30 L.F. ~ 36" SPIRAL RIBBED CMP (N=0.012) @ 0.54%

2 SD8 98.60 L.F. ~ 30" SPIRAL RIBBED CMP (N=0.012) @ 1.00%

SD9 143.80 L.F. ~ 24" SPIRAL RIBBED CMP (N=0.012) @ 0.50%

SD10 31.90 L.F. ~ 18" SPIRAL RIBBED CMP (N=0.012) @ 0.50%

1 SD11 63.00 L.F. ~ 24" SPIRAL RIBBED CMP (N=0.012) @ 0.86%

SD12 74.00 L.F. ~ 24" SPIRAL RIBBED CMP (N=0.012) @ 1.00%

SD13 56.30 L.F. ~ 24" SPIRAL RIBBED CMP (N=0.012) @ 1.00%

SD14 61.60 L.F. ~ 24" SPIRAL RIBBED CMP (N=0.012) @ 1.00%

3 SD15 93.50 L.F. ~ 24" SPIRAL RIBBED CMP (N=0.012) @ 0.85%

2 SD16 97.20 L.F. ~ 18" SPIRAL RIBBED CMP (N=0.012) @ 1.00%

SD17 64.70 L.F. ~ 24" SPIRAL RIBBED CMP (N=0.012) @ 0.90%

SD18 43.00 L.F. ~ 24" SPIRAL RIBBED CMP (N=0.012) @ 1.00%

SD19 68.28 L.F. ~ 15" SDR 35 PVC @ 0.33%

SD20 6.21 L.F. ~ 15" SDR 35 PVC @ 0.33%

SD21 10.35 L.F. ~ 15" SDR 35 PVC @ 0.33%

SD22 15" 1/8 BEND (SDR 35 PVC)

SD23 79.47 L.F. ~ 12" SDR 35 PVC @ 1.00%

SD24 1 – 12"X6" WYE (SDR 35 PVC)
1 – 6" TRANSITION COUPLING

SD25 TYPICAL CLEANOUT

4 SD26 5.40 L.F. ~ 6" SDR 35 PVC @ 0.50%

SD27 7 L.F. ~ 6" SDR 35 PVC @ 0.50%

SD28 29.00 L.F. ~ 6" SDR 35 PVC @ 0.50%

SD29 1 – 6" 1/8 BEND (SDR 35 PVC)

SD30 19.00 L.F. ~ 12" SDR 35 PVC @ 1.00%

SD31 5.50 L.F. ~ 6" SDR 35 PVC @ 0.50%

SD32 4.41 L.F. ~ 6" SDR 35 PVC @ 0.50%

SD33 26.83 L.F. ~ 6" SDR 35 PVC @ 0.50%

SD34 28 L.F. ~ 12" SDR 35 PVC @ 1.00%

SD35 1 – 12"X6" DOUBLE WYE (SDR 35 PVC)

SD36 32.3 L.F. ~ 12" SDR 35 PVC @ 1.00%

SD37 34.1 L.F. ~ 6" SDR 35 PVC @ 0.50%

SD38 9.0 L.F. ~ 6" SDR 35 PVC @ 0.50%

SD39 9.70 L.F. ~ 6" SDR 35 PVC @ 0.50%

SD40 1 – 12" 1/8 BEND (SDR 35 PVC)

SD41 1 – 12" WYE (SDR 35 PVC)
1 – 12" 1/8 BEND (SDR 35 PVC)

STORM DRAIN PIPE KEYED NOTES
SHEETS C5.02 – C5.05

SD42 1 – 12"X6" REDUCER (PVC)

4 SD43 6.0 L.F. ~ 12" SDR 35 PVC @ 1.00%

SD44 5.5 L.F. ~ 6" SDR 35 PVC @ 0.50%

SD45 9.5 L.F. ~ 6" SDR 35 PVC @ 0.50%

SD46 11.00 L.F. ~ 6" SDR 35 PVC @ 0.50%

SD47 1 – 24"X6" WYE
1 – 6" 1/8 BEND (SDR 35 PVC)

SD48 1 – 18"X6" WYE

SD49 8.8 L.F. ~ 6" SDR 35 PVC @ 0.50%
1 – 6" 1/8 BEND (SDR 35 PVC)

SD50 1.25 L.F. ~ 6" SDR 35 PVC @ 0.50%
CONNECTED TO TRENCH DRAIN AND DOWNSPOUTS.
DAYLIGHT PIPE ABOVE GRADE BY 3"
INV OUT = 984.25'

SD51 1.25 L.F. ~ 6" SDR 35 PVC @ 0.50%
CONNECTED TO TRENCH DRAIN AND DOWNSPOUTS.
DAYLIGHT PIPE ABOVE GRADE BY 3"
INV OUT = 985.25'

SD52 30 L.F. ~ 4" WIDE TRENCH DRAIN
RIM: PER GRADING PLAN/SLOPED TOP
TRENCH BODY SHALL HAVE A MINIMUM OF 2% SLOPE FROM WEST END TO EAST END OUTFALL LOCATION.
INSTALL A VERTICAL DROP PIPE AND CONNECT TO SD50.

SD53 50 L.F. ~ 4" WIDE TRENCH DRAIN
RIM: PER GRADING PLAN/SLOPED TOP
TRENCH BODY SHALL HAVE A MINIMUM OF 2% SLOPE FROM EAST END TO WEST END OUTFALL LOCATION.
INSTALL A VERTICAL DROP PIPE AND CONNECT TO SD50.

SD54 50 L.F. ~ 4" WIDE TRENCH DRAIN
RIM: PER GRADING PLAN/SLOPED TOP
TRENCH BODY SHALL HAVE A MINIMUM OF 2% SLOPE FROM WEST END TO EAST END OUTFALL LOCATION.
INSTALL A VERTICAL DROP PIPE AND CONNECT TO SD51.

SD55 50 L.F. ~ 4" WIDE TRENCH DRAIN
RIM: PER GRADING PLAN/SLOPED TOP
TRENCH BODY SHALL HAVE A MINIMUM OF 2% SLOPE FROM EAST END TO WEST END OUTFALL LOCATION.
INSTALL A VERTICAL DROP PIPE AND CONNECT TO SD51.

SD56 DAYLIGHT FRENCH DRAIN THROUGH THE WALL
90 L.F. ~ 4" PERFORATED PIPE @ 0.50%
SLOPE TO THE EAST AND BENDS AS REQUIRED

SD57 DAYLIGHT FRENCH DRAIN THROUGH THE WALL
90 L.F. ~ 4" PERFORATED PIPE @ 0.50%
SLOPE TO THE WEST AND BENDS AS REQUIRED

4 SD58 CONNECT TO DOWNSPOUT AND INSTALL A VERTICAL DROP PIPE AND BENDS AS REQUIRED.
DAYLIGHT FRENCH DRAIN THROUGH THE WALL.
9.9 L.F. ~ 6" SDR 35 PVC @ 0.50%
DAYLIGHT PIPE THROUGH THE WALL ABOVE GRADE BY 3"

SD59 3 L.F. ~ 6" SDR 35 PVC @ 0.50%

SD60 4 L.F. ~ 6" SDR 35 PVC @ 0.50%

SD61 1 – 6" WYE (SDR 35 PVC)
1 – 6" 1/8 BEND (SDR 35 PVC)

SD62 1 – 12"X6" WYE (SDR 35 PVC)

SD63 10.3 L.F. ~ 6" SDR 35 PVC @ 0.50%

SD64 1 – 12"X12" DOUBLE WYE (SDR 35 PVC)

SD65 7 L.F. ~ 12" SDR 35 PVC @ 0.50%
1 – 12" 1/8 BEND (SDR 35 PVC)
36 L.F. ~ 12" SDR 35 PVC @ 0.50%

SD66 4.7 L.F. ~ 12" SDR 35 PVC @ 0.50%
1 – 12" 1/8 BEND (SDR 35 PVC)
39.3 L.F. ~ 12" SDR 35 PVC @ 0.50%

SD67 DAYLIGHT FRENCH DRAIN THROUGH THE WALL
37 L.F. ~ 4" PERFORATED PIPE @ 0.50%
SLOPE TO THE WEST AND BENDS AS REQUIRED

4 SD68 57.65 L.F. ~ 36" SPIRAL RIBBED CMP (N=0.012) @ 0.50%

SD69 37.84 L.F. ~ 42" SPIRAL RIBBED CMP (N=0.012) @ 0.50%
1– 42" 1/8 BEND PVC
1 74.71 L.F. ~ 42" SPIRAL RIBBED CMP (N=0.012) @ 0.50%

SD70 CONTRACTOR TO CONNECT EXISTING 6" STORM PIPE TO PROPOSED STORM SYSTEM
12.0 L.F. ~ 6" SDR 35 PVC
1– 6" 1/8 BEND SDR 35 PVC

3 SD71 CONTRACTOR TO CONNECT EXISTING 18" RCP STORM PIPE TO PROPOSED 18" SPIRAL RIBBED CMP (N=0.012) STORM PIPE
2 – 18" CONCRETE COLLAR
19 L.F. ~ 18" SDR 35 PVC PIPE
CONTRACTOR TO MATCH EXISTING SLOPE

EXISTING SANITARY SEWER KEYED NOTES

XS1 EXISTING SANITARY SEWER MANHOLE TO REMAIN.

XS2 EXISTING 8" SANITARY SEWER.

XS3 EXISTING 6" SANITARY SEWER.

SANITARY SEWER KEYED NOTES
SHEETS C5.02 – C5.05

S1 PR MH #1
196.74 L.F. ~ 8" SDR 26 PVC SANITARY SEWER MAIN @ 0.50% SLOPE

S2 84.39 L.F. ~ 8" SDR 26 PVC SANITARY SEWER MAIN @ 0.50% SLOPE

S3 25.68 L.F. ~ 8" SDR 26 PVC SANITARY SEWER MAIN @ 0.50% SLOPE

S4 10.23 L.F. ~ 8" SDR 26 PVC SANITARY SEWER MAIN @ 0.50% SLOPE

S5 182.25 L.F. ~ 8" SDR 26 PVC SANITARY SEWER MAIN @ 0.50% SLOPE

S6 PR MH #2
1 125.18 L.F. ~ 8" SDR 26 PVC SANITARY SEWER MAIN @ 0.50% SLOPE

2 S7 PR MH #3
59 L.F. ~ 6" SDR 26 PVC SANITARY SEWER MAIN @ 4.8% SLOPE

6 S8 16.7 L.F. ~ 6" PVC SANITARY SEWER LATERAL @ 8.5% SLOPE
CONTRACTOR TO INSTALL A VERTICAL STACK AS NECESSARY TO CONNECT TO PROPOSE INVERT FROM MEP ENGINEERING PLANS.

S9 12.9 L.F. ~ 6" SDR 26 PVC SANITARY SEWER LATERAL @ 8.00% SLOPE
CONTRACTOR TO INSTALL A VERTICAL STACK AS NECESSARY TO CONNECT TO PROPOSE INVERT FROM MEP ENGINEERING PLANS.
2,000 GALLON GREASE WASTE INTERCEPTOR REFERENCE MEP PLANS

S10 30 L.F. ~ 6" SCHD 40 PVC SANITARY SEWER LATERAL @ 8.80% SLOPE

S11 91.4 L.F. ~ 6" SCHD 40 PVC SANITARY SEWER LATERAL @ 0.50% SLOPE
CONTRACTOR TO INSTALL A VERTICAL STACK AS NECESSARY TO CONNECT TO PROPOSE INVERT FROM MEP ENGINEERING PLANS.

6 S12 436.15 L.F. ~ 2 1/2" SCHD 40 PVC FORCE MAIN LINE
REFERENCE MEP ENGINRING PLANS FOR LIFT STATION

S13 1– 6" 1/32 BEND SDR 26 PVC

3 S14 43 L.F. ~ 6" SDR 26 PVC SANITARY SEWER MAIN @ 0.50% SLOPE

2 S15 1– 6" 1/8 BEND SDR 26 PVC

S16 5.5 L.F. ~ 6" SDR 26 PVC SANITARY SEWER MAIN @ 0.50% SLOPE
DOUBLE CLEAN OUTS
REFERENCE TO MEP PLANS FOR CONTINUATION INTO BUILDING.

6 S17 LIFT STATION
INV = 981.55'
REFERENCE MEP ENGINEERING PLANS FOR LIFT STATION
5.0 L.F. ~ 6" SCH 40 PVC SANITARY SEWER LATERAL
1 – PVC CAP FOR FUTURE SERVICE

S18 2.0 L.F. ~ 6" SCHD 40 PVC SANITARY SEWER LATERAL
ADD BENDS AS NECESSARY
1 – 6" CLEANOUT TYPICAL
52 L.F. ~ 6" SCHD 40 PVC SANITARY SEWER LATERAL
ADD BENDS AS NECESSARY
1 – 6" CLEANOUT TYPICAL
8.0 L.F. ~ 6" SCHD 40 PVC SANITARY SEWER LATERAL
REFERENCE MEP PLANS FOR INVERTS AND CONTINUATION INTO BUILDING

EXISTING WATER KEYED NOTES

XW1 EXISTING 8" P.V.C. WATER MAIN TO REMAIN.

XW2 EXISTING 6" P.V.C. WATER MAIN TO REMAIN.

XW3 EXISTING FIRE HYDRANT TO REMAIN.

WATER KEYED NOTES
SHEETS C5.02 – C5.05

W1 CONTRACTOR TO TIE NEW 6" FIRE LINE SERVICE INTO EXISTING 8" WATER MAIN INSTALL:
1 – 8"X6" CUT-IN TEE
15.5 L.F. ~ 6" C900 PVC DR 18 FIRE LINE
REFERENCE TO MEP PLANS FOR CONTINUATION INTO BUILDING.

W2 CONTRACTOR TO TIE NEW 2 1/2" WATER SERVICE INTO EXISTING 8" WATER MAIN INSTALL:
1 – 8"X2 1/2" CUT-IN TEE
8 L.F. ~ 2 1/2" SCHD 40 PVC WATER SERVICE
1 – 2 1/2" REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER ASSEMBLY (ABOVE GROUND, INSULATED)
39.8 L.F. ~ 2 1/2" SCHD 40 PVC WATER SERVICE
1 – 2 1/2" 1/4 BEND
7.8 L.F. ~ 2 1/2" SCHD 40 PVC WATER SERVICE
REFERENCE TO MEP PLANS FOR CONTINUATION INTO BUILDING.

W3 CONTRACTOR TO TIE NEW 2" WATER SERVICE INTO EXISTING 8" WATER MAIN INSTALL:
1 – 8"X2" CUT-IN TEE
7.8 L.F. ~ 2" SCHD 40 PVC WATER SERVICE
1 – 2" REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER ASSEMBLY (ABOVE GROUND, INSULATED)
18.9 L.F. ~ 2" SCHD 40 PVC WATER SERVICE
1 – 2" 1/16 BEND
191 L.F. ~ 2" SCHD 40 PVC WATER SERVICE
REFERENCE TO MEP PLANS FOR CONTINUATION INTO BUILDING.

W4 CONTRACTOR TO TIE NEW 1 1/2" WATER SERVICE INTO EXISTING 8" WATER MAIN INSTALL:
1 – 8"X1 1/2" CUT-IN TEE
8.40 L.F. ~ 1 1/2" SCHD 40 PVC WATER SERVICE
1 – 1 1/2" 1/4 BEND
67.80 L.F. ~ 1 1/2" SCHD 40 PVC WATER SERVICE
REFERENCE TO MEP PLANS FOR CONTINUATION INTO BUILDING.

W5 PROPOSED FIRE HYDRANT COMPLETE

W6 CONTRACTOR TO TIE NEW 6" FIRE LINE SERVICE INTO EXISTING 8" WATER MAIN INSTALL:
1 – 8"X6" CUT-IN TEE
7.75 L.F. ~ 6" C900 PVC DR 18 FIRE LINE
1 – 6" DOUBLE CHECK DETECTOR
19 L.F. ~ 6" C900 PVC DR 18 FIRE LINE
1 – 6" 1/16 BEND, M.J.
192.4 L.F. ~ 6" C900 PVC DR 18 FIRE LINE
1 – 6"X4" REDUCER, M.J.
REFERENCE TO MEP PLANS FOR CONTINUATION INTO BUILDING.

W7 CONTRACTOR TO TIE NEW 1 1/2" WATER SERVICE INTO EXISTING 8" WATER MAIN INSTALL:
1 – 8"X 1 1/2" CUT-IN TEE
57 L.F. ~ 1 1/2" SCHD 40 PVC WATER SERVICE
1 – 1 1/2" REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER ASSEMBLY (ABOVE GROUND, INSULATED)
57 L.F. ~ 1 1/2" SCHD 40 PVC WATER SERVICE
1 – 1 1/2" 1/8 BEND
33 L.F. ~ 1 1/2" SCHD 40 PVC WATER SERVICE
REFERENCE TO MEP PLANS FOR CONTINUATION INTO BUILDING.

EXISTING IRRIGATION KEYED NOTES

XIR1 EXISTING 6" IRRIGATION PIPE TO REMAIN.

XIR2 EXISTING 6" IRRIGATION PIPE TO BE REMOVED.

3 XIR3 EXISTING 6" IRRIGATION PIPE TO BE REMOVED.

XIR4 EXISTING 6" IRRIGATION PIPE TO REMAIN.

IRRIGATION KEYED NOTES
SHEETS C5.02 – C5.05

1 IR1 CONTRACTOR TO TIE NEW 6" IRRIGATION MAIN LINE INTO EXISTING 6" IRRIGATION MAIN INSTALL:
1 – 6" TEE
4 L.F. ~ 6" C900 PVC DR
1 – 6" SHUT OFF VALVE
3 L.F. ~ 6" C900 PVC DR
1 – 6" 1/16 BEND
3 L.F. ~ 6" C900 PVC DR
1 – 6" 1/32 BEND
53.3 L.F. ~ 6" C900 PVC DR
1 – 6"X6"X2" TEE
CAP FOR FUTURE CONNECTION
45 L.F. ~ 6" C900 PVC DR
1 – 6" 1/8 BEND
35.5 L.F. ~ 6" C900 PVC DR
1 – 6" 1/16 BEND
68.11 L.F. ~ 6" C900 PVC DR
1 – 6" 1/8 BEND
54.78 L.F. ~ 6" C900 PVC DR
1 CONTRACTOR TO TIE NEW 6" IRRIGATION MAIN LINE INTO EXISTING 6" IRRIGATION MAIN WITH 6" TEE.

3 IR2 CONTRACTOR TO TIE NEW 6" IRRIGATION MAIN LINE INTO PROPOSED 6" IRRIGATION MAIN INSTALL:
1 – 6" TEE
253.75 L.F. ~ 6" C900 PVC DR
1 – 6" 1/4 BEND
48.13 L.F. ~ 6" C900 PVC DR
1 – 6" 1/16 BEND
103.90 L.F. ~ 6" C900 PVC DR
CONTRACTOR TO TIE NEW 6" IRRIGATION MAIN LINE INTO EXISTING 6" IRRIGATION MAIN WITH 6" TEE.

EXISTING GAS KEYED NOTES

XG1 EXISTING 4" GAS MAIN TO REMAIN.

XG2 EXISTING 2" GAS TO REMAIN.

XG3 EXISTING 1 1/4" GAS TO REMAIN.

GAS KEYED NOTES
SHEETS C5.02 – C5.05

G1 PROPOSED GAS. REFERENCE MEP DRAWING FOR DETAILS

EXISTING AND ELECTRIC KEYED NOTES

XE1 EXISTING UNDERGROUND ELECTRIC FEEDER TO REMAIN.

XE2 EXISTING OVERHEAD ELECTRIC TO REMAIN.

XE3 EXISTING UNDERGROUND ELECTRIC TO REMAIN.

3 XE4 EXISTING UNDERGROUND ELECTRIC FEEDER TO BE REMOVED.

ELECTRIC KEYED NOTES
SHEETS C5.02 – C5.05

E1 PROPOSED ELECTRIC LINES AND FEEDERS. REFERENCE MEP DRAWING FOR DETAILS

COMMUNICATION KEYED NOTES
SHEETS C5.02 – C5.05

3 C1 PROPOSED COMMUNICATION LINES AND FEEDERS. REFERENCE MEP DRAWING FOR DETAILS

GENERAL DRAINAGE NOTES:

1. INLET AND JUNCTION BOX BOTTOMS SHALL BE GROUTED TO DRAIN TO OUTLET
2. LIFTING HOLES INLET TOPS SHALL BE GROUTED.
3. PRECAST GRATE INLETS SHALL HAVE A TOP SECTION THAT ALLOWS OPENING TO BE LOWER THAN SUBGRADE WITH BASE OR PAVEMENT IS INSTALLED OR INLET SHALL HAVE HOLES IN SIDES TO ALLOW FOR DRAINAGE. HOLES TO BE GROUTED AFTER FINAL GRADES ARE ESTABLISHED.
4. CURB INLETS SHALL HAVE A NOTCHED OPENING TO ALL FOR DRAINAGE PRIOR TO FINAL PAVEMENT PLACEMENT. OPENING TO BE GROUTED AFTER FINAL PAVEMENT PLACEMENT.
5. ALL INLETS MUST BE ADA COMPLIANT AND HS–20 LOADING WHERE INLETS ARE IN PAVEMENT AREAS SUBJECT TO VEHICULAR TRAFFIC.

GENERAL WATER NOTES:

1. FDC CAPS SHALL BE STORZ.
2. GRADES OF FIRE AND DOMESTIC WATER TO BE ADJUSTED TO AVOID CONFLICTS WITH STORM DRAIN AND SEWER.
3. FIRE LINE SHALL HAVE RESTRAINED JOINTS AT ALL FITTINGS LENGTH SHALL BE IN ACCORDANCE WITH TABLE ON C5.08
4. CONTRACTOR TO APPLY FOR COUNTER PERMIT FOR SERVICES.

SEWER GENERAL NOTES:

1. CONTRACTOR TO APPLY FOR COUNTER PERMIT FOR SEWER CONNECTION.

GAS AND ELECTRIC GENERAL NOTES:

1. CONTRACTOR TO APPLY FOR GAS AND ELECTRIC SERVICES.

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY PAUL A. MATHIS, P.E. NO. #105075 ON APRIL 15, 2024 DATE

PAUL A. MATHIS 105075 LICENSED PROFESSIONAL ENGINEER STATE OF TEXAS

DESIGNED BY: PAM	DRAWN BY: LNC	APPROVED: PAM	JOB NO.: 762301481

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NORTHSIDE INDEPENDENT SCHOOL DISTRICT

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12221 LESLIE ROAD, HELOTES, TX 78023

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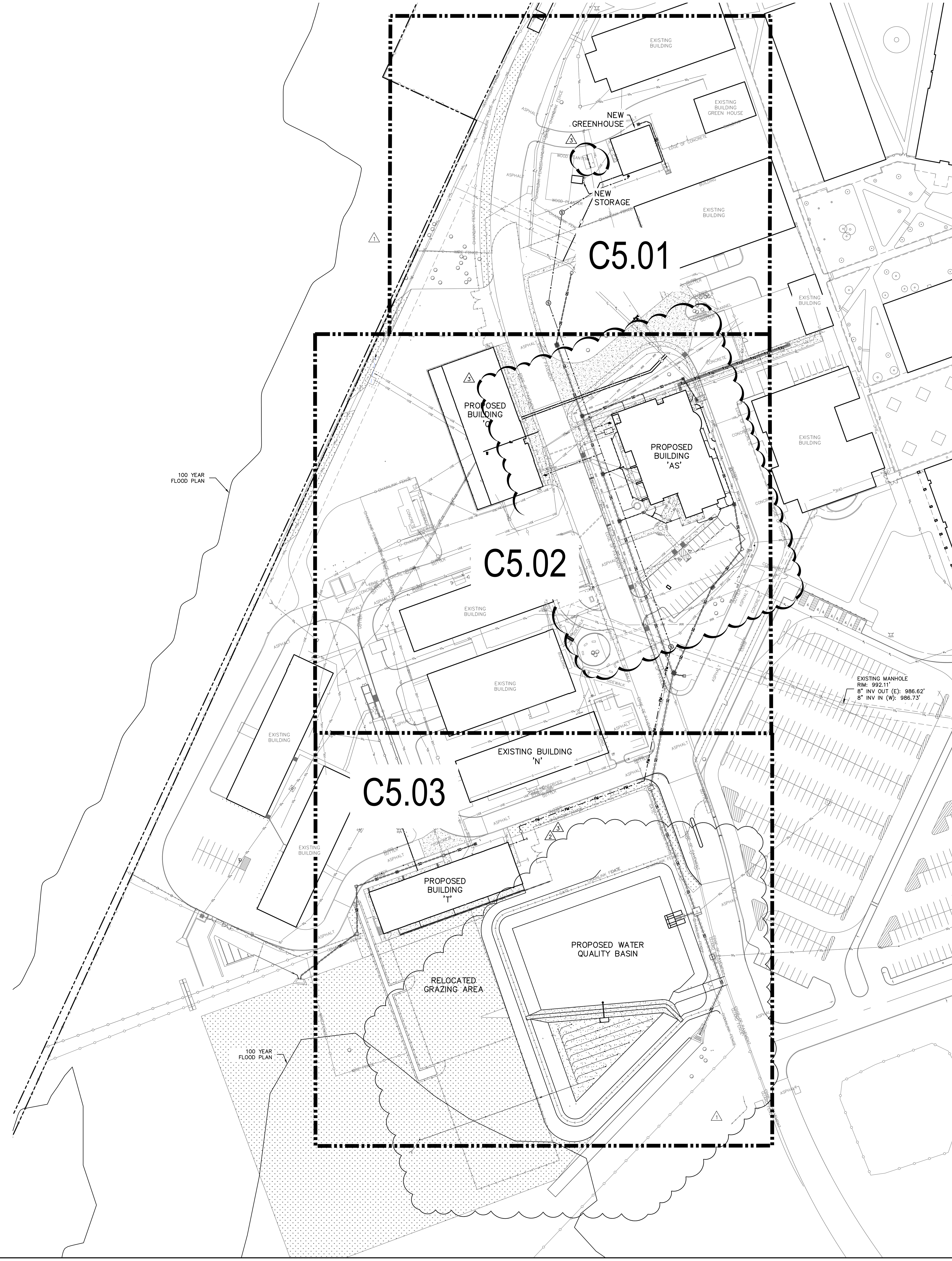
Project No.: 762301481
Drwn. By: LNC
Chkd By: PAM
Date Issued: 04/15/24
Revisions:

1	ADDENDUM #1	9/19/23
2	TCEQ 2024 02 23	
3	PR 006	03/07/24
4	PR 001	03/19/24
5	RFI 032	03/29/24
6	RFI 035/038	04/15/24

UTILITY AND DRAINAGE KEYED NOTES

C5.00



GRAPHIC SCALE

(IN FEET)
1 INCH = 60 FT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY: PAUL A. MATHIS, P.E. NO. #105075 ON: MARCH 7, 2024 DATE

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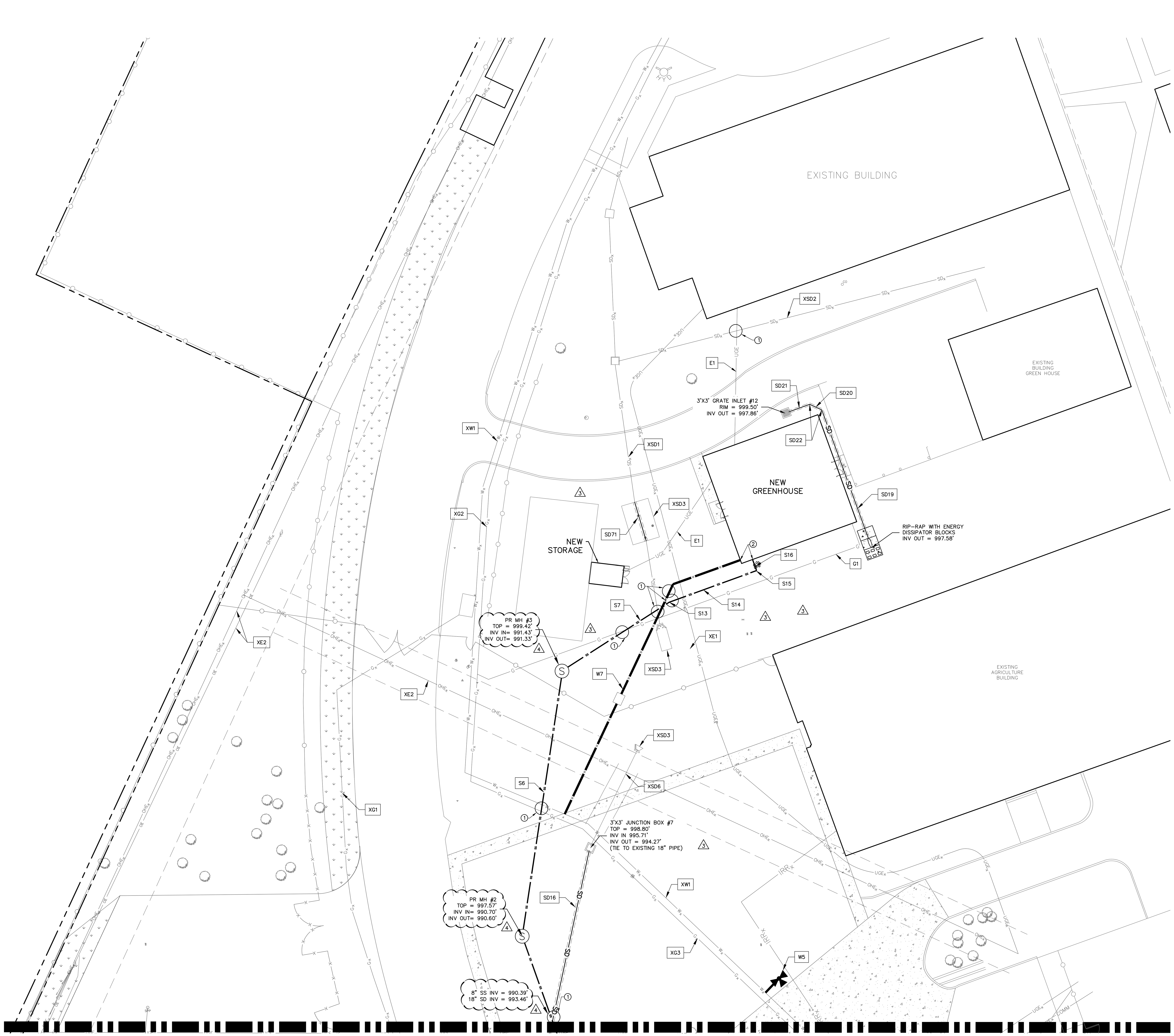
Project No.:	762301481
Drwn. By:	LNC
Chkd By:	PAM
Date Issued:	03/07/24

Revisions:

1 – TCEQ	2024 02 02	
2 – TCEQ	2024 02 23	
3 PR 006		03/07/24

OVERALL UTILITY AND DRAINAGE PLAN

C5.01



SEE MATCH LINE SHEET C5.03

GRAPHIC SCALE

20 0 10 20 40

(IN FEET)
1 INCH = 20 FT

LEGEND

W_X	EXISTING WATER LINE
SS_X	EXISTING SANITARY SEWER LINE
SD_X	EXISTING STORM DRAIN LINE
UGE_X	EXISTING UNDERGROUND ELECTRIC LINE
OHE_X	EXISTING OVERHEAD ELECTRIC LINE
G_X	EXISTING GAS LINE
W	PROPOSED WATER LINE
SS	PROPOSED SANITARY SEWER LINE
SD SD	PROPOSED STORM DRAIN
G	PROPOSED GAS LINE
UGE	PROPOSED UNDERGROUND ELECTRIC LINE
IRR	PROPOSED IRRIGATION LINE
WV	EXISTING WATER VALVE
WV	PROPOSED WATER VALVE
(S)	EXISTING SANITARY SEWER MANHOLE
HYD	EXISTING FIRE HYDRANT
	PROPOSED FIRE HYDRANT
(S)	PROPOSED SANITARY SEWER MANHOLE
XXX	REFER TO SHEET C5.00 FOR CORRESPONDING KEYED NOTES

PLAN NOTES

1. **CAUTION:** UTILITY CROSSING.
2. REFERENCE TO MEP PLANS FOR CONTINUATION.

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY: PAUL A. MATHIS, P.E. NO. #105075
ON: APRIL 15, 2024
DATE

STATE OF TEXAS
PAUL A. MATHIS
105075
LICENSED PROFESSIONAL ENGINEER
4-15-2024

DESIGNED BY: PAM
DRAWN BY: LNC
APPROVED: PAM
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Project No.:	762301481
Drwn. By:	LNC
Chkd By:	PAM
Date Issued:	04/15/24

Revisions:

3	PR 006	03/07/24
4	RFI 035/038	04/15/24

UTILITY AND DRAINAGE PLAN NORTH

C5.02

PLAN NOTES

1. **CAUTION:** UTILITY CROSSING.
2. REFERENCE TO MEP PLANS FOR CONTINUATION.

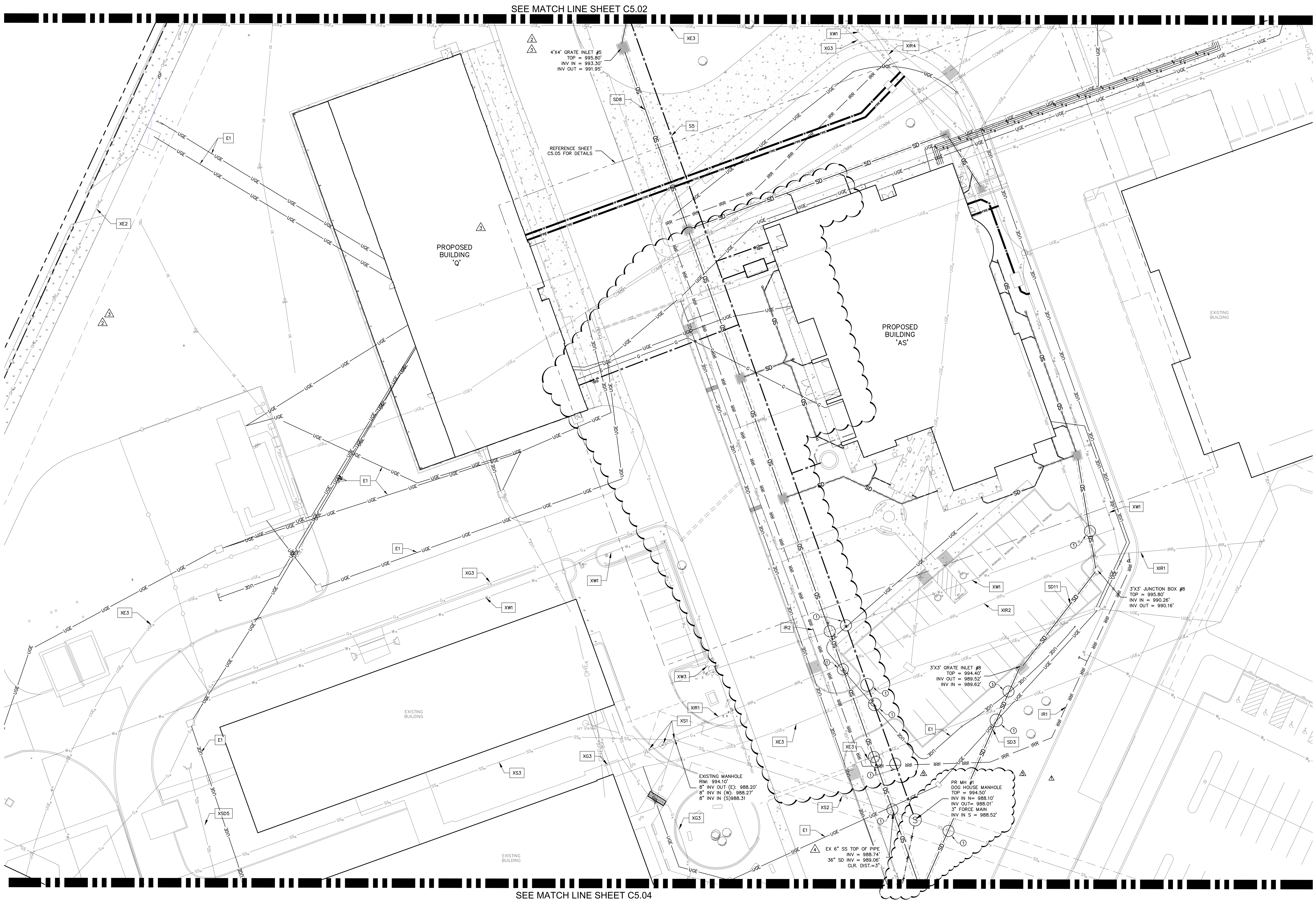
LEGEND

W_X	EXISTING WATER LINE
SS_X	EXISTING SANITARY SEWER LINE
SD_X	EXISTING STORM DRAIN LINE
UGE_X	EXISTING UNDERGROUND ELECTRIC LINE
OHE_X	EXISTING OVERHEAD ELECTRIC LINE
G_X	EXISTING GAS LINE
W	PROPOSED WATER LINE
SS	PROPOSED SANITARY SEWER LINE
SD	PROPOSED STORM DRAIN
G	PROPOSED GAS LINE
UGE	PROPOSED UNDERGROUND ELECTRIC LINE
IRR	PROPOSED IRRIGATION LINE
WV	EXISTING WATER VALVE
WV	PROPOSED WATER VALVE
(S)	EXISTING SANITARY SEWER MANHOLE
	EXISTING FIRE HYDRANT
	PROPOSED FIRE HYDRANT
(S)	PROPOSED SANITARY SEWER MANHOLE
XXX	REFER TO SHEET C5.00 FOR CORRESPONDING KEYED NOTES

GRAPHIC SCALE

20 0 10 20 40

(IN FEET)
1 INCH = 20 FT



THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY: PAUL A. MATHIS, P.E. NO. #105075 ON: APRIL 15, 2024 DATE

STATE OF TEXAS — PAUL A. MATHIS — 105075 — LICENSED PROFESSIONAL ENGINEER — 4-15-2024

NORTHSIDE INDEPENDENT SCHOOL DISTRICT

DESIGNED BY:	PAM
DRAWN BY:	LNC
APPROVED:	PAM
JOB NO.:	762301481

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REGISTRATION #F-10573 / #101943-65

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12221 LESLIE ROAD, HELOTES, TX 78023

CONSTRUCTION/PERMIT DOCUMENTS

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KNRG ARCH 1921

Project No.:	762301481
Drwn. By:	LNC
Chkd By:	PAM
Date Issued:	04/15/24

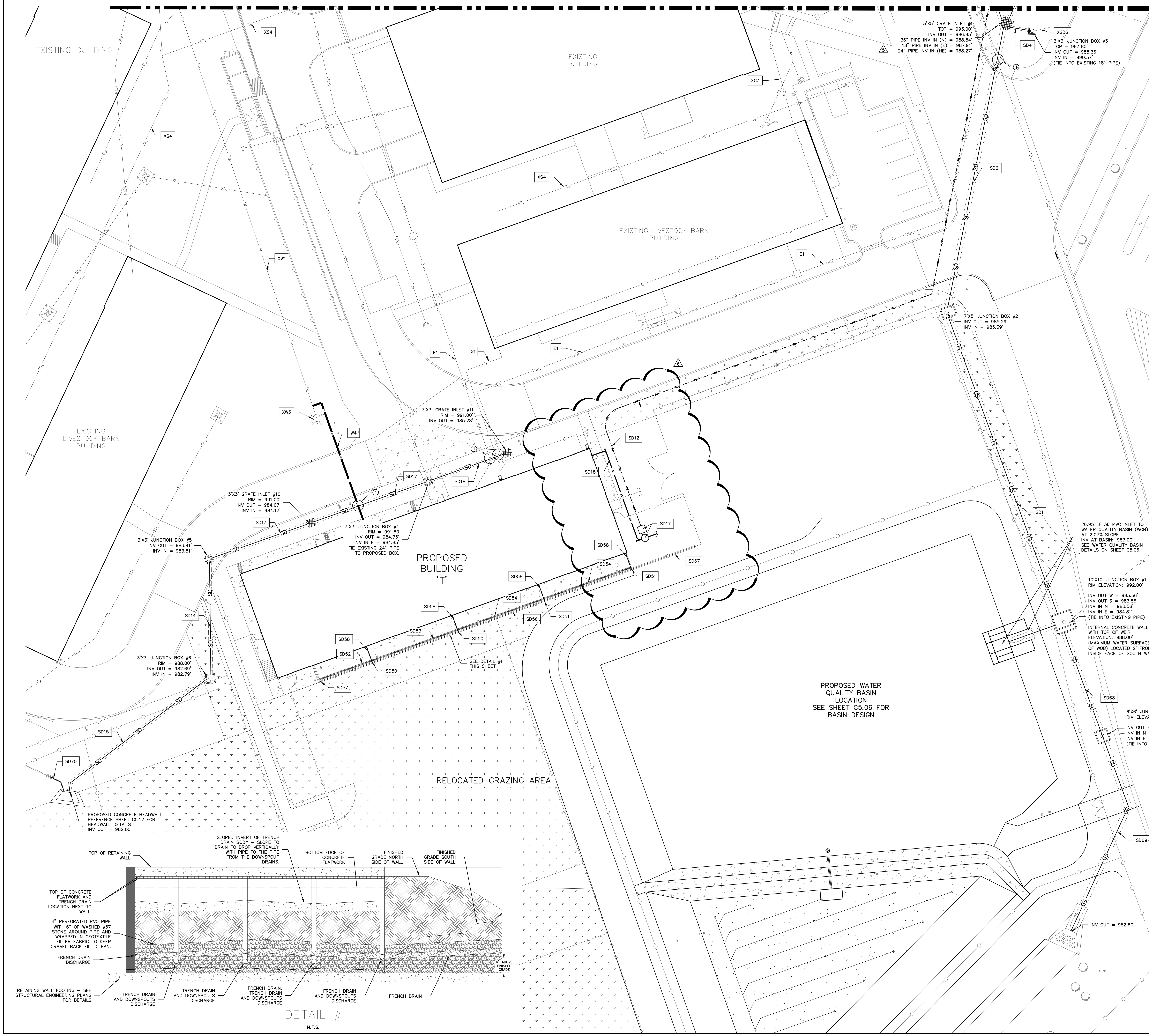
Revisions:

1	ADDENDUM #1	9/19/23
2	TCEQ 2024 02 02	
3	PR 006	03/07/24
4	RFI 032	03/29/24
5	RFI 035/038	04/15/24

UTILITY AND DRAINAGE PLAN MID

C5.03

SEE MATCH LINE SHEET C5.03



GRAPHIC SCALE

20 0 10 20 40

(IN FEET)
1 INCH = 20 FT

LEGEND

W_X	EXISTING WATER LINE
SS_X	EXISTING SANITARY SEWER LINE
SD_X	EXISTING STORM DRAIN LINE
UGE_X	EXISTING UNDERGROUND ELECTRIC LINE
OHE_X	EXISTING OVERHEAD ELECTRIC LINE
G_X	EXISTING GAS LINE
W	PROPOSED WATER LINE
SS	PROPOSED SANITARY SEWER LINE
SD SD	PROPOSED STORM DRAIN
G	PROPOSED GAS LINE
UGE	PROPOSED UNDERGROUND ELECTRIC LINE
IRR	PROPOSED IRRIGATION LINE
WV	EXISTING WATER VALVE
WV	PROPOSED WATER VALVE
S	EXISTING SANITARY SEWER MANHOLE
	EXISTING FIRE HYDRANT
	PROPOSED FIRE HYDRANT
S	PROPOSED SANITARY SEWER MANHOLE
XXX	REFER TO SHEET C5.00 FOR CORRESPONDING KEYED NOTES

PLAN NOTES

1. **CAUTION:** UTILITY CROSSING.
2. REFERENCE TO MEP PLANS FOR CONTINUATION.

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY: PAUL A. MATHIS, P.E. NO. #105075

ON: APRIL 15, 2024
DATE

STATE OF TEXAS
PAUL A. MATHIS
105075
LICENSED PROFESSIONAL ENGINEER
4-15-2024

NORTHSIDE INDEPENDENT SCHOOL DISTRICT

DESIGNED BY: PAM
DRAWN BY: LNC
APPROVED: PAM
JOB NO.: 762301481

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AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

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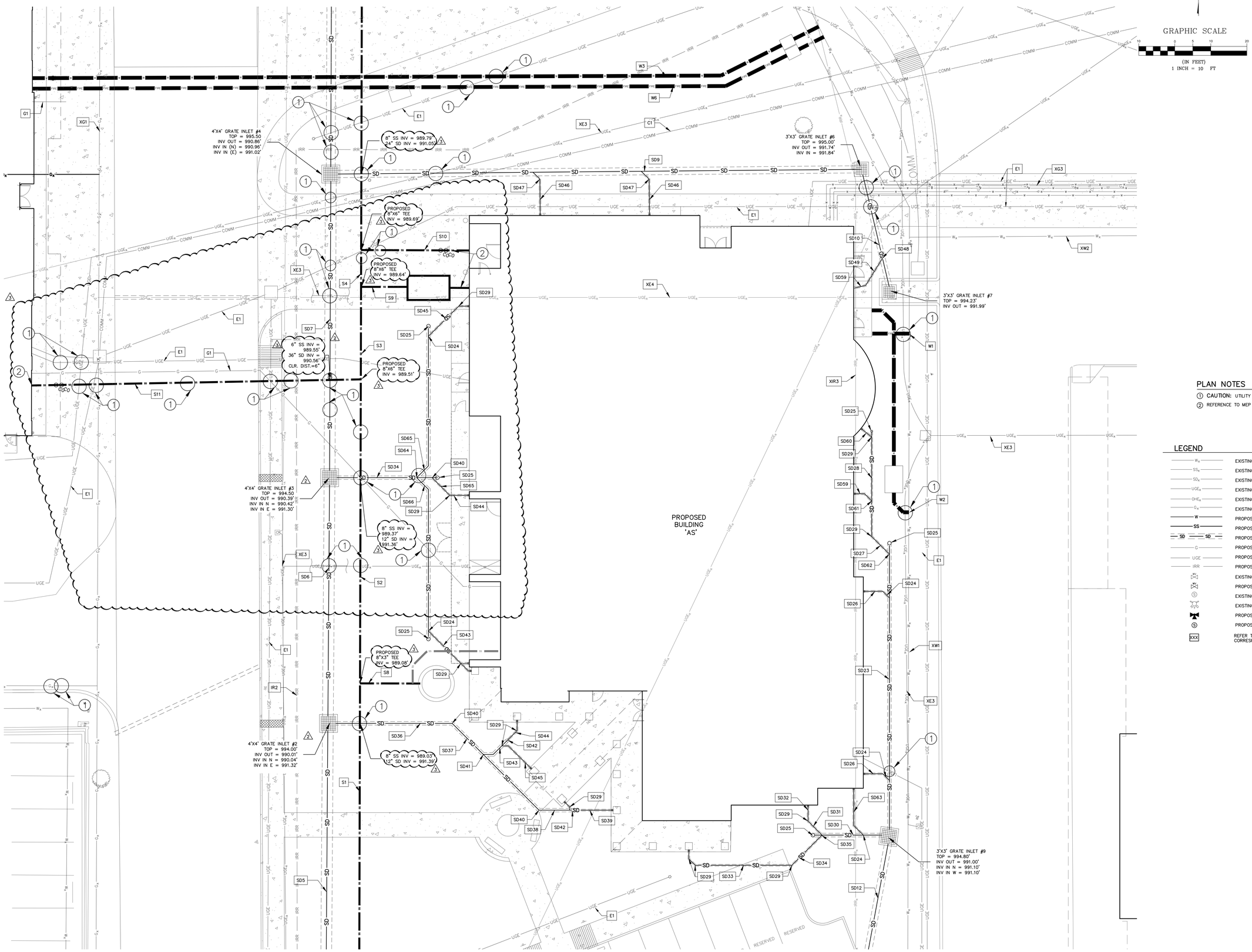
Date Issued:	04/15/24

Revisions:

2	ADDENDUM #003	2/2/24
	2 – TCEQ 2024 02 02	
4	PR 006	03/07/24
5	RFI 032	03/29/24
6	RFI 035/038	04/15/24

UTILITIES AND DRAINAGE PLAN SOUTH

C5.04



GRAPHIC SCALE

10 0 5 10 20

(IN FEET)
1 INCH = 10 FT

PLAN NOTES

1. **CAUTION:** UTILITY CROSSING.
2. REFERENCE TO MEP PLANS FOR CONTINUATION.

LEGEND

- EXISTING WATER LINE
- EXISTING SANITARY SEWER LINE
- EXISTING STORM DRAIN LINE
- EXISTING UNDERGROUND ELECTRIC LINE
- EXISTING OVERHEAD ELECTRIC LINE
- EXISTING GAS LINE
- PROPOSED WATER LINE
- PROPOSED SANITARY SEWER LINE
- PROPOSED STORM DRAIN
- PROPOSED GAS LINE
- PROPOSED UNDERGROUND ELECTRIC LINE
- PROPOSED IRRIGATION LINE
- EXISTING WATER VALVE
- PROPOSED WATER VALVE
- EXISTING SANITARY SEWER MANHOLE
- EXISTING FIRE HYDRANT
- PROPOSED FIRE HYDRANT
- PROPOSED SANITARY SEWER MANHOLE
- REFER TO SHEET C5.00 FOR CORRESPONDING KEYED NOTES

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY PAUL A. MATHIS, P.E. NO. #105075 ON APRIL 15, 2024 DATE

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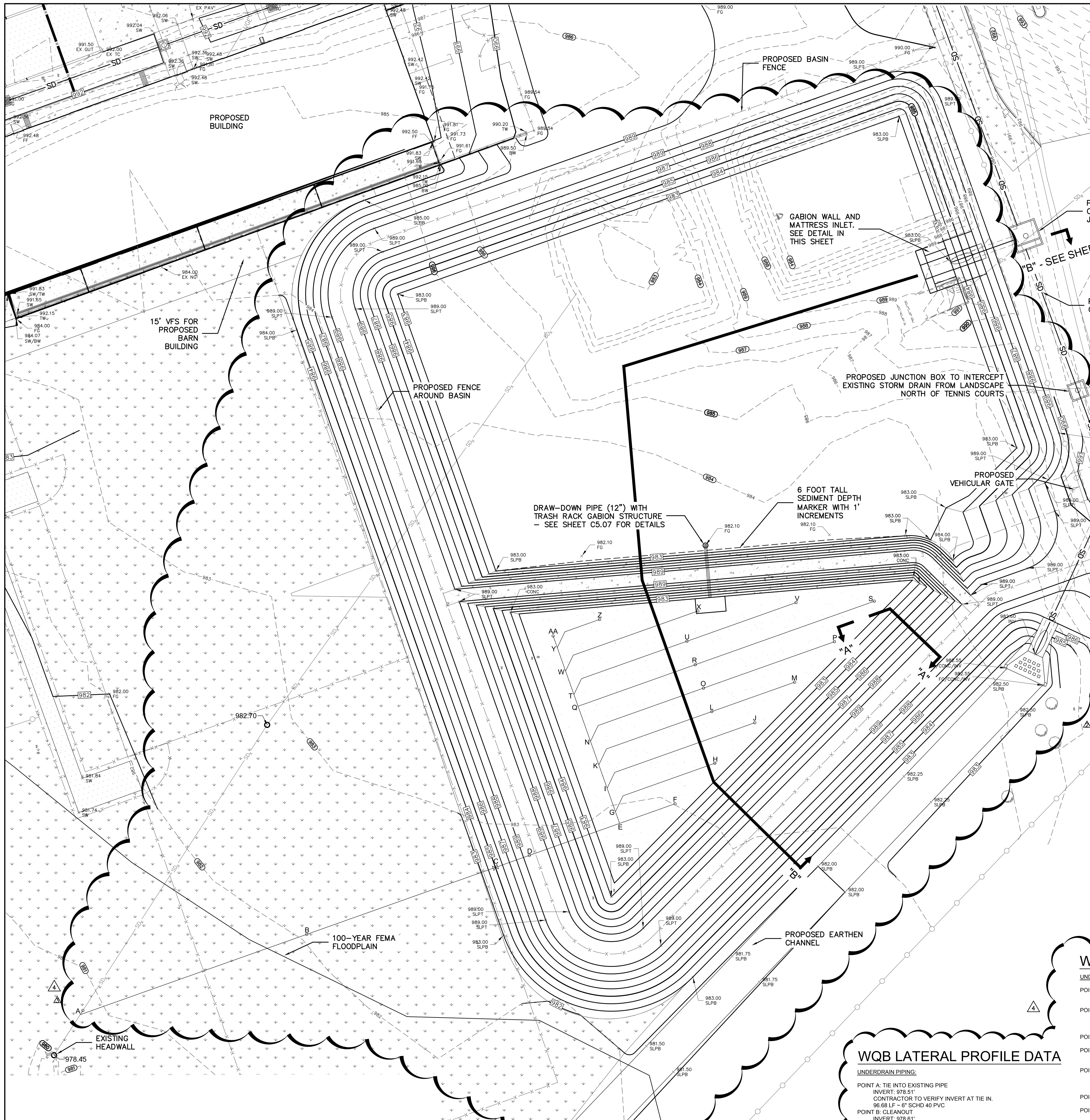
Drwn. By: LNC
Chkd By: PAM
Date Issued: 04/15/24

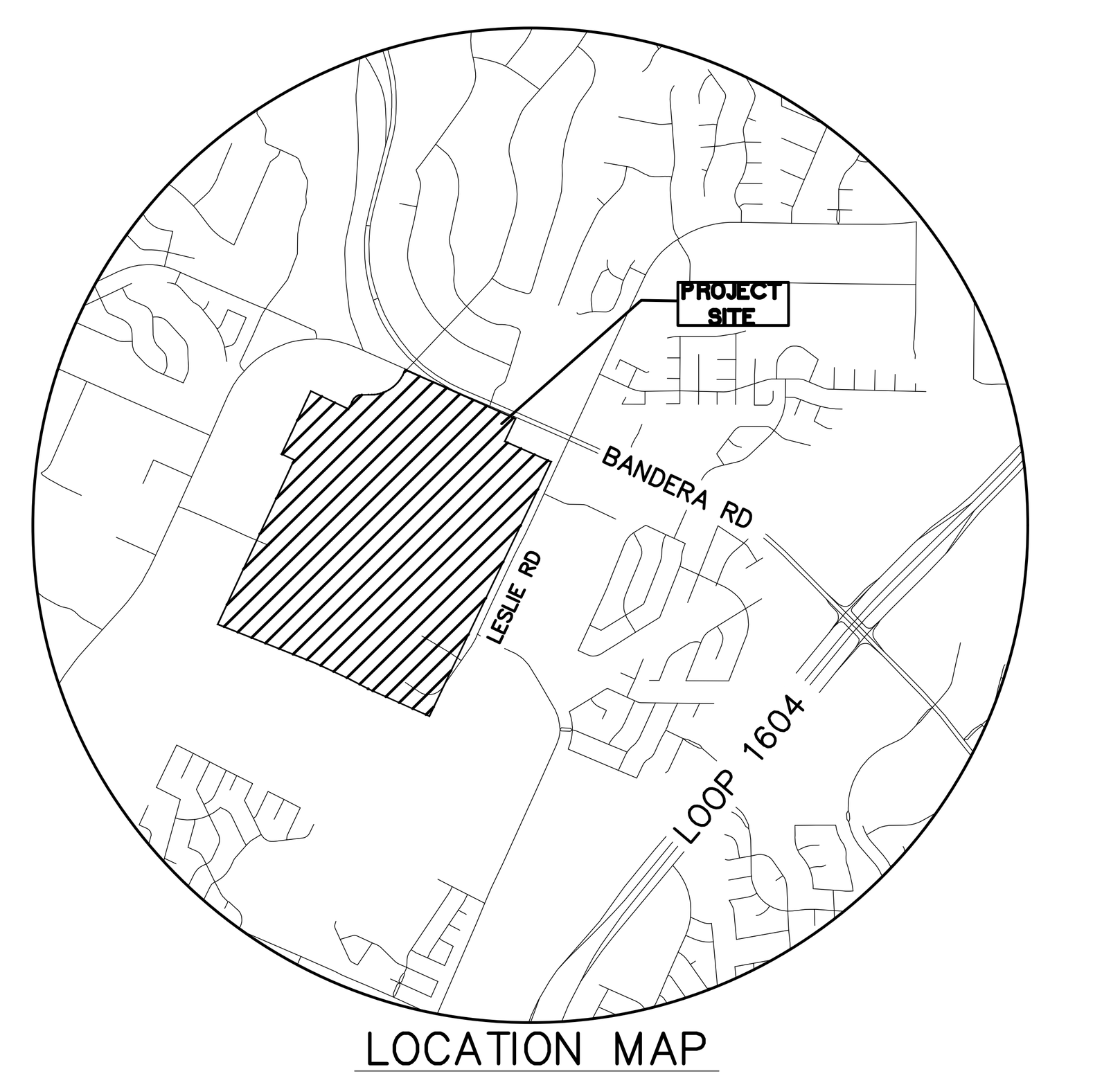
Revisions:

1	PR 006	03/07/24
2	RFI 032	03/29/24
3	RFI 035/038	04/15/24

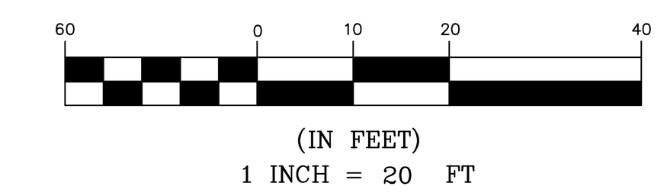
ADMIN BLDG UTILITIES

C5.05





LOCATION MAP
N.T.S.



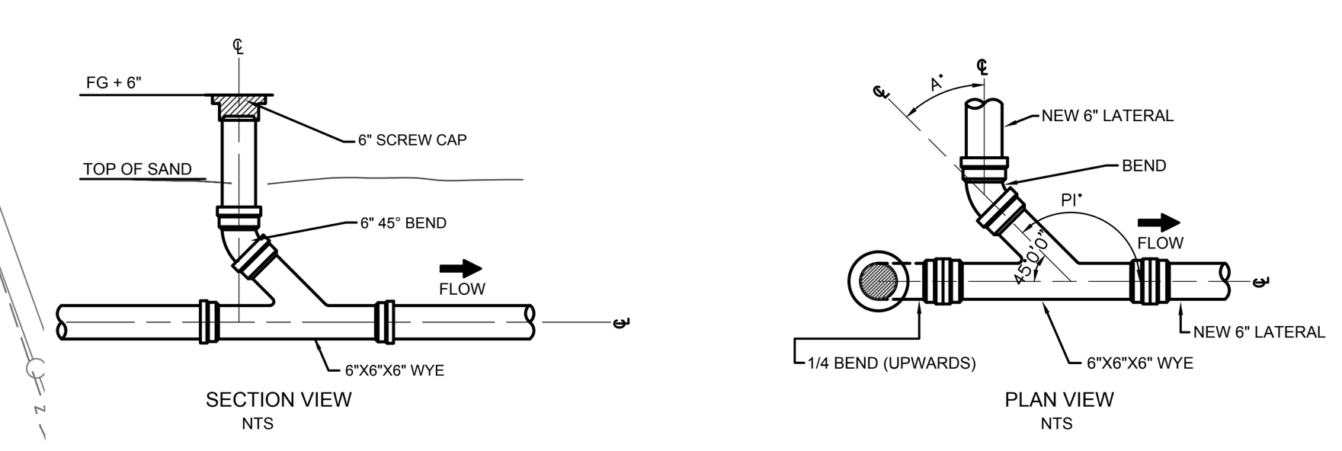
LEGEND

PROPOSED STORM DRAIN PVC PIPE	SD
PROPOSED EARTHEN CHANNEL	
EXISTING UNDERGROUND STORM DRAIN PIPE	SD
PROPOSED MAJOR CONTOURS	988
PROPOSED MINOR CONTOURS	988
EXISTING MAJOR CONTOURS	980
EXISTING MINOR CONTOURS	981
EXISTING TREE	

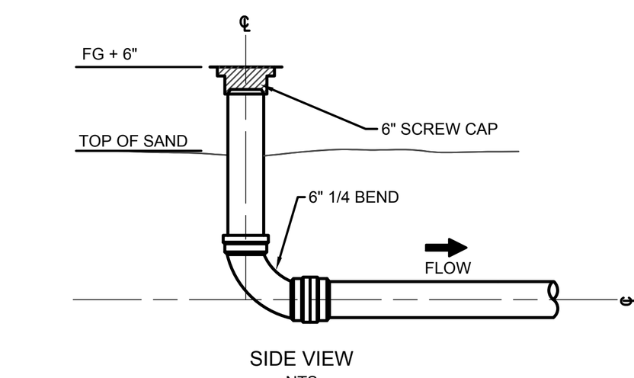
NOTE:
1. SEDIMENTATION VOLUME REQUIRED: 187,547 CF
2. SEDIMENTATION VOLUME PROPOSED: 188,123 CF
3. SAND AREA REQUIRED: 8,683 SF
4. SAND AREA PROVIDED: 8,831 SF

TABLE 3-7 GEOTEXTILE FABRIC SPECIFICATIONS - CITY OF AUSTIN 2004			
PROPERTY	TEST METHOD	UNIT	SPECIFICATION MIN
UNIT WEIGHT		OZ/SY	8
FILTRATION RATE		IN/SEC	0.08
PUNCTURE STRENGTH	ASTM D-751*	LBS	125
MULLEN BURST STRENGTH	ASTM D-751*	PSI	400
TENSILE STRENGTH	ASTM D-1682	LBS	200
EQUIVALENT OPENING SIZE	US STANDARD SIEVE	NO	80

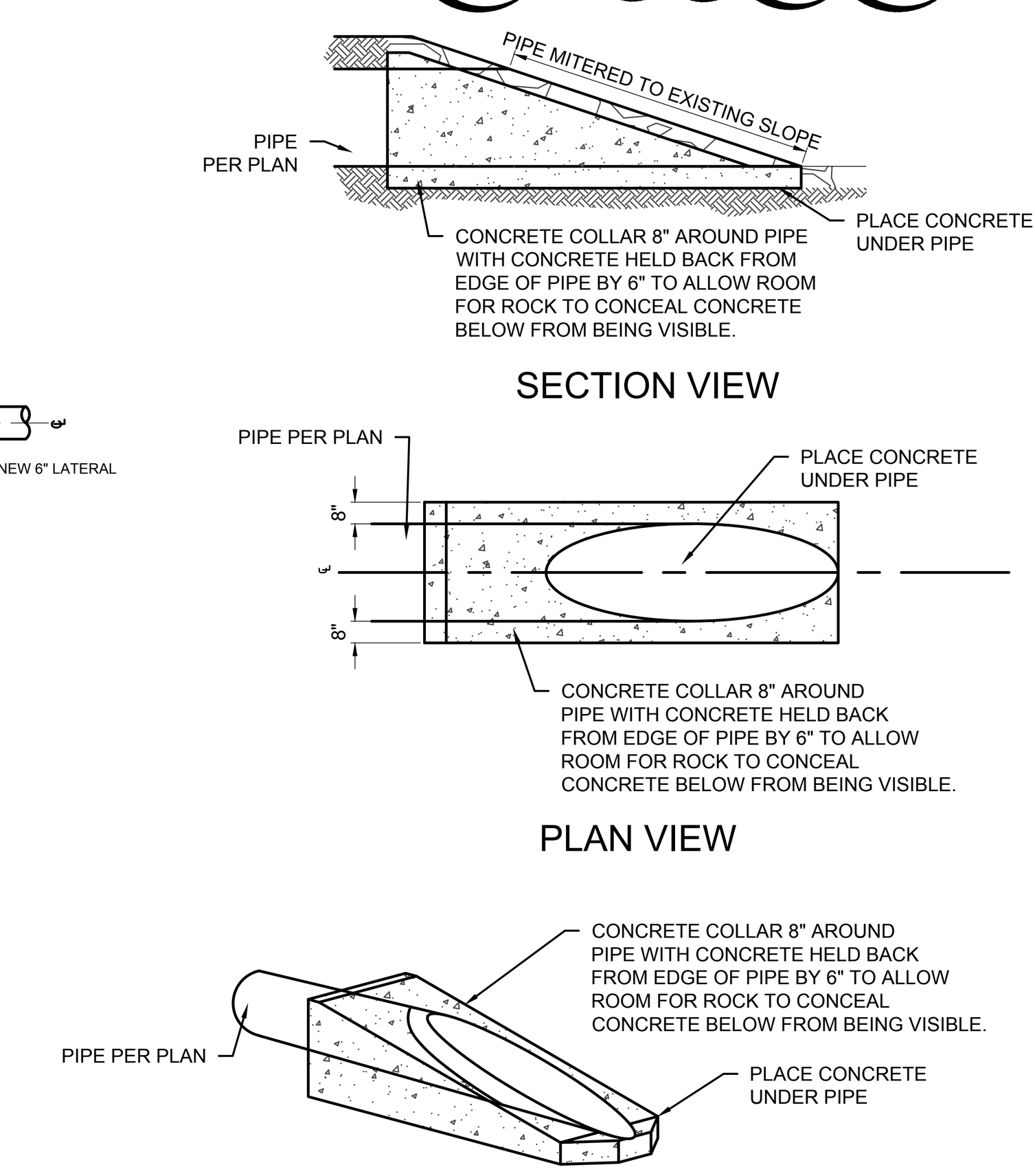
PERMEABLE GEOTEXTILE FABRIC SHALL BE NONWOVEN GEOTEXTILE FABRIC AND MEET SPECIFICATIONS IN TABLE 3-7. GEOTEXTILE FABRIC SHALL BE INSTALLED BETWEEN THE SAND LAYER AND THE 1' WASHED GRAVEL LAYER AS SHOWN IN DETAIL 1 SECTION R-R BELOW.



CLEANOUT A DETAIL
AT 180° DEFLECTION (STRAIGHT)

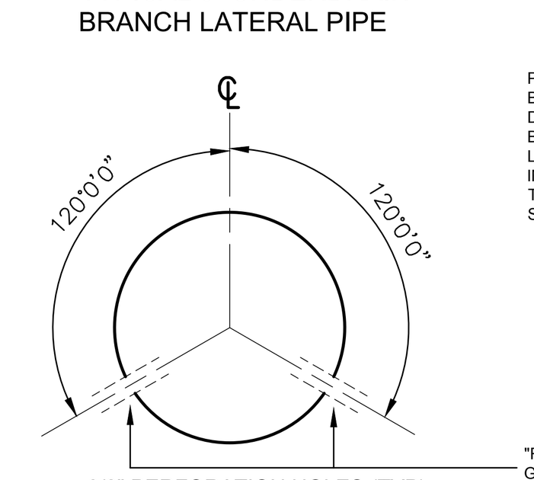


CLEANOUT B DETAIL
CLEANOUT AT END OF UNDERDRAIN



OUTLETS FOR BASIN PIPING DETAIL
NTS

TYPICAL 6" UNDERDRAIN BRANCH LATERAL PIPE



PERFORATIONS SHALL BE BETWEEN ALL POINTS, EXCEPT DOWNSTREAM OF POINT D AND BETWEEN D AND Q. SOLID PIPE ALL LOCATIONS THROUGH BERM AND IMMEDIATELY DOWNSTREAM OF THE GATE VALVE ON DOWNSTREAM SEGMENTS.

"REF 1" - TCEQ 'EDWARDS AQUIFER TECHNICAL GUIDANCE MANUAL' 20JUN05

NOTE 1:
6" PVC CLEANOUT WITH SCREW-CAP, TOP @ 6" ABOVE SAND ELEVATION.

NOTE 2:
UNDERDRAIN PIPING SHALL CONFORM TO REF 1 3.4.7 (5) PAGE 3-59: 'THE UNDERDRAIN PIPE SHOULD CONSIST OF A MAIN COLLECTOR PIPE AND TWO OR MORE LATERAL BRANCH PIPES, EACH WITH A DIAMETER OF 6 INCHES. THE PIPES SHOULD BE SPACED AT INTERVALS OF NO MORE THAN 10 FEET. THERE SHOULD BE NO FEWER THAN TWO LATERAL BRANCH PIPES. EACH INDIVIDUAL UNDERDRAIN PIPE SHOULD HAVE A SCREW-ON CLEANOUT ACCESS LOCATION NO MORE THAN 95 FEET APART. ALL PIPING IS TO BE SCHEDULE 40 PVC WITH A 0.50% SLOPE. THE MAXIMUM SPACING BETWEEN ROWS OF PERFORATIONS SHOULD NOT EXCEED 6 INCHES. A SINGLE GATE VALVE SHALL BE PLACED AT THE DOWNSTREAM DISCHARGE POINT.

NOTE 3:
18" WASHED CONCRETE SAND, ASTM C-33 FINE AGGREGATE

NOTE 4:
MONITORING WELL SHALL BE CLEANOUT AT THE TOP OF THE BERM ON THE UNDERDRAIN LINE, UPSTREAM OF THE VALVE.

WQB LATERAL PROFILE DATA

UNDERDRAIN PIPING:

POINT A: TIE INTO EXISTING PIPE
INVERT: 978.51'
CONTRACTOR TO VERIFY INVERT AT TIE IN.
96.68 LF ~ 6" SCHD 40 PVC
POINT B: CLEANOUT
INVERT: 978.61'
80.50 LF ~ 6" SCHD 40 PVC
POINT C: 6" GATE VALVE AND VALVE COVER SET AT 985.00'
INVERT: 978.69'
14.50 LF ~ 6" SCHD 40 PVC
POINT D: CLEANOUT AND INSPECTION PORT
INVERT: 978.76'
38.50 LF ~ 6" SCHD 40 PVC

WQB LATERAL PROFILE DATA

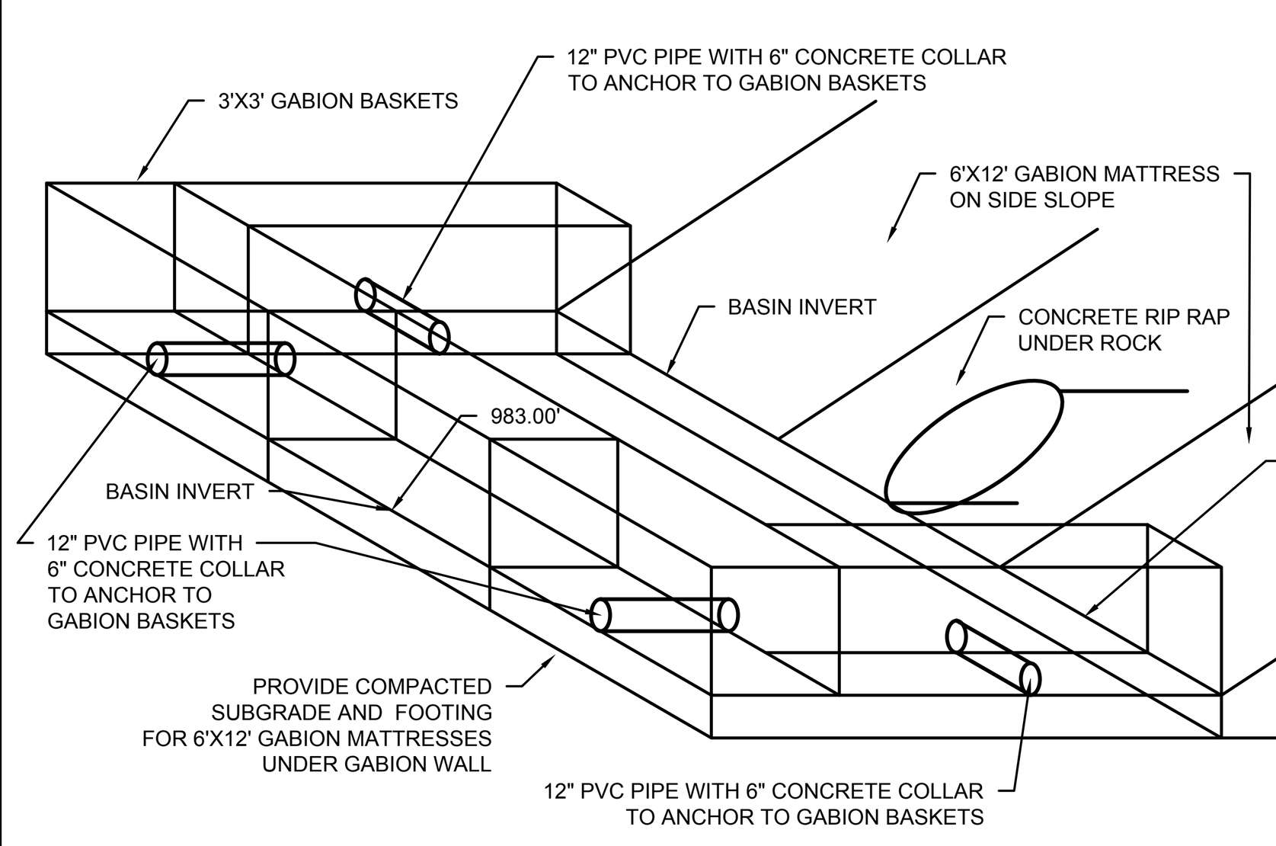
UNDERDRAIN PIPING:

POINT E:
INVERT: 978.95'
5.00 LF ~ 6" SCHD 40 PVC
POINT G:
INVERT: 978.98'
CONTRACTOR TO PROVIDE WYE'S AND FITTINGS AS NECESSARY
46.28 LF ~ 6" SCHD 40 PVC
POINT H: CLEANOUT
INVERT: 979.21'
POINT G:
INVERT: 978.98'
10.00 LF ~ 6" SCHD 40 PVC
POINT I:
INVERT: 979.03'
CONTRACTOR TO PROVIDE WYE'S AND FITTINGS AS NECESSARY
66.84 LF ~ 6" SCHD 40 PVC
POINT J: CLEANOUT
INVERT: 979.36'
POINT I:
INVERT: 979.03'
10.00 LF ~ 6" SCHD 40 PVC
POINT K:
INVERT: 979.08'
CONTRACTOR TO PROVIDE WYE'S AND FITTINGS AS NECESSARY
52.07 LF ~ 6" SCHD 40 PVC
POINT L: CLEANOUT
INVERT: 979.34'
35.32 LF ~ 6" SCHD 40 PVC
POINT M: CLEANOUT
INVERT: 979.52'
POINT K:
INVERT: 979.08'
10.00 LF ~ 6" SCHD 40 PVC
POINT N:
INVERT: 979.13'
CONTRACTOR TO PROVIDE WYE'S AND FITTINGS AS NECESSARY
52.07 LF ~ 6" SCHD 40 PVC
POINT 0: CLEANOUT
INVERT: 979.39'
55.88 LF ~ 6" SCHD 40 PVC

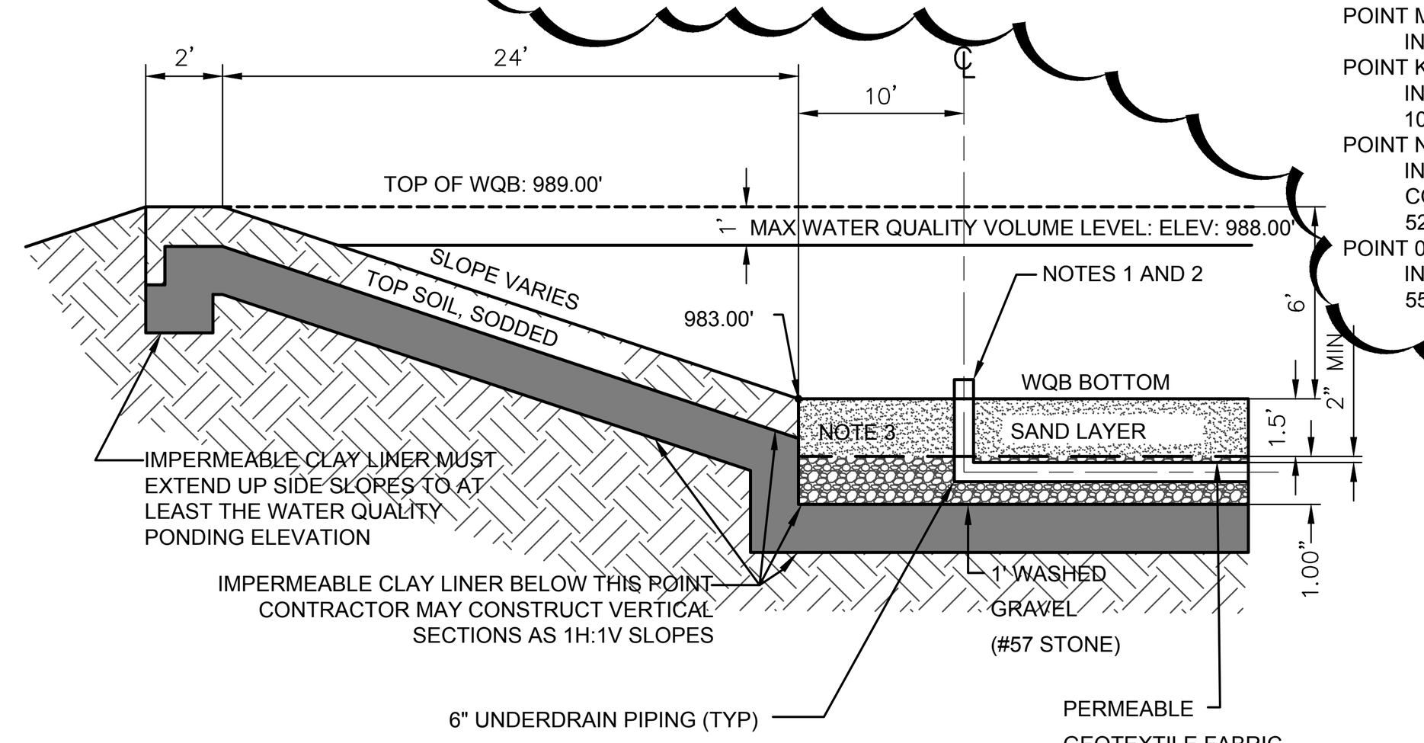
WQB LATERAL PROFILE DATA

UNDERDRAIN PIPING:

POINT P: CLEANOUT
INVERT: 979.67'
POINT N:
INVERT: 979.13'
15.00 LF ~ 6" SCHD 40 PVC
POINT Q:
INVERT: 979.21'
CONTRACTOR TO PROVIDE FITTING AS NECESSARY
50.00 LF ~ 6" SCHD 40 PVC
POINT R: CLEANOUT
INVERT: 979.46'
76.44 LF ~ 6" SCHD 40 PVC
POINT S: CLEANOUT
INVERT: 979.84'
POINT Q:
INVERT: 979.21'
5.00 LF ~ 6" SCHD 40 PVC
POINT T:
INVERT: 979.24'
CONTRACTOR TO PROVIDE WYE'S AND FITTINGS AS NECESSARY
52.07 LF ~ 6" SCHD 40 PVC
POINT U: CLEANOUT
INVERT: 979.50'
46.58 LF ~ 6" SCHD 40 PVC
POINT V: CLEANOUT
INVERT: 979.73'
POINT T:
INVERT: 979.24'
10.00 LF ~ 6" SCHD 40 PVC
POINT W:
INVERT: 979.29'
CONTRACTOR TO PROVIDE WYE'S AND FITTINGS AS NECESSARY
60.28 LF ~ 6" SCHD 40 PVC
POINT X: CLEANOUT
INVERT: 979.59'
POINT W:
INVERT: 979.29'
10.00 LF ~ 6" SCHD 40 PVC
POINT Y:
INVERT: 979.34'
CONTRACTOR TO PROVIDE WYE'S AND FITTINGS AS NECESSARY
21.90 LF ~ 6" SCHD 40 PVC
POINT Z: CLEANOUT
INVERT: 979.45'
POINT Y:
INVERT: 979.34'
5.00 LF ~ 6" SCHD 40 PVC
POINT AA: CLEANOUT
INVERT: 979.37'



GABION WALL AND MATTRESS INLET
N.T.S



SECTION A-A
N.T.S

CLAY LINER SPECIFICATIONS

IMPERMEABLE LINERS SHALL BE CONSTRUCTED AS PER THE TABLE 3-6 UNDER SECTION 3.4.2 BASIN LINING REQUIREMENTS FROM THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY RG-348 COMPLYING WITH THE EDWARDS AQUIFER RULES TECHNICAL GUIDANCE ON BEST MANAGEMENT PRACTICES MANUAL. CLAY LINERS SHOULD MEET THE SPECIFICATION NOTED BELOW AND HAVE A MINIMUM THICKNESS OF 12 INCHES.

TABLE 3-6 CLAY LINER SPECIFICATIONS (CITY OF AUSTIN, 2004)

PROPERTY	TEST METHOD	UNIT	SPECIFICATION
Permeability	ASTM D-2434	cm/sec	1×10^{-6}
Plasticity Index of Clay	ASTM D-423 & D-424	%	Not less than 15
Liquid Limit of Clay	ASTM D-2216	%	Not less than 30
Clay Particles Passing	ASTM D-422	%	Not less than 30
Clay Compaction	ASTM D-2216	%	95% of Standard Proctor Density

FENCE/ BARRIER NOTE
REFERENCE SHEET C4.05

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

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

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

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

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

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

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

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

8. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS EXPOSED TO STORMWATER SHALL BE PREVENTED FROM BECOMING A POLLUTANT SOURCE FOR STORMWATER DISCHARGES (E.G., SCREENING OUTFALLS, PICKED UP DAILY).

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

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

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

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

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

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

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

AUSTIN REGIONAL OFFICE
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AUSTIN, TEXAS 78753-1808
PHONE (512) 339-2929
FAX (512) 339-3795

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

THESE GENERAL CONSTRUCTION NOTES MUST BE INCLUDED ON THE CONSTRUCTION PLANS PROVIDED TO THE CONTRACTOR AND ALL SUBCONTRACTORS.

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. THE CONTRACTOR'S IMPLEMENTATION OF THE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION, SAFETY PROTECTION THAT COMPLIES WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY, PAUL A. MATHIS, P.E. NO. #105075 ON. MARCH 7, 2024 DATE

DESIGNED BY: PAM
DRAWN BY: LNC
APPROVED: PAM
JOB NO. 762301481

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AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12221 LESLIE ROAD, HELOTES, TX 78023

NORTHSIDE INDEPENDENT SCHOOL DISTRICT

CONSTRUCTION/PERMIT DOCUMENTS

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KNRG ARCH 1921

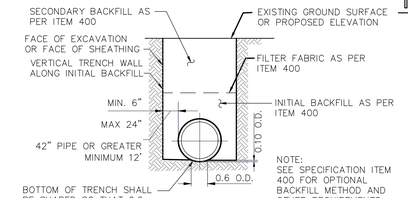
Project No.:	762301481
Drwn. By:	LNC
Chkd By:	PAM
Date Issued:	03/07/24

Revisions:
1. ADDENDUM #002
2. TCEQ 2024 02 02
3. TCEQ 2024 02 23
4. PR 006 03/07/24

WATER QUALITY BASIN PLAN

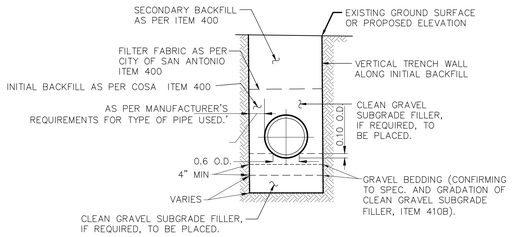
C5.06

I-1



DETAIL FOR R.C.P.

CONCRETE PIPE USED IN DRAINAGE OUTFALL SHALL BE INSTALLED IN ACCORDANCE WITH BEAR COUNTY REQUIREMENTS.



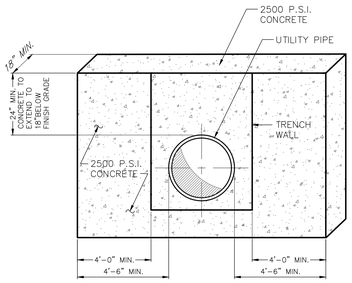
DETAIL FOR CMP, HDPE AND P.V.C. PIPE.

PIPE BEDDING AND BACKFILL DETAILS

N.T.S.

SECTION "BACKFILLING 2(B)" ADD THE FOLLOWING:
"A FILTER FABRIC SHALL BE PLACED BETWEEN THE TOP OF THE GRAVEL BACKFILL (INITIAL BACKFILL) AND THE SECONDARY BACKFILL. THE FILTER FABRIC SHALL COVER THE TOTAL WIDTH AND LENGTH OF THE TRENCH, AND SHALL BE INSTALLED AS PER THE MANUFACTURER'S RECOMMENDATIONS. THE FILTER MATERIAL SHALL HAVE AN APPARENT OPENING SIZE OF U.S. STANDARD SIEVE NO. 40". NO DIRECT PAYMENT WILL BE MADE FOR THE PLACEMENT OF THE FILTER FABRIC AND ALL COSTS IN CONNECTION THEREWITH SHALL BE INCLUDED IN THE APPLICABLE CONTRACT PRICE FOR THE ITEM TO WHICH THE WORK PERTAINS."

I-2

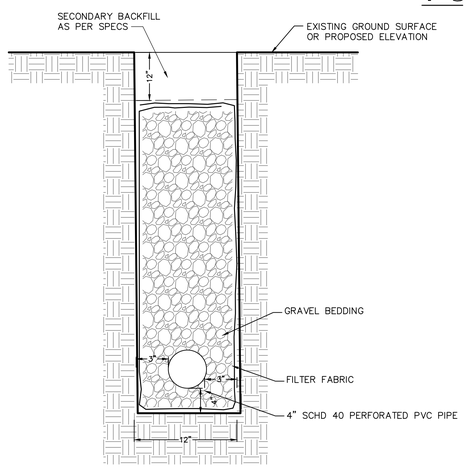


CONCRETE TRENCH CUTOFF WALL

NTS

NOTE: CONCRETE TRENCH CUT OFF WALLS SHALL BE USED WHERE SHOWN ON THE PLANS AND ON ALL PIPES ENTERING THE UNDERFLOOR AREA.

I-3

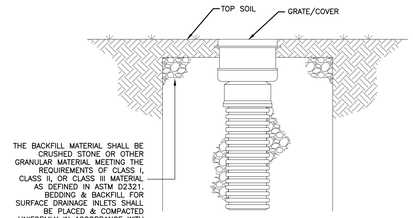


FRENCH DRAIN DETAIL

N.T.S.

SEE UTILITY PLAN FOR INVERT ELEVATIONS

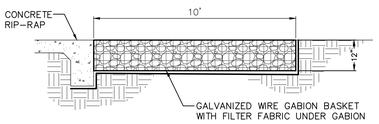
I-4



INLINE GRATE DRAIN

N.T.S.

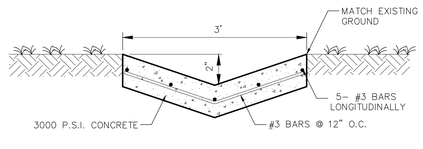
I-6



GABION MATTRESS DETAIL

N.T.S.

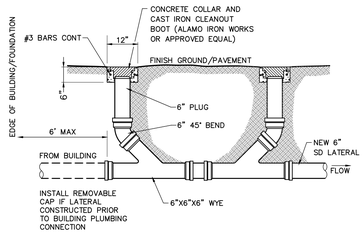
I-7



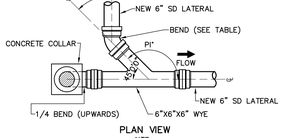
CONCRETE FLUME DETAIL

N.T.S.

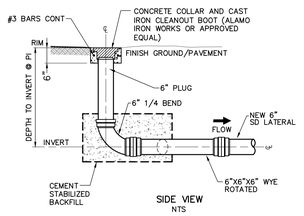
I-5



CLEANOUT DETAIL
AT PLUMBING CONNECTION
NTS



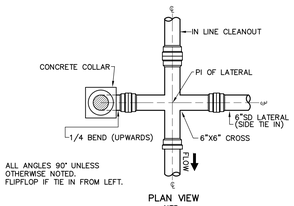
PLAN VIEW
NTS



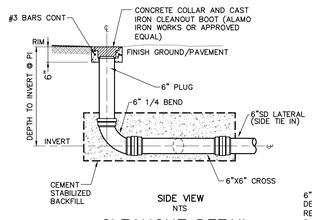
SIDE VIEW
NTS

CLEANOUT DETAIL
CLEANOUT AT LINE PI

DEFLECTION TABLE		
PI° (DEFLECTION)	BEND	A° (DEFLECTION)
135°	NONE	0°
112.5°	1/16	22.5°
90°	1/8	45°

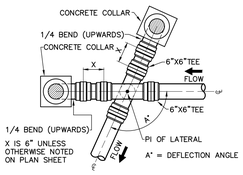


PLAN VIEW
NTS

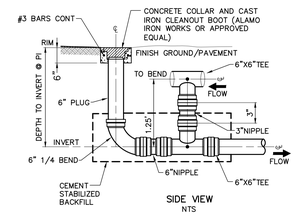


SIDE VIEW
NTS

CLEANOUT DETAIL
CLEANOUT AT 90° TIE IN

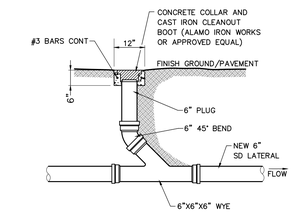


PLAN VIEW
NTS

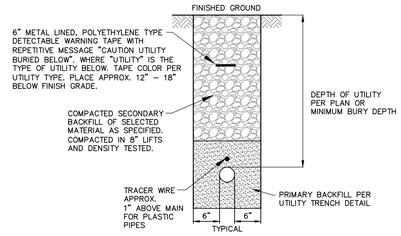


SIDE VIEW
NTS

CLEANOUT DETAIL
CLEANOUT AT VARIABLE PI

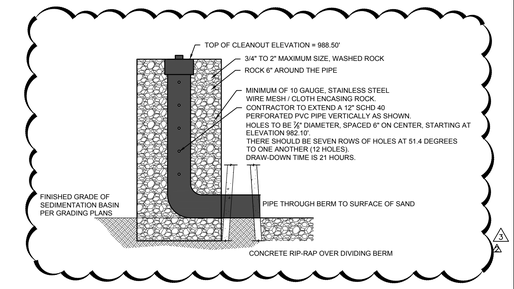


CLEANOUT DETAIL
AT 180° DEFLECTION (STRAIGHT)
NTS



UTILITY TRENCH DETAIL
NTS

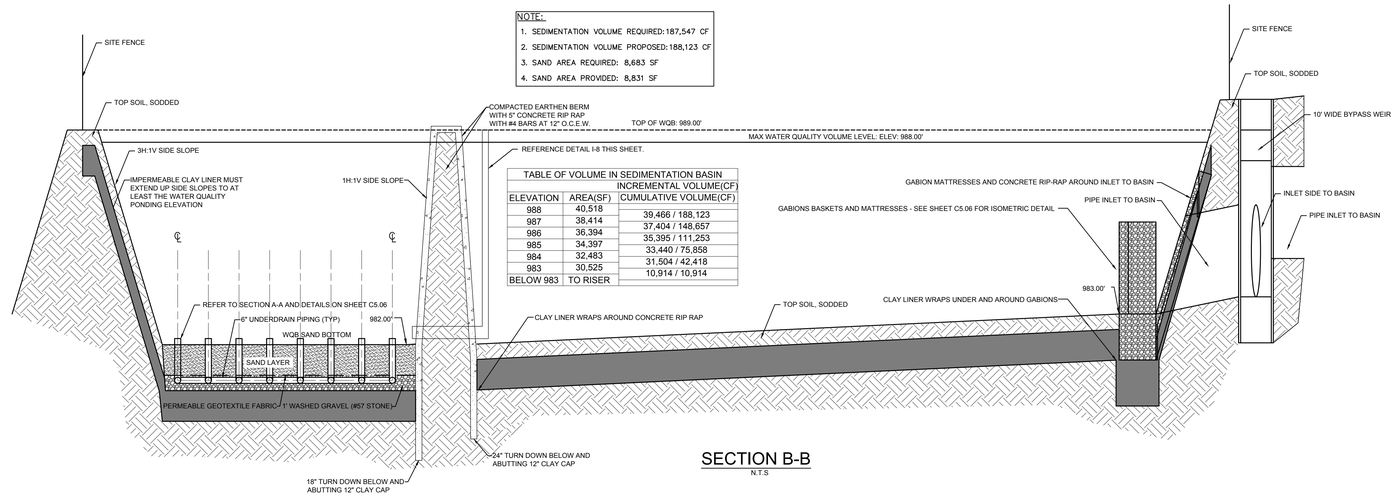
I-8



DRAW-DOWN PIPE WITH TRASH RACK GABION DETAIL

N.T.S.

I-9



SECTION B-B

N.T.S

CONSTRUCTION/PERMIT DOCUMENTS

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY PAUL A. MATHIS, P.E. NO. #105075 ON MARCH 7, 2024
DATE

DESIGNED BY. PAM	DRAWN BY. LNC	APPROVED. PAM	JOB NO. 762301481

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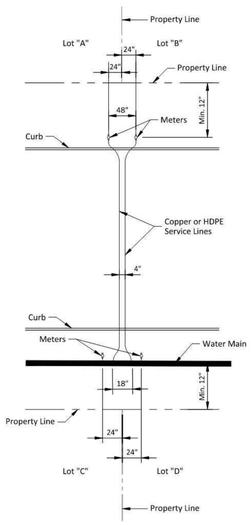
KNRG ARCH

Project No.: 762301481
Drwn. By: LNC
Chkd By: PAM
Date Issued: 03/07/24
Revisions:
1 TCEQ 2024 02 02
2 TCEQ 2024 02 23
3 PR 006 03/07/24

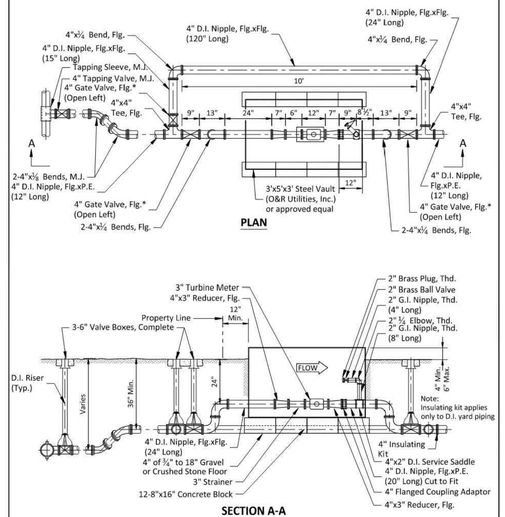
UTILITY AND DRAINAGE DETAILS 1

C5.07

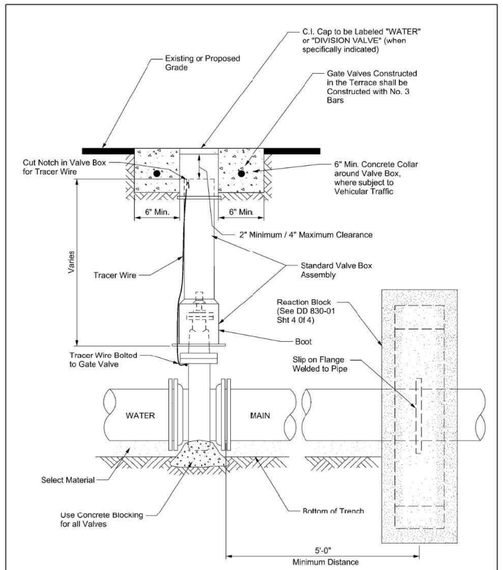


SINGLE SERVICE LINE - SINGLE METER

PROPERTY OF	TYPICAL	APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	NEW DEVELOPMENT SERVICE ARRANGEMENT	March 2008	December 2018
		DD-824-05	SHEET 1 OF 3



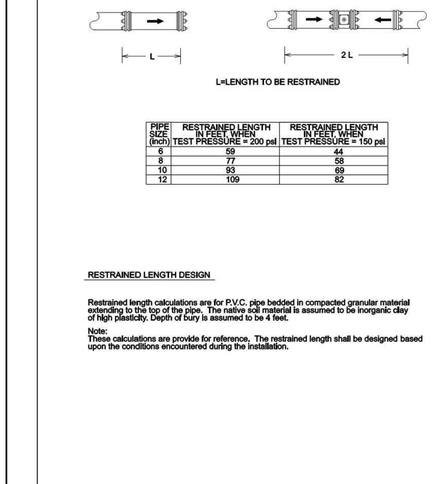
PROPERTY OF	3" TURBINE METER INSTALLATION	APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS		March 2008	December 2018
		DD-824-06	SHEET 2 OF 2



NOTE: Tracer Wire for PVC (Typ. for PVC & HDPE)
NOTE: All Concrete to be 3,000 psi

Note: For all work associated with Recycled Water Valves, refer to DD 110-10, Sht. 1 of 1

PROPERTY OF	INSTALLATION OF NON-GEARED GATE VALVE W TH VALVE BOX AND EXTENSION	APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS		MARCH 2008	AUG 2019
		DD 828-01	SHEET 1 OF 1



L=LENGTH TO BE RESTRAINED

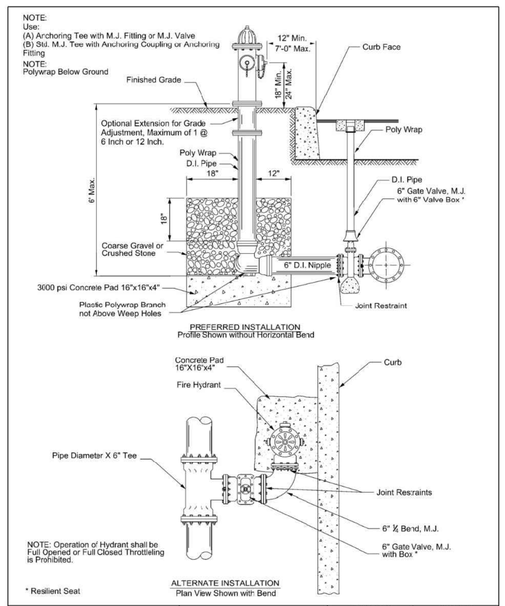
PIPE SIZE (inch)	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 200 psi	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 150 psi
6	59	44
8	77	58
10	93	69
12	109	82

RESTRAINED LENGTH DESIGN

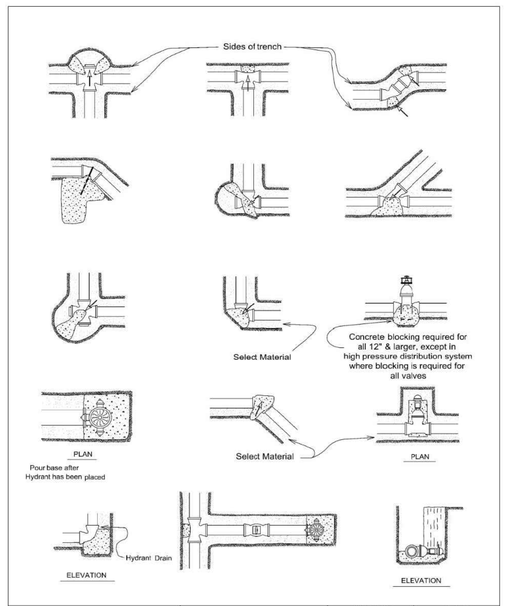
Restrained length calculations are for P.V.C. pipe bedded in compacted granular material extending to the top of the pipe. The native soil material is assumed to be inorganic clay of high plasticity. Depth of bury is assumed to be 4 feet.

Note:
These calculations are provide for reference. The restrained length shall be designed based upon the conditions encountered during the installation.

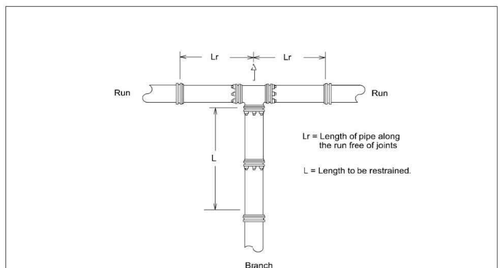
PROPERTY OF	RESTRAINED LENGTHS FOR DEAD ENDS / INLINE VALVES	APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS		MARCH 2008	APRIL 2014
		DD-839-05	SHEET 1 OF 1



PROPERTY OF	FIRE HYDRANT INSTALLATION (JOINT RESTRAINT)	APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS		MAY 2013	AUG 2019
		DD-834-01	SHEET 1 OF 3



PROPERTY OF	THRUST BLOCKS FOR FITTINGS (WATER ONLY)	APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS		March 2008	AUG 2319
		DD-839-01	SHEET 1 OF 2



RESTRAINED LENGTH FOR TEES

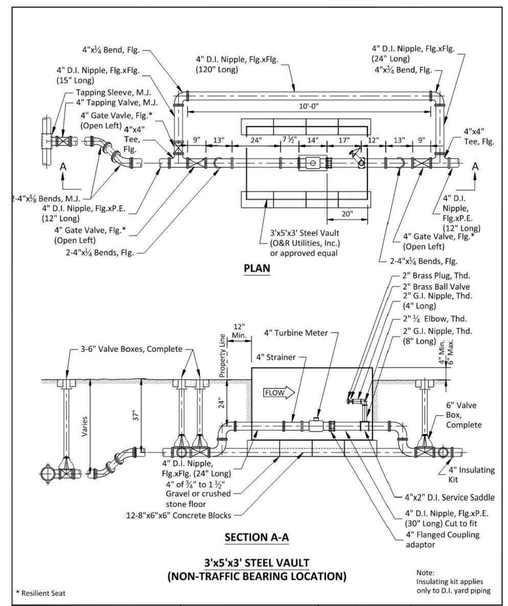
PIPE SIZE (inch)	BRANCH SIZE (inch)	LENGTH OF RUN (ft.)	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 200 psi	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 150 psi
6	4	0	42	31
6	4	5	7	1
6	4	10	1	1
6	6	0	59	44
6	6	5	35	20
6	6	10	11	1
8	4	0	42	31
8	4	5	1	1
8	6	0	59	44
8	6	5	28	13
8	6	10	1	1
8	8	0	77	58
8	8	5	53	34
8	8	10	30	11
8	8	15	6	1

RESTRAINED LENGTH DESIGN

Restrained length calculations are for P.V.C pipe bedded in compacted granular material extending to the top of the pipe.The native soil material is assumed to be inorganic clay of high plasticity. Depth of bury is assumed to be 4 feet.

Note:
These calculations are provided for reference. The restrained length shall be designed based upon the conditions encountered during the installation.

PROPERTY OF	RESTRAINED LENGTHS FOR TEES	APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS		March 2008	AUG 2019
		DD-839-04	SHEET 1 OF 2



PROPERTY OF	3" TURBINE METER INSTALLATION	APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS		March 2008	December 2018
		DD-824-07	SHEET 2 OF 2

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY PAUL A. MATHIS, P.E. NO. #105075 ON: FEBRUARY 23, 2024 DATE

DESIGNED BY: PAM
DRAWN BY: LNC
APPROVED: PAM
JOB NO.: 762301481

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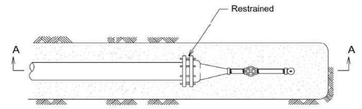
KNRG ARCH

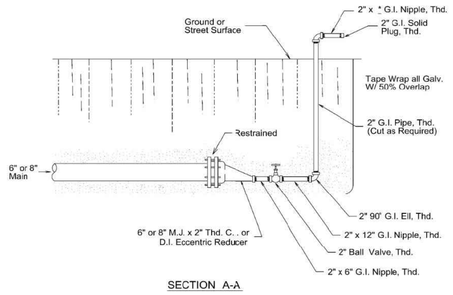
Project No.: 762301481
Drwn. By: LNC
Chkd By: PAM
Date Issued: 01/31/24
Revisions:

SAWS WATER DETAILS 1

C5.09



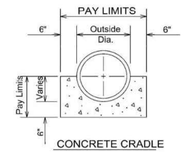
PLAN



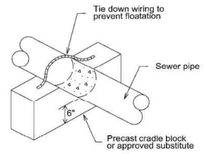
SECTION A-A

* Cut as required to extend beyond excavation

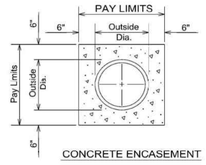
PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	2" TEMPORARY BLOW-OFF ASSEMBLY ON 6" & 8" MAINS	APPROVED MARCH 2008	REVISED AUG 2019
		DD-844-01	SHEET 1 OF 4



CONCRETE CRADLE



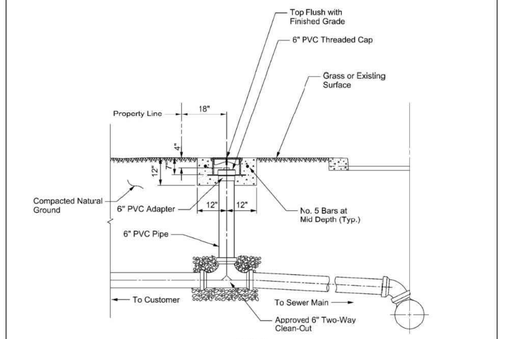
SUPPORT FOR ENCASEMENT OR CRADLE



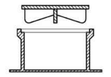
CONCRETE ENCASEMENT

Notes:
1) All concrete encasement shall be poured at a plane 6" above the pipe between excavated trench walls.
2) All sewer pipe with less than 3' of cover to subgrade shall be concrete encased.
3) All Force mains shall be provided with thrust blocks, where changes in direction occur, at Tees, Bends, Crosses, changes in size, stops, or as directed by SAWS.

PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	TYPICAL CONCRETE ENCASEMENT DETAILS	APPROVED March 2008	REVISED AUG 2019
		DD-858-01	SHEET 1 OF 1



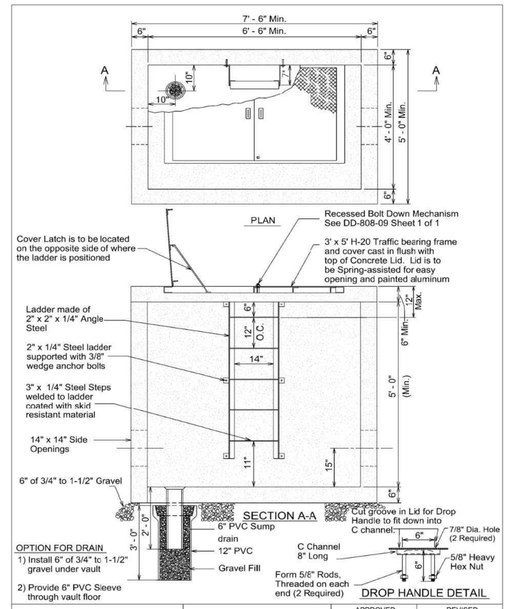
PROFILE



*Approved Frame & Lid (Heavy Duty)

FOR NEW DEVELOPMENT CLEAN-OUTS MAY NOT BE PLACED IN PAVED AREAS I.E. SIDEWALKS, DRIVEWAYS, OR PARKING LOTS, AND MUST BE LOCATED A MINIMUM OF 6' FROM ALL PAVED AREAS.

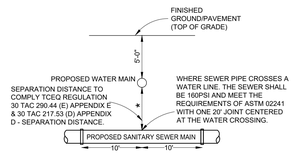
PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	TYPICAL CLEANOUT DETAIL	APPROVED MARCH 2008	REVISED AUG 2019
		DD-854-02	SHEET 1 OF 3



PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	CONCRETE VAULT FOR 6" & 8" DOUBLE DETECTOR CHECK INSTALLATION	APPROVED MARCH 2008	REVISED AUG 2019
		DD-808-03	SHEET 1 OF 1

NOTES:

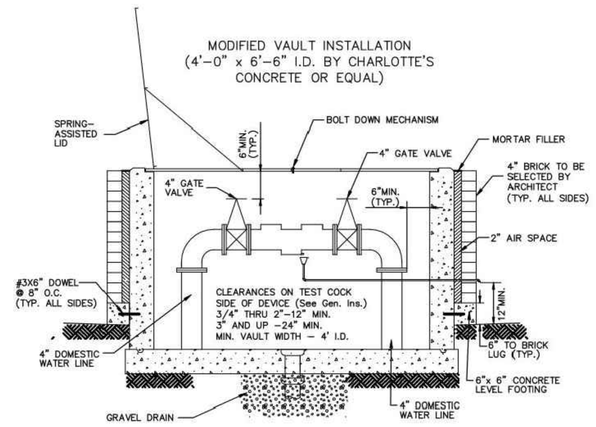
1. SAWS REQUIRES GCPs AND COUNTER PERMITS TO USE LEAD FREE (<0.25% LEAD) FIRE HYDRANTS.
2. ANCHORAGE/THRUST BLOCKING AND JOINT RESTRAINTS SHALL BE DONE IN ACCORDANCE WITH SAWS STANDARD SPECIFICATIONS FOR CONSTRUCTION. (ITEM NO. 839)
3. THE SAN ANTONIO WATER SYSTEM IS HEREBY GRANTED THE RIGHT OF INGRESS AND EGRESS ACROSS GRANTOR'S ADJACENT PROPERTY TO ACCESS THE WATER AND/OR WASTEWATER EASEMENTS SHOWN.



TYPICAL SANITARY SEWER/ WATER CROSSING DETAIL

NOT TO SCALE

*SEPARATION DISTANCE AND PROTECTION REQUIREMENTS TO COMPLY WITH 30 TAC 290.44 (e) AND 30 TAC 217.53 (d) (FORMERLY 30 TAC 317.13 APPENDIX E)



REDUCED PRESSURE PRINCIPAL BACKFLOW PREVENTER

NOTES:
1. CONCRETE SHALL BE 4500 PSI.
2. REINFORCEMENT SHALL BE GRADE 60
3. WALLS SHALL BE 6" MIN. THICKNESS

VAULT ENCLOSURE FOR RPZ BACKFLOW PREVENTOR

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY PAUL A. MATHIS, P.E. NO. #105075 ON: FEBRUARY 23, 2024 DATE

DESIGNED BY: PAM
DRAWN BY: LNC
APPROVED: PAM
JOB NO.: 762301481

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NORTHSIDE INDEPENDENT SCHOOL DISTRICT

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12221 LESLIE ROAD, HELOTES, TX 78023

CONSTRUCTION/PERMIT DOCUMENTS

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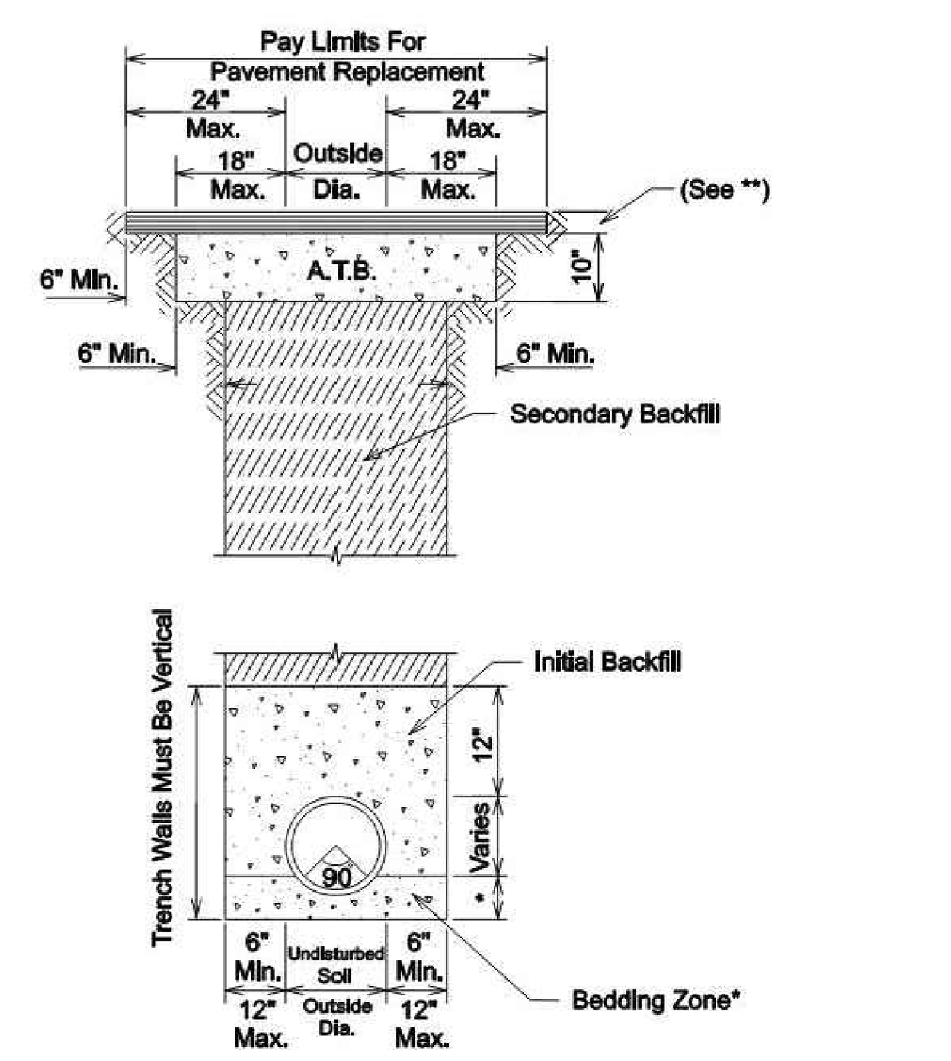
Project No.: 762301481
Drwn. By: LNC
Chkd By: PAM
Date Issued: 01/31/24
Revisions:

SAWS WATER DETAILS 2

C5.10

SANITARY SEWER PIPE LAID IN TRENCH (DD-804-01)



* Sewer Gravel 6" Min. or 1/8 O.D. of the pipe, whichever is greater.

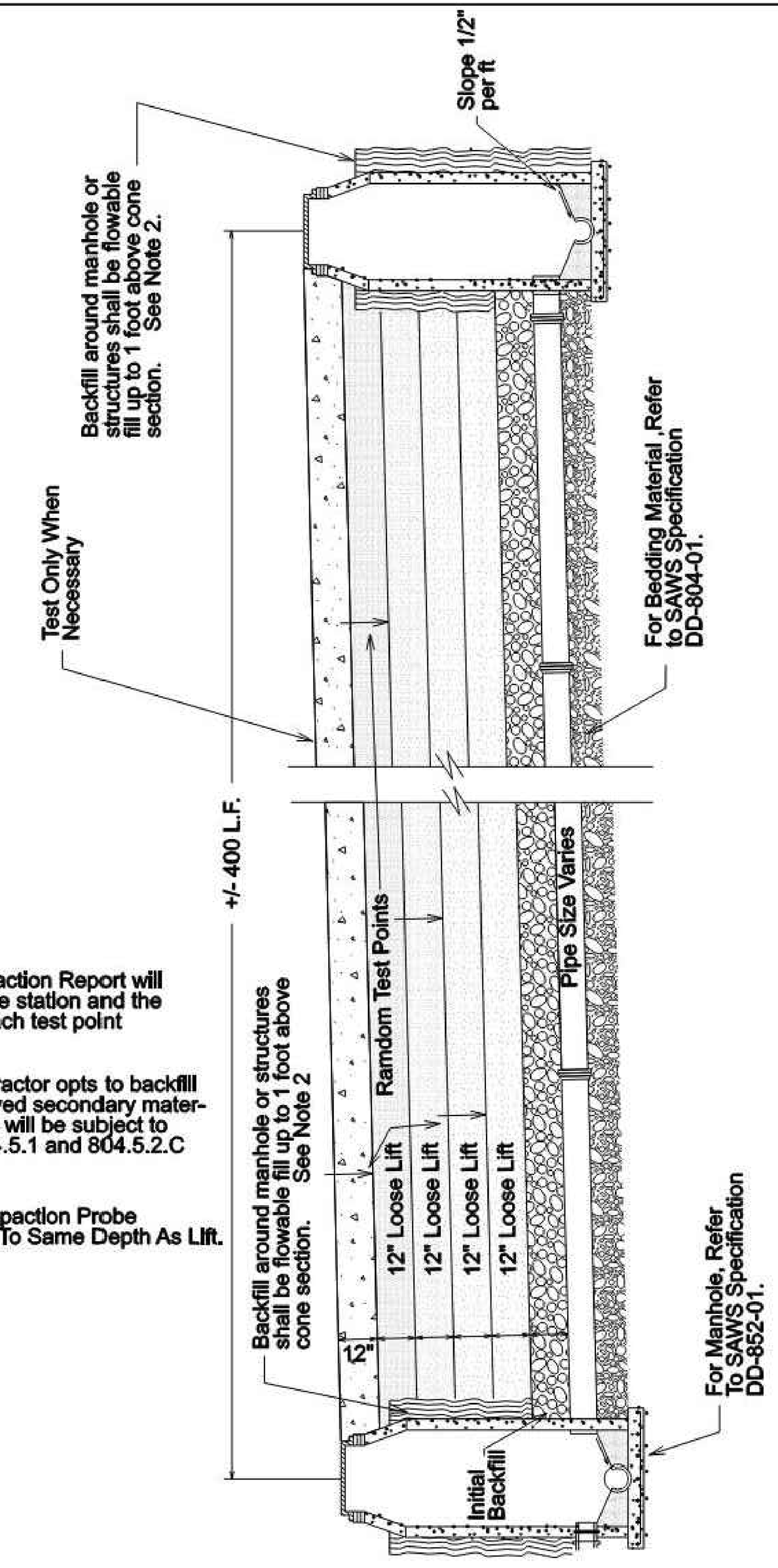
In areas of over excavation, encasement shall extend from trench wall to trench wall. Pay Limits shall not exceed 12" max. as shown on detail. Additional encasement shall be incidental.

** Min 2" HMAC Type "D" for trench repair in Local / Residential streets.

** Min 3" HMAC Type "C" for trench repair in Collector / Arterial streets.

PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	SANITARY SEWER PIPE LAID IN TRENCH	APPROVED MARCH 2008	REVISED APRIL 2014
		DD-804-01	SHEET 1 OF 1

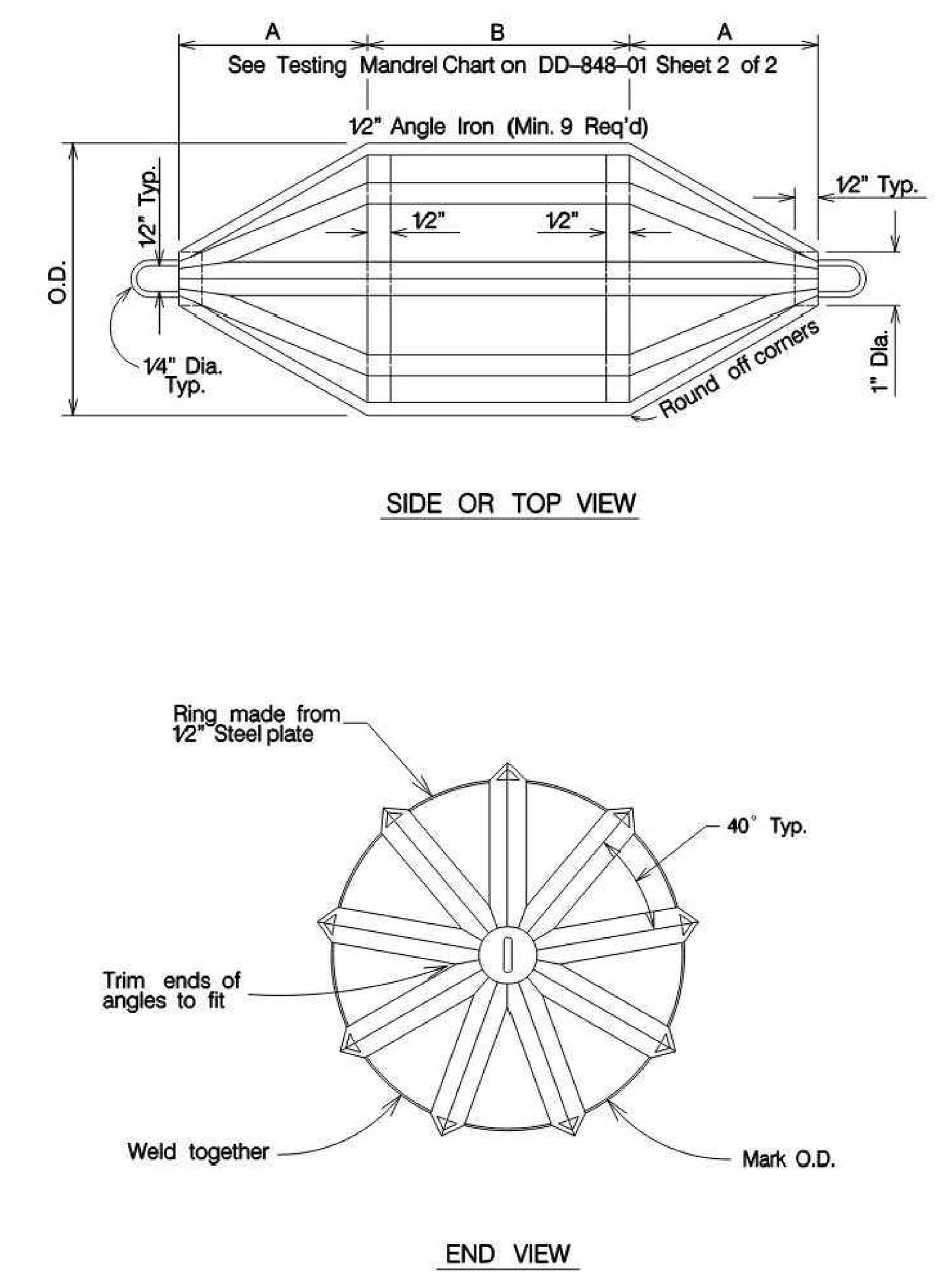
TRENCH COMPACTION DETAIL (DD-804-02)



NOTES:
1. The Compaction Report will indicate the station and the depth of each test point
2. When Contractor opts to backfill with approved secondary material, all work will be subject to section 804.5.1 and 804.5.2.C & 2.D.
3. Insure Compaction Probe Penetrates To Same Depth As Lift.

PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	TRENCH COMPACTION DETAIL	APPROVED MARCH 2008	REVISED APRIL 2014
		DD-804-02	SHEET 1 OF 1

GO, NO GO DEFLECTION TESTING MANDREL (DD-848-01)



Note:
All mandrels must be approved by SAWS Construction Inspections and stamped before use.

PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	GO, NO GO DEFLECTION TESTING MANDREL	APPROVED March 2008	REVISED
		DD-848-01	SHEET 1 OF 2

GO, NO GO DEFLECTION TESTING MANDREL CHART (DD-848-01)

SIZE	A	B*	MANDREL O.D. PVC (SDR-26)	RING O.D. PVC (SDR-26)
6"	4.0"	4.5"	5.50	4.79
8"	5.5"	6"	7.37	6.66
10"	7.0"	7.5"	9.21	8.50
12"	8.0"	9"	10.96	10.25
15"	10.0"	11"	13.42	12.71
18"	12.0"	13.5"	——	——
21"	14.0"	16"	——	——
24"	16.0"	18"	——	——
27"	18.0"	20"	——	——

* Minimum Length

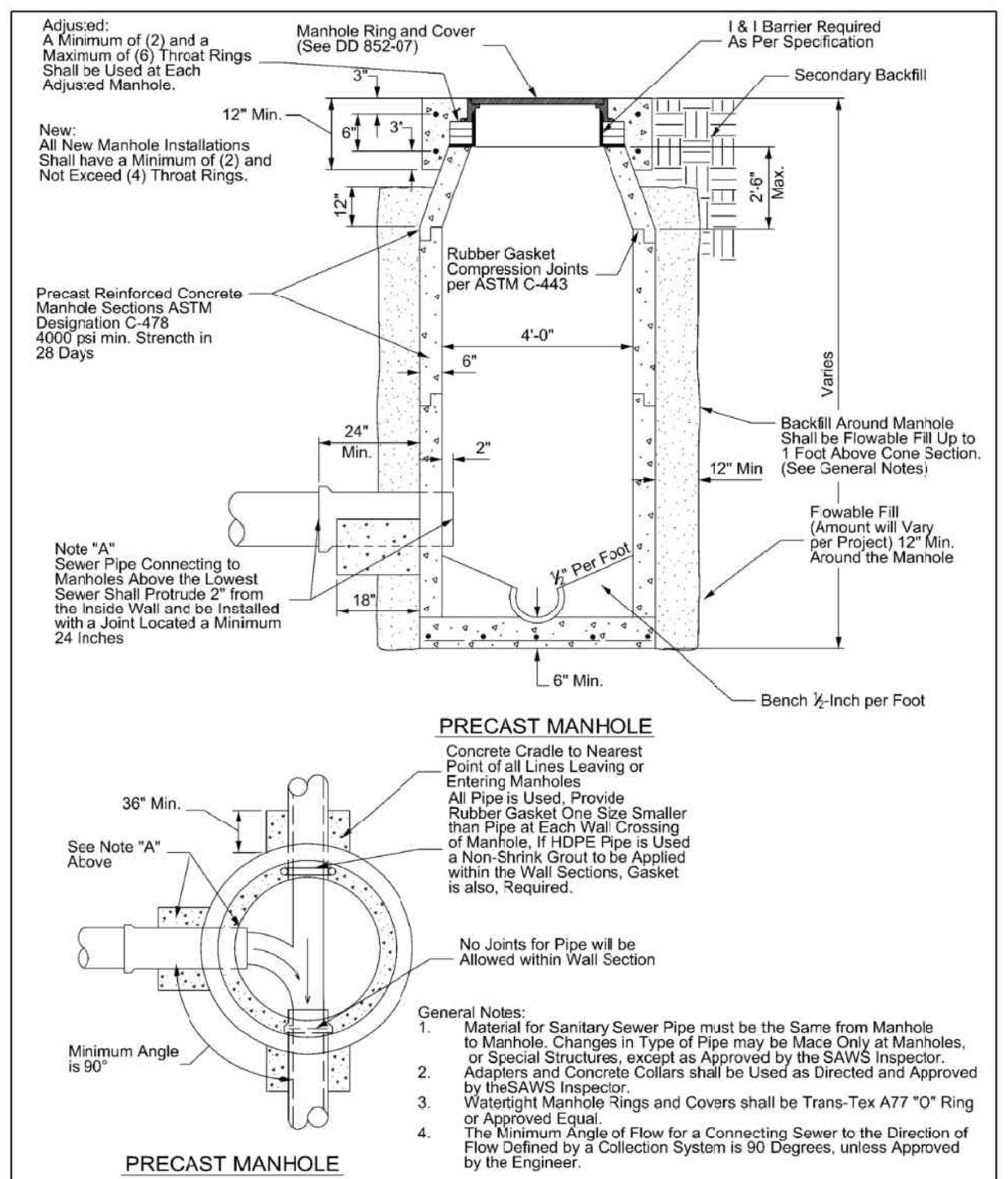
CHART

Notes:
PVC pipes and fittings 6" to 15" in diameter shall conform to ASTM D-3034-08.
PVC pipes and fittings 18" to 27" in diameter shall conform to ASTM F-679-08.

This information is provided as a reference. All deflection testing shall be done in accordance with TCEQ Chapter 217.

PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	GO, NO GO DEFLECTION TESTING MANDREL CHART	APPROVED MARCH 2008	REVISED APRIL 2014
		DD-848-01	SHEET 2 OF 2

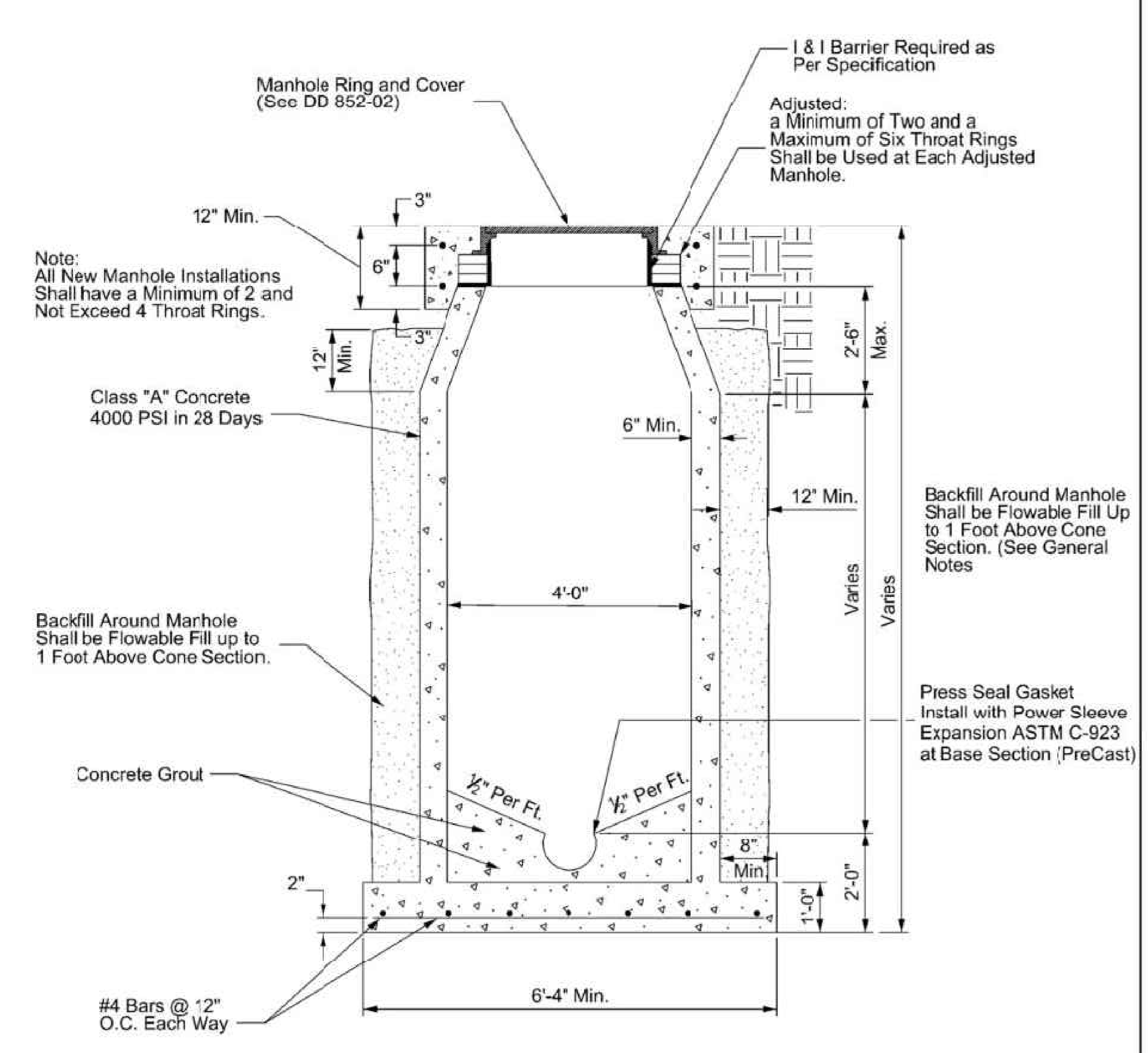
STANDARD PRECAST MANHOLE (DD-852-01)



General Notes:
1. Material for Sanitary Sewer Pipe must be the Same from Manhole to Manhole. Changes in Type of Pipe may be Made Only at Manholes, or Special Structures, except as Approved by the SAWS Inspector.
2. Adapters and Concrete Collars shall be Used as Directed and Approved by theSAWS Inspector.
3. Watertight Manhole Rings and Covers shall be Trans-Tex A77 "O" Ring or Approved Equal.
4. The Minimum Angle of Flow for a Connecting Sewer to the Direction of Flow Defined by a Collection System is 90 Degrees, unless Approved by the Engineer.

PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	STANDARD PRECAST MANHOLE	APPROVED MAY 2013	REVISED AUG 2019
		DD-852-01	SHEET 1 OF 2

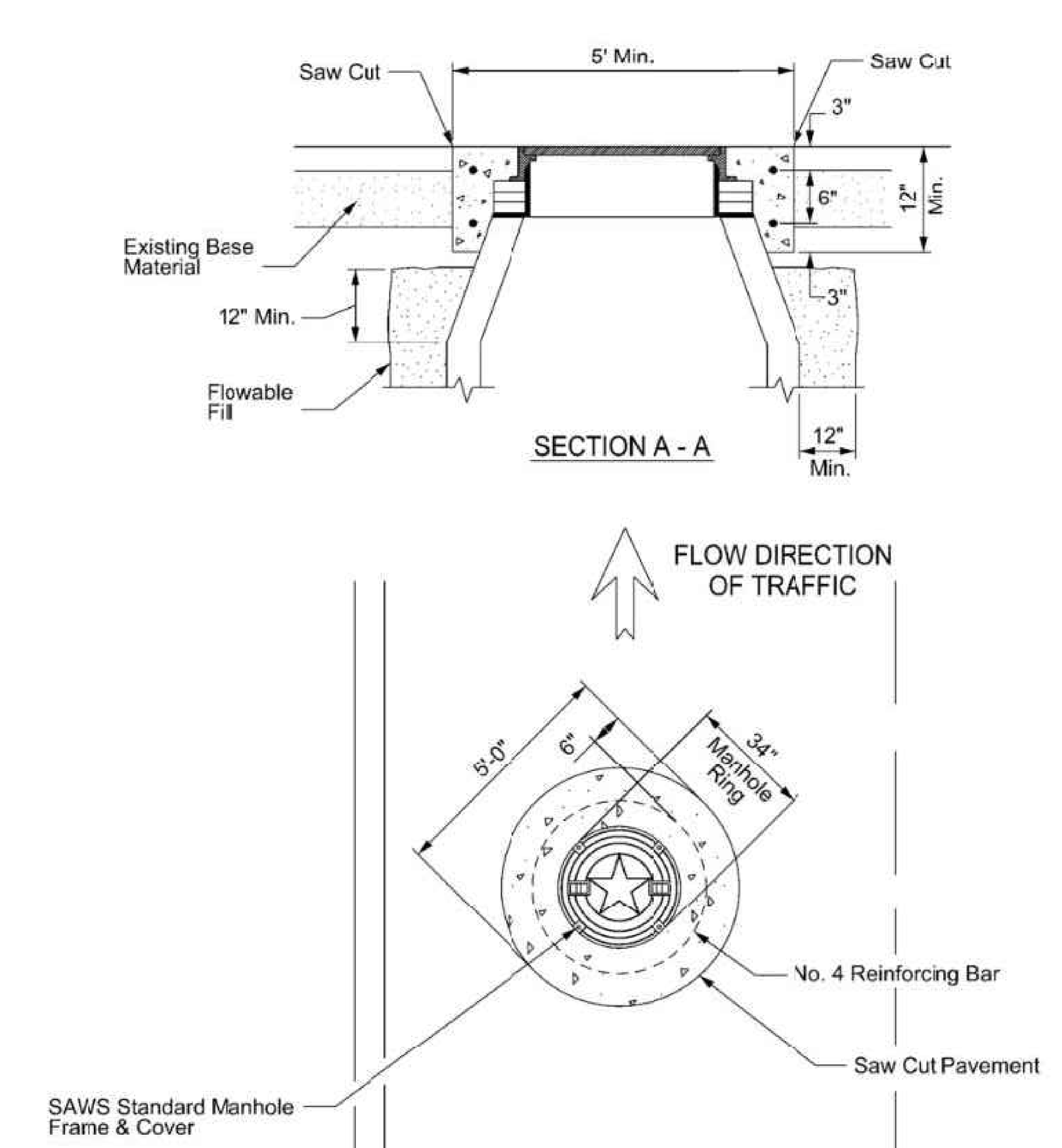
STANDARD MONOLITHIC MANHOLE (DD 852-01)



General Notes:
1. Material for Sanitary Sewer Pipe Must be the Same from Manhole to Manhole. Changes in Type of Pipe May be Made only at Manholes, or Special Structures, Except as Approved by the Project Engineer.
2. Adaptors and Concrete Collars shall be used as approved by the SAWS Project Engineer.
3. Watertight Manhole Rings and Covers shall be Trans-Tex A77 "O" Ring or Approved Equal.

PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	STANDARD MONOLITHIC MANHOLE	APPROVED March 2008	REVISED AUG 2019
		DD 852-01	SHEET 2 OF 2

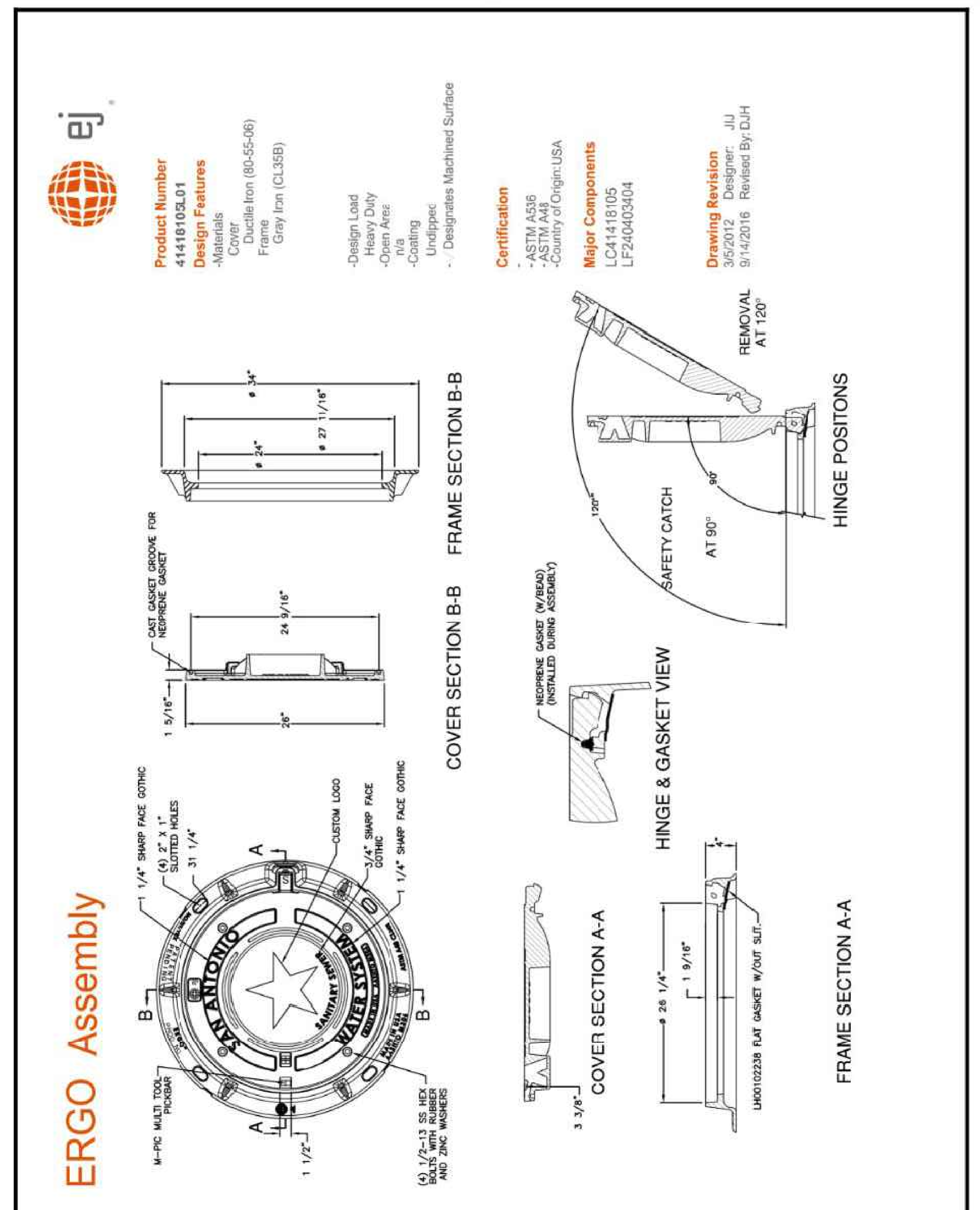
MANHOLE RING ENCASEMENT DETAIL (DD 852-03)



NOTE
1. The Concrete Shall be 4000 PSI Minimum and Reinforced with No. 4 Bars as Shown.
2. The Concrete Shall Extend to Edge of Saw Cut Pavement.
3. Manhole Ring Encasement is Required on all Manholes.
4. Manhole Lid shall Open in the Direction of Traffic or Downstream in Parkway

PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	MANHOLE RING ENCASEMENT DETAIL	APPROVED AUGUST 2009	REVISED AUG 2019
		DD 852-03	SHEET 1 OF 2

MANHOLE RING AND COVER DETAIL (DD-852-07)



PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	MANHOLE RING AND COVER DETAIL	APPROVED February 2017	REVISED
		DD-852-07	SHEET 2 OF 5

CONSTRUCTION/PERMIT DOCUMENTS

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY: PAUL A. MATHIS, P.E. NO. #105075 ON: FEBRUARY 23, 2024 DATE

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NORTHSIDE INDEPENDENT SCHOOL DISTRICT

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Project No.: 762301481
Drwn. By: LNC
Chkd By: PAM
Date Issued: 01/31/24
Revisions:

SAWS SANITARY SEWER DETAILS

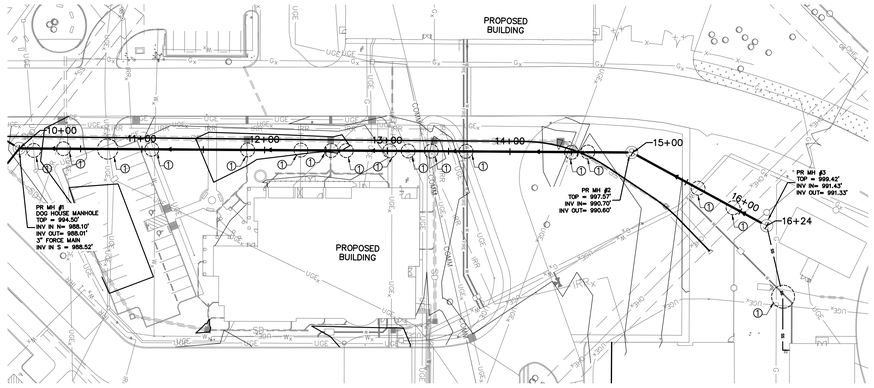
C5.11

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. THE CONTRACTOR'S IMPLEMENTATION OF THE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION, SAFETY PROTECTION THAT COMPLIES WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

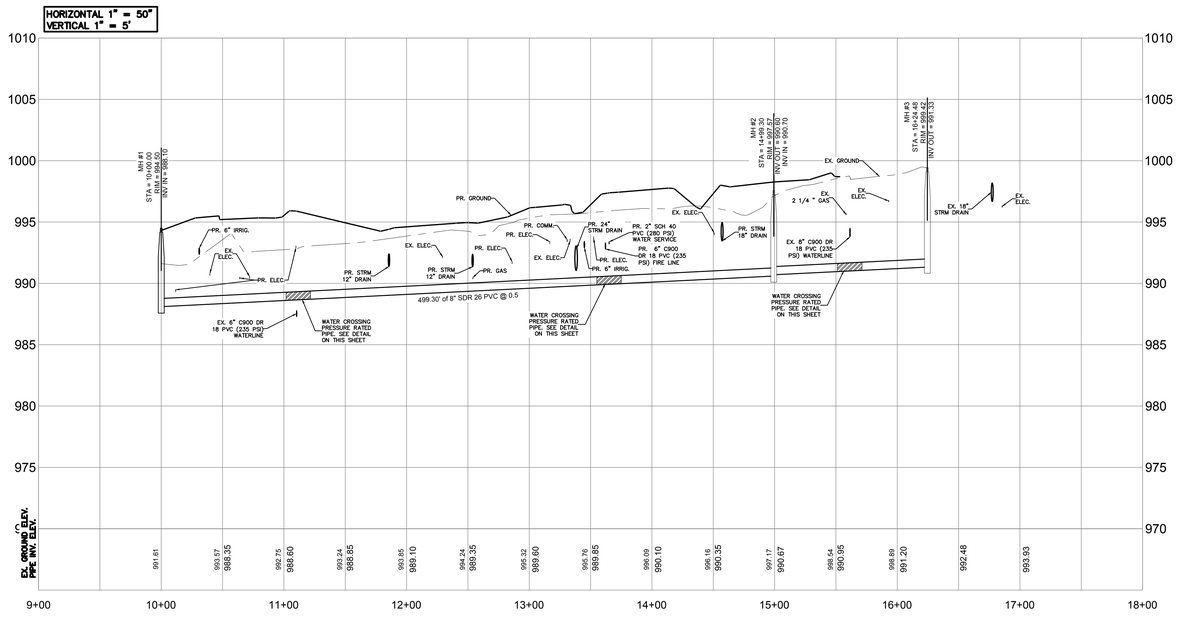
COMPACTION NOTES

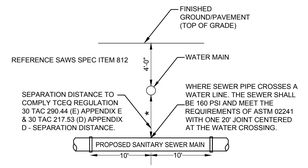
THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING 98% COMPACTION ON ALL TRENCH BACKFILL AND PAYING FOR THE TESTS TO BE PERFORMED BY A THIRD PARTY. COMPACTION TESTS WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED OR AS INDICATED BY NORTHSIDE ISD INSPECTOR/TEST ADMINISTER PER EACH 12-INCH LOOSE LIFT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



SANITARY SEWER 1

STA. 10+00 TO STA. 16+33

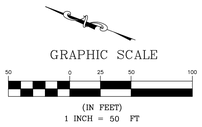




TYPICAL SANITARY SEWER/ WATER CROSSING DETAIL

NOT TO SCALE

*SEPARATION DISTANCE AND PROTECTION REQUIREMENTS TO COMPLY WITH 30 TAC 290.44 (e) AND 30 TAC 217.53 (d) (FORMERLY 30 TAC 317.13 APPENDIX E)



NOTES

1. **CAUTION:** UTILITY CROSSING

LEGEND

- W_x — EXISTING WATER LINE
- SS_x — EXISTING SANITARY SEWER LINE
- SD_x — EXISTING STORM DRAIN LINE
- UGE_x — EXISTING UNDERGROUND ELECTRIC LINE
- OHE_x — EXISTING OVERHEAD ELECTRIC LINE
- G_x — EXISTING GAS LINE
- W — PROPOSED WATER LINE
- SS — PROPOSED SANITARY SEWER LINE
- SD — PROPOSED STORM DRAIN
- G — PROPOSED GAS LINE
- UGE — PROPOSED UNDERGROUND ELECTRIC LINE
- IRR — PROPOSED IRRIGATION LINE
- EXISTING WATER VALVE
- PROPOSED WATER VALVE
- EXISTING SANITARY SEWER MANHOLE
- EXISTING FIRE HYDRANT
- PROPOSED FIRE HYDRANT
- PROPOSED SANITARY SEWER MANHOLE

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY PAUL A. MATHIS, P.E. NO. #105075 ON APRIL 15, 2024 DATE

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Project No.: 762301481
Drwn. By: LNC
Chkd By: PAM
Date Issued: 04/15/24
Revisions:

PROPOSED SANITARY SEWER 1 PLAN AND PROFILE

SS-1

Texas Commission on Environmental Quality
Organized Sewage Collection System
General Construction Notes

Edwards Aquifer Protection Program Construction Notes – Legal Disclaimer

The following/listed "construction notes" are intended to be advisory in nature only and do not constitute an approval or conditional approval by the Executive Director, nor do they constitute a comprehensive listing of rules or conditions to be followed during construction. Further actions may be required to achieve compliance with TCEQ regulations found in Title 30, Texas Administrative Code, Chapters 213 and 217, as well as local ordinances and regulations providing for the protection of water quality. Additionally, nothing contained in the following/listed "construction notes" restricts the powers of the Executive Director, the commission or any other governmental entity to prevent, correct, or curtail activities that result or may result in pollution of the Edwards Aquifer or hydrologically connected surface waters. The holder of any Edwards Aquifer Protection Plan containing "construction notes" is still responsible for compliance with Title 30, Texas Administrative Code, Chapters 213 or any other applicable TCEQ regulation, as well as all conditions of an Edwards Aquifer Protection Plan through all phases of plan implementation. Failure to comply with any condition of the Executive Director's approval, whether or not in contradiction of any "construction notes," is a violation of TCEQ regulations and any violation is subject to administrative rules, orders, and penalties as provided under Title 30, Texas Administrative Code § 213.10 (relating to Enforcement). Such violations may also be subject to civil penalties and injunction. The following/listed "construction notes" in no way represent an approved exception by the Executive Director to any part of Title 30 Texas Administrative Code, Chapters 213 and 217, or any other TCEQ applicable regulation.

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

executive director has reviewed and approved the methods proposed to protect the sensitive 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 1500 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 of 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 __ of __.

   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 line 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) and 30 TAC §290.44(e) (Water Distribution).

11. Where sewers 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: _____.

    If pipe flexure is proposed, the following method of preventing deflection of the joint must be used: _____.

    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 be 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 the 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 __ of __. (For potential future laterals).

The private service lateral stub-outs must be installed as shown on the plan and profile sheets on Plan Sheet __ of __ and marked after backfilling as shown in the detail on Plan Sheet __ of __.

13. Trenching, bedding and backfill must conform with 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 cleanout unless it can be certified as conforming with the provisions of 30 TAC §213.5(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) A low pressure air test must follow the procedures described in American Society For Testing And Materials (ASTM) C-828, ASTM C-924, or ASTM F-1417 or other procedure 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.
            (B) For sections of collection system pipe less than 36 inch average inside diameter, the 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 groundwater 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:

Equation C.3 $$T = \frac{0.085 \times D \times K}{Q}$$

Where:

T = time for pressure to drop 1.0 pound per square inch gauge in seconds
K = 0.000419 X D X L, but not less than 1.0
D = average inside pipe diameter in inches

L = length of line of same size being tested, in feet
Q = rate of loss, 0.0015 cubic feet per minute per square foot internal surface

(C) 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)*	Maximum Length for Minimum Time *(feet)*	Time for Longer Length *(seconds/foot)*
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 no pressure loss has occurred during the first 25% of the calculated testing time.
(E) If any pressure loss or leakage has occurred during the first 25% of a testing period, then the test must continue for the entire test duration as outlined above or until failure.
(F) Wastewater collection system pipes with a 27 inch or larger average inside diameter may be air tested at each joint instead of following the procedure outlined in this section.
(G) A testing procedure for pipe with an inside diameter greater than 33 inches must be approved by the executive director.

(2) *Infiltration/Exfiltration Test.*
(A) The total exfiltration, as determined by a hydrostatic head test, must not exceed 50 gallons per inch of diameter per mile of pipe per 24 hours at a minimum test head of 2.0 feet above the crown of a pipe at an upstream manhole.
(B) An owner shall use an infiltration test in lieu of an exfiltration test when pipes are installed below the groundwater level.
(C) The total exfiltration, as determined by a hydrostatic head test, must not exceed 50 gallons per inch diameter per mile of pipe per 24 hours at a minimum test head of two feet above the crown of a pipe at an upstream manhole, or at least two feet above existing groundwater level, whichever is greater.
(D) For construction within a 25-year flood plain, the infiltration or exfiltration must not exceed 10 gallons per inch diameter per mile of pipe per 24 hours at the same minimum test head as in subparagraph (C) of this paragraph.
(E) If the quantity of infiltration or exfiltration exceeds the maximum quantity specified, an owner shall undertake remedial action in order to reduce

the infiltration or exfiltration to an amount within the limits specified. An owner shall retest a pipe following a remediation action.

(b) If a gravity collection pipe is composed of flexible pipe, deflection testing is also required. The following procedures must be followed:
(1) For a collection pipe with inside diameter less than 27 inches, deflection measurement requires a rigid mandrel.
(A) *Mandrel Sizing.*
(i) A rigid mandrel must have an outside diameter (OD) not less than 95% of the base inside diameter (ID) or average ID of a pipe, as specified in the appropriate standard by the ASTMs, American Water Works Association, UNI-BELL, or American National Standards Institute, or any related appendix.
(ii) If a mandrel sizing diameter is not specified in the appropriate standard, the mandrel must have an OD equal to 95% of the ID of a pipe. In this case, the ID of the pipe, for the purpose of determining the OD of the mandrel, must equal be the average outside diameter minus two minimum wall thicknesses for OD controlled pipe and the average inside diameter for ID controlled pipe.
(iii) All dimensions must meet the appropriate standard.
(B) *Mandrel Design.*
(i) A rigid mandrel must be constructed of a metal or a rigid plastic material that can withstand 200 psi without being deformed.
(ii) A mandrel must have nine or more odd number of runners or legs.
(iii) A barrel section length must equal at least 75% of the inside diameter of a pipe.
(iv) Each size mandrel must use a separate proving ring.
(C) *Method Options.*
(i) An adjustable or flexible mandrel is prohibited.
(ii) A test may not use television inspection as a substitute for a deflection test.
(iii) If requested, the executive director may approve the use of a deflectometer or a mandrel with removable legs or runners on a case-by-case basis.
(2) For a gravity collection system pipe with an inside diameter 27 inches and greater, other test methods may be used to determine vertical deflection.
(3) A deflection test method must be accurate to within plus or minus 0.2% deflection.
(4) An owner shall not conduct a deflection test until at least 30 days after the final backfill.
(5) Gravity collection system pipe deflection must not exceed five percent (5%).
(6) If a pipe section fails a deflection test, an owner shall correct the problem and conduct a second test after the final backfill has been in place at least 30 days.

16. All manholes must be tested to meet or exceed the requirements of 30 TAC §217.58.
(a) All manholes must pass a leakage test.
(b) An owner shall test each manhole (after assembly and backfilling) for leakage, separate and independent of the collection system pipes, by hydrostatic exfiltration testing, vacuum testing, or other method approved by the executive director.
(1) Hydrostatic Testing.

(A) The maximum leakage for hydrostatic testing or any alternative test methods is 0.025 gallons per foot diameter per foot of manhole depth per hour.
(B) To perform a hydrostatic exfiltration test, an owner shall seal all wastewater pipes coming into a manhole with an internal pipe plug, fill the manhole with water, and maintain the test for at least one hour.
(C) A test for concrete manholes may use a 24-hour wetting period before testing to allow saturation of the concrete.
(2) Vacuum Testing.
(A) To perform a vacuum test, an owner shall plug all lift holes and exterior joints with a non-shrink grout and plug all pipes entering a manhole.
(B) No grout must be placed in horizontal joints before testing.
(C) Stub-outs, manhole boots, and pipe plugs must be secured to prevent movement while a vacuum is drawn.
(D) An owner shall use a minimum 60 inch/lb torque wrench to tighten the external clamps that secure a test cover to the top of a manhole.
(E) A test head must be placed at the inside of the top of a cone section, and the seal inflated in accordance with the manufacturer's recommendations.
(F) There must be a vacuum of 10 inches of mercury inside a manhole to perform a valid test.
(G) A test does not begin until after the vacuum pump is off.
(H) A manhole passes the test if after 2.0 minutes and with all valves closed, the vacuum is at least 9.0 inches of mercury.

17. All private service laterals must be inspected and certified in accordance with 30 TAC §213.5(c)(3)(I). After installation of and, prior to covering and connecting a private service lateral to an existing organized sewage collection system, a Texas Licensed Professional Engineer, Texas Registered Sanitarian, or appropriate city inspector must visually inspect the private service lateral and the connection to the sewage collection system, and certify that it is constructed in conformity with the applicable provisions of this section. The owner of the collection system must maintain such certifications for five years and forward copies to the appropriate regional office upon request. Connections may only be made to an approved sewage collection system.

Austin Regional Office 12100 Park 35 Circle, Building A Austin, Texas 78753-1808 Phone (512) 339-2929 Fax (512) 339-3795	San Antonio Regional Office 14250 Judson Road San Antonio, Texas 78233-4480 Phone (210) 490-3096 Fax (210) 545-4329

THESE GENERAL CONSTRUCTION NOTES MUST BE INCLUDED ON THE CONSTRUCTION PLANS PROVIDED TO THE CONTRACTOR AND ALL SUBCONTRACTORS.

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY PAUL A. MATHIS, P.E. NO. #105075 ON: MARCH 7, 2024 DATE

STATE OF TEXAS · PAUL A. MATHIS · 105075 · LICENSED PROFESSIONAL ENGINEER

DESIGNED BY: PAM
DRAWN BY: LNC
APPROVED: PAM
JOB NO.: 762301481

KCI TECHNOLOGIES, INC.
2806 W BITTERS RD SUITE 216
SAN ANTONIO, TX 78248
PHONE: (210) 641-9999
FAX: (210) 641-6440
REGISTRATION #F-10573 / #101943-65

NORTHSIDE INDEPENDENT SCHOOL DISTRICT

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12221 LESLIE ROAD, HELOTES, TX 78023

CONSTRUCTION/PERMIT DOCUMENTS

KAARLSEN NOONAN RITTIMANN GARCIA ARCH
13438 BANDERA RD #202
HELOTES, TEXAS 78023
(210) 695-5516
kngarch.com

Project No.: 762301481
Drwn. By: LNC
Chkd By: PAM
Date Issued: 03/07/24
Revisions:

1 – TCEQ 2024 02 12	
2 – TCEQ 2024 02 23	
2 PR 006	03/07/24

TCEQ OSCS GENERAL CONSTRUCTION NOTES

SS-2

Texas Commission on Environmental Quality
Organized Sewage Collection System
General Construction Notes

Edwards Aquifer Protection Program Construction Notes – Legal Disclaimer

The following/listed "construction notes" are intended to be advisory in nature only and do not constitute an approval or conditional approval by the Executive Director, nor do they constitute a comprehensive listing of rules or conditions to be followed during construction. Further actions may be required to achieve compliance with TCEQ regulations found in Title 30, Texas Administrative Code, Chapters 213 and 217, as well as local ordinances and regulations providing for the protection of water quality. Additionally, nothing contained in the following/listed "construction notes" restricts the powers of the Executive Director, the commission or any other governmental entity to prevent, correct, or curtail activities that result or may result in pollution of the Edwards Aquifer or hydrologically connected surface waters. The holder of any Edwards Aquifer Protection Plan containing "construction notes" is still responsible for compliance with Title 30, Texas Administrative Code, Chapters 213 or any other applicable TCEQ regulation, as well as all conditions of an Edwards Aquifer Protection Plan through all phases of plan implementation. Failure to comply with any condition of the Executive Director's approval, whether or not in contradiction of any "construction notes," is a violation of TCEQ regulations and any violation is subject to administrative rules, orders, and penalties as provided under Title 30, Texas Administrative Code § 213.10 (relating to Enforcement). Such violations may also be subject to civil penalties and injunction. The following/listed "construction notes" in no way represent an approved exception by the Executive Director to any part of Title 30 Texas Administrative Code, Chapters 213 and 217, or any other TCEQ applicable regulation.

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

executive director has reviewed and approved the methods proposed to protect the sensitive 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 1500 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 of 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 __ of __.

   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 line 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) and 30 TAC §290.44(e) (Water Distribution).

11. Where sewers 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: _____.

    If pipe flexure is proposed, the following method of preventing deflection of the joint must be used: _____.

    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 be 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 the 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 __ of __. (For potential future laterals).

The private service lateral stub-outs must be installed as shown on the plan and profile sheets on Plan Sheet __ of __ and marked after backfilling as shown in the detail on Plan Sheet __ of __.

13. Trenching, bedding and backfill must conform with 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 cleanout unless it can be certified as conforming with the provisions of 30 TAC §213.5(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) A low pressure air test must follow the procedures described in American Society For Testing And Materials (ASTM) C-828, ASTM C-924, or ASTM F-1417 or other procedure 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.

(B) For sections of collection system pipe less than 36 inch average inside diameter, the 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 groundwater 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:

Equation C.3 $$T = \frac{0.085 \times D \times K}{Q}$$

Where:

T = time for pressure to drop 1.0 pound per square inch gauge in seconds

K = 0.000419 X D X L, but not less than 1.0

D = average inside pipe diameter in inches

L = length of line of same size being tested, in feet
Q = rate of loss, 0.0015 cubic feet per minute per square foot internal surface

(C) 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)*	**Maximum Length for Minimum Time** *(feet)*	**Time for Longer Length** *(seconds/foot)*
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 no pressure loss has occurred during the first 25% of the calculated testing time.

(E) If any pressure loss or leakage has occurred during the first 25% of a testing period, then the test must continue for the entire test duration as outlined above or until failure.

(F) Wastewater collection system pipes with a 27 inch or larger average inside diameter may be air tested at each joint instead of following the procedure outlined in this section.

(G) A testing procedure for pipe with an inside diameter greater than 33 inches must be approved by the executive director.

(2) *Infiltration/Exfiltration Test.*

(A) The total exfiltration, as determined by a hydrostatic head test, must not exceed 50 gallons per inch of diameter per mile of pipe per 24 hours at a minimum test head of 2.0 feet above the crown of a pipe at an upstream manhole.

(B) An owner shall use an infiltration test in lieu of an exfiltration test when pipes are installed below the groundwater level.

(C) The total exfiltration, as determined by a hydrostatic head test, must not exceed 50 gallons per inch diameter per mile of pipe per 24 hours at a minimum test head of two feet above the crown of a pipe at an upstream manhole, or at least two feet above existing groundwater level, whichever is greater.

(D) For construction within a 25-year flood plain, the infiltration or exfiltration must not exceed 10 gallons per inch diameter per mile of pipe per 24 hours at the same minimum test head as in subparagraph (C) of this paragraph.

(E) If the quantity of infiltration or exfiltration exceeds the maximum quantity specified, an owner shall undertake remedial action in order to reduce

the infiltration or exfiltration to an amount within the limits specified. An owner shall retest a pipe following a remediation action.

(b) If a gravity collection pipe is composed of flexible pipe, deflection testing is also required. The following procedures must be followed:

(1) For a collection pipe with inside diameter less than 27 inches, deflection measurement requires a rigid mandrel.

(A) *Mandrel Sizing.*

(i) A rigid mandrel must have an outside diameter (OD) not less than 95% of the base inside diameter (ID) or average ID of a pipe, as specified in the appropriate standard by the ASTMs, American Water Works Association, UNI-BELL, or American National Standards Institute, or any related appendix.

(ii) If a mandrel sizing diameter is not specified in the appropriate standard, the mandrel must have an OD equal to 95% of the ID of a pipe. In this case, the ID of the pipe, for the purpose of determining the OD of the mandrel, must equal be the average outside diameter minus two minimum wall thicknesses for OD controlled pipe and the average inside diameter for ID controlled pipe.

(iii) All dimensions must meet the appropriate standard.

(B) *Mandrel Design*.

(i) A rigid mandrel must be constructed of a metal or a rigid plastic material that can withstand 200 psi without being deformed.

(ii) A mandrel must have nine or more odd number of runners or legs.

(iii) A barrel section length must equal at least 75% of the inside diameter of a pipe.

(iv) Each size mandrel must use a separate proving ring.

(C) *Method Options.*

(i) An adjustable or flexible mandrel is prohibited.

(ii) A test may not use television inspection as a substitute for a deflection test.

(iii) If requested, the executive director may approve the use of a deflectometer or a mandrel with removable legs or runners on a case-by-case basis.

(2) For a gravity collection system pipe with an inside diameter 27 inches and greater, other test methods may be used to determine vertical deflection.

(3) A deflection test method must be accurate to within plus or minus 0.2% deflection.

(4) An owner shall not conduct a deflection test until at least 30 days after the final backfill.

(5) Gravity collection system pipe deflection must not exceed five percent (5%).

(6) If a pipe section fails a deflection test, an owner shall correct the problem and conduct a second test after the final backfill has been in place at least 30 days.

16. All manholes must be tested to meet or exceed the requirements of 30 TAC §217.58.

(a) All manholes must pass a leakage test.

(b) An owner shall test each manhole (after assembly and backfilling) for leakage, separate and independent of the collection system pipes, by hydrostatic exfiltration testing, vacuum testing, or other method approved by the executive director.

(1) Hydrostatic Testing.

(A) The maximum leakage for hydrostatic testing or any alternative test methods is 0.025 gallons per foot diameter per foot of manhole depth per hour.
(B) To perform a hydrostatic exfiltration test, an owner shall seal all wastewater pipes coming into a manhole with an internal pipe plug, fill the manhole with water, and maintain the test for at least one hour.
(C) A test for concrete manholes may use a 24-hour wetting period before testing to allow saturation of the concrete.

(2) Vacuum Testing.
(A) To perform a vacuum test, an owner shall plug all lift holes and exterior joints with a non-shrink grout and plug all pipes entering a manhole.
(B) No grout must be placed in horizontal joints before testing.
(C) Stub-outs, manhole boots, and pipe plugs must be secured to prevent movement while a vacuum is drawn.
(D) An owner shall use a minimum 60 inch/lb torque wrench to tighten the external clamps that secure a test cover to the top of a manhole.
(E) A test head must be placed at the inside of the top of a cone section, and the seal inflated in accordance with the manufacturer's recommendations.
(F) There must be a vacuum of 10 inches of mercury inside a manhole to perform a valid test.
(G) A test does not begin until after the vacuum pump is off.
(H) A manhole passes the test if after 2.0 minutes and with all valves closed, the vacuum is at least 9.0 inches of mercury.

17. All private service laterals must be inspected and certified in accordance with 30 TAC §213.5(c)(3)(I). After installation of and, prior to covering and connecting a private service lateral to an existing organized sewage collection system, a Texas Licensed Professional Engineer, Texas Registered Sanitarian, or appropriate city inspector must visually inspect the private service lateral and the connection to the sewage collection system, and certify that it is constructed in conformity with the applicable provisions of this section. The owner of the collection system must maintain such certifications for five years and forward copies to the appropriate regional office upon request. Connections may only be made to an approved sewage collection system.

Austin Regional Office 12100 Park 35 Circle, Building A Austin, Texas 78753-1808 Phone (512) 339-2929 Fax (512) 339-3795	San Antonio Regional Office 14250 Judson Road San Antonio, Texas 78233-4480 Phone (210) 490-3096 Fax (210) 545-4329

THESE GENERAL CONSTRUCTION NOTES MUST BE INCLUDED ON THE CONSTRUCTION PLANS PROVIDED TO THE CONTRACTOR AND ALL SUBCONTRACTORS.

Lift Station / Force Main System Application (TCEQ-0624)

Lift Station/Force Main System Application

Texas Commission on Environmental Quality

for Regulated Activities On the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(c)(3)(B)and(c), 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.

Regulated Entity Name: O'Connor High School Agricultural Science and Technology

Customer Information

(If different than customer information provided on core data form)

1. The person(s) responsible for providing the engineering certification to the TCEQ pursuant to 30 TAC §213.5(f)(2)(C) during construction and 30 TAC §213.5 (c)(3)(D) upon completion of construction is:

   Contact Person: Paul A. Mathis, P.E., PMP, LEED Green Assoc., MBA
   Practice Leader | Senior Associate
   Entity: KCI Technologies
   Mailing Address: 2806 W Bitters Rd Suite 218
   City, State: San Antonio, TX Zip: 78248
   Telephone: (210) 641-9999 Fax: (210) 641-6440
   Email Address: paul.mathis@kci.com

2. The engineer responsible for the design of this lift station and force main:

   Contact Person: Zac Morton, P.E., LEED AP
   Entity: DBR
   Mailing Address: 9601 McAllister Freeway, Suite 410
   City, State: San Antonio, TX Zip: 78216
   Telephone: (210) 293-4608 Fax: N/A
   Email Address: zmorton@dbrinc.com
   Texas Licensed Professional Engineer's Serial Number: 98619

Project Information

3. This project is for the construction or replacement of:

☐ Lift Station only.
☐ Lift Station and Force Main system.
☒ Lift Station, Force Main, and Gravity system.

4. The sewage collection system will convey the wastewater to the SAWS (Leon Creek) (name) Treatment Plant. The treatment facility is:

   ☒ Existing
   ☐ Proposed

5. All components of this lift station/force main system will comply with:

   ☒ The City of SAWS/City of Helotes standard specifications.
   ☐ Other. Specifications are attached.

Site Plan Requirements

Items 6-14 must be included on the Site Plan.

6. ☒ The Site Plan must have a minimum scale of 1" = 400'.

   Site Plan Scale: 1" = 400‘.

7. ☒ Lift station/force main system layout meets all requirements of 30 TAC Chapter 217.

8. Geologic or Manmade Features:

   ☐ No geologic or manmade features were identified in the Geologic Assessment.
   ☒ All geologic or manmade features identified in the Geologic Assessment (caves, solution openings, sinkholes, fractures, joints, porous zones, etc.) which exist at the site of the proposed lift station and along the path(s) or within **50 feet of each side** of a proposed force main line are shown on the Site Plan and are listed in the table below. Designs used to protect the integrity of the sewer line crossing each feature are described and labeled on the attached page. A detailed design drawing for each feature is shown on Plan Sheet _____ of _____.
   ☐ No Geologic Assessment is required for this project.

Table 1 - Geologic or Manmade Features

Line	*Station to Station*	*Type of Feature*
	to	
	to	
	to	
	to	
	to	
	to	
	to	

Line	*Station to Station*	*Type of Feature*
	to	

9. ☒ Existing topographic contours are shown and labeled. The contour interval is 1 feet. (Contour interval must not be greater than 5 feet).

10. ☒ Finished topographic contours are shown and labeled. The contour interval is 1 feet. (Contour interval must not be greater than 5 feet).

    ☐ Finished topographic contours will not differ from the existing topographic configuration and are not shown.

11. 100-year floodplain boundaries

    ☐ Some part(s) of the project site is located within the 100-year floodplain. The floodplain is shown and labeled.
    ☒ No part of the project site is located within the 100-year floodplain.

    The 100-year floodplain boundaries are based on the following specific (including date of material) sources(s): FEMA Firm Panel 48029C0215G, Effective 09/29/2010

12. 5-year floodplain:

    ☒ After construction is complete, no part of this project will be in or cross a 5-year floodplain, either naturally occurring or manmade. (Do not include streets or concrete-lined channels constructed above sewer lines.)
    ☐ After construction is complete, all sections of the force main located within the 5-year floodplain will be encased in concrete or capped with concrete. These locations are listed in the table below and are shown and labeled on the Site Plan. (Do not include streets or concrete-lined channels constructed above sewer lines.)

Table 2 - 5-Year Floodplain

Line	*Sheet*	*Station to Station*
	of	to
	of	to
	of	to
	of	to

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

    If applicable, this must agree with Item No. 15 on the Geologic Assessment Form.
    ☐ 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 plugged.
    ☐ The wells are not in use and will be properly plugged.
    ☐ 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.

14. ☒ Legal boundaries of the site are shown.

Plan and Profile Sheets

*The construction drawings and technical specifications will not be considered for review unless they are the **final plans and technical specifications** which will be used by the contractor for bidding and construction.*

Items 15 – 18 must be included on the Plan and Profile sheets.

15. ☒ The equipment installation construction plans must have a minimum scale of 1" = 10'.

    Plan sheet scale: 1" = 50 '.

16. ☒ Locations, descriptions and elevations of all required equipment and piping for the lift station and force main are shown and labeled.

17. ☒ Air Release/Vacuum Valves will be provided at all peaks in elevation of the proposed force main. These locations are listed in the table below and labeled on the appropriate plan and profile sheets.

Table 3 - Air Release/Vacuum Valves

Line	*Station*	*Sheet*
Force Main at Lift Station Venting	1+00.00	SS-3 of SS-3
		of
		of
		of
		of
		of

18. ☒ The **final plans and technical specifications** are submitted for the TCEQ's review. Each sheet of the construction plans and specifications are dated, signed, and sealed by the Texas Licensed Professional Engineer responsible for the design on each sheet.

19. ☒ **Attachment A - Engineering Design Report**. An engineering design report with the following required items is attached:

    ☒ The report is dated, signed, and sealed by a Texas Licensed Professional Engineer.
    ☒ Calculations for sizing system.
    ☒ Pump head calculations, including, but not limited to, system head and pump capacity curves, head loss calculations, and minimum and maximum static head C values for normal and peak operational conditions.
    ☒ 100-year and 25-year flood considerations.

☒ Total lift station pumping capacity with the largest pump out of service.
☒ Type of pumps, including standby units.
☒ Type of pump controllers, including standby air supply for bubbler controllers, as applicable.
☒ Pump cycle time.
☒ Type of wet well ventilation; include number of air changes for mechanical ventilation.
☒ Minimum and maximum flow velocities for the force main.
☒ Lift station security.
☒ Lift station emergency provisions and reliability.

Administrative Information

20. ☒ Upon completion of the wet well excavation, a geologist must certify that the excavation was inspected for the presence of sensitive features and submit the signed, sealed, and dated certification to the appropriate regional office.

21. ☒ The TCEQ Lift Stations and Force Mains General Construction Notes (TCEQ-0591) are included on the General Notes Sheet of the Final Construction Plans for this lift station and/or force main system.

22. ☒ 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.

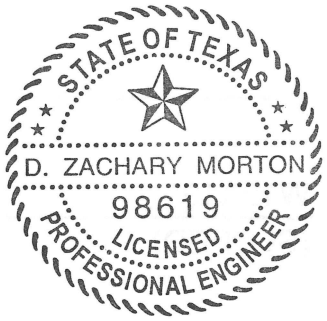
23. ☒ Any modification of this lift station/force main system application will require TCEQ approval, prior to construction, and may require submission of a revised application, with appropriate fees.

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 **Lift Station/Force Main System Application** is hereby submitted for TCEQ review and executive director approval. The system was designed in accordance with the requirements of 30 TAC §213.5(c)(3)(C) and 30 TAC Chapter 217, and prepared by:

Print Name of Licensed Professional Engineer: Zac Morton, P.E., LEED AP

Place engineer's seal here:



Date: 04/15/2024

Signature of Licensed Professional Engineer:

Attachment A

Engineering Design Report
(From DBR)

SERVICE | QUALITY | INTEGRITY | SUSTAINABILITY

9601 McAllister Freeway, Suite 410
San Antonio, TX 78216
v 210.546.0200

April 30, 2024

PROJECT: NORTHSIDE ISD ASTA AT O'CONNOR HS

SUBJECT: LIFT STATION DESIGN NARRATIVE

The lift station was designed to serve Building T, a new Poultry Barn, and a future agricultural barn. Maximum anticipated flow through this lift station will be during times that the barns are washed down. We estimate that up to three hose bibs will be used at a time, totaling 45 GPM. This flow rate will only occur for short periods of time. In Building T, there are four sinks, at 2 gpm each for a total of 8 gpm during peak normal use. The future barn is expected to be similar, bringing the total peak of normal flow to 16 gpm. It is not anticipated that both barns will be washed down simultaneously.

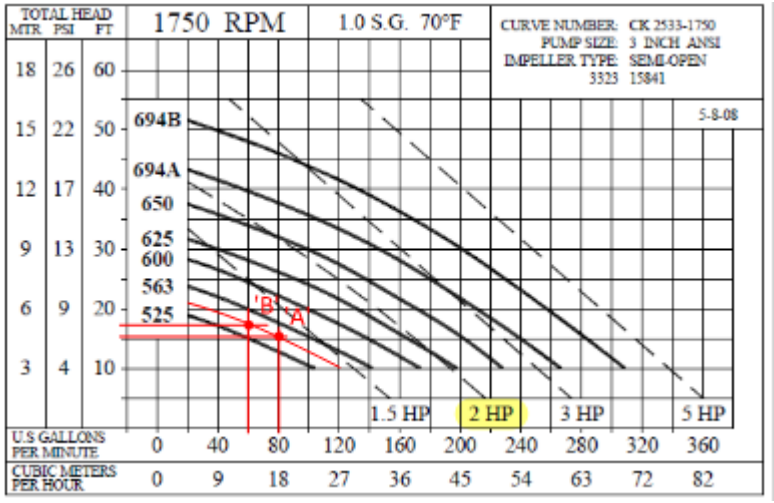
The lift station was designed to accommodate 80 gpm in normal flow operation with a single pump operating, but both pumps are capable of operating if the high-level float switch is activated. Cycled times will be dependent on use. During typical operation, there will be very little flow through the lift station. Force main velocity while a single pump is operating will be approximately 3.47 feet per second. With both pumps operating in rare cases, the velocity will be approximately 4.34 feet per second. See plans for pump curve and operation points. The plans also illustrate the float elevations for pump activation. A vault is included to house the check valves and ball valves on the discharge of the pump.

The fixtures in the barn have point-of use solids interceptors and strainers, but slicer submersible pumps have been selected to manage any solid materials that do pass through these measures. Slicer pumps have been selected to effectively reduce the size of any solid materials. They are similar to grinder pumps, but with a rotating blade operating against a stationary blade.

Lift station operation:

- Float 1 elevation: 1.00' above bottom of tank, inactive volume: 94 gallons
- Float 2 elevation (lead pump on): 2.75' above bottom of tank, active volume: 164 gallons
- Float 3 elevation (lag pump on): 3.25' above bottom of tank, additional volume: 47 gallons
- Float 4 elevation (high level alarm): 3.75' above bottom of tank
- During peak operations of 45 GPM, the pump will operate, beginning when float 2 is activated, for approximately 4 minutes, 40 seconds. During more typical operation, the pump will operate for approximately 2 minutes, 30 seconds.
- It is not anticipated that the pumps will require duplex operation.

PUMP HEAD CALCULATIONS				
BASED ON PIPE TYPE:		PVC		
WITH "C" VALUE OF:		150		
ALL SIZES (INCHES)		**3**		
ITEM	QUANTITY	EQUIVALENT LENGTH (FEET)	TOTAL EQUIVALENT PIPE LENGTH (FEET)	
LONG SWEEP 90	1	4	4	
STANDARD 90	1	7	7	
SWING CHECK VALVE	1	16	16	
BALL VALVE	1	2	2	
FEET OF PIPE EQUIVALENT			29	
FEET OF ACTUAL PIPE			370	
TOTAL FEET OF PIPE			399	
NORMAL OPERATING CONDITIONS ("A")				
FRICTION HEAD LOSS PER 100 FEET			1.55	**AT 80 GPM**
FRICTION HEAD, CALCULATED (FEET)			6.18	
STATIC HEAD (FEET)			9	
TOTAL DYNAMIC HEAD (FEET)			**15.18**	
PEAK OPERATING CONDITIONS ("B")				
FRICTION HEAD LOSS PER 100 FEET			2.11	**AT 100 GPM**
FRICTION HEAD, CALCULATED (FEET)			8.42	
STATIC HEAD (FEET)			9	
TOTAL DYNAMIC HEAD (FEET)			**17.42**	



NORMAL CONDITION ("A"):
SINGLE PUMP MOVING 80 GPM THROUGH 3" LINE ENCOUNTERING 15.2' HEAD

PEAK CONDITION ("B"):
BOTH PUMPS RUNNING, EACH CAN MOVE 50 GPM THROUGH THE 3" LINE AND EACH PUMP CAN ACCOMMODATE 17.4' HEAD

The lift station is not supplied with emergency power. If power fails, and occupants continued using sinks within the building at up to 8 GPM, the lift station would exceed the high-water alarm in approximately 35 minutes. Normal operations will be halted in the event of a power failure.

The finish floor and surrounding grade of the barns served by the lift station are above the 100-year flood plain. The lift station is vented by a 4" PVC vent. It is not mechanically ventilated.

The lift station is secured within a 6-foot fence with locking gate.

D. Zachary Morton, PE
Partner

Attachment B

Construction Plans
(From DBR and KCI)

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. THE CONTRACTOR'S IMPLEMENTATION OF THE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION, SAFETY PROTECTION THAT COMPLIES WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

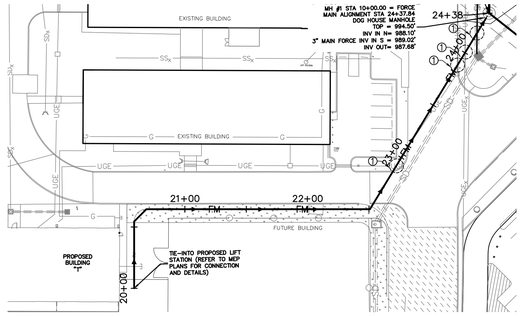
COMPACTION NOTES

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

GRAPHIC SCALE

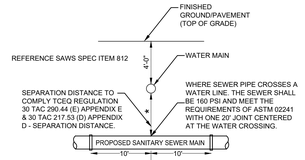
50 0 25 50 100

(IN FEET)
1 INCH = 50 FT



SANITARY SEWER FORCE MAIN

STA. 20+00 TO STA. 24+37.84



TYPICAL SANITARY SEWER/
WATER CROSSING DETAIL

NOT TO SCALE

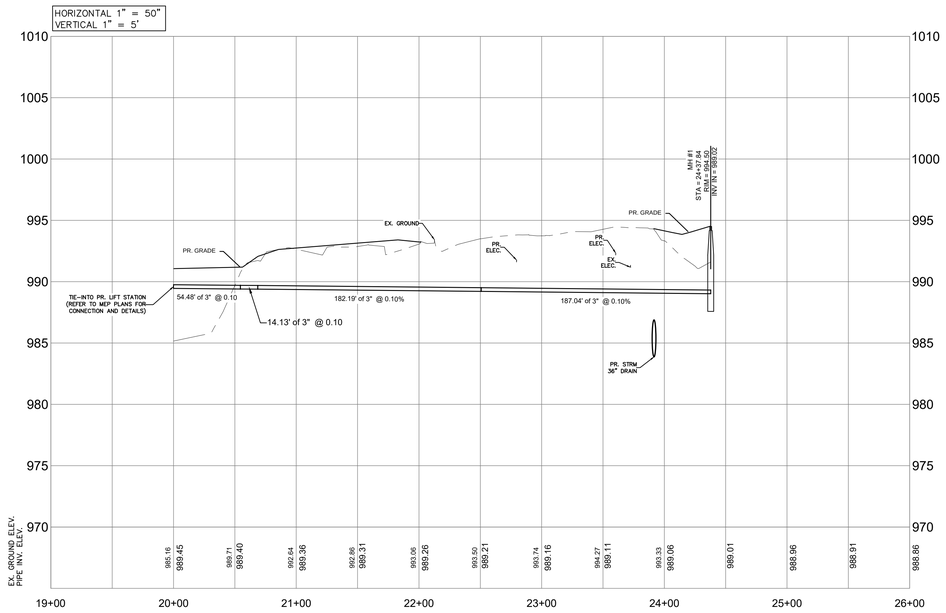
*SEPARATION DISTANCE AND PROTECTION REQUIREMENTS TO COMPLY WITH 30 TAC 290.44 (e) AND 30 TAC 217.53 (d) (FORMERLY 30 TAC 317.13 APPENDIX E)

LEGEND

W_X	EXISTING WATER LINE
SS_X	EXISTING SANITARY SEWER LINE
SD_X	EXISTING STORM DRAIN LINE
UGE_X	EXISTING UNDERGROUND ELECTRIC LINE
OHE_X	EXISTING OVERHEAD ELECTRIC LINE
G_X	EXISTING GAS LINE
W	PROPOSED WATER LINE
SS	PROPOSED SANITARY SEWER LINE
SD	PROPOSED STORM DRAIN
G	PROPOSED GAS LINE
UGE	PROPOSED UNDERGROUND ELECTRIC LINE
IRR	PROPOSED IRRIGATION LINE
WV	EXISTING WATER VALVE
WV	PROPOSED WATER VALVE
S	EXISTING SANITARY SEWER MANHOLE
	EXISTING FIRE HYDRANT
	PROPOSED FIRE HYDRANT
S	PROPOSED SANITARY SEWER MANHOLE

NOTES

1. CAUTION: UTILITY CROSSING



NORTHSIDE INDEPENDENT SCHOOL DISTRICT

STATE OF TEXAS
PAUL A. MATHIS
105075
LICENSED
PROFESSIONAL ENGINEER
April 1, 2024

DESIGNED BY: PAM	DRAWN BY: LNC	APPROVED: PAM	JOB NO.: 762301481

KCI TECHNOLOGIES, INC.
2806 W BITTERS RD SUITE 216
SAN ANTONIO, TX 78248
PHONE: (210) 641-9999
FAX: (210) 641-6440
REGISTRATION #F-10573 / #101943-65

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12221 LESLIE ROAD, HELOTES, TX 78023

KAARLSEN NOONAN RITTIMANN GARCIA
13438 BANDERA RD #202
HELOTES, TEXAS 78023
(210) 695-2016
knrgarch.com

Project No.:	762301481
Drwn. By:	LNC
Chkd By:	PAM
Date Issued:	04/25/24
Revisions:	

PROPOSED FORCE MAIN PLAN & PROFILE

SS-3

PLUMBING GENERAL NOTES:

A. PLUMBING CONTRACTOR SHALL ENSURE ALL WATER, MEDICATED WATER AND GAS DROPS ARE CLEAR OF FAN BLADES. ROUTE PIPING UP HIGH ABOVE FANS AND DROP AS REQUIRED.

B. COORDINATE WITH MECHANICAL CONTRACTOR FOR LOCATION OF RADIANT HEATER (RH-1) CONNECTIONS.

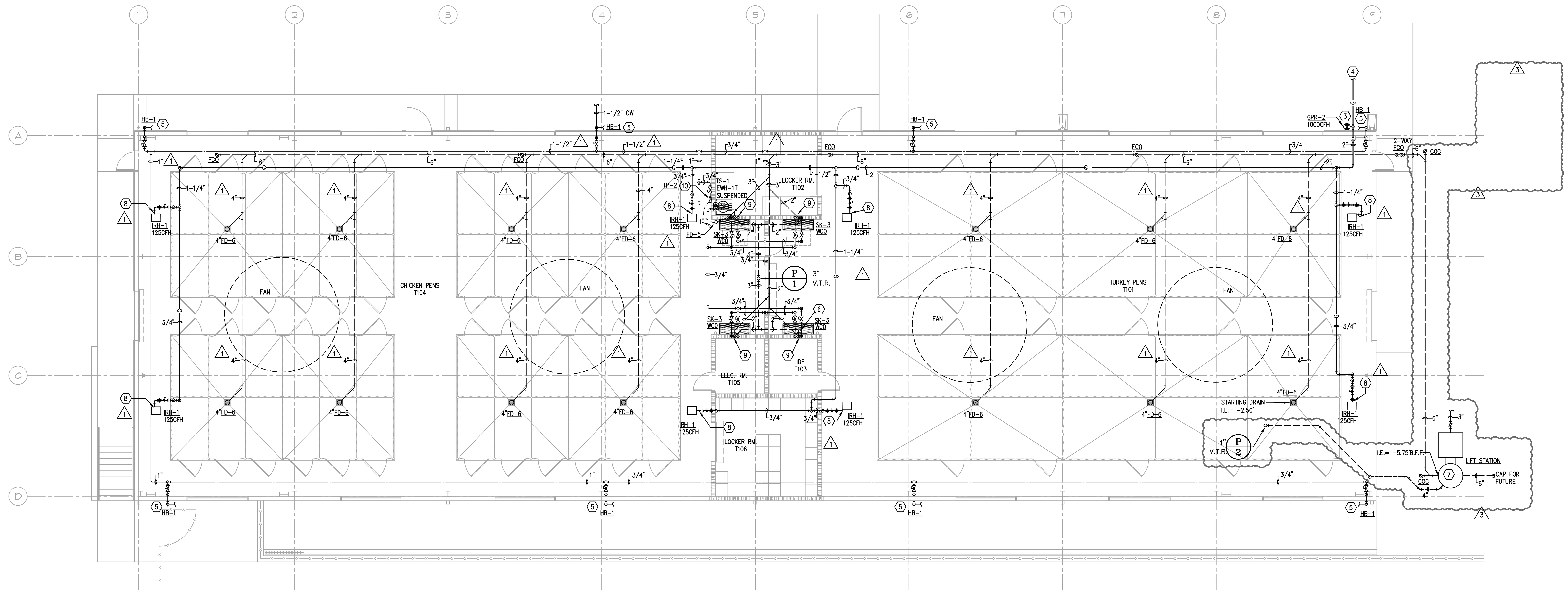
C. ALL DRAINAGE PIPING SHALL BE RUN AT MINIMUM 1% SLOPE. VERIFY EXISTING INVERT OF SOLIDS INTERCEPTOR PRIOR TO COMMENCING WORK.

D. ALL WATER PIPING MUST BE CLEARLY LABELED FOR SYSTEM TYPE (MEDICATED WATER-MW, DOMESTIC COLD WATER-DCW).

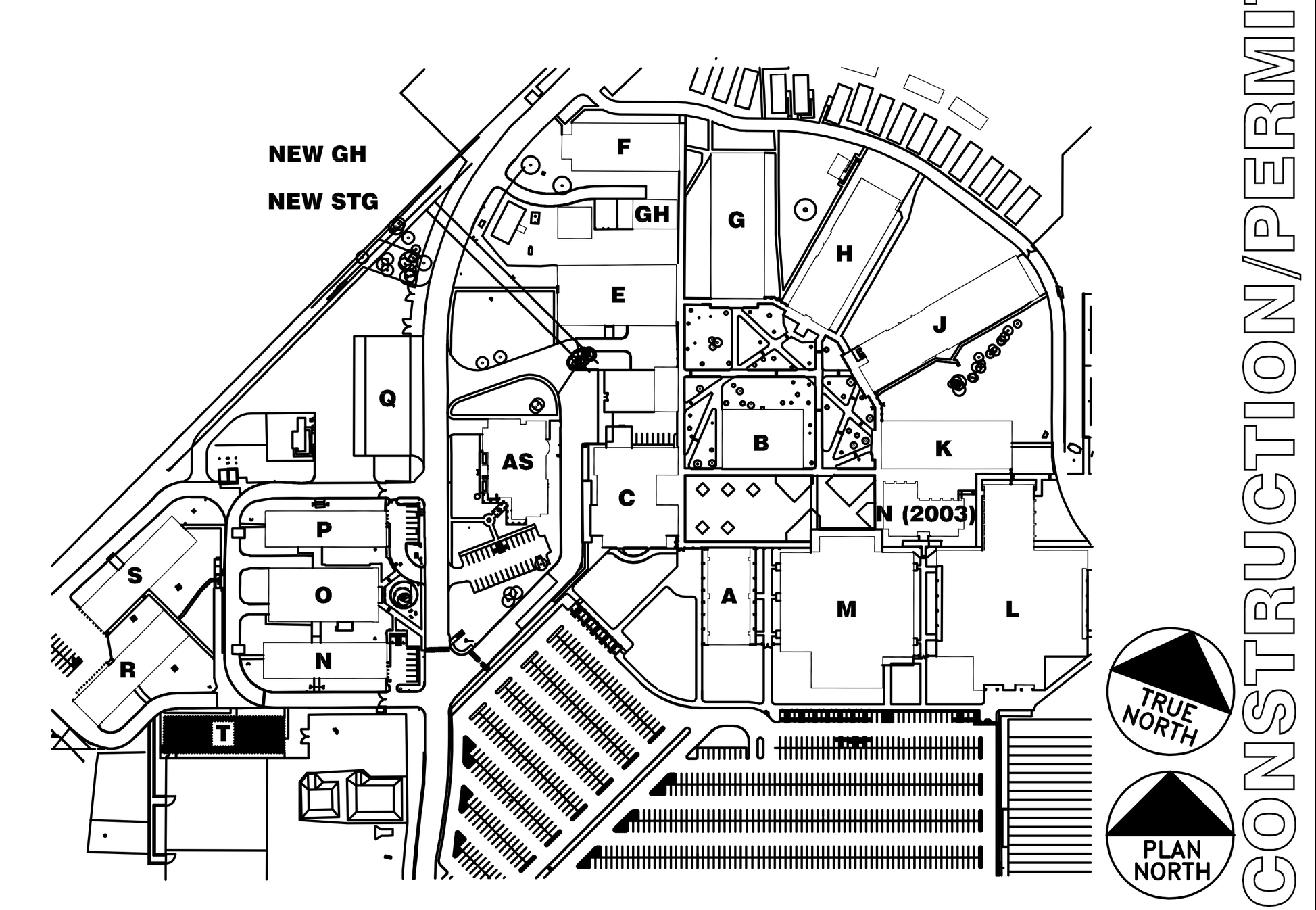
E. FANS SHALL BE INSTALLED IN COMPLETE COORDINATION WITH OTHER TRADES. LIGHTING, FANS, RADIANT HEATERS, AND PIPING SHALL BE INSTALLED AT THE SAME ELEVATION, WHERE CONFLICTS EXIST, PIPING SHALL BE ABOVE RADIANT HEATERS AND BELOW CIRCULATION FANS.

PLUMBING KEYED NOTES:

1. EXISTING DRAIN LOCATIONS TO REMAIN UNDISTURBED.
2. CONNECT NEW 1" CW LINE TO EXISTING.
3. NEW GAS ENTRY TO BUILDING. CONTRACTOR TO PROVIDE NEW GAS REGULATOR FROM 2PSI TO 11"WC. GAS TOTAL DEMAND OF 1000 CFH. FARTHEST UNIT HEATER FROM REGULATOR AT APPROXIMATELY 350'.
4. REFER TO SITE PLAN FOR GAS CONTINUATION.
5. 3/4" CW DOWN TO HOSE BIBB. RE: DETAIL 37/P602. (1)
6. PROVIDE TAIL PIECE UNDER SINK FOR CONDENSATE DRAIN.
7. LIFT STATION SEP-1. REFER TO FIXTURE SCHEDULE FOR MORE INFORMATION AND ELECTRICAL DRAWINGS FOR RACK/CONTROL LOCATION.
8. CONTRACTOR TO PROVIDE PLUG VALVE, UNION, STRAINER AND DIRT LEG AT EQUIPMENT. MAKE ALL CONNECTIONS REQUIRED BY MANUFACTURER. (1)
9. COLD & HOT WATER DROP TO FIXTURES; SIZE AS NOTED.
10. COLD WATER DROP TO FIXTURES; SIZE AS NOTED.



1 P201T PLUMBING PLAN - BLDG T
1/8"=1'-0"



CONSTRUCTION/PERMIT DOCUMENTS

NORTHSIDE INDEPENDENT SCHOOL DISTRICT

DBR
9601 McAllister Freeway, Suite 410
San Antonio, Texas 78216
210.546.0200 v 210.546.0201 f
TBPE Firm Registration NO. 2234
DBR Project Number 236013.000
BV | SK | DC | AM | –

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

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knrgarch.com
KNRG ARCH 1921

Project No.:	2212049
Drwn. By:	DBR
Chkd By:	DBR
Date Issued:	09/06/23
Revisions:	
1. ADD 1	09/19/2023
3. PR006	04/30/2024

PLUMBING PLAN - BLDG T

P201T

STATION OPERATION LEVELS		
RISING LEVEL CYCLE		
WATER LEVEL ELEVATION	ACTION	PUMPS IN OPERATION
2.75'	LEAD PUMP TURNS "ON", FS-2	LEAD PUMP "ON"
3.25'	LAG PUMP TURNS "ON", FS-3	LEAD & LAG PUMPS "ON"
3.75'	HIGH WATER "ALARM" LEVEL, FS-4	HIGH LEVEL ALARM "ON"
FALLING LEVEL CYCLE		
3.75'	HIGH WATER ALARM, FS-4	HIGH LEVEL ALARM "OFF"
1.00'	PUMPS "OFF" LEVEL, FS-1	ALL PUMPS "OFF" LAG PUMP SWITCHES TO LEAD PUMP

PUMP CYCLE TIME AND WET WELL VOLUME CALCULATIONS

TABLE C.5: MINIMUM PUMP CYCLE TIME (< 50 HP): 6 MINUTES

EQUATION C.4: MINIMUM WET WELL (ACTIVE) VOLUME

V = T X Q / 4 X 7.48
V = 6 MINUTES X 80 GPM PUMP CAPACITY / (4 X 7.48)
V = 16.043 CUBIC FEET

BASIN IS 48" DIAMETER AND PROVIDES 12.566 CUBIC FEET PER FOOT OF DEPTH 1'-9" DEEP OF ACTIVE VOLUME IS PROVIDED BETWEEN "PUMP OFF" LEVEL AND "LEAD PUMP ON" LEVEL: 1'-9" X 12.566 CF PER FOOT OF DEPTH = 21.991 CF

21.991 CF PROVIDED > 16.043 CF MINIMUM ACTIVE VOLUME

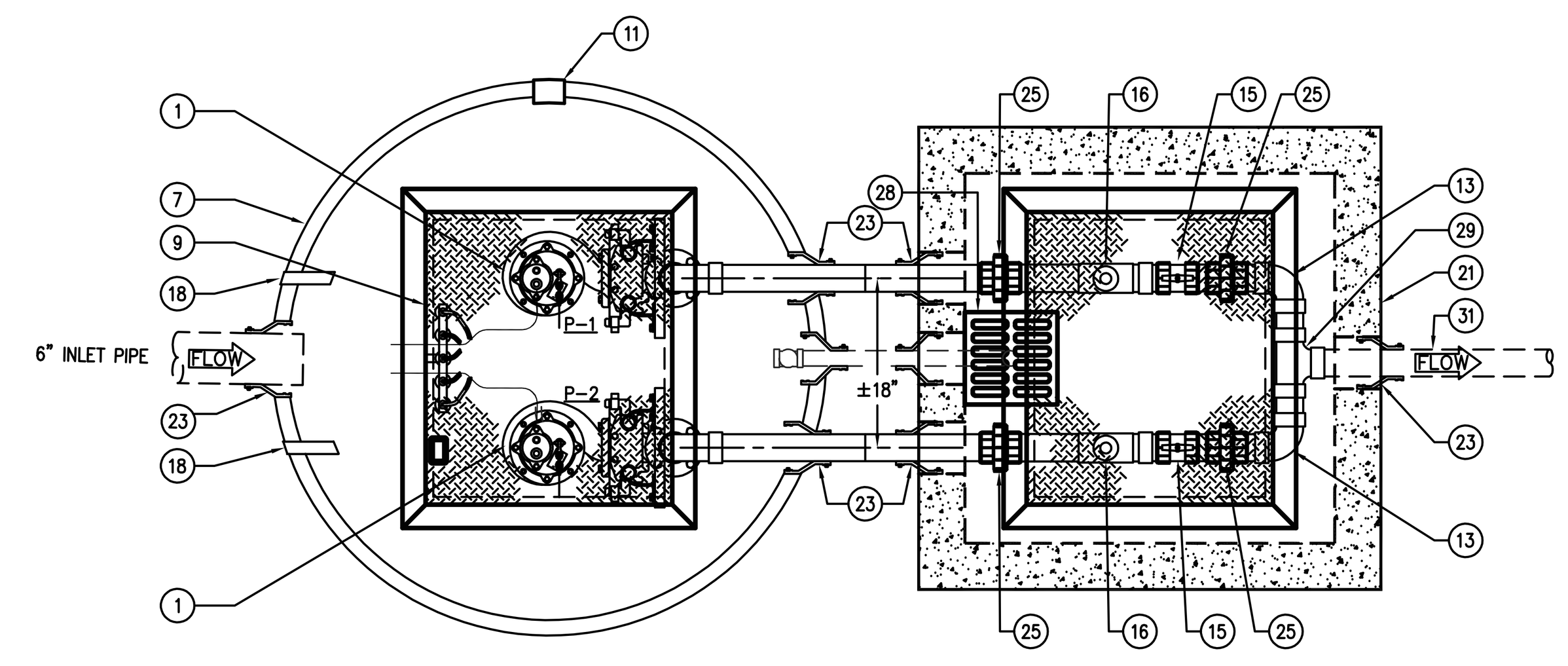
SPECIFICATION

PUMPS:
PUMPS SHALL BE STAINLESS STEEL BLADED SLICER TYPE WITH SUBMERSIBLE TYPE MOTOR. PUMPS SHALL HAVE THE CAPACITY AS FOLLOWS:

PUMP No.	TYPE	GPM	TDH	RPM	ELECTRICAL HP	V	PH	Hz	MANUFACTURER, MODEL, DESCRIPTION
P-1	SLICER	80	17.4	1750	2	208	3	60	WEIL MODEL 2533 PUMPS, DUPLEXED WITH MODEL 3613-3K7022 REMOVAL SYSTEM AND ALTERNATING CONTROL PANEL MODEL 8151-T-200
P-2	SLICER	80	17.4	1750	2	208	3	60	

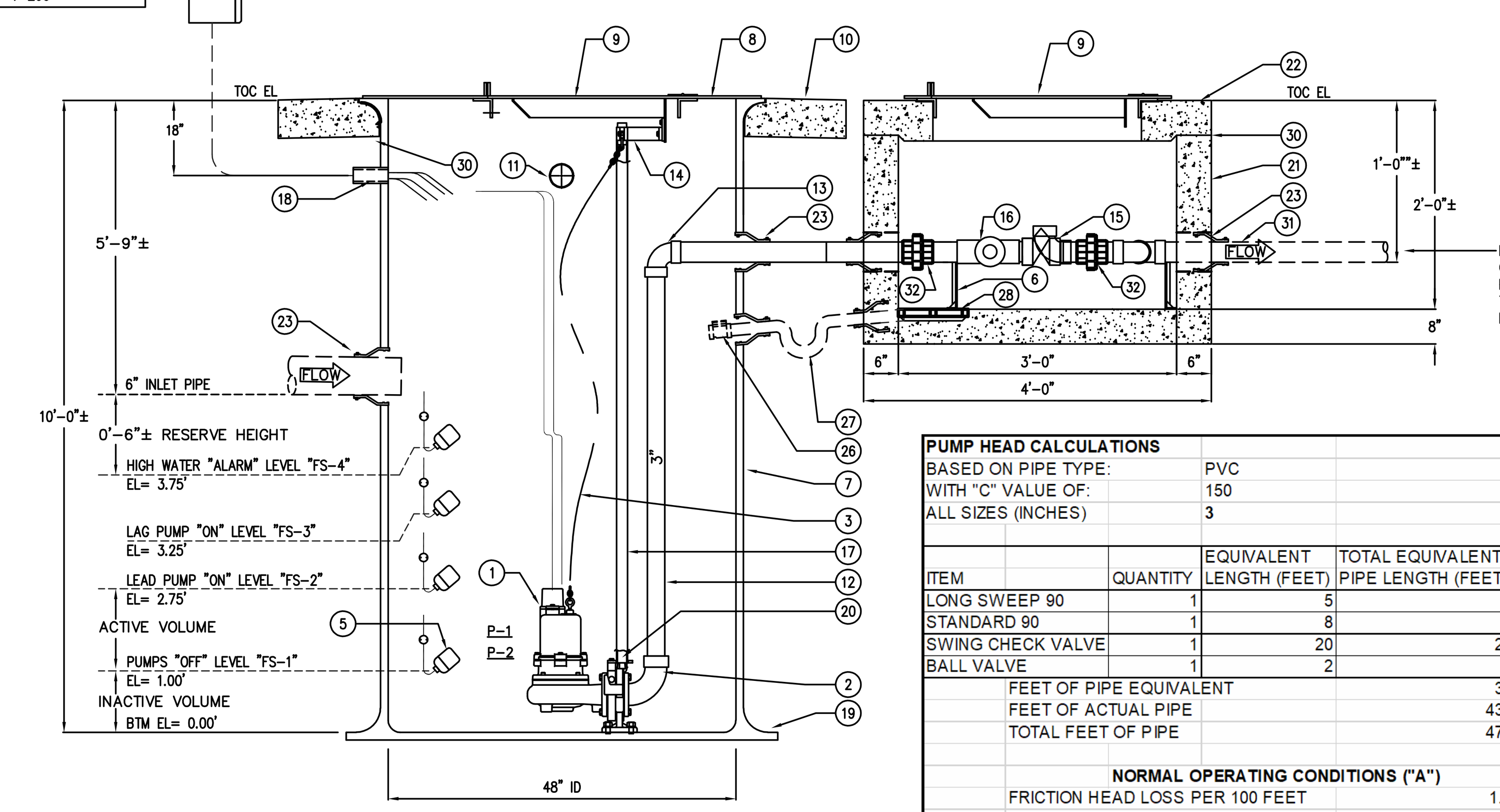
CONTROLS:
PUMP CONTROLS SHALL BE MOUNTED INSIDE A UL LISTED NEMA-4X ENCLOSURE AND INCLUDE CIRCUIT BREAKERS, ALARM CIRCUIT FUSE, IEC RATED MOTOR STARTER, PUMP HOA, AND ALTERNATOR RELAY. PANEL SHALL HAVE A VISUAL ALARM BEACON. PANEL IS DESIGNED FOR REMOTE MOUNTING.

BASIN AND LID:
AK INDUSTRIES MODEL NO. GB-48-200, FIBERGLASS BASIN WITH ROUND HEAVY DUTY ANTI FLOTATION COLLAR. 48" ROUND X 120" TALL. PROVIDE LID BY AK INDUSTRIES, MODEL NO. LB-48HDC ALUMINUM ROUND HINGED DOOR COVER.



PLAN VIEW

KEYED NOTES		
MARK	QTY	DESCRIPTION
1	2	SUBMERSIBLE PUMP (AS SCHEDULED)
2	2	3" OUTLET AND BASE ELBOW
3	2	STAINLESS STEEL CHAINS
4	1	DUPLEX CONTROL PANEL NEMA 4X, WIRED & MOUNTED BY CONTRACTOR, VERIFY FINAL LOCATION IN FIELD
5	4	FLOAT SWITCH
6	3	GALVANIZED PIPE SUPPORTS
7	1	WET WELL, SIZED AS INDICATED
8	1	FIBERGLASS BASIN COVER
9	2	HINGED ALUMINUM ACCESS DOOR FASTENED TO BASIN/VAULT, WITH DROP HANDLES, HOLD OPEN BAR AND LOCKING PROVISIONS
10	1	REINFORCED CONCRETE COLLAR
11	1	4" COUPLING FOR VENT PIPE. RE: PLANS
12	2	3" SCH 80 PVC PIPE
13	2	3" SCH 80 PVC 90° ELBOW
14	2	SS UPPER GUIDE BRACKETS
15	2	3" BRONZE FULL PORT BALL VALVE
16	2	3" BRONZE SWING CHECK VALVE
17	4	SS GUIDE RAILS
18	2	3" CONDUIT, PENETRATION SEALED GASTIGHT
19	–	ANTI-FLOTATION COLLAR OF BASIN
20	2	PUMP LIFT-OUT SYSTEM ASSEMBLY
21	1	36" SQ x 2'-0" DEEP VALVE VAULT, PRECAST CONCRETE (SHOWN) OR FIBERGLASS
22	1	6" THICK VALVE VAULT LID
23	8	RESILIENT RUBBER BOOT, GASTIGHT SEAL
25	4	3" SCH 80 PVC UNION
26	1	2" BACKWATER VALVE
27	1	2" VALVE VAULT DRAIN
28	1	12"x12"x3" DEEP SUMP w/ CAST IRON GRATE
29	1	3" SCH 80 PVC TEE
30	–	ALL JOINTS MADE GAS-TIGHT w/ PLASTIC FLEXIBLE GASKET (RAM-NEK)
31	1	3" PVC FORCE MAIN LINE CONTINUED ON SITE



ELEVATION

F-0591 LIFT STATION FORCE MAIN CONSTRUCTION NOTES

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
LIFT STATION AND FORCE MAIN
GENERAL CONSTRUCTION NOTES

EDWARDS AQUIFER PROTECTION PROGRAM CONSTRUCTION NOTES – LEGAL DISCLAIMER

THE FOLLOWING/LISTED "CONSTRUCTION NOTES" ARE INTENDED TO BE ADVISORY IN NATURE ONLY AND DO NOT CONSTITUTE AN APPROVAL OR CONDITIONAL APPROVAL BY THE EXECUTIVE DIRECTOR (ED), NOR DO THEY CONSTITUTE A COMPREHENSIVE LISTING OF RULES OR CONDITIONS TO BE FOLLOWED DURING CONSTRUCTION. FURTHER ACTIONS MAY BE REQUIRED TO ACHIEVE COMPLIANCE WITH TCEQ REGULATIONS FOUND IN TITLE 30, TEXAS ADMINISTRATIVE CODE (TAC), CHAPTERS 213 AND 217, AS WELL AS LOCAL ORDINANCES AND REGULATIONS PROVIDING FOR THE PROTECTION OF WATER QUALITY. ADDITIONALLY, NOTHING CONTAINED IN THE FOLLOWING/LISTED "CONSTRUCTION NOTES" RESTRICTS THE POWERS OF THE ED, THE COMMISSION OR ANY OTHER GOVERNMENTAL ENTITY TO PREVENT, CORRECT, OR CURTAIL ACTIVITIES THAT RESULT OR MAY RESULT IN POLLUTION OF THE EDWARDS AQUIFER OR HYDROLOGICALLY CONNECTED SURFACE WATERS. THE HOLDER OF ANY EDWARDS AQUIFER PROTECTION PLAN CONTAINING "CONSTRUCTION NOTES" IS STILL RESPONSIBLE FOR COMPLIANCE WITH TITLE 30, TAC, CHAPTERS 213 OR ANY OTHER APPLICABLE TCEQ REGULATION, AS WELL AS ALL CONDITIONS OF AN EDWARDS AQUIFER PROTECTION PLAN THROUGH ALL PHASES OF PLAN IMPLEMENTATION. FAILURE TO COMPLY WITH ANY CONDITION OF THE ED'S APPROVAL, WHETHER OR NOT IN CONTRADICTION OF ANY "CONSTRUCTION NOTES", IS A VIOLATION OF TCEQ REGULATIONS AND ANY VIOLATION IS SUBJECT TO ADMINISTRATIVE RULES, ORDERS, AND PENALTIES AS PROVIDED UNDER TITLE 30, TAC § 213.10 (RELATING TO ENFORCEMENT). SUCH VIOLATIONS MAY ALSO BE SUBJECT TO CIVIL PENALTIES AND INJUNCTION. THE FOLLOWING/LISTED "CONSTRUCTION NOTES" IN NO WAY REPRESENT AN APPROVED EXCEPTION BY THE ED TO ANY PART OF TITLE 30 TAC, CHAPTERS 213 AND 217, OR ANY OTHER TCEQ APPLICABLE REGULATION.

1. THIS LIFT STATION AND/OR FORCE MAIN MUST BE CONSTRUCTED IN ACCORDANCE WITH 30 TEXAS ADMINISTRATIVE CODE (TAC) §213.5(C), THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) EDWARDS AQUIFER RULES, AND ANY LOCAL GOVERNMENT STANDARD SPECIFICATIONS.

2. ANY MODIFICATION TO THE ACTIVITIES DESCRIBED IN THE REFERENCED LIFT STATION/FORCE MAIN (LSFM) SYSTEM APPLICATION FOLLOWING THE DATE OF APPROVAL MAY REQUIRE THE SUBMITTAL OF A LSFM SYSTEM APPLICATION TO MODIFY THIS APPROVAL, INCLUDING THE PAYMENT OF APPROPRIATE FEES AND ALL INFORMATION NECESSARY FOR ITS REVIEW AND APPROVAL.

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. UPON COMPLETION OF ANY LIFT STATION EXCAVATION, A GEOLOGIST MUST CERTIFY THAT THE EXCAVATION HAS BEEN INSPECTED FOR THE PRESENCE OF SENSITIVE FEATURES. THE CERTIFICATION MUST BE SIGNED, SEALED, AND DATED BY THE GEOLOGIST PREPARING THE CERTIFICATION. CERTIFICATION THAT THE EXCAVATION HAS BEEN INSPECTED MUST BE SUBMITTED TO THE APPROPRIATE REGIONAL OFFICE.
   - IF SENSITIVE FEATURE(S) ARE IDENTIFIED, ALL REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MUST BE SUSPENDED IMMEDIATELY AND MAY NOT PROCEED UNTIL THE EXECUTIVE DIRECTOR HAS REVIEWED AND APPROVED THE METHODS PROPOSED TO PROTECT ANY SENSITIVE FEATURE AND THE EDWARDS AQUIFER FROM POTENTIALLY ADVERSE IMPACTS TO WATER QUALITY FROM THE LIFT STATION.
   - CONSTRUCTION MAY CONTINUE IF THE GEOLOGIST CERTIFIES THAT NO SENSITIVE FEATURE OR FEATURES WERE PRESENT.

5. 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 DISCOVERY. A GEOLOGIST'S ASSESSMENT OF THE LOCATION AND EXTENT OF THE FEATURE DISCOVERED MUST BE REPORTED TO THAT REGIONAL OFFICE IN WRITING WITHIN TWO WORKING DAYS. 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 EXECUTIVE DIRECTOR HAS REVIEWED AND APPROVED THE METHODS PROPOSED TO PROTECT THE SENSITIVE FEATURE AND THE EDWARDS AQUIFER FROM ANY POTENTIALLY ADVERSE IMPACTS TO WATER QUALITY WHILE MAINTAINING THE STRUCTURAL INTEGRITY OF THE LINE.

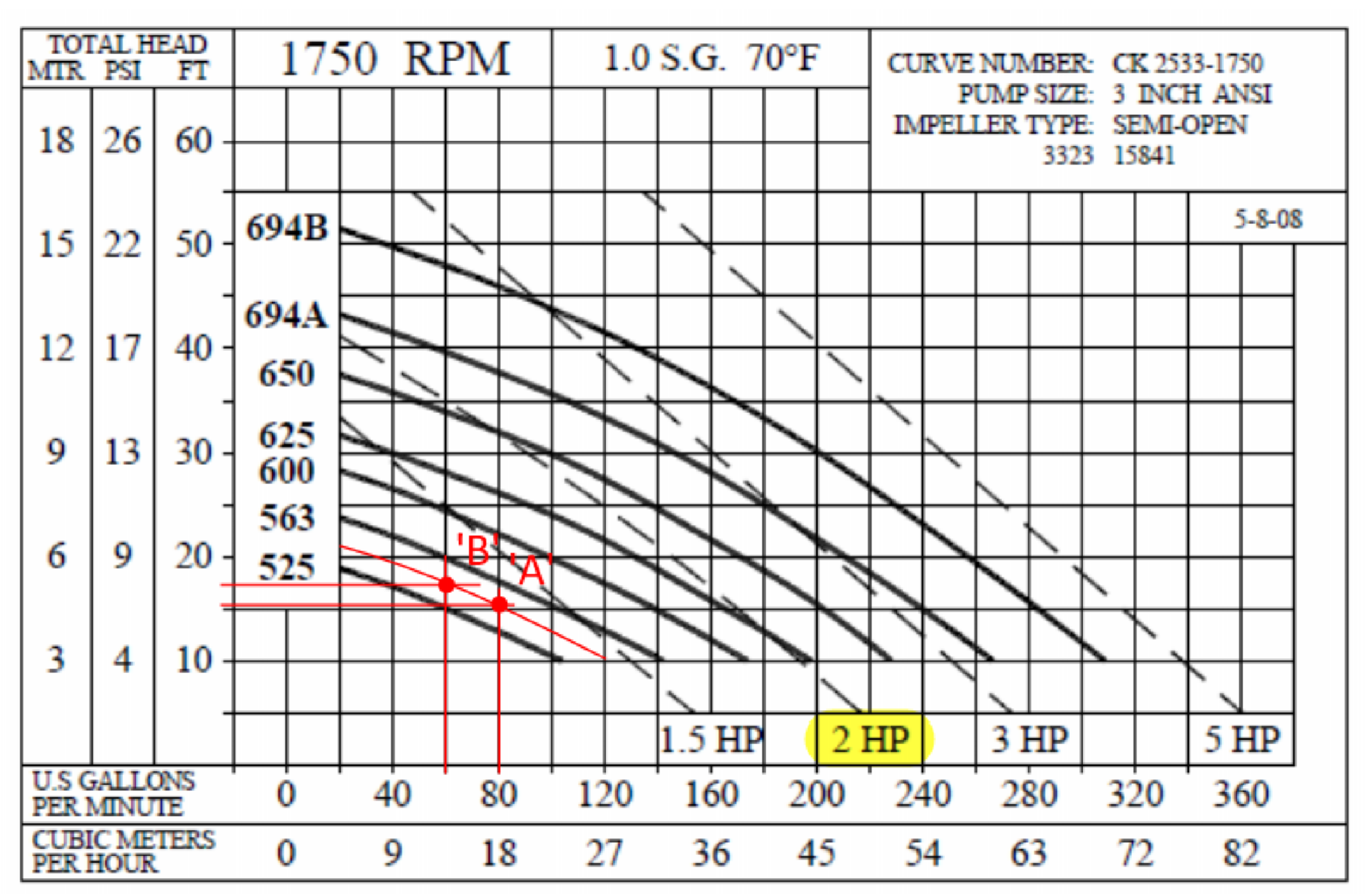
6. ALL FORCE MAIN LINES MUST BE TESTED IN ACCORDANCE WITH 30 TAC §217.68. TESTING METHOD WILL BE:
   - A PRESSURE TEST MUST USE 50 POUNDS PER SQUARE INCH ABOVE THE NORMAL OPERATING PRESSURE OF A FORCE MAIN.
   - A TEMPORARY VALVE FOR PRESSURE TESTING MAY BE INSTALLED NEAR THE DISCHARGE POINT OF A FORCE MAIN AND REMOVED AFTER A TEST IS SUCCESSFULLY COMPLETED.
   - A PUMP ISOLATION VALVE MAY BE USED AS AN OPPOSITE TERMINATION POINT.
   - A TEST MUST INVOLVE FILLING A FORCE MAIN WITH WATER.
   - A PIPE MUST HOLD THE DESIGNATED TEST PRESSURE FOR A MINIMUM OF 4.0 HOURS.
   - THE LEAKAGE RATE MUST NOT EXCEED 10.0 GALLONS PER INCH DIAMETER PER MILE OF PIPE PER DAY.

AUSTIN REGIONAL OFFICE
12100 PARK 35 CIRCLE, BUILDING A
AUSTIN, TEXAS 78753-1808
PHONE (512) 339-2929
FAX (512) 339-3795

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

THESE LIFT STATION AND FORCE MAINS CONSTRUCTION NOTES MUST BE INCLUDED ON THE CONSTRUCTION PLANS PROVIDED TO THE CONTRACTOR AND ALL SUBCONTRACTORS.

TCEQ-0591 (REV. 2-26-2016)



NORMAL CONDITION ("A"):
SINGLE PUMP MOVING 80 GPM THROUGH 3" LINE ENCOUNTERING 15.6' HEAD

PEAK CONDITION ("B"):
BOTH PUMPS RUNNING. EACH CAN MOVE 50 GPM THROUGH THE 3" LINE AND EACH PUMP CAN ACCOMMODATE 17.4' HEAD

PUMP HEAD CALCULATIONS			
BASED ON PIPE TYPE:	PVC		
WITH "C" VALUE OF:	150		
ALL SIZES (INCHES)	3		
ITEM	QUANTITY	EQUIVALENT LENGTH (FEET)	TOTAL EQUIVALENT PIPE LENGTH (FEET)
LONG SWEEP 90	1	5	5
STANDARD 90	1	8	8
SWING CHECK VALVE	1	20	20
BALL VALVE	1	2	2
FEET OF PIPE EQUIVALENT			35
FEET OF ACTUAL PIPE			435
TOTAL FEET OF PIPE			470
NORMAL OPERATING CONDITIONS ("A")			
FRICTION HEAD LOSS PER 100 FEET			1.4 AT 80 GPM
FRICTION HEAD, CALCULATED (FEET)			6.58
STATIC HEAD (FEET)			9
TOTAL DYNAMIC HEAD (FEET)			15.58
PEAK OPERATING CONDITIONS ("B")			
FRICTION HEAD LOSS PER 100 FEET			2.11 AT 100 GPM
FRICTION HEAD, CALCULATED (FEET)			9.92
STATIC HEAD (FEET)			9
TOTAL DYNAMIC HEAD (FEET)			18.92

GAS LOAD BREAKDOWN

ITEM	BTU	CFH @ 1000 BTU/CF
NEW ADMIN BUILDING:		
NEW MUA UNIT	150,000	150.0
NEW KITCHEN RANGE	189,000	189.0
GAS WATER HEATERS (120 CFH EA) * 2	240,000	240.0
NEW BUILDING Q:		
NEW IRH & GUH UNITS (125*4+75*4+100*2)	1,000,000	1,000.0
NEW BUILDING T:		
NEW IRH UNITS (125CFH EA) *8	1,000,000	1,000.0
NEW GREEN HOUSE:		
NEW IRH UNITS (125CFH EA) *2	250,000	250.0
NEW ADDITION LOAD	2,829,000	2,829.0
FUTURE BUILDING U:		
FUTURE IRH UNITS (125CFH EA) *8	1,000,000	1,000.0
EXISTING BUILDING N:		
EXISTING IRH UNITS (125CFH EA) *7	875,000	875.0
EXISTING BUILDING P:		
EXISTING IRH UNITS (150CFH EA) *7	1,050,000	1,050.0
EXISTING BUILDING S:		
EXISTING IRH UNITS (150CFH EA) *8	1,200,000	1,200.0
EXISTING BUILDING BOILER ROOM:		
(E) MECH BOILERS B-1A & B-1B (5,231CFH EA) *2	10,426,000	10,426.0
EXISTING DOMESTIC BOILER	2,000,000	2,000.0
EXISTING EMERGENCY GENERATOR	795,000	795.0
EXISTING LOAD TO REMAIN	16,346,000	16,346.0
NEW LOAD + EXISTING LOAD TO REMAIN	20,175,000	20,175.0
EXISTING BUILDING Q *DEMO*:		
EXISTING EQUIPMENT:	200,000	200.0

TOTAL DEVELOPED LENGTH = 1350 FEET APPROXIMATELY FROM METER TO NEW BLDG T.

EXISTING METER: 11M175. 11,000 CFH MAX. 17.5 PSI
EXISTING DISTRIBUTION 2PSI 4" MAIN LINE
NEW 2" BRANCH TO BE PROVIDED AT 2PSI PRESSURE
VALUE DETERMINED FROM IFGC 2021 TABLE 402.4 (5)

ELECTRIC WATER HEATERS

ITEM NO.	TOTAL KW INPUT	GALS. PER HR. RECOVERY RATE 80°F RISE	STORAGE CAPACITY (GALLONS)	ELECTRICAL REQUIRED	STORED WATER TEMP(°F)	MANUFACTURER, MODEL,
EWH-1Q	3.0	15	20	208V, 1Ø	110°	A.O.SMITH, HEAVY DUTY COMMERCIAL HEATER MODEL DSE-20, 3KW, SINGLE PHASE.
EWH-1T	3.0	15	20	208V, 1Ø	110°	A.O.SMITH, HEAVY DUTY COMMERCIAL HEATER MODEL DSE-20, 3KW, SINGLE PHASE.

NUMBERED COMMENTS:

1. PROVIDE A HOT WATER EXPANSION TANK DOWNSTREAM OF THE CHECK VALVE ON THE COLD WATER SUPPLY TO THE HEATER. REFER TO SIZE IN PLUMBING FIXTURE SCHEDULE.
2. HEATER SHALL HAVE ADJUSTABLE, ONE TEMPERATURE CONTROL AND MANUAL RESET HIGH TEMPERATURE CUT-OFF PER ELEMENT.
3. GLASS-LINED TANK SHALL BE CONSTRUCTED TO A MINIMUM 150 PSI WORKING PRESSURE.
4. UNIT SHALL INCLUDE A THREE YEAR LIMITED TANK WARRANTY.
5. UNIT SHALL INCLUDE A BRASS DRAIN VALVE AND ASME RATED T&P RELIEF VALVE.
6. UNIT SHALL INCLUDE AN ASME RATED T&P RELIEF VALVE.
7. PROVIDE HEATER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS (INCLUDING CLEARANCE REQUIREMENTS) AND THE AHJ.

NATURAL GAS WATER HEATERS

ITEM NO.	BTU/HR. INPUT	GALLONS/HOUR RECOVERY RATE @ 80°F RISE	STORAGE CAPACITY GALLONS	ELECTRICAL REQUIRED	HEATED WATER TEMP	MANUFACTURER COMMENT
GWH-1	120,000	173	60	120V/1PH	140°	AOSMITH No. BTH-120, 95% THERMAL EFFICIENCY. PROVIDE CONCENTRIC VENT KIT: 9003910105.
GWH-2	120,000	173	60	120V/1PH	140°	AOSMITH No. BTH-120, 95% THERMAL EFFICIENCY. PROVIDE CONCENTRIC VENT KIT: 9003910105.

NOTES:

1. PROVIDE HEATER WITHOUT ASME CONSTRUCTION.
2. PROVIDE HEATER WITH MINIMUM 95% THERMAL EFFICIENCY.
3. PROVIDE HEATER WITH LCD DISPLAY AND CONTROL SYSTEM WHICH OFFERS DETAILED STATUS INFORMATION, BUILT-IN DIAGNOSTICS, RUN HISTORY INFORMATION, AND CAPABILITY FOR REMOTE MONITORING.
4. PROVIDE HEATER WITH MAINTENANCE-FREE POWERED ANODES.
5. PROVIDE HEATER WITH 160 PSI MAXIMUM WORKING HYDROSTATIC PRESSURE.
6. PROVIDE HEATER WITH MANUFACTURER'S CONDENSATE NEUTRALIZER KIT.
7. PROVIDE HEATER WITH DIRECT VENTING AND VENT PIPING IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND LOCAL CODE REQUIREMENTS.
8. PROVIDE HEATER WITH MANUFACTURER'S INLET AND OUTLET MANIFOLD KIT.
9. PROVIDE A SINGLE HOT WATER EXPANSION TANK TO SERVE HEATERS STATION, DOWNSTREAM OF THE CHECK VALVE ON THE COLD WATER SUPPLY TO THE HEATERS. THEM-X-TROL (SEE PLUMBING FIXTURE SCHEDULE FOR SIZE).

RECIRCULATING PUMP SCHEDULE

MARK	SERVICE	GPM	TOTAL HEAD FT	MOTOR HP	ELECTRICAL VOLTS	PHASE	HERTZ	REMARKS
CP-1	HW RECIRC. Q BLDG	5	15'	1/25	120	1	60	GRUNDFOS No. UP15-42B5, ALL BRONZE FLANGED PUMP, FITTED WITH REMOTE HEAT SENSING AQUASTAT CONTROLLER WITH SHUT-OFF TIMER TS-1.
CP-2	HW RECIRC. ADMIN BLDG	10	20'	1/6	120	1	60	GRUNDFOS No. UP43-75F ALL BRONZE FLANGED PUMP, FITTED WITH REMOTE HEAT SENSING AQUASTAT CONTROLLER WITH SHUT-OFF TIMER TS-1.

WATER SOFTENER SCHEDULE

MARK	SERVICE	CAPACITY (GRAINS) MAX	MIN	PIPE SIZE SERVICE	DRAIN	SERVICE FLOW RATE (GPM) CONTINUOUS	PEAK	BACKWASH FLOW RATE (GPM)	RESIN VOLUME (CU.FT.)	REMARKS
WS-1	KITCHEN	300,000	200,000	2"	3/4"	68	93	15	10.0	HEAT & TREAT MODEL: HT42-0300-20. SOFTENER TANK: 24"x 72". BRINER TANK: 24" X 54". SALT STORAGE OF 580 LBS. FLOOR SPACE REQUIREMENTS: L:54", W:24", H:87". SHIPPING WEIGHT: 936 LBS. PROVIDE BFP-2 BETWEEN DOMESTIC SUPPLY AND SOFTENER.

PLUMBING PIPE MATERIALS SCHEDULE

PIPING SYSTEM	PIPING MATERIAL
SANITARY DRAINS AND VENTS INSIDE BELOW GROUND	SCHEDULE 40 PVC DWV
SANITARY DRAINS AND VENTS INSIDE BUILDING AND ABOVE GROUND	CAST IRON NO-HUB DWV
GREASE WASTE AND VENTS	CAST IRON HUB AND SPIGOT (2)
STORM DRAINS BELOW GROUND	SCHEDULE 40 PVC DWV
STORM DRAINS INSIDE BUILDING ABOVE GROUND	CAST IRON NO-HUB DWV
DOMESTIC HOT & COLD WATER INSIDE BUILDING AND ABOVE GROUND	COPPER, TYPE "L" HARD DRAWN
DOMESTIC HOT & COLD WATER INSIDE BUILDING AND BELOW GROUND	COPPER, TYPE "K" SOFT ANNEALED NO JOINTS
DOMESTIC WATER AT ENTRY	COPPER, TYPE "K" HARD DRAWN
DOMESTIC COLD WATER ABOVE GROUND FOR BARNS	GALVANIZED STEEL PIPE
NATURAL GAS 2-1/2" AND LARGER	WELDED BLACK STEEL, SCHEDULE 40
NATURAL GAS 2" AND SMALLER	THREADED BLACK STEEL, SCHEDULE 40
NATURAL GAS UNDERGROUND	YELLOW POLYETHYLENE SOCKET HEAT FUSION
FIRE SPRINKLER BELOW GROUND	C900
FIRE SPRINKLER ABOVE GROUND – 2" AND SMALLER	BLACK STEEL SCHEDULE 40
FIRE SPRINKLER ABOVE GROUND – 2-1/2" AND LARGER	BLACK STEEL SCHEDULE 10
COMPRESSED AIR	GALVANIZED STEEL PIPE

Grease Interceptor Sizing Worksheet "O'connor"				
Fixture Type	Trap Arm Size	Fixture Units FU	Quantity	Extended
3-Compartment Sink - 4" Floor Sink	2"	6	1	6
2-Compartment Sink - 1.5" arm	1-1/2"	2	1	2
Mop Sink	3"	5	1	5
Hand Sink	1-1/4"	1	9	9
Floor Drain - 3"	3"	5	5	25
Floor Sink - 3"	3"	5	8	40
Trench Drain	4"	6	1	6
Floor sink - 4"	4"	6	2	12
Other (Can Wash)	3"	5	1	5
Emergency Trench drain	3"	2.5	25	63
				173
		Grease		GT - 2000

Gravity Grease Interceptor Sizing (2021 IPC)		
DFUs	Interceptor Volume (2)	Park Model
216	2,000 gallons	GT - 2000

Published by Park Environmental Equipment Tel 888-611-PARK WWW.PARK-USA.C

NORTHSIDE INDEPENDENT SCHOOL DISTRICT

DBR
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San Antonio, Texas 78216
210.546.0200 v 210.546.0201 f
TBPE Firm Registration No. 2234
DBR Project Number 23-6013.000
BY SK DC AM

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12221 LESLIE ROAD, HELOTES, TX 78023

ZACHARY MORTON 98619 LICENSED 04-30-2024

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Project No.: 2212049
Drwn. By: DBR
Chkd By: DBR
Date Issued: 09/06/23
Revisions:
2. ADD 2 09/28/2023
3. PR006 04/30/2024

CONSTRUCTION/PERMIT DOCUMENTS

PLUMBING SCHEDULES

P502

Texas Commission on Environmental Quality
Lift Station and Force Main
General Construction Notes

Edwards Aquifer Protection Program Construction Notes – Legal Disclaimer

The following/listed "construction notes" are intended to be advisory in nature only and do not constitute an approval or conditional approval by the Executive Director (ED), nor do they constitute a comprehensive listing of rules or conditions to be followed during construction. Further actions may be required to achieve compliance with TCEQ regulations found in Title 30, Texas Administrative Code (TAC), Chapters 213 and 217, as well as local ordinances and regulations providing for the protection of water quality. Additionally, nothing contained in the following/listed "construction notes" restricts the powers of the ED, the commission or any other governmental entity to prevent, correct, or curtail activities that result or may result in pollution of the Edwards Aquifer or hydrologically connected surface waters. The holder of any Edwards Aquifer Protection Plan containing "construction notes" is still responsible for compliance with Title 30, TAC, Chapters 213 or any other applicable TCEQ regulation, as well as all conditions of an Edwards Aquifer Protection Plan through all phases of plan implementation. Failure to comply with any condition of the ED's approval, whether or not in contradiction of any "construction notes," is a violation of TCEQ regulations and any violation is subject to administrative rules, orders, and penalties as provided under Title 30, TAC § 213.10 (relating to Enforcement). Such violations may also be subject to civil penalties and injunction. The following/listed "construction notes" in no way represent an approved exception by the ED to any part of Title 30 TAC, Chapters 213 and 217, or any other TCEQ applicable regulation

1. This lift station and/or force main must be constructed in accordance with 30 Texas Administrative Code (TAC) §213.5(c), the Texas Commission on Environmental Quality (TCEQ) Edwards Aquifer Rules, and any local government standard specifications.

2. Any modification to the activities described in the referenced Lift Station/Force Main (LSFM) System application following the date of approval may require the submittal of a LSFM System application to modify this approval, including the payment of appropriate fees and all information necessary for its review and approval.

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. Upon completion of any lift station excavation, a geologist must certify that the excavation has been inspected for the presence of sensitive features. The certification must be signed, sealed, and dated by the geologist preparing the certification. Certification that the excavation has been inspected must be submitted to the appropriate regional office.
   - If sensitive feature(s) are identified, all regulated activities near the sensitive feature must be suspended immediately and may not proceed until the executive director has reviewed and approved the methods proposed to protect any sensitive feature and the Edwards Aquifer from potentially adverse impacts to water quality from the lift station.
   - Construction may continue if the geologist certifies that no sensitive feature or features were present.

5. 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 discovery. A geologist's assessment of the location and extent of the feature discovered must be reported to that regional office in writing within two working days. 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 executive director has reviewed and approved the methods proposed to protect the sensitive feature and the Edwards Aquifer from any potentially

adverse impacts to water quality while maintaining the structural integrity of the line.

6. All force main lines must be tested in accordance with 30 TAC §217.68. Testing method will be:
   - A pressure test must use 50 pounds per square inch above the normal operating pressure of a force main.
   - A temporary valve for pressure testing may be installed near the discharge point of a force main and removed after a test is successfully completed.
   - A pump isolation valve may be used as an opposite termination point.
   - A test must involve filling a force main with water.
   - A pipe must hold the designated test pressure for a minimum of 4.0 hours.
   - The leakage rate must not exceed 10.0 gallons per inch diameter per mile of pipe per day.

Austin Regional Office 12100 Park 35 Circle, Building A Austin, Texas 78753-1808 Phone (512) 339-2929 Fax (512) 339-3795	San Antonio Regional Office 14250 Judson Road San Antonio, Texas 78233-4480 Phone (210) 490-3096 Fax (210) 545-4329

THESE LIFT STATION AND FORCE MAINS CONSTRUCTION NOTES MUST BE INCLUDED ON THE CONSTRUCTION PLANS PROVIDED TO THE CONTRACTOR AND ALL SUBCONTRACTORS.

Temporary Stormwater Section (TCEQ-0602)

Temporary Stormwater Section

Texas Commission on Environmental Quality

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

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

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

Signature

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

Print Name of Customer/Agent: Paul A. Mathis, P.E., PMP, LEED Green Assoc., MBA

Practice Leader | Senior Associate

Date: 04/15/2024

Signature of Customer/Agent:

Regulated Entity Name: O'C onnor High School Agricultural Science and Technology

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: Helotes Creek

Temporary Best Management Practices (TBMPs)

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

☒ N/A

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

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

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

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

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

Soil Stabilization Practices

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

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

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

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

Administrative Information

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

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

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

Attachment A

Spill Response Actions

The spill response actions are to prevent or reduce the discharge of pollutants to drainage systems or watercourses from leaks and spills by reducing the chance for spills, stopping the source of spills, containing and cleaning up spills, properly disposing of spill materials, and training employees. *Adapted from RG-348, Section 1.4.16.*

Education

- Be aware that different materials pollute in different amounts. Make sure that each employee knows what a "significant spill" is for each material they use, and what is the appropriate response for "significant" and "insignificant" spills.
- Employees should also be aware of when spill must be reported to the TCEQ.
- Educate employees and subcontractors on potential dangers from spills and leaks.
- Incorporate into regular safety meetings the proper disposal procedures.
- Have contractor's superintendent or representative oversee and enforce proper spill prevention and control measures.

General Measures

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

Cleanup

- Clean up leaks and spills immediately.

Minor Spills

- Minor spills typically involve small quantities of oil, gasoline, paint, etc. which can be controlled by the first responder at the discovery of the spill. Use absorbent materials on small spills rather than hosing down or burying the spill. Absorbent materials should be promptly removed and disposed of properly.

- Follow the practice below for a minor spill:
  Contain the spread of the spill.
  Recover spilled materials.
  Clean the contaminated area and properly dispose of contaminated materials.

Semi-Significant Spills

- Semi-significant spills still can be controlled by the first responder along with the aid of other personnel such as laborers and the foreman, etc.
- Spills should be cleaned up immediately:
  - Contain spread of the spill.
  - Notify the project foreman immediately.
  - If the spill occurs on paved or impermeable surfaces, clean up using "dry" methods (absorbent materials, cat litter and/or rags).
  - If the spill occurs in dirt areas, immediately contain the spill by constructing an earthen dike. Dig up and properly dispose of contaminated soil.
  - If the spill occurs during rain, cover spill with tarps or other material to prevent contaminating runoff.

Significant/Hazardous Spills

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

Vehicle and Equipment Maintenance

- If maintenance must occur onsite, use a designated area and a secondary containment, located away from drainage courses, to prevent the runoff of storm water and the runoff of spills. Regularly inspect onsite vehicles and equipment for leaks and repair immediately.
- Check incoming vehicles and equipment (including delivery trucks, and employee and subcontractor vehicles) for leaking oil and fluids. Do not allow leaking vehicles or equipment onsite.
- Always use secondary containment, such as a drain pan or drop cloth, to catch spills or leaks when removing or changing fluids.
- Place drip pans or absorbent materials under paving equipment when not in use.
- Use absorbent materials on small spills rather than hosing down or burying the spill. Remove promptly and dispose of properly.
- Promptly transfer used fluids to the proper waste or recycling drums. Don't leave full drip pans or other open containers lying around.
- Oil filters disposed of in trashcans or dumpsters can leak oil and pollute storm water. Place the oil filter in a funnel over a waste oil-recycling drum to drain excess oil before disposal.
- Store cracked batteries in a non- leaking secondary container.

Vehicle and Equipment Fueling

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

Product Specific Practices

- Petroleum Products: All on site vehicles will be monitored for leaks and will receive regular preventive maintenance to reduce the chance of leakage. If petroleum products will be present at the site, they will be stored in tightly sealed containers which are clearly labeled. Any asphalt substances used on site will be applied according to the manufacturer's recommendations.
- Concrete trucks: Ready/Transit Mix Trucks will not be allowed to wash out or discharge surplus concrete or drum wash water except in the designated location on site as shown on the SW3P site plan.
- Paints: All containers will be tightly sealed and stored when not required for use. Excess paint will not be poured into the storm sewer system or drainage channels, but will be properly disposed of according to manufacturers' instructions or state/local regulations.
- Fertilizers: Fertilizers will be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer will be worked into the soil to limit exposure to storm water. The fertilizer will be stored in a covered area, and any partially used bags will be transferred to a sealable plastic bin to avoid spills.

Attachment B

Potential Sources of Contamination

Potential Sources of Contamination

Potential sources not described in Attachment A.

Potential Source: Stock piled top soil, and fill material.
Preventive Measure: Stock piles shall be placed away from any steep slopes, sensitive features, surface or groundwater. The down gradient side shall be protected with silt fencing.

Potential Source: Miscellaneous litter and debris from construction workers and construction materials.
Preventive Measure: Trash receptacles will be placed on site for proper disposal. Receptacles will be emptied or replaced by a registered trash hauler as necessary.

Potential Source: Petroleum Products (diesel, oil, hydraulic fluid, gun grease).
Preventive Measure: All on site vehicles will be monitored for leaks and will receive regular preventive maintenance to reduce the chance of leakage. No petroleum products will be stored onsite. Service vehicles will come on site to fuel all equipment. All oil, hydraulic fluid, and gun grease will be stored on work or service vehicles in original sealed containers.

Potential Source: Concrete.
Preventive Measure: Concrete trucks: Ready/Transit Mix Trucks will not be allowed to wash out or discharge surplus concrete or drum wash water except in the designated concrete washout area as shown on the SW3P site plan.

Potential Source: Paint.
Preventive Measure: All containers will be tightly sealed and stored when not required for use. Excess paint will not be poured into the storm sewer system or drainage channels, but will be properly disposed of according to manufacturers' instructions or state/local regulations.

Potential Source: Asphalt & Asphaltic Products.
Preventive Measure: All asphalt paving, roofing, and sealers may be brought onsite only as it is being applied. Application will be in accordance to the manufacturer's recommendations and City of San Antonio specifications.

Potential Source: Fertilizer.
Preventive Measure: Fertilizers will be applied only in the minimum amounts recommended by the manufacturer. Revegetated areas that are seeded and fertilized will be protected by a hydraulic mulch, hay and tackifier or binder, or erosion control mat. Fertilizer will not be stored onsite.

Potential Source: Sewage from Portable Toilets and / or Collection Tanks on Construction Trailer.
Preventive Measure: Sewage from the units will be properly removed on a regular basis, will be inspected on a regular basis, and will be disposed of by a licensed waste collection service. Note that any spills should be contained within the respective BMP installed and any spill outside the containment area will be cleaned up in accordance with current state / local regulations as well as reported to TCEQ.

Attachment C

Sequence of Major Activities

Sequence of Major Activities

Construction Sequencing:

A. Installation of Temporary BMPs as shown on the "Storm Water Pollution Prevention Plan (SWPPP)
/ Erosion and Sediment Control Plan, Storm Water Pollution Prevention Plan (SWPPP) Details / Erosion and Sediment Control Details, the Tree Protection Details and the "Water Pollution Abatement Plan sheets.
B. Site clearing including the removal of select trees / trimming of trees and rough grading of the entire proposed site.
C. Excavation and preparation of basins.
D. Demolition of some of the existing areas (sidewalks, curbs, and pavement) and trenching activities for utility and drainage work associated with this project.
E. Excavation and preparation of subgrade.
F. Trenching for services on-site / extension of utilities to the site.
    a. Installation of electric, communication, data, and other dry utility services to the new parking lots.
    b. Installation of water main for domestic and fire protection of the site.
    c. Installation of wet well and vaults in conjunction with the lift station.
    d. Installation of the force main between the valve box vault and sanitary sewer manhole.
    e. Reestablishment of vegetation in areas beyond the parking lot and office building within the construction envelope(s).
G. Excavation and construction of structural footings and foundations for ramps and buildings respectively.
H. Installation of drainage infrastructure.
I. Installation of base material / construction of parking lots and roadway.
J. Erection and construction of building, including finish out while site work is on-going.
K. Installation of concrete curbs.
L. Drill and pour concrete footings for structures such as light standards, cameras, bollards, etc.
M. Application of prime and tack coats.
N. Construction of sidewalks.
O. Installation of asphalt pavement and installation of ADA truncated domes.
P. Finish out items such as erecting light standards and cameras.
Q. Finish grading as indicated on plans.
R. Landscaping / sodding / seeding to reestablish vegetation on all remaining disturbed areas.
S. Removal of temporary BMPs once area is established or when the particular temporary BMP measure is no longer required (i.e. Construction Exit and Concrete Washout Pit)

Attachment D

Temporary Best Management Practices and Measures

Temporary Best Management Practices and Measures

There are no significant recharge features identified by the Geologic Assessment that will be adversely affected by the construction of this project as it is identified on the geological report. Please reference the Geological Assessment attached. Refer to the "Storm Water Pollution Prevention Plan (SWPPP) / Erosion and Sediment Control Plan, Storm Water Pollution Prevention Plan (SWPPP) Details / Erosion and Sediment Control Details, the Tree Protection Details and the "Water Pollution Abatement Plan (WPAP) sheets for BMPs to protect the general site areas, including tree protection measures, during construction activities and after.

Temporary BMPs, such as sediment control rolls, sediment control / silt fencing, gravel filter bags, inlet protection with filter fabric placed around the on-site and adjacent curb inlets, and high service rock berms will be implemented to control the runoff and prevent sediment transport downstream onto the existing roadways, swales, storm drains, and channels until vegetation is reestablished for the area. Silt fencing will be placed downstream in a manner not to exceed 1 acre of contributing area to also trap sediment before reaching the roadway and channels where feasible. Triangular filter dikes will also be used at existing paved areas, such as roadways and sidewalks where silt fence post cannot be installed.

Any upgradient runoff that will enter the site and downstream conditions will be addressed.

Attachment F

Structural Practices

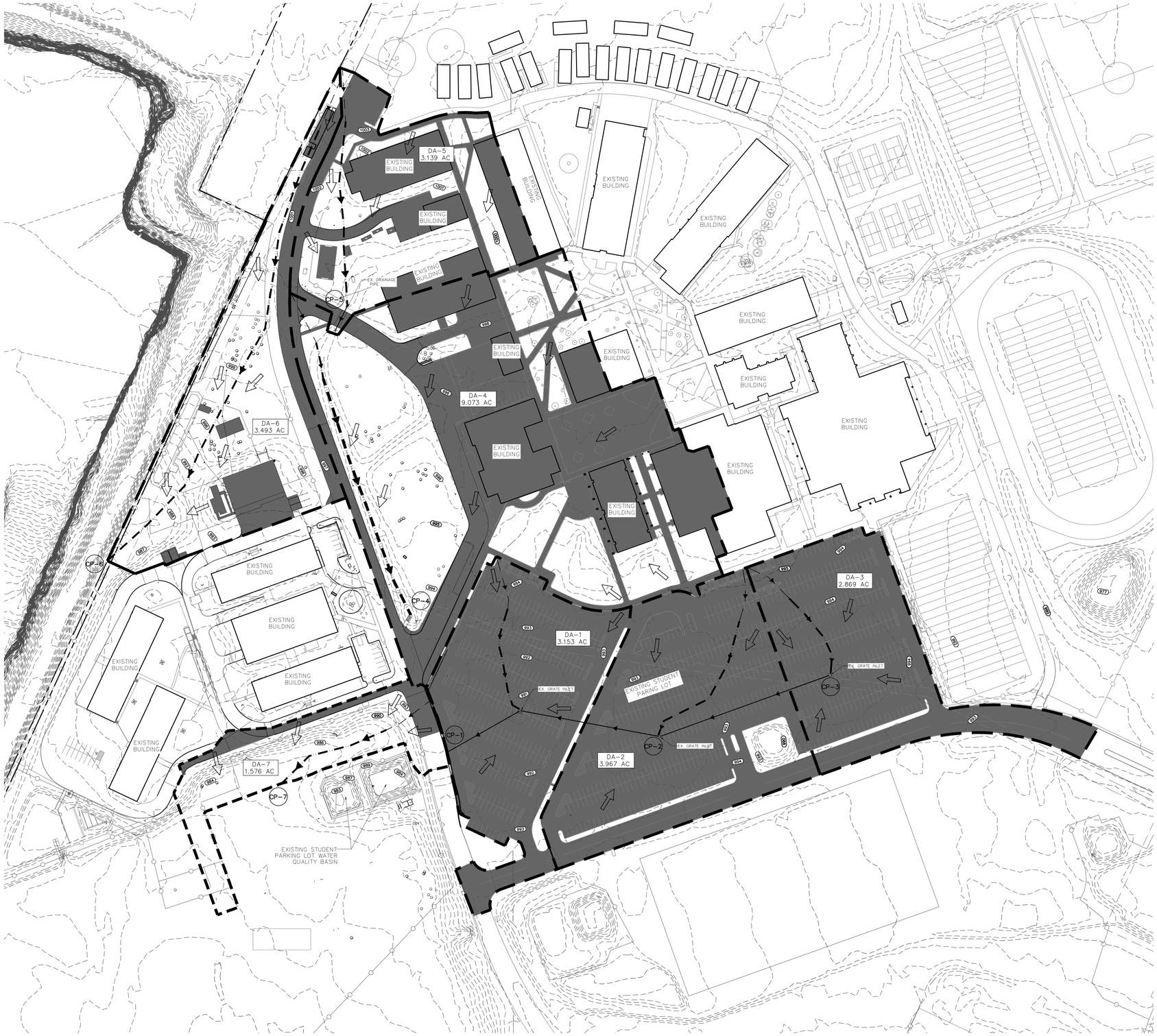
Structural Practices

Refer to Water Pollution Abatement Plan (WPAP), Stormwater Pollution Prevention Plan (SWPPP) / Erosion and Sedimentation Control Plan, Stormwater Pollution Prevention Plan (SWPPP) / Erosion and Sedimentation Control Plan Details.

The permanent BMPs will be excavated and used to trap sediment construction as well as those other details noted above.

Attachment G

Drainage Area Maps



GRAPHIC SCALE

80 0 40 80 160

(IN FEET)
1 INCH = 80 FT

LEGEND

- DA-X X.XXX AC — PROPOSED SUB BASIN NAME
- CP-X — PROPOSED COLLECTION POINT
- PROPOSED DRAINAGE FLOW
- PROPOSED SUBBASIN LIMITS
- PRE-DEVELOPMENT IMPERVIOUS COVER
- 924 — EXISTING CONTOURS
- SHEET FLOW TIME OF CONCENTRATION
- SHALLOW CONCENTRATED TIME OF CONCENTRATION
- CHANNEL TIME OF CONCENTRATION
- PIPE TIME OF CONCENTRATION

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY PAUL A. MATHIS, P.E. NO. #105075 ON: APRIL 16, 2024 DATE

STATE OF TEXAS PAUL A. MATHIS 105075 LICENSED PROFESSIONAL ENGINEER

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Project No.:	762301481
Drwn. By:	LNC
Chkd By:	PAM
Date Issued:	04/16/24
Revisions:	

EXISTING HYDROLOGY PLAN

HYD 1.0

GRAPHIC SCALE

80 0 40 80 160

(IN FEET)
1 INCH = 80 FT

LEGEND

- DA–X X.XXX AC — PROPOSED SUB BASIN NAME
- CP–X — PROPOSED COLLECTION POINT
- PROPOSED DRAINAGE FLOW
- PROPOSED SUBBASIN LIMITS
- POST–DEVELOPMENT IMPERVIOUS COVER
- 924 — EXISTING CONTOURS
- SHEET FLOW TIME OF CONCENTRATION
- SHALLOW CONCENTRATED TIME OF CONCENTRATION
- PIPE TIME OF CONCENTRATION

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY PAUL A. MATHIS, P.E. NO. #105075 ON: APRIL 16, 2024 DATE

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Date Issued:	04/16/24
Revisions:	

PROPOSED HYDROLOGY PLAN

HYD 2.0

Attachment I

Inspection and Maintenance for temporary BMPs

Inspection and Maintenance for Temporary BMP's

There will be several types of Temporary BMPs used for this project: Silt Fencing, Rock Berms, Area Inlet Protection, Gravel Filter Bags, Triangular Dikes, Temporary Construction Entrance/Exit, and a Concrete Washout Pit. Items listed below must be inspected every 7 days and within 24 hours of a rainfall event of 0.5 inches or more. These inspections and if any maintenance is performed on such BMPs, it must be documented within the inspection and maintenance report form and kept on site. The forms can be found at the end of this section.

Silt Fencing, Rock Berms, Area Inlet Protection, Gravel Filter Bags, & Triangular Filter Dikes

Refer to TCEQ "Edwards Aquifer Technical Guidance Manual" RevJul05, pages 1-66 to 1-68 (Silt Fencing), pages 1-72 to 1-74 (Rock Berms), pages 1-89 to 1-92 (Area Inlet Protection), pages 1-98 to 1-100 (Gravel Filter Bags), pages 1-69 to 1-71 (Triangular Filter Dikes), pages 1-63 to 1-65 (Construction Entrance/Exit), pages 1-124 to 1-125 (Concrete Washout) for standards, and also refer to Sheets C01B and C05 through C05D.1 for the Erosion Control Plan and Sheets C05E through C05G for the Erosion Control Details of the construction plans for locations/details/guidance.

Contractor shall maintain log and document following items for silt fencing, rock berms, gravel filter bags, inlet protection, triangular dikes and any other approved temporary BMP:

1) Inspection of all fencing/berms/bags/dikes weekly, and after any rainfall event.
2) Removal of sediment when buildup reaches 6" on any temporary BMP, or the installation of a second line of fencing parallel to the old fence. Dispose of the accumulated silt of in an approved manner.
3) Replacement of any torn fabric or installation of a second line of fencing parallel to the old fence.
4) Replacement/repair of any sections crushed, torn, or collapsed temporary BMPs in the course of construction activity. If a section of fence/berm is obstructing vehicular access, document the relocation to a spot where it will provide equal protection, but will not obstruct vehicles.
5) The contractor may use Triangular Filter Dikes in areas where fencing is impractical due to existing pavement or concrete flatwork.
6) For installations of rock berms in streambeds, additional daily inspections should be made.
7) For rock berms, any lose wire sheathing shall be repaired or replaced as needed and the berm reshaped as needed during inspection.
8) Any rock berms are to be replaced when the structure ceases to function as intended due to silt accumulation among the rocks, washout, construction traffic damage, etc.
9) Any rock berm shall be left in place until all upstream areas are stabilized, and accumulated silt removed.
10) Any gravel filter bags torn allowing gravel to come out of the constraints of the bag shall be replaced immediately.

These temporary BMPs as shown on the “Storm Water Pollution Prevention Plan (SWPPP) / Erosion and Sediment Control Plan / Details” (Sheets C01B and C05 through C05G) and “Water Pollution Abatement Plan (WPAP)” (Sheets WPAP 1, WPAP 2, WPAP 3, and WPAP 4) will intercept any storm water borne pollutants originating onsite, including upstream offsite runoff, therefore preventing them from entering Geological Features, roadways, drainage features, and other drainage structures such as the existing WQBs.

Temporary Construction Entrance/Exit

Contractor shall establish and maintain a Temporary Construction Entrance/Exit throughout the construction period to protect the site from pollutants brought onto the site from other sources or leaving the site. Contractor to insure rocks are maintained free of trash and sediment.

Concrete Washout Pit

Contractor shall insure concrete washout pit is maintained at all times during construction and removed appropriately at the end of construction.

The concrete washout pit will be inspected on a weekly basis and after any rainfall event. The sediment build up will be removed when it reaches 6”. Upon removal the area of the washout pit shall be revegetated to prevent erosion of the area.

Construction Lay Down Area

Contractor shall insure silt fencing, rock berms, area inlet protection, gravel filter bags, triangular dikes, temporary construction entrance/exit, and concrete washout pit are maintained as stated above. This construction lay down area shall be used for construction trailers, supplies storage, machinery, temporary parking, etc. needed for construction. The lay down areas will need to be shown on sheets C05 through C05G or other applicable exhibit by the contractor and these areas will be revegetated upon completion of construction. This includes any off-site laydown area within an existing paved area, it shall be cleaned of any debris or sediment prior to removal of any temporary BMP surrounding it.

Tree Protection

All trees that will remain shall be protected in accordance with the details as shown on Sheet C05F. In addition to the drip line of the trees being fenced as shown within the details, other measures to protect the existing trees and to minimize disturbance are specifically noted in the plans.

Attachment J

Inspection and Maintenance for temporary BMPs

Schedule of Interim and Permanent Soil Stabilization Practices

Interim Practices

All temporary BMPs as described in Attachment I. This also includes the construction of the WQBs to act as the temporary basins during construction.

Permanent Practices

Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. Where the initiation of stabilization measures by the 14th day after construction activity temporary or permanently cease is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable. Where construction activity on a portion of the site is temporarily ceased, and earth disturbing activities will be resumed within 21 days, temporary stabilization measures do not have to be initiated on that portion of 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 seasonal arid conditions, stabilization measures shall be initiated as soon as practicable.

Refer to "Water Pollution Abatement Plan (WPAP) for all areas to be sodded within the project limits that are designated as VFS or earthen channels or at the back of curbs. All other areas are to be landscaped or hydromulched at a minimum, which includes all other offsite disturbed areas associated with this project (utility installation) beyond the parking areas, walkways, and other paved areas. Landscaping plans also accompany the construction plans for this project for reestablishment of vegetation.

Attachment K

SWPPP

SITE DESCRIPTION

PROJECT LOCATION: SOUTH/SOUTHWEST SIDE OF THE EXISTING CAMPUS OF O'CONNOR HIGH SCHOOL LOCATED AT 12221 LESLIE ROAD, HELOTES, TX 78023.

PROJECT DESCRIPTION: CONSTRUCTION OF ADDITIONAL SCHOOL BUILDINGS, PARKING, SIDEWALK, UTILITIES, AND DRAINAGE STRUCTURES. IN ADDITION, DEMOLITION OF AN EXISTING BUILDING, NEW DRIVE LANES, NEW PARKING LOTS, NEW WATER QUALITY BASIN.

MAJOR SOIL DISTURBING ACTIVITIES: SITE GRADING, UTILITY AND DRAINAGE CONSTRUCTION, PAVEMENTS AND FLATWORK, AND FOUNDATION CONSTRUCTION.

TOTAL PROJECT AREA: ~5.6 ACRES

TOTAL AREA TO BE DISTURBED: ~5.6 ACRES

WEIGHTED RUNOFF COEFFICIENT (PRE-CONSTRUCTION): 0.70

WEIGHTED RUNOFF COEFFICIENT (POST-CONSTRUCTION): 0.79

EXISTING CONDITION OF SOIL & VEGETATIVE COVER AND % OF EXISTING VEGETATIVE COVER: NATIVE GRASS WITH TREES IN UNDEVELOPED AREAS AND SOME PREVIOUSLY DEVELOPED AREAS THAT ARE PAVED. ESTIMATED ABOUT 67% VEGETATED COVER WITH EARTHEN CHANNELS, WATER QUALITY BASINS, VEGETATED FILTER STRIPS, AND GRASS LANDSCAPE AREAS.

NAME OF RECEIVING WATERS: HELOTES CREEK

EROSION AND SEDIMENT CONTROLS

SOIL STABILIZATION PRACTICES:

- ___ TEMPORARY SEEDING
- √ PERMANENT PLANTING, SODDING, OR SEEDING
- √ MULCHING
- √ SOIL RETENTION BLANKET
- √ BUFFER ZONES
- ___ PRESERVATION OF NATURAL RESOURCES

OTHER:

STRUCTURAL PRACTICES:

- √ SILT FENCES
- ___ HAY BALES
- √ ROCK BERMS
- ___ DIVERSION, INTERCEPTOR, OR PERIMETER DIKES
- √ DIVERSION, INTERCEPTOR, OR PERIMETER SWALES
- ___ DIVERSION DIKE AND SWALE COMBINATIONS
- ___ PIPE SLOPE DRAINS
- ___ PAVED FLUMES
- √ ROCK BEDDING AT CONSTRUCTION EXIT
- ___ TIMBER MATTING AT CONSTRUCTION EXIT
- √ CHANNEL LINERS
- √ SEDIMENT TRAPS
- √ SEDIMENT BASINS
- √ STORM INLET SEDIMENT TRAP
- √ STONE OUTLET STRUCTURES
- √ CURBS AND GUTTERS
- √ STORM SEWERS
- √ VELOCITY CONTROL DEVICES
- √ GRAVEL FILTER BAGS

OTHER:

NARRATIVE - SEQUENCE OF CONSTRUCTION (STORM WATER MANAGEMENT) ACTIVITIES:

PHASE I:
1. INSTALLATION OF SWPPP MEASURES

PHASE II:
1. SITE CLEARING AND GRADING

PHASE III:
1. FOUNDATIONS, DRAINAGE AND UTILITIES

PHASE IV:
1. DRIVEWAY AND PARKING LOT CONSTRUCTION
2. BUILDING CONSTRUCTION

PHASE V:
1. VEGETATION

STORM WATER MANAGEMENT: TEMPORARY AND PERMANENT MEASURES TO PREVENT SEDIMENT TRANSPORT DOWNSTREAM.

NON-STORM WATER DISCHARGE: N/A

OTHER EROSION AND SEDIMENT CONTROLS:

MAINTENANCE: All erosion and sediment controls will be maintained in good working order. If a repair is necessary, it will be done at the earliest date possible, but no later than 7 calendar days after the surrounding exposed ground has dried sufficiently to prevent further damage from heavy equipment. The areas adjacent to drainageways shall have priority followed by devices protecting storm sewer inlets.

INSPECTION: An inspection will be performed by the owner or contractor's representative every week as well as after every half inch or more of rain (as recorded on a non-freezing rain gauge to be located at the Project Site). An inspection and Maintenance Report will be made per each Inspection. Based on the inspection results, the controls shall be revised per the inspection report.

WASTE MATERIALS: All waste materials will be collected and stored in a securely lidded metal dumpster. The dumpster will meet all state and local city solid waste management regulations. All trash and construction debris form the site will be deposited in the dumpster. The dumpster will be emptied as necessary or as required by local regulations and the trash will be hauled to a local dump. No construction waste material will be buried on site.

HAZARDOUS WASTE (INCLUDING SPILL REPORTING): At a minimum, any products in the following categories are considered to be hazardous: paints, acids for cleaning, masonry surfaces, cleaning solvents, asphalt products, chemical additives for soil stabilization or concrete curing compounds & additives. In the event of a hazardous material spill, the spill coordinator shall be contacted immediately.

SANITARY WASTE: All sanitary waste will be collected from portable units as necessary, or as required by local regulations by a Licensed Sanitary Waste Management Contractor.

OFFSITE VEHICLE TRACKING:

- ___ HAUL ROADS DAMPENED FOR DUST CONTROL
- √ LOADED HAUL TRUCKS TO BE COVERED WITH TARPAULIN
- √ EXCESS DIRT ON ROAD REMOVED DAILY
- √ STABILIZED CONSTRUCTION ENTRANCE

PERMITS:

REMARKS: Disposal areas, stockpiles, and haul roads shall be constructed in a manner that will minimize and control the amount of sediment that may enter receiving waters. Disposal areas shall not be located in any wetland, waterbody or streambed. Construction staging areas and vehicle maintenance areas shall be constructed by the Contractor in a manner to minimize the runoff of pollutants. All waterways shall be cleared as soon as practicable of temporary embankment, temporary bridges, matting, falsework, piling, debris or other obstructions placed during construction operations that are are not a part of the finished work.

OWNERS CERTIFICATION

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

SIGNATURE _____ DATE _____

CONTRACTOR'S CERTIFICATION

I certify under penalty of law that I understand the terms and conditions of the general Texas Pollutant Discharge Elimination System (TPDES) permit that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification plan.

SIGNATURE (CONTRACTOR) _____ DATE _____

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY PAUL A. MATHIS, P.E. NO. #105075 ON: FEBRUARY 23, 2024 DATE

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Drwn. By:	LNC
Chkd By:	PAM
Date Issued:	01/31/24
Revisions:	

SWPPP NOTES

C2.00

GRAPHIC SCALE

60 0 30 60 120

(IN FEET)
1 INCH = 60 FT

LEGEND:

- EXISTING EASEMENTS
- SITE PROPERTY LINE
- SILT FENCE
- GRAVEL FILTER BAGS
- CONSTRUCTION ENTRANCE/EXIT
- CONCRETE WASHOUT PIT
- 777 EXISTING CONTOUR
- GABION MATRESS
- ROCK BERM
- x TREE PROTECTION FENCE

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY PAUL A. MATHIS, P.E. NO. #105075 ON: MARCH 7, 2024 DATE

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Chkd By:	PAM
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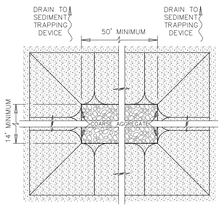
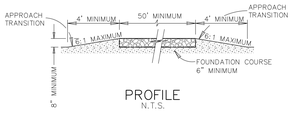
Revisions:	
1 – TCEQ 2024 02 02	
2 – TCEQ 2024 02 23	
3 PR 006	03/07/24

OVERALL SWPPP

C2.01



PLAN
N.T.S.

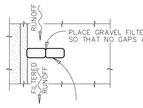


PROFILE
N.T.S.

GENERAL NOTES

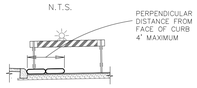
1. THE LENGTH OF THE TYPE 1 CONSTRUCTION EXIT SHALL BE AS INDICATED ON THE PLANS, BUT NOT LESS THAN 50'.
2. THE COARSE AGGREGATE SHOULD BE OPEN GRADED WITH A SIZE OF 4" TO 8".
3. THE APPROACH TRANSITIONS SHOULD BE NO STEEPER THAN 6 : 1 AND CONSTRUCTED AS DIRECTED BY THE ENGINEER.
4. THE CONSTRUCTION EXIT FOUNDATION COURSE SHALL BE FLEXIBLE BASE, BITUMINOUS CONCRETE, PORTLAND CEMENT CONCRETE OR OTHER MATERIAL AS APPROVED BY THE ENGINEER.
5. THE CONSTRUCTION EXIT SHALL BE GRADED TO ALLOW DRAINAGE TO A SEDIMENT TRAPPING DEVICE.
6. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

CONSTRUCTION EXIT – TYPE 1



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

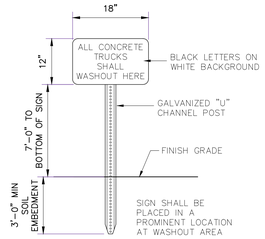
PLAN
N.T.S.



ELEVATION
N.T.S.

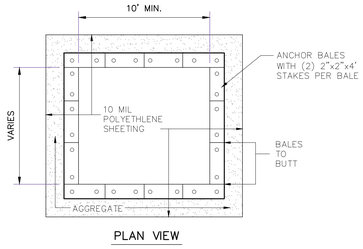
NOTE:
STRADDLE GRAVEL FILTER BAGS WITH TYPE 1 BARRICADES MOUNTED WITH TYPE "A" FLASHING WARNING LIGHT. SEE BARRICADE CONSTRUCTION SIGN DETAILS. PLACE FLASHING LIGHTS AWAY FROM GUTTER, FLUSH WITH OUTSIDE EDGE OF BAG CONFIGURATION.

GRAVEL FILTER BAGS

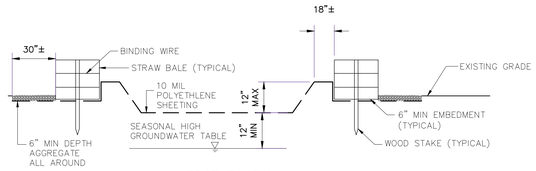


WASHOUT SIGN

NOT TO SCALE



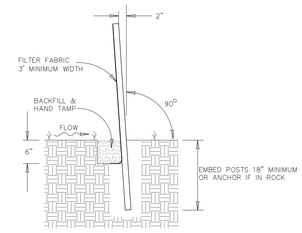
PLAN VIEW



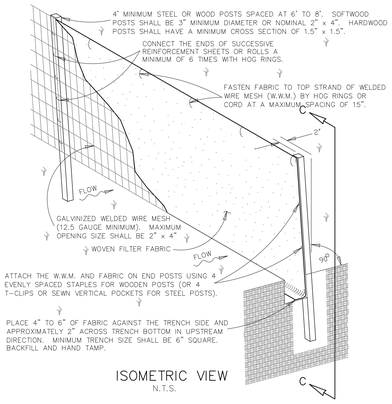
PROFILE VIEW

CONCRETE WASHOUT

NOT TO SCALE



SECTION C–C
N.T.S.



ISOMETRIC VIEW
N.T.S.

SEDIMENT CONTROL FENCE USAGE GUIDELINES

A SEDIMENT CONTROL FENCE MAY BE CONSTRUCTED NEAR THE DOWNSTREAM PERIMETER OF A DISTURBED AREA ALONG A CONTOUR TO INTERCEPT SEDIMENT FROM OVERLAND RUN-OFF. A 2 YEAR STORM FREQUENCY MAY BE USED TO CALCULATE THE FLOW RATE TO BE FILTERED. SEDIMENT CONTROL FENCE SHOULD BE SIZED TO FILTER A MAXIMUM FLOW THRU RATE OF 100 GPM / FT SQUARED. SEDIMENT CONTROL FENCE IS NOT RECOMMENDED TO CONTROL EROSION FROM A DRAINAGE AREA LARGER THAN 2 ACRES.

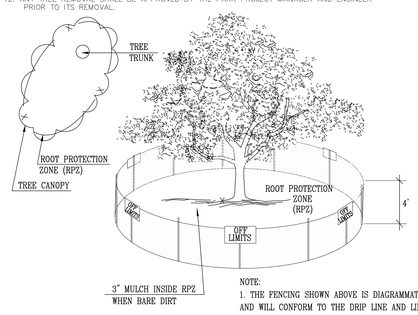
GENERAL NOTES

1. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

TEMPORARY SEDIMENT CONTROL FENCE

GENERAL TREE PROTECTION NOTES

1. ALL THE TREES WITH A DIAMETER GREATER THAN 3 INCHES AFFECTED BY CONSTRUCTION SHALL HAVE THE LIMBS AND ROOTS TRIMMED AND PRUNED ACCORDING TO ITEM No. 802. TREE PRUNING, SOIL AMENDING AND FERTILIZATION, UNLESS SPECIFIED TREES SHALL RECEIVE LEVEL 2 PROTECTION AS PER ITEM No. 802. TREES TO RECEIVE LEVEL 1 PROTECTION AS PER ITEM No. 802 ARE SHOWN ON TREE PROTECTION TABLE ON THIS SHEET.
2. ALL TREES SHALL REMAIN UNLESS NOTED ON THE PLANS.
3. NO SITE PREPARATION WORK SHALL BEGIN IN AREAS WHERE TREE PRESERVATION AND TREATMENT MEASURES HAVE NOT BEEN COMPLETED AND APPROVED.
4. TREE PROTECTION FENCING SHALL BE REQUIRED. TREE PROTECTION FENCING SHALL BE INSTALLED, MAINTAINED AND REPAIRED BY THE CONTRACTOR DURING SITE CONSTRUCTION.
5. THE CONTRACTOR SHALL AVOID CUTTING ROOTS LARGER THAN THREE INCHES IN DIAMETER WHEN EXCAVATING NEAR EXISTING TREES. EXCAVATION IN THE VICINITY OF TREES SHALL PROCEED WITH CAUTION. THE CONTRACTOR SHALL CONTACT THE PARK PROJECT MANAGER AND ENGINEER.
6. THE ROOT PROTECTION ZONE IS THAT AREA SURROUNDING A TREE, AS MEASURED BY A RADIUS FROM THE TREE TRUNK, IN WHICH NO EQUIPMENT, VEHICLES OR MATERIALS MAY OPERATE OR BE STORED. THE REQUIRED RADIUS LENGTH IS 1 FOOT PER DIAMETER INCH OF THE TREE. FOR EXAMPLE, A 10-INCH DIAMETER TREE WOULD HAVE A 5-FOOT RADIUS. ROOT PROTECTION ZONE AROUND THE TREE. ROOTS OR BRANCHES THAT ARE IN CONFLICT WITH THE CONSTRUCTION SHALL BE CUT CLEANLY ACCORDING TO PROPER PRUNING METHODS. LIVE OAK WOUNDS SHALL BE PAINTED OVER, WITHIN 20 MINUTES TO PREVENT OAK WILT.
7. ACCESS TO FENCED AREAS WILL BE PERMITTED ONLY WITH THE APPROVAL OF THE ENGINEER OR CITY INSPECTOR.
8. GRADING, IF REQUIRED, SHALL BE LIMITED TO A 3 INCH CUT OR FILL WITHIN THE FENCED ROOT ZONE AREAS.
9. TREES, SHRUBS OR BUSHES TO BE CLEARED FROM PROTECTED ROOT ZONE AREAS SHALL BE REMOVED BY HAND AS DIRECTED BY THE PROJECT MANAGER OR CITY INSPECTOR.
10. TREES DAMAGED OR LOST DUE TO CONTRACTOR'S NEGLIGENCE DURING CONSTRUCTION SHALL BE MITIGATED TO THE ENGINEER'S SATISFACTION.
11. EXPOSED ROOTS SHALL BE COVERED AT THE END OF EACH DAY USING TECHNIQUES SUCH AS COVERING WITH SOIL, MULCH OR WET BURLAP.
12. ANY TREE REMOVAL SHALL BE APPROVED BY THE PARK PROJECT MANAGER AND ENGINEER PRIOR TO ITS REMOVAL.



NOTE:
1. THE FENCING SHOWN ABOVE IS DIAGRAMMATIC ONLY AND WILL CONFORM TO THE DRIP LINE AND LIMITED TO PROJECT BOUNDARY.
2. FOR ACCEPTABLE FENCING MATERIALS SEE SPECIFICATIONS.

1.1.2 LEVEL I & FENCE PROTECTION
N. T. S.

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY PAUL A. MATHIS, P.E. NO. #105075 ON: FEBRUARY 23, 2024 DATE

DESIGNED BY: PAM
DRAWN BY: LNC
APPROVED: PAM
JOB NO.: 762301481

KCI TECHNOLOGIES, INC.
2806 W BITTERS RD SUITE 218
SAN ANTONIO, TX 78248
PHONE: (210) 641-9999
FAX: (210) 641-6440
REGISTRATION #F-10573 / #101943-65

NORTHSIDE INDEPENDENT SCHOOL DISTRICT

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12221 LESLIE ROAD, HELOTES, TX 78023

CONSTRUCTION/PERMIT DOCUMENTS

KAARLSEN NOONAN RITTIMANN GARCIA
13438 BANDERA RD #202
HELOTES, TEXAS 78023
(210) 695-1516
knrgarch.com
KNRG ARCH

Project No.: 762301481
Drwn. By: LNC
Chkd By: PAM
Date Issued: 01/31/24
Revisions:

SWPPP DETAILS

C2.02

Agent Authorization Form (TCEQ-0599)

Agent Authorization Form

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

I Jacob Villarreal, P.E.,
Print Name

Executive Director of Construction and Engineering,
Title - Owner/President/Other

of Northside Independent School District,
Corporation/Partnership/Entity Name

have authorized Paul A. Mathis, P.E., PMP, LEED Green Assoc., MBA
Practice Leader | Senior Associate
Print Name of Agent/Engineer

Of KCI Technolgies
Print Name of Firm

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

I also understand that:

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

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

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

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

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

SIGNATURE PAGE:

Applicant's Signature

8/16/23
Date

THE STATE OF Texas §

County of Bexar §

BEFORE ME, the undersigned authority, on this day personally appeared Jacob Villarreal known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that (s)he executed same for the purpose and consideration therein expressed.

GIVEN under my hand and seal of office on this 16 day of August, 2023.

Yvonne M. Carter
NOTARY PUBLIC

Yvonne M. Carter
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 12/08/2026

Application Fee Form (TCEQ-0574)

Application Fee Form

Texas Commission on Environmental Quality

Name of Proposed Regulated Entity: O'connor High School agricultural science and technology
Regulated Entity Location: 12221 Leslie Rd, Helotes, TX 78023
Name of Customer: Northside Independent School District
Contact Person: Paul A. Mathis, P.E., PMP Phone: (210) 641-9999
Customer Reference Number (if issued):CN 601104169
Regulated Entity Reference Number (if issued):RN 104754304

Austin Regional Office (3373)

☐ Hays ☐ Travis ☐ Williamson

San Antonio Regional Office (3362)

☒ Bexar ☐ Medina ☐ Uvalde
☐ Comal ☐ Kinney

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

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

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

Site Location (Check All That Apply):

☒ Recharge Zone ☐ Contributing Zone ☐ Transition Zone

Type of Plan	***Size***	***Fee Due***
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	Acres	$
Sewage Collection System	1,048 L.F.	$ 650
Lift Stations without sewer lines	Acres	$
Underground or Aboveground Storage Tank Facility	Tanks	$
Piping System(s)(only)	Each	$
Exception	Each	$
Extension of Time	Each	$

Signature: Paul A Mathis

Date: 04/15/2024

Application Fee Schedule

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

Water Pollution Abatement Plans and Modifications

Contributing Zone Plans and Modifications

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

Organized Sewage Collection Systems and Modifications

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

Underground and Aboveground Storage Tank System Facility Plans and Modifications

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

Exception Requests

Project	*Fee*
Exception Request	$500

Extension of Time Requests

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

Core Data Form
(TCEQ-10400)

TCEQ Use Only

TCEQ Core Data Form

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

SECTION I: General Information

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

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

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

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	**3. Regulated Entity Reference Number** *(if issued)*
CN 601104169		**RN 104754304**

SECTION II: Customer Information

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

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

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

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

Northside Independent School District

7. TX SOS/CPA Filing Number	**8. TX State Tax ID** (11 digits)	**9. Federal Tax ID** (9 digits)	**10. DUNS Number** *(if applicable)*

11. Type of Customer: ☐ Corporation ☐ Individual Partnership: ☐ General ☐ Limited

Government: ☐ City ☐ County ☐ Federal ☒ Local ☐ State ☐ Other ☐ Sole Proprietorship ☐ Other:

12. Number of Employees

☐ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☒ 501 and higher

13. Independently Owned and Operated?

☐ **Yes** ☒ **No**

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

☒ Owner ☐ Operator ☐ Owner & Operator
☐ Occupational Licensee ☐ Responsible Party ☐ VCP/BSA Applicant ☐ Other:

15. Mailing Address:	Northside Independent School District						
	5900 Evers Road						
	City	San Antonio	**State**	TX	**ZIP**	78238	**ZIP + 4**

16. Country Mailing Information *(if outside USA)*	**17. E-Mail Address** *(if applicable)*
	info@nisd.net

18. Telephone Number	**19. Extension or Code**	**20. Fax Number** *(if applicable)*

( ) -		(210) 397-8500

SECTION III: Regulated Entity Information

21. General Regulated Entity Information *(If 'New Regulated Entity" is selected, a new permit application is also required.)*

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

The Regulated Entity Name submitted may be updated, in order to meet TCEQ Core 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.)*

O'Connor High School

23. Street Address of the Regulated Entity: ***(No PO Boxes)***	O'Connor High School							
	12221 Leslie Road							
	City	Helotes	**State**	TX	**ZIP**	78023	**ZIP + 4**	
24. County	Bexar							

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

25. Description to Physical Location:					
26. Nearest City			**State**		**Nearest ZIP Code**

Latitude/Longitude are required and may be added/updated to meet TCEQ Core Data Standards. (Geocoding of the Physical Address may be used to supply coordinates where none have been provided or to gain accuracy).

27. Latitude (N) In Decimal:			**28. Longitude (W) In Decimal:**		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

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)
1623		611110	

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

Education

34. Mailing Address:	**Northsdie ISD**							
	5900 Evers Road							
	City	**San Antonio**	**State**		**ZIP**	**78238**	**ZIP + 4**	
35. E-Mail Address:	**info@nisd.net**							

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(210) 397-8500		( ) -

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

☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Emissions Inventory Air	☐ Industrial Hazardous Waste
		13-90071601B		
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☐ Wastewater	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	Paul A. Mathis, P.E., PMP, LEED Green Assoc., MBA	**41. Title:**	Practice Leader / Senior Associat

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(210 **)** 641-9999		**(** 210 **)** 641-6440	paul.mathis@kci.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:	KCI Technolgies, Inc.	**Job Title:**	Practice Leader / Senior Associate
Name *(In Print):*	Paul A. Mathis (Submitted on behalf of Northside ISD)	**Phone:**	**(** 210 **)** 641- **9999**
Signature:		**Date:**	04/15/2024