Water Pollution Abatement Plan Checklist

- **01 Core Data Form (TCEQ-10400)**
- **02 Edwards Aquifer Application Cover Page (TCEQ-20705)**
- **03 General Information Form (TCEQ-0587)**

  Attachment A - Road Map
  Attachment B - USGS / Edwards Recharge Zone Map
  Attachment C - Project Description

- **04 Geologic Assessment Form (TCEQ-0585)**

  Attachment A - Geologic Assessment Table (TCEQ-0585-Table)
  Attachment B - Stratigraphic Column
  Attachment C - Site Geology
  Attachment D - Site Geologic Map(s)

- **05 Water Pollution Abatement Plan Application Form (TCEQ-0584)**

  Attachment A - Factors Affecting Surface Water Quality
  Attachment B - Volume and Character of Stormwater
  Attachment C - Suitability Letter from Authorized Agent (if OSSF is proposed)
  Attachment D - Exception to the Required Geologic Assessment (if requested)
  Site Plan

- **06 Temporary Stormwater Section (TCEQ-0602)**

  Attachment A - Spill Response Actions
  Attachment B - Potential Sources of Contamination
  Attachment C - Sequence of Major Activities
  Attachment D - Temporary Best Management Practices and Measures
  Attachment E - Request to Temporarily Seal a Feature (if requested)
  Attachment F - Structural Practices
  Attachment G - Drainage Area Map
  Attachment H - Temporary Sediment Pond(s) Plans and Calculations
  Attachment I - Inspection and Maintenance for BMPs
  Attachment J - Schedule of Interim and Permanent Soil Stabilization Practices

- **07 Permanent Stormwater Section (TCEQ-0600)**

  Attachment A - 20% or Less Impervious Cover Waiver (if requested for multi-family, school, or small business site)
  Attachment B - BMPs for Upgradient Stormwater
  Attachment C - BMPs for On-site Stormwater
  Attachment D - BMPs for Surface Streams
  Attachment E - Request to Seal Features (if sealing a feature)
  Attachment F - Construction Plans
  Attachment G - Inspection, Maintenance, Repair and Retrofit Plan
  Attachment H - Pilot-Scale Field Testing Plan (if proposed)
  Attachment I -Measures for Minimizing Surface Stream Contamination

- **08 Agent Authorization Form (TCEQ-0599), if application submitted by agent**
- **09 Application Fee Form (TCEQ-0574)**
- **10 Check Payable to the "Texas Commission on Environmental Quality"**

TCEQ Use Only

TCEQ Core Data Form

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

SECTION I: General Information

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

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

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

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number *(if issued)*
CN 605548692		RN 105230411

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:*
Skyhawk Villa de San Antonio, LLC	

7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number *(if applicable)*
802909145	32065955323	824072944	

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

12. Number of Employees	13. Independently Owned and Operated?
☒ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 and higher	☒ Yes ☐ No

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

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

15. Mailing Address:	8117 Sutherland Lane						
	City	Plano	State	TX	ZIP	75025	ZIP + 4	5545

16. Country Mailing Information *(if outside USA)*	17. E-Mail Address *(if applicable)*
N/A	ramanathayellaturu@gmail.com

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(214) 578-3414		(214) 383-1766

SECTION III: Regulated Entity Information

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

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

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

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

Stadium Pointe PUD Unit 2 & 3

23. Street Address of the Regulated Entity: *(No PO Boxes)*	see item 25							
	City		State		ZIP		ZIP + 4	
24. County	Bexar							

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:	APPROXIMATELY 0.18 MILES EAST OF NORTH LOOP 1604 W AND SKYHAWK DR INTERSECTION

26. Nearest City	State	Nearest ZIP Code
San Antonio	TX	78249

27. Latitude (N) In Decimal:	29.5661		28. Longitude (W) In Decimal:	98.6492	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
29	33	58	98	38	57

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)
1522	1542	236116	531311

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

Multi-Family residential

34. Mailing Address:	8117 Sutherland Lane							
	City	PLANO	State	TX	ZIP	75025	ZIP + 4	5545

35. E-Mail Address:	ramanathayellaturu@gmail.com

36. Telephone Number	37. Extension or Code	38. Fax Number *(if applicable)*
(214) 578-3414		(214) 383-1766

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
		WPAP		
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☐ Waste Water	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	Brian Crowell, PE, Leed AP	41. Title:	Senior Project Manager

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(210) 581-1111		(210) 581-5555	brian.crowell@cdsmuery.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:	CDS Muery	Job Title:	Senior Project Manager
Name *(In Print)*:	Brian Crowell, PE, Leed AP	Phone:	(210) 581- 1111
Signature:	Brian Crowell	Date:	09/21/2020

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: Stadium Pointe PUD, Unit 2&3						**2. Regulated Entity No.:110455052**			
3. Customer Name: Skyhawk Villa de San Antonio, LLC						**4. Customer No.:605548692**			
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):**		16.28 acres
9. Application Fee:	$6,500		**10. Permanent BMP(s):**				Batch detention basins (2)		
11. SCS (Linear Ft.):	N/A		**12. AST/UST (No. Tanks):**				N/A		
13. County:	Bexar		**14. Watershed:**				French Creek (within the Leon Creek watershed)		

Application Distribution

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

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

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

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

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

I certify that to the best of my knowledge, that the application is complete and accurate. This application is hereby submitted to TCEQ for administrative review and technical review. Brian Crowell, PE, LEED AP (Authorized Agent)
Print Name of Customer/Authorized Agent
Brian Crowell 09/21/2020 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

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: Brian Crowell, PE, LEED AP (of CDS Muery)

Date: 09/21/2020

Signature of Customer/Agent:

Project Information

1. Regulated Entity Name: Stadium Pointe PUD Unit 2 & 3
2. County: Bexar
3. Stream Basin: French Creek (within the Leon Creek Watershed)
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: Ram Yellaturu
Entity: Skyhawk Villa de San Antonio, LLC
Mailing Address: 8117 Sutherland Lane
City, State: Plano Zip: 75025
Telephone: N/A FAX: N/A
Email Address: ramanathayellaturu@gmail.com

8. Agent/Representative (If any):

Contact Person: Brian Crowell, PE, LEED AP
Entity: CDS Muery
Mailing Address: 100 NE Loop 410, Ste 300
City, State: San Antonio Zip: 78216
Telephone: 210-581-1111 FAX: 210-581-5555
Email Address: _____

9. Project Location:

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

Property located east of RN110455052, 470 feet east of Skyhawk Drive at ends of Runner Ridge and Runner Cove. Monticeto apts to north, Brandeis High School to east, and Stinson Middle School to south.

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: A georeferenced pdf file showing the location of regulated activities is provided with the digital submittal in lieu of staking.

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

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

15. Existing project site conditions are noted below:

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

Prohibited Activities

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

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

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

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

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

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

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

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

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

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

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

Administrative Information

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

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

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

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

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

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

Supplemental Attachments for

TCEQ F-0587 General Information Form

Stadium Pointe PUD, Unit 2&3

Table of Attachments:

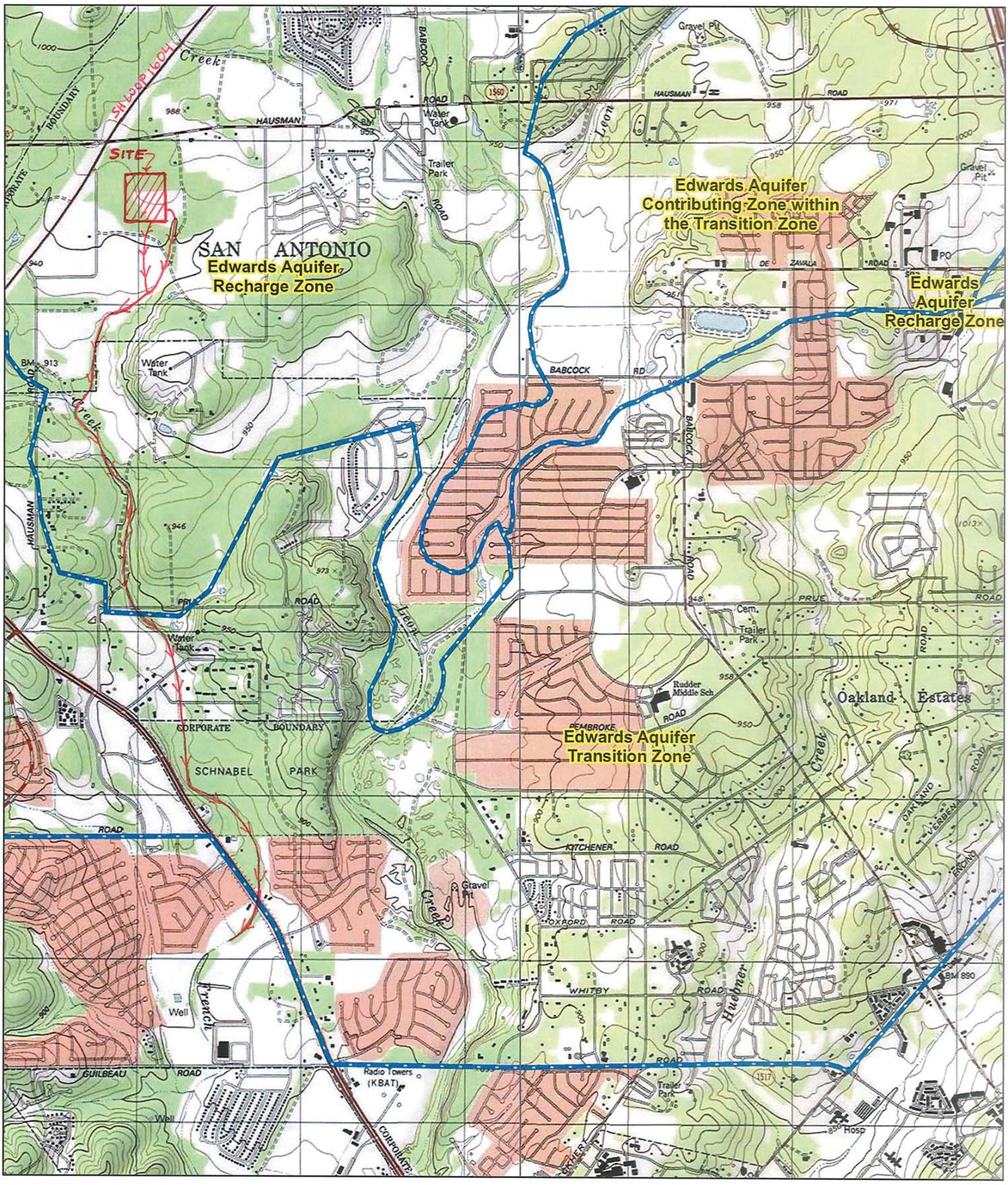
Attachment A: Road Map
Attachment B: USGS / Edwards Recharge Zone Map
Attachment C: Project Description

ATTACHMENT A | Road Map

Note: Image taken from Google Maps

ATTACHMENT B | USGS/Edwards Recharge Zone Map

Stadium Pointe P.U.D., Unit 2 & 3



8/18/2020, 3:23:05 PM

- Edwards Aquifer Boundary central line
- Edwards Aquifer Boundary
- Edwards Aquifer Label
- TX Counties
- 7.5 Minute Quad Grid

1:24,000

0 1,250 2,500 5,000 ft

0 437.5 875 1,750 m

USGS LONGHORN QUADRANGLE

Copyright:© 2013 National Geographic Society, i-cubed
TCEQ

Web AppBuilder for ArcGIS

ATTACHMENT C | Project Description

Area of Site:
The Site Area is 16.28 acres. The platted area for Stadium Pointe PUD Unit 2&3 is 16.38 acres. The Site Area excludes a 0.10 acre utility easement which will remain undisturbed. The utility easement is situated in the southeast corner of the property.

Offsite Areas:
Two small off-site areas totaling 0.18 acre are situated within the limits of construction. The two areas lie within drainage easements and are located downstream of the proposed batch detention facilities.

No upgradient offsite areas discharge stormwater to the Site Area.

A 3.61 acre area within the Site Area discharges to an approved and constructed permanent stormwater bmp located offsite within Stadium Pointe Unit 1 (RN110455052). The off-site bmp was designed and approved to treat the portion of Site Area runoff.

Limits of Construction:
A total of 16.46 acres lie within the Limits of Construction (16.28 acres + 0.18 acre = Area of Site + Offsite Areas).

Plan Area:
Plan Area used in TSS removal calculations is 12.85 acres (16.46 – 3.61=12.85) to exclude the 3.61 acre area that will be treated by the offsite facility.

Permanent BMP(s):
Post-development permanent BMPs include 2 batch detention basins (West Pond and East Pond). The batch detention basins will remove pollutants prior to release of stormwater to downstream drainage facilities. Each batch detention basin features a storm water detention volume stored above the required water quality volume to attenuate peak runoff rates and release downstream at pre-development rates. Plans for the batch detention basins are included in the Permanent Stormwater section of this WPAP.

Impervious Cover:
Post-development impervious cover is calculated to be 9.39 acres or 57.7% of the Site Area. A breakdown of Site Area impervious cover by drainage basin is provided below.

Location	Area (acres)	Prop IC Area (acres)	Prop IC Area (%)
West Pond CDA	6.96	4.15	59.6%
East Pond CDA	4.53	2.85	62.9%
Bypass Area	1.36	0.13	9.6%
Plan Area Subtotal	12.85	7.13	55.5%
Off-Site BMP CDA	3.61	2.26	62.6%
LOC Total	16.46	9.39	57.0%

- Runoff from bypass area is released from Site Area without treatment by a BMP.
- CDA=Contributing Drainage Area
- Prop IC = Proposed Impervious Cover
- LOC = Limits of Construction

Site Area Proposed Impervious Cover Table

Proposed Site Use:
Stadium Pointe PUD, Unit 2&3 is a residential duplex development designed as a Planned Unit Development (PUD). Each lot will consist of a duplex having two (2) residential dwelling units.

Site History and Previous Development:
The Project Site is a portion of a 26 acre site subdivided in 1988 as the "Father Flanagan's Boys' Home" Subdivision and developed as a long-term residential program for residential care for youth. Operating as Father Flanagan's Girls and Boys Town of San Antonio and eventually as the Non-Profit organization Boys Town, the entire 26-acre property had five (5) homes and one (1) small office building. In-mid 2017, the property ended its services and closed this location.

The western 9.5 acre portion of the 26 acre property was redeveloped as Stadium Pointe PUD Unit 1 in 2019 under a previously approved WPAP. An existing communications tower located in the southeast corner of the site is situated within a 0.10 acre utility easement and will remain undisturbed.

Areas to be Demolished:
Building foundations and miscellaneous flatwork from the original development will be removed following temporary BMP placement.

Geologic Assessment

Texas Commission on Environmental Quality

For Regulated Activities on The Edwards Aquifer Recharge/transition Zones and Relating to 30 TAC §213.S(b)(3), Effective June I, 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: Douglas McGookey, P.G. **Telephone:** (210) 694-4545

Date: July 18, 2018 **Fax:** (210) 694-4577

Representing: Medina Consulting Co., Inc. TBPG No.50118

Signature of Geologist:

STATE OF TEXAS
Douglas A. McGookey
Geologist
License Number 368
LICENSED
PROFESSIONAL GEOSCIENTIST

Regulated Entity Name: Stadium Pointe

Project Information

1. Date(s) Geologic Assessment was performed: May 14, 2018

2. Type of Project:

- ☒ WPAP
- ☐ SCS
- ☐ AST
- ☐ UST

3. Location of Project:

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

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

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

Table 1 - Soil Units, Infiltration Characteristics and Thickness

Soil Name	Group	Thickness(feet)
Crawford and Bexar Stony Soils (Cb)	D	1.7-3.3
Anhalt clay (Ca)	D	1.7-3.3

** Soil Group Definitions (Abbreviated)*

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

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

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

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

   Applicant's Site Plan Scale: 1" = 40'
   Site Geologic Map Scale: 1" = 40'
   Site Soils Map Scale (if more than 1 soil type): 1" = 40'

9. Method of collecting positional data:

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

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

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

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

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

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

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

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

Administrative Information

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

ATTACHMENT A –

GEOLOGIC ASSESSMENT TABLE

GEOLOGIC ASSESSMENT TABLE — PROJECT NAME: STADIUM POINTE

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								<40	≥40	<1.6	≥1.6	
M1	29°33'58.68"	-98°38'58.92"	MB	30	Kep	NA	NA	2-3	NA	NA	NA	NA	NA	5	35	x		x		Hillside
M2	29°33'53.69"	-98°39'1.64"	MB	30	Kep	~7'	~7'	~4'	NA	NA	NA	NA	NA	5	35	x		x		Hillside
M3	29°33'55.60"	-98°38'54.78"	MB	30	Kep	~52'	~23'	~6.5'	NA	NA	NA	NA	NA	0	30	x		x		Hillside
M4	29°33'53.20"	-98°38'53.48"	MB	30	Kep	NA	NA	15-20	NA	NA	NA	NA	NA	0	30	x		x		Hillside

• DATUM: WGS 84

2A TYPE	TYPE	28 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 rock
C	Coarse – cobbles, breakdown, sand, gravel
O	Loose or soft mud or soil, organics, leaves, dark colors
F	Fines, compacted clay-rich sediment, soil profile, gray or red colors
V	Vegetation. Give details in narrative description
FS	Flowstone, cements, cave deposits
X	Other materials

12 TOPOGRAPHY

Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

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

Douglas McGookey, P.G.

Date 2-20-18

Sheet 1 of 1

STATE OF TEXAS
Douglas A. McGookey
Geologist
License Number 368
LICENSED
PROFESSIONAL GEOSCIENTIST

2-20-18

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

ATTACHMENT B –

STRATIGRAPHIC COLUMN

STRATIGRAPHIC COLUMN

STRATIGRAPHIC COLUMN									
Time Period (Era)	Hydrologic Sub-division	Group, Formation/ Member			Hydrologic Function	Thickness (ft)	Lithology	Cavern Development	Porosity/ Permeability type
	Erosional Surface								
Lower Cretaceous	Edwards Aquifer	Edwards Group	Person FM	Cyclic & marine members undivided	AQ	80-100	Mudstone to packstone, miliolid grainstone, chert	Many subsurface	Laterally extensive, water yielding
				Leached and collapsed members	AQ	80-100	Limestone: Crystalline, mudstone to grainstone, chert, collapsed breccia	Extensive lateral development, large rooms	Permeable, most not fabric porosity
				Regional dense member	CU	20-24	Limestone: dense argillaceous mudstone	Very few, only vertical fracture development	Not fabric, low permeability, vertical barrier
			Kainer FM	Grainstone member	AQ	50-60	Limestone: miliolid grainstone, mudstone to wackestone, chert	Few	Not fabric, recrystallization reduces permeability
				Kirschberg evaporite member	AQ	50-60	Limestone: highly altered, crystalline, chalky mudstone, chert	Probably extensive cave development	Most fabric, one of the most permeable
				Dolomitic member	AQ	110-130	Limestone: mudstone to grainstone, crystalline, chert	Caves related to structure or bedding planes	Mostly not fabric, some bedding plane fabric
				Basal nodular member	Karst AQ	50-60	Limestone: shaly, nodular, mudstone to miliolid grainstone	Large lateral caves at surface	Fabric, stratigraphically controlled
	Lower Confining Unit	Glen Rose Fm	GR FM	Upper Member Glen Rose Limestone	CU	350-500	Limestone: yellowish tan, thinly bedded, marl	Some surface cave development	Relatively impermeable

Notes: CU = Confining Unit; AQ =Aquifer

Source: *Geologic Framework and Hydrogeologic Characteristics of the Edwards Aquifer Recharge Zone, Bexar County, Texas:* US Geological Survey, Water Resource Investigations Report (95-4030).

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7-17-08

ATTACHMENT C –

SITE GEOLOGY

GEOLOGY NARRATIVE

Location and Narrative Overview

The 26-acre Stadium Pointe Site consists of a paved street (Flanagan St.), residential buildings with driveways, outbuildings and playground structures, an in-ground swimming pool, packed gravel and caliche roads, drainage features, footpaths, fire hydrants, wood utility poles for electricity transmission and area lighting, and a cellular communications tower. The drainage features include a rectangular cement ditch along the northern Site boundary (starting over one-third of the way into the property and ending in the northwestern corner - Photo 5), a cement culvert under Flanagan St., one end of a cement culvert that runs under a driveway of the south-adjacent Katherine Stinson Middle School, and a long swale.

Areas surrounding the site have been developed with residential and commercial land uses. There are marked buried utility lines and pipes along the west boundary of the Site. The location is shown on Figures 1 and 2 and the topographic setting is shown in Figure 3. Photographs of the Site follow the text in the Geologic Narrative.

Edwards Aquifer Zone

The Site lies entirely within the recharge zone of the Edwards Aquifer. Maps showing the location of the Site within the recharge zone is shown in Figure 7.

100-Year Floodplain

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for Bexar County Texas Community Panel Number 48029C0210G, September 29, 2010 was used to determine if the project site is located within areas prone to flooding. The Site is located within Zone X which represents areas determined to be outside the 0.2% chance of annual flooding. The floodplain is noted, in blue, in Figure 5.

Site Soils - Literature Review:

Soil Units*:* According to the US Department of Agriculture's web soil survey, the Site lies on Crawford and Bexar stony soils (Cb) (23.9 acres) and Anhalt clay, 0 to 2 percent slopes (Ca) (2.1 acres). The soils map is shown in Attachment D.

Soil Descriptions

Crawford and Bexar stony soils (Cb) (0 to 5 percent slopes): These soils occur as large areas, generally several hundred acres in size, and form a nearly continuous belt extending westward from the northeastern part of the county to a little south of Helotes. Crawford and similar soils make up

about 64 percent of the acreage. About 90 percent of this consists of soils that are stony clay in texture and are shallow to moderately deep over hard limestone. The surface layer is very dark gray to dark reddish-brown, noncalcareous clay and is 8 or 9 inches thick. From 10 to 40 percent of this layer consists of chert and limestone fragments. These fragments, which are on the surface and in the surface layer, range from a quarter of an inch to 24 inches in diameter. The subsurface layer generally contains a few chert fragments or small flags of cherty limestone. Bexar and similar soils make up 36 percent of the acreage. The surface layer of these soils ranges from cherty clay loam to gravelly loam in texture and from 14 to 22 inches in thickness. The subsoil is cherty clay and ranges from 6 to 14 inches in thickness.

Crawford and Bexar soils are well-drained. In Crawford soils, the capacity of the most limiting layer to transmit water is very low to moderately low (0.00 to 0.06 in/hr). In Bexar soils, the capacity of the most limiting layer to transmit water is moderately low to moderately high (0.06 to 0.20 in/hr). Both soil types belong to the hydrologic soil group D.

Anhalt clay, 0 to 2 percent slopes (Ca): The Anhalt series consists of moderately deep, well drained, very slowly permeable, dark reddish-brown clay soils that formed in residuum over limestone bedrock. The soils are on nearly level to gently sloping uplands. The typical profile, A (0-12 in.), Bss (12-28 in.), and Cr (28-30 in.) horizons, is 30 inches. The Cr horizon is described as fractured moderately cemented limestone bedrock with dark reddish-brown clay in crevices. Surface and subsurface thickness, and depth to fractured limestone bedrock or limestone interbedded with clayey marls, ranges from 20 to 40 inches. Limestone fragments and stones, and chert fragments of pebble and cobble size range from 1 to 20 percent of the soil volume or on the soil surface. The soil is usually moist, but when dry it has cracks ranging from 0.5 to 2 inches wide. Cracks remain open from 90 to 150 cumulative days in most years. The soil texture is clay and clay content ranges from 60 to 80 percent.

Anhalt soils are of the well-drained. Permeability is very slow and the capacity of the most limiting layer to transmit water is very low to moderately low (0.00 to 0.06 in/hr). Runoff is low, and the hydrologic soil group is D.

***Site Soils - Observations*:**

Most of the Site is covered with grasses and trees. The northwest quadrant is densely covered with nearly-impenetrable brush and trees. Much of the soil on the Site have been previously disturbed as part of prior road, housing, and swale construction. In areas where soil was exposed, the soil resembled the description in the soil survey and was dark gray to medium brown, clay loam with limestone fragments, scattered stones, gravels, cobblestones, and flagstones within the surface layer.

Narrative of Site Geology:

Literature Review: Figure 6 shows surface geology of the area from the USGS *Geologic framework and hydrostratigraphy of the Edwards and Trinity aquifers within northern Bexar and Comal Counties, Texas* (Clark, et al., 2016; updated from Blome, 2005). Clark (2016) maps the Site in the cyclic and marine member of the Person Formation (Kep). The Geologic Atlas of Texas (Figure 4) indicates Edwards Limestone, undivided is the uppermost geologic formation over most of the Site, with some Kdr in the southwest corner. No Kdr outcropping was observed during the Site visit.

Person Formation **-** The following description is quoted from the Blome (2005) map legend. The cyclic and marine member (Lower Cretaceous) is a chert-bearing mudstone to packstone and miliolid grainstone. It weathers to massive, light-tan outcrops with scattered Toucasia present. The member is one of the most productive hydrologically because of the large number of subsurface caverns associated with incipient karstification. It is very permeable with laterally extensive, fabric and non-fabric selective porosity. The thickness of the member ranges from 10 to 100 feet.

Del Rio Clay Formation **–** The Del Rio Clay Formation is the primary upper confining unit of the Edwards Aquifer. It is described as a blue-green to yellow-brown, variably gypsiferous clay containing iron nodules, abundant pectin-type fossil clams, and the fossil oyster *Llymatogyra arietina.* Minor, thin lenticular beds of highly calcareous siltstone may also occur. Unweathered Del Rio Clay is composed of kaolinite, illite, and lesser amounts of montmorillonite. Secondary gypsum occurs as fracture fillings in clay-rich exposures near igneous bodies. The Del Rio has no recognized cavern development and no significant porosity or permeability, and it directly overlies the Lower Cretaceous formations in many areas. The thickness is about 40 to 110 ft.

Site Geology - Observations: Most of the surface of the Site is well vegetated with grass, trees, and shrubs. Improvements on the Site include roads (paved and unpaved), houses, playground structures, outbuildings, and manmade features such as drainage culverts and swales, a cement-lined and covered sewer cleanout, utility poles, and a cellular communications tower. The drainage features include (1) a rectangular cement ditch along the northern Site boundary (starting over one-third of the way into the property and ending in the northwestern corner - Photo 5), (2) a cement culvert under Flanagan St., (3) one end of a cement culvert that runs under a driveway of the south-adjacent Katherine Stinson Middle School, and (4) a long swale. The swale starts at the culvert in the northwest corner, runs southward for about 370 ft., makes an approximate 100-degree curve east-southeastward to run parallel to Flanagan Street for about 340 ft. to the culvert under Flanagan St., makes a 90-degree right turn and bears southwest for 340 ft., and ends at the middle school boundary to the south. Under the driveway of the northern-most house is a small culvert connected by a short and shallow second swale to the central culvert that runs under Flanagan St.

A couple of small outcrops of weathered fossiliferous limestone were observed around the Site. An example of a small outcropping, showing weathered limestone consistent with the description for the limestone within the Person Formation cyclic and marine member, is shown in Photograph 9.

No fractures or other structural elements were observed in the field.

The manmade features in bedrock were identified and are listed in the Geologic Assessment Table in Attachment A. Small limestone outcrops and limestone rocks were observed on the Site. Limestone rocks may have been redistributed during past construction activities and ground disturbance. There was little evidence that recharge is enhanced through features observed on the Site.

The features are described below, and photographs are shown following the text.

M1: There are utility poles providing electrical services into and throughout the Site. The poles are embedded about 2 to 3 feet into the ground and are sealed with concrete or clay rich soils for stability, which deceases the chance for water infiltration. One pole is located near an outcrop and has a guide wire for stability. It is presumed that this one is not as deeply set and may be touching bedrock. The surrounding vegetation is the same as that surrounding the nearby trees. Probability of rapid infiltration is low. The pole is shown in Photograph 7.

M2: A cement-lined and covered sewer cleanout is shown in Photograph 15. At the time of the site visit, the cover was off and there appeared to be collected rainwater. Soil and vegetation covered the entire edge of the cement and the vegetation was similar to that found farther away from the cleanout's housing. The large amount of standing water indicates the cement housing is intact and the probability of rapid infiltration is low.

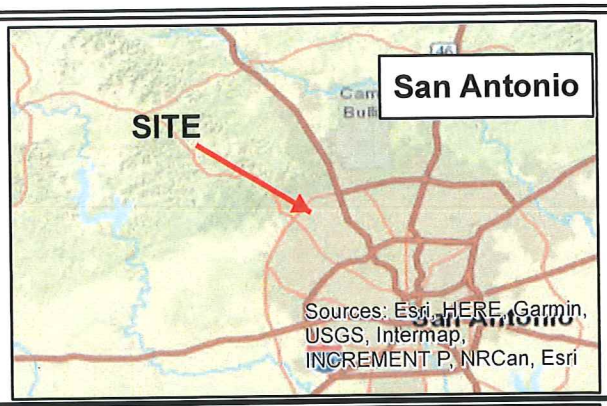
M3: An in-ground swimming pool is shown in Photograph 12. The pool is oblong-shaped (about 52 ft. by 23 ft.), with a shallow end and a deep end. Surrounding the pool is a cement pad that varies in width from about 9 ft. to 27 ft. The pool contains collected rainwater, indicating the lining is intact. The probability of rapid infiltration is low.

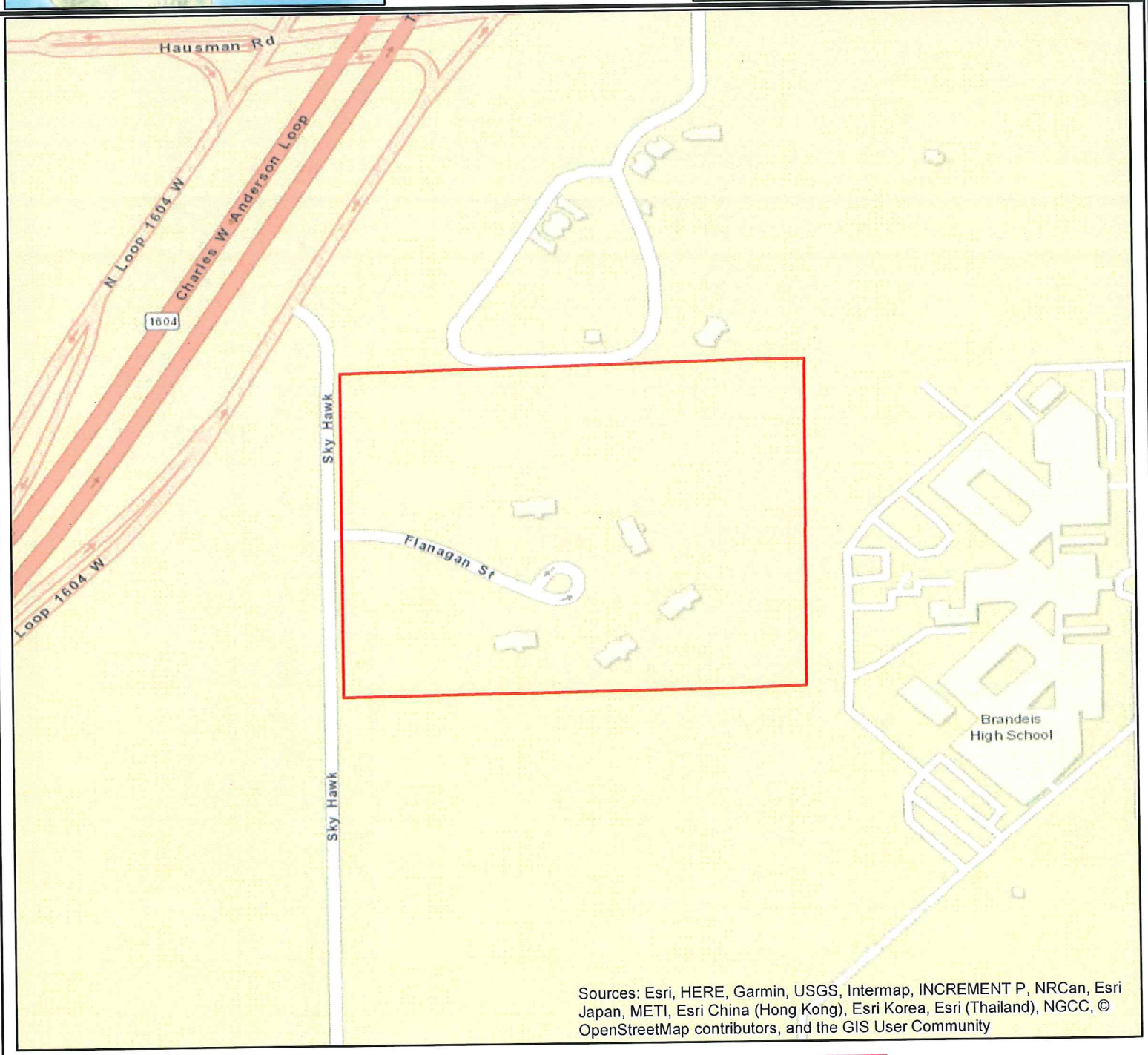
M4: There is a cellular communications tower surrounded by a concrete foundation. The tower is likely also set in concrete to several feet below the ground surface. The probability of rapid infiltration is low. The tower is shown in Photograph 16.

Man-made features associated with utilities are unlikely to provide conduits for storm water flow to the subsurface. Photographs showing the Site and examples of manmade features are in Figures and Photographs.

If features are discovered during construction, work should stop and the Texas Commission on Environmental Quality (TCEQ) notified so that the feature can be evaluated.

FIGURES





Source: ArcMap GIS

Project area

Medina Consulting Company, Inc.

Figure 1: Site Location Map
Stadium Pointe
Geologic Assessment
San Antonio, Bexar County, Texas

N

Author: Dawne M. Butler

0.075 0 0.075 Miles

Date: 5/22/2018

Source: ArcMap GIS.

Project area

Medina Consulting Company, Inc.

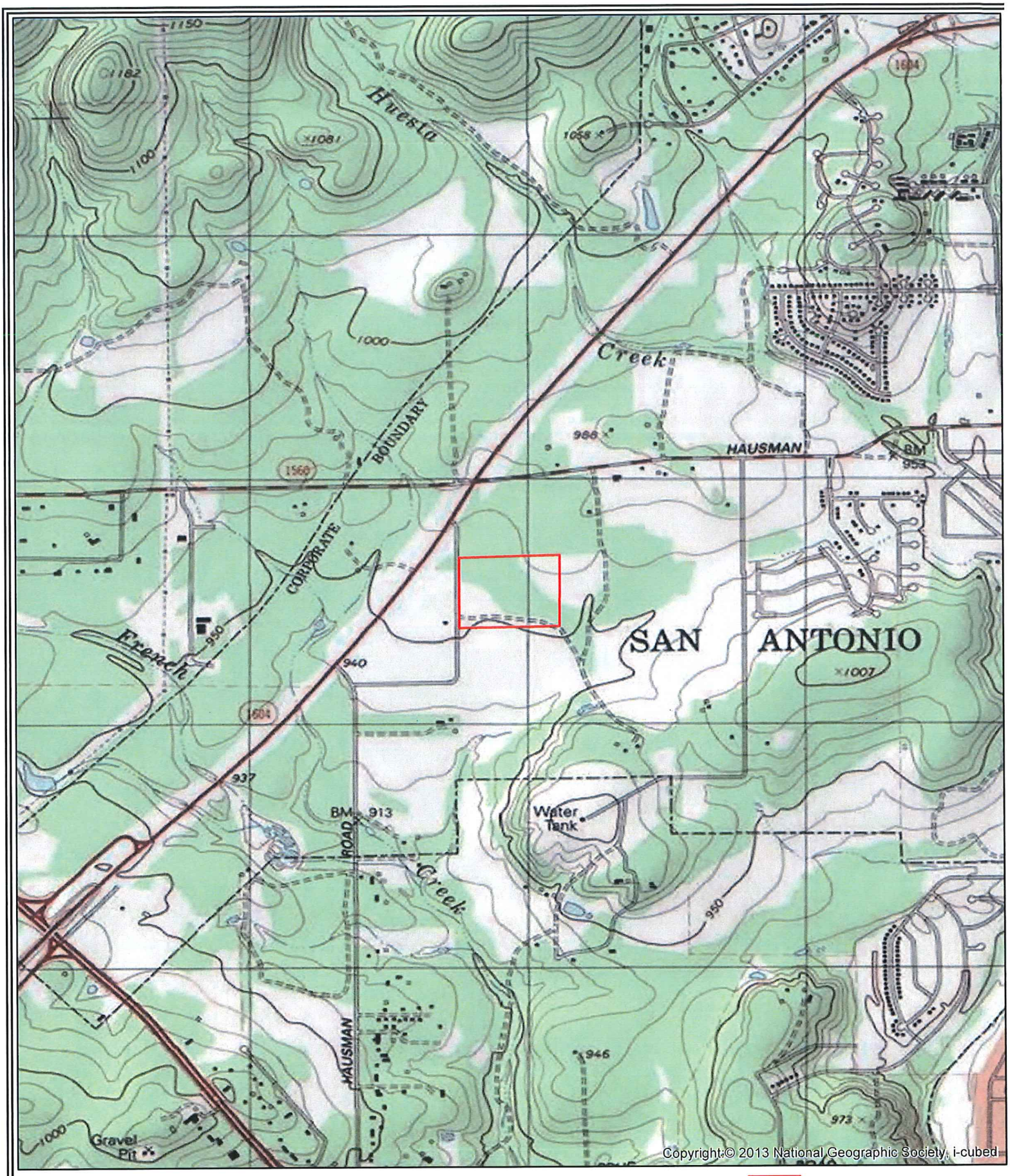
Figure 2: Site and Vicinity Map
Stadium Pointe
Geologic Assessment
San Antonio, Bexar County, Texas

N

Author: Dawne M. Butler

0.075 0 0.075 Miles

Date: 5/22/2018



Source: ArcMap GIS Topographic Map, 2013, *Helotes, Texas* Quad.

Project area

Medina Consulting Company, Inc.

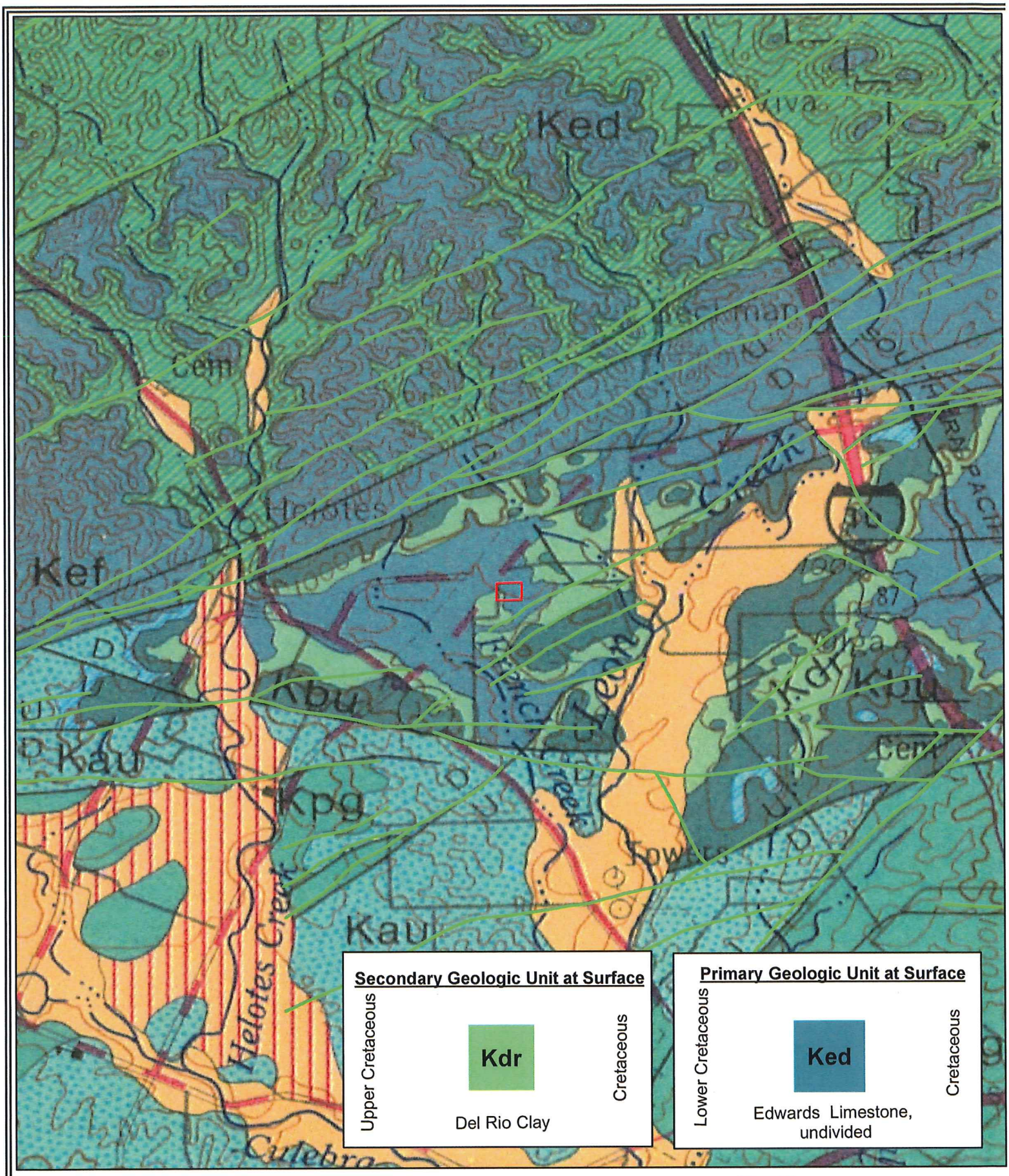
Figure 3: Topographic Map
Stadium Pointe
Geologic Assessment
San Antonio, Bexar County,Texas

N

Author: Dawne M. Butler

0.3 0 0.3 Miles

Date: 5/22/2018



Source: USGS, Geological Atlas of Texas, San Antonio sheet, 1982.

Project area

Medina Consulting Company, Inc.

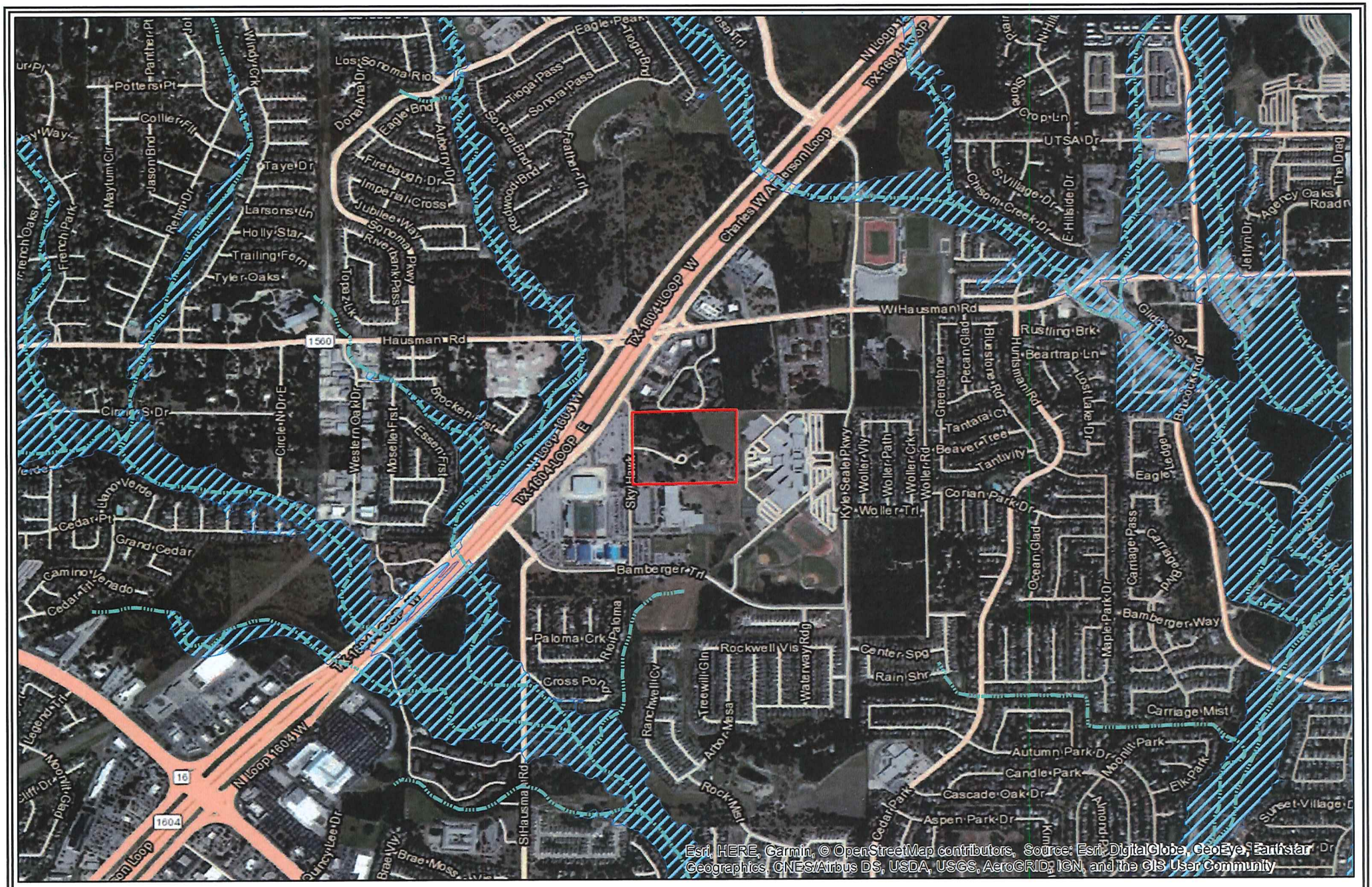
Figure 4: Geology Map
Stadium Pointe
Geologic Assessment
San Antonio, Bexar County,Texas

N

Author: Dawne M. Butler

1 0 1 Miles

Date: 5/31/2018



Source: FEMA FIRM, 48029C0210G, September 29, 2010.

Project area | 100-year Floodplain | Tributaries

Medina Consulting Company, Inc.

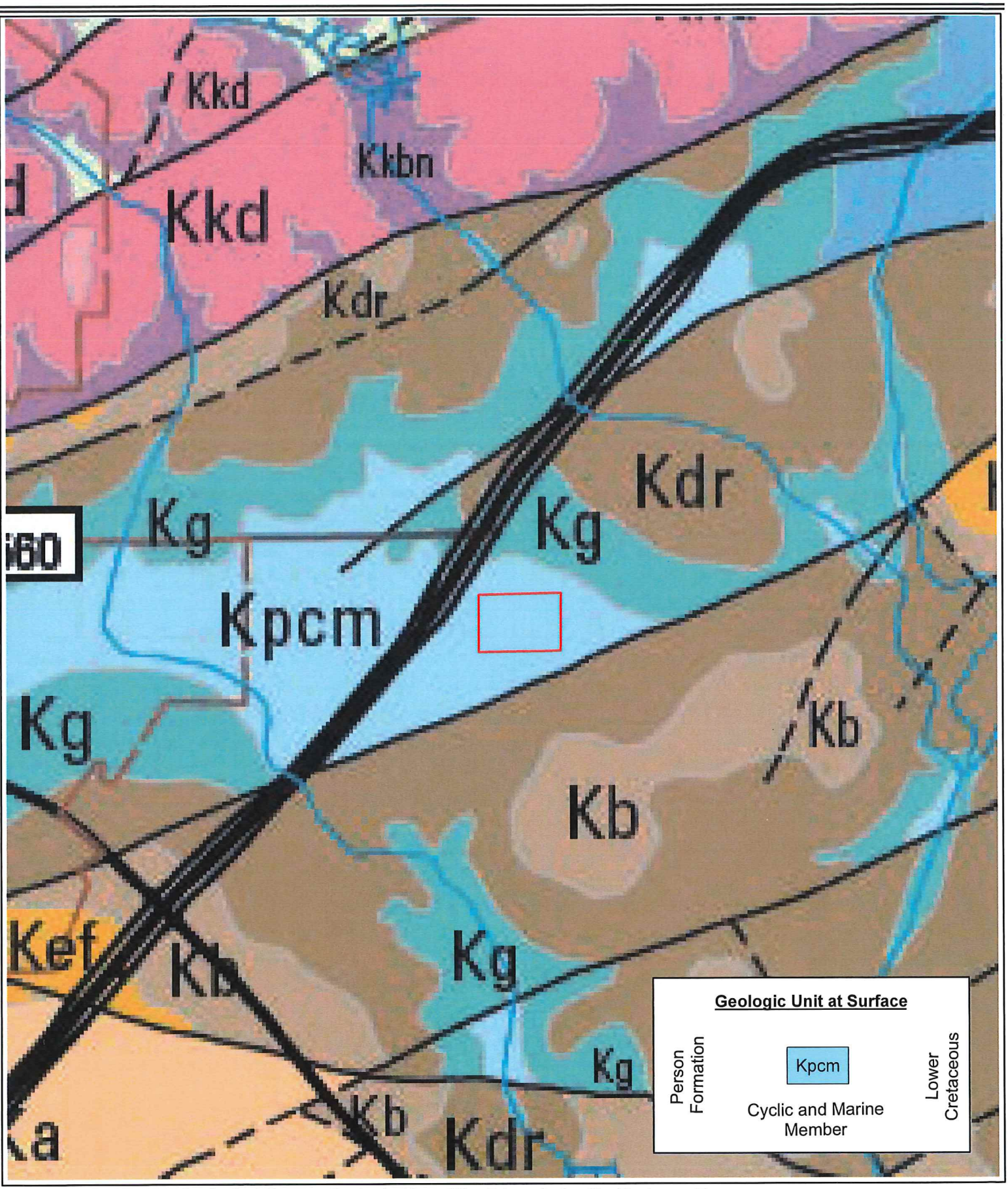
Figure 5: FEMA Map
Stadium Pointe
Geologic Assessment
San Antonio, Bexar County, Texas

N

Author: Dawne M. Butler

0.3 0 0.3 Miles

Date: 5/22/2018



Source: United States Geological Survey, Geologic Map of the Edwards Aquifer Recharge Zone, South-Central Texas, 2016.

Project area

Medina Consulting Company, Inc.

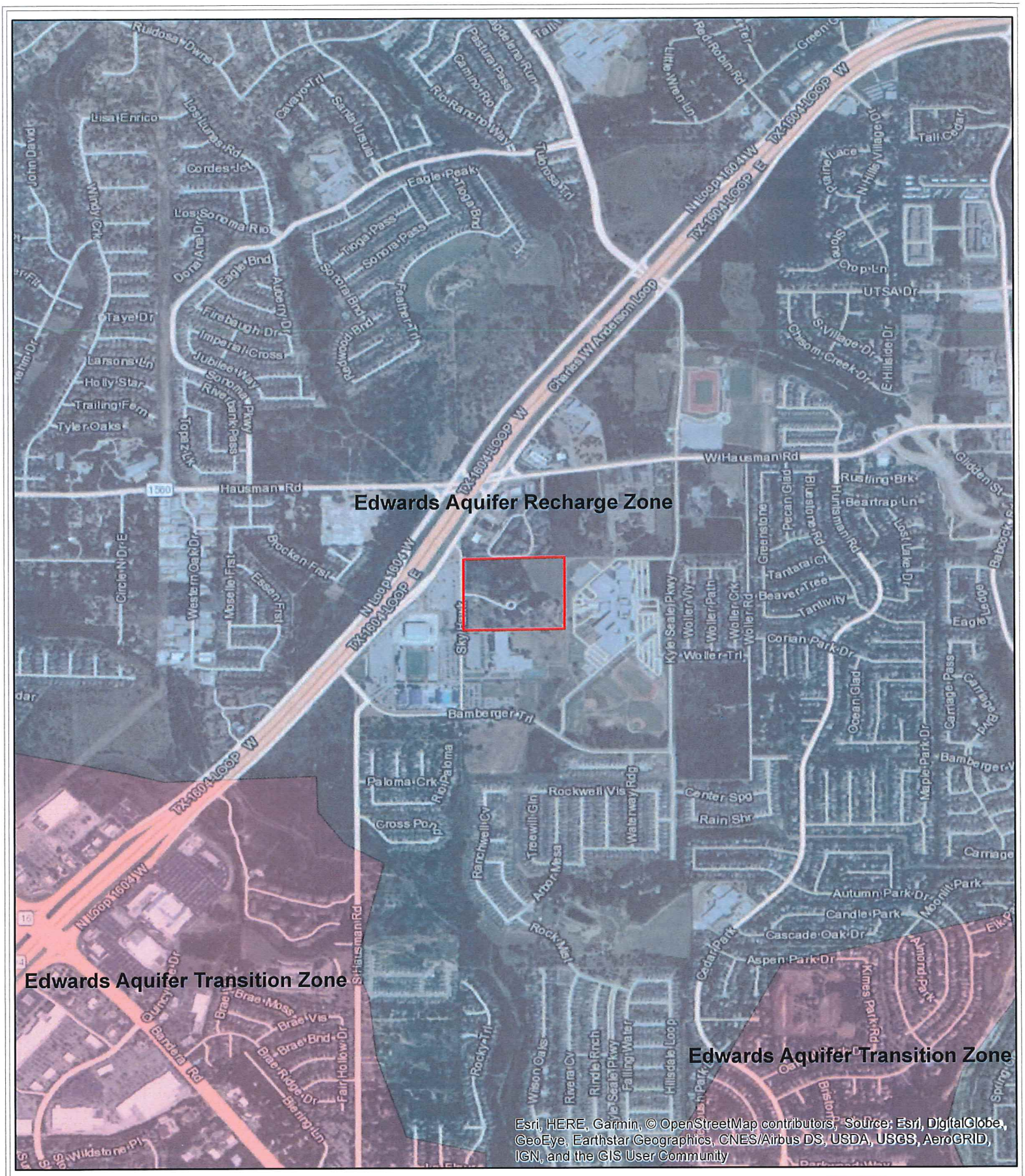
Figure 6: Project Area Geology
Stadium Pointe
Geologic Assessment
San Antonio, Bexar County, Texas

N

Author: Dawne M. Butler

0.35 0 0.35 Miles

Date: 5/31/2018



Source: Edwards Aquifer Authority.

Project area

Medina Consulting Company, Inc.

Figure 7: Edwards Aquifer Recharge Zone
Stadium Pointe
Geologic Assessment
San Antonio, Bexar County, Texas

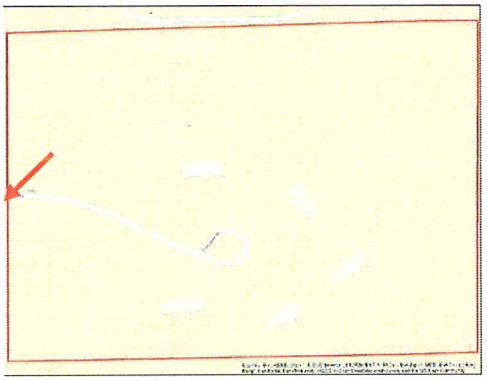
N

Author: Dawne M. Butler

0.3 0 0.3 Miles

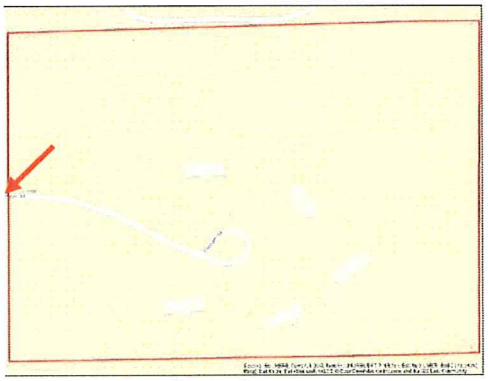
Date: 5/22/2018

PHOTOGRAPHS



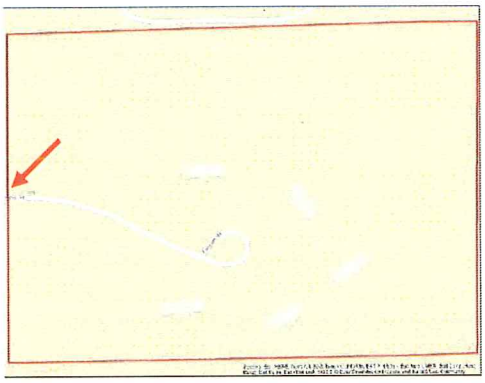
Location

Photo 1: Photo view facing east towards the Site.



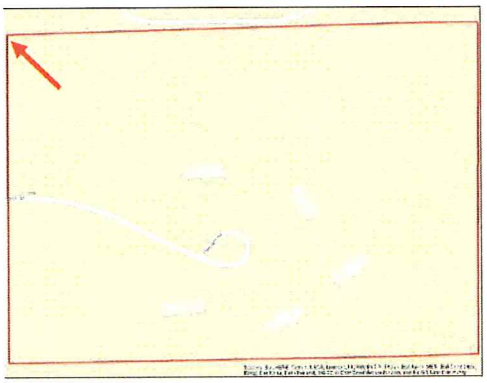
Location

Photo 2: Photo view facing south along Skyhawk Drive on the western edge of the Site.



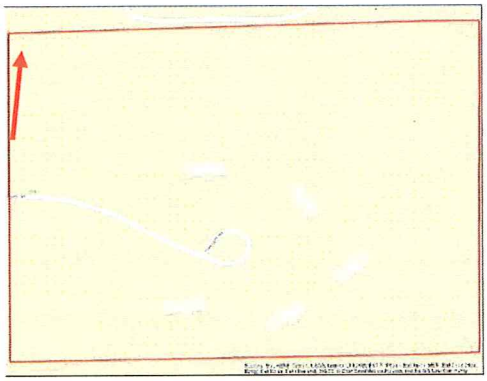
Location

Photo 3: Photo view facing north along Skyhawk Drive on the western edge of the Site.



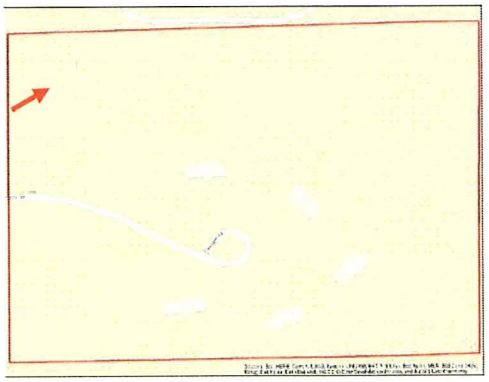
Location

Photo 4: Photo view of culvert and drainage near the northwest corner of the site.



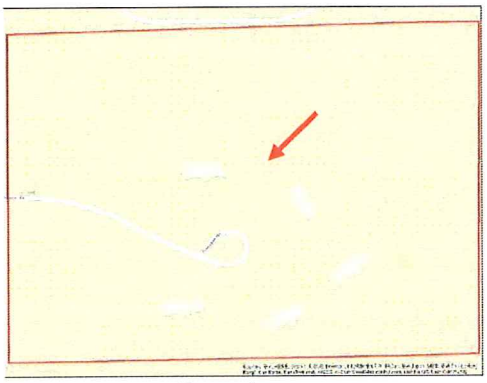
Location

Photo 5: Photo view facing east, showing the cement drainage that extends approximately 450 feet eastward along the northern Site boundary.



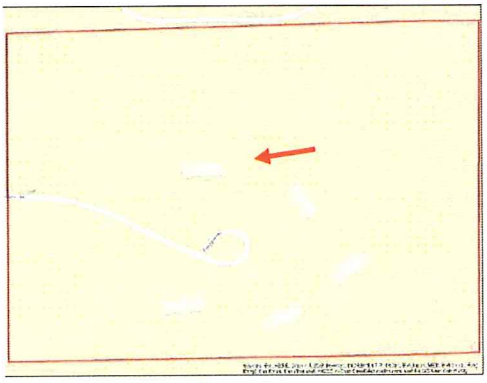
Location

Photo 6: Photo view of dense brush, primarily white sage, that fills the northwest portion of the Site.



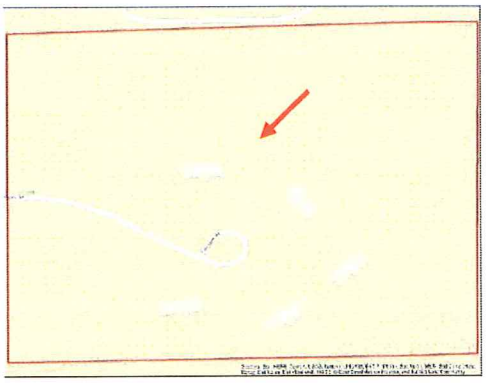
Location

Photo 7: Photo view of a pole (M1) and surrounding vegetation near the center or the Site.



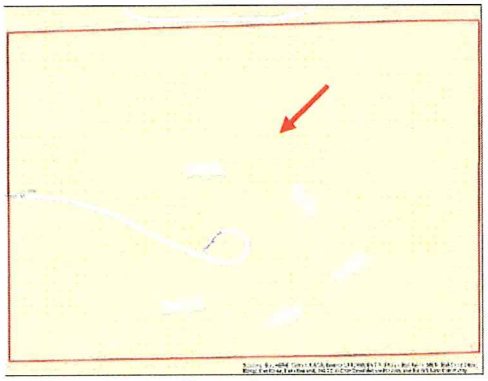
Location

Photo 8: Photo view of a typical residential building and a play structure on the Site.



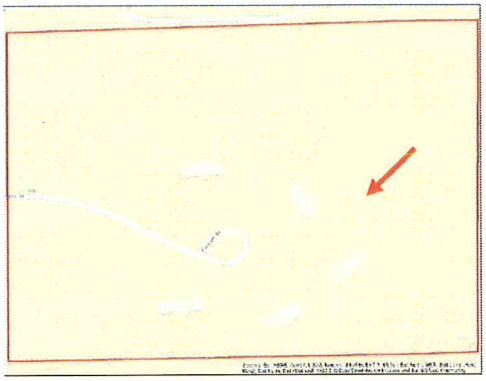
Location

Photo 9: Photo view of limestone outcropping.



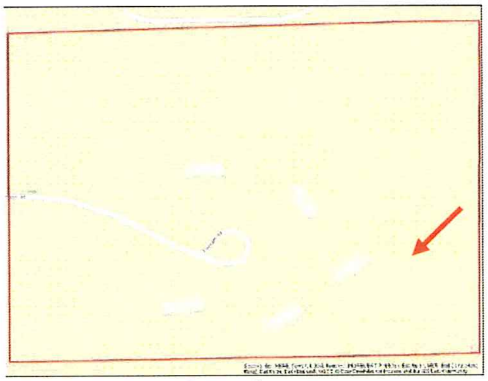
Location

Photo 10: Photo view showing trees in the residential portion of the Site.



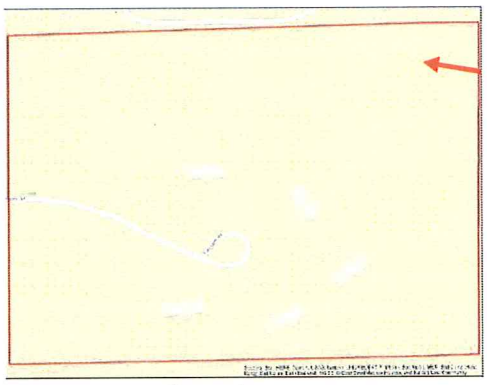
Location

Photo 11: Photo view of weathered limestone boulder.



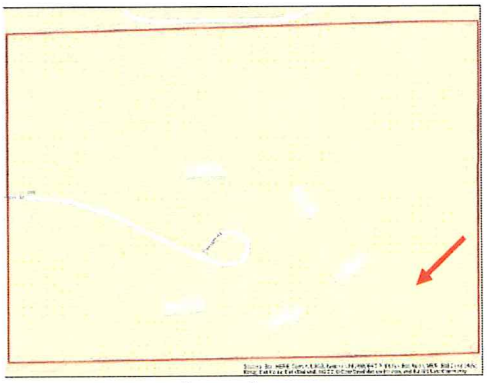
Location

Photo 12: Photo view of disused swimming pool (M3) and associated equipment building, and one of the residential houses near the southeast corner of the Site.



Location

Photo 13: Photo view facing west from the east end of the berm in the northeast corner of the Site.

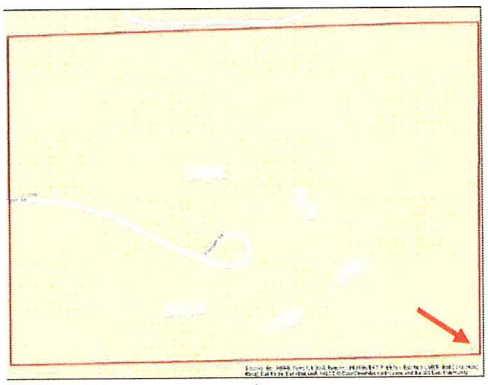


Location

Photo 14: Photo view of a large fossiliferous limestone boulder near the southeast corner of the Site; presumed removed from elsewhere on the Site during construction.

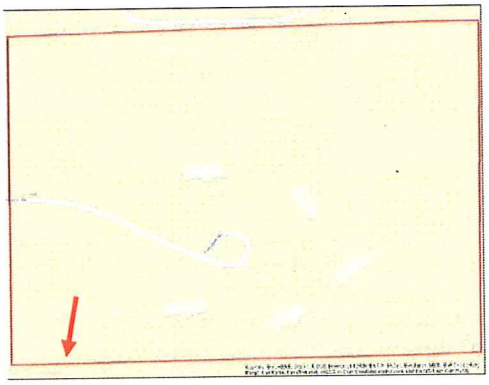
Location

Photo 15: Photo view of cement lined and covered sewer cleanout (M2), behind the second building on the right (when heading into the Site on Flanagan St.).



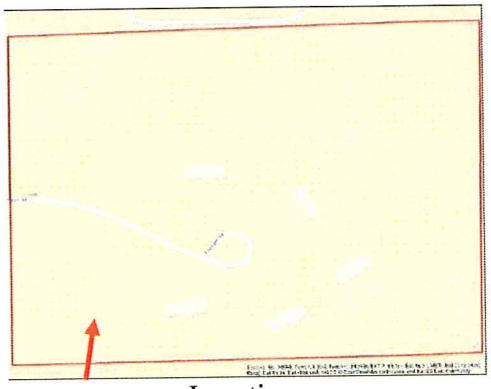
Location

Photo 16: Photo view of cellular communications tower (M4) in the far southeast corner of the Site.



Location

Photo 17: Photo view facing south of culvert on the southern boundary of the Site.



Location

Photo 18: Photo view facing north, of swale and culvert in the background.

REFERENCES

Bexar County Appraisal District, 2018, The property search page, http://www.bcad.org/clientdb/PropertySearch.aspx?cid=1, Accessed May 8, 2018.

Blome, C. D., Faith, J. R., Pedraza, D. E., Ozuna, G. B., Cole, J. C., Clark, A. K., Small, T. A., Morris, R. R., compilers, 2005, USGS Scientific Investigations Map 2873, Geologic Map of the Edwards Aquifer Recharge Zone, South-Central Texas.

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Clark, A. K., Gloab, J. G., Morris, R. R., 2016, Geologic framework and hydrostratigraphy of the Edwards and Trinity aquifers within northern Bexar and Comal Counties, Texas: USGS Scientific Investigations Map 3366, 1 sheet, scale 1:24,000, pamphlet, https://doi.org/10.3133/sim3366.

Stein, W. G., and Ozuna, G. B., 1995, Geologic Framework and Hydrogeologic Characteristics of the Edwards Aquifer Recharge Zone, Bexar County, Texas: U.S. Geol. Survey, Water - Resources Investigations 95-4030.

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United States Department of Agriculture, Soil Conservation Service, 1966, Soil Survey of Bexar County, Texas.

United States Department of Agriculture, Natural Resources Conservation Service, Web Soil Survey, http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx, accessed May 6, 2018.

ATTACHMENT D – SITE GEOLOGIC MAPS

Source: NRCS, Web Soil Survey.

Project area Soils

Medina Consulting Company, Inc.

Attachment D1: Soil Map
Stadium Pointe
Geologic Assessment
San Antonio, Bexar County,Texas

N

Author: Dawne M. Butler

0.1 0 0.1 Miles

Date: 5/22/2018

Attachment D1: Project area Geology
Stadium Pointe Geologic Assessment
San Antonio, Bexar County, Texas

Project area
Manmade features
Faults
Geology
Person fm., cyclic and marine member

STATE OF TEXAS
Douglas A. McGookey
Geologist
License Number 368
LICENSED
PROFESSIONAL GEOSCIENTIST
8-27-18

N

Author: Dawne M. Butler

40 0 40 Feet

Date: 8/27/2018

Medina Consulting Company, Inc.

Source: United States Geological Survey, https://mrdata.usgs.gov/geology/state/state.php?state=TX

Water Pollution Abatement Plan Application

Texas Commission on Environmental Quality

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

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

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

Signature

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

Print Name of Customer/Agent: Brian Crowell, PE, LEED AP

Date: 09/22/2020

Signature of Customer/Agent:

_____

Regulated Entity Name: Stadium Pointe PUD Unit 2&3

Regulated Entity Information

1. The type of project is:

   ☒ Residential: Number of Lots:112
   ☐ Residential: Number of Living Unit Equivalents:_____
   ☐ Commercial
   ☐ Industrial
   ☐ Other:_____

2. Total site acreage (size of property):16.28

3. Estimated projected population:672

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

Table 1 - Impervious Cover Table

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	168,940	÷ 43,560 =	3.88
Parking	8,480	÷ 43,560 =	0.19
Other paved surfaces	231,600	÷ 43,560 =	5.32
Total Impervious Cover	409,020	÷ 43,560 =	9.39

Total Impervious Cover 9.39 **÷ Total Acreage** 16.28 **X 100 =** 57.7**% Impervious Cover**

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

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

For Road Projects Only

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

7. Type of project:

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

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

   ☐ Concrete
   ☐ Asphaltic concrete pavement
   ☐ Other: _____

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

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

10. Length of pavement area: _____ feet.

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

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

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

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

Stormwater to be generated by the Proposed Project

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

Wastewater to be generated by the Proposed Project

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

100% Domestic	26,880Gallons/day
_____% Industrial	_____Gallons/day
_____% Commingled	_____Gallons/day
TOTAL gallons/day 26,880	

15. Wastewater will be disposed of by:

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

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

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

☒ Sewage Collection System (Sewer Lines):

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

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

☐ The SCS was previously submitted on_____.

☒ The SCS was submitted with this application.

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

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

☒ Existing.
☐ Proposed.

16. ☒ All private service laterals will be inspected as required in 30 TAC §213.5.

Site Plan Requirements

Items 17 – 28 must be included on the Site Plan.

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

Site Plan Scale: 1" = 40'.

18. 100-year floodplain boundaries:

☐ Some part(s) of the project site is located within the 100-year floodplain. The floodplain is shown and labeled.
☒ No part of the project site is located within the 100-year floodplain.
The 100-year floodplain boundaries are based on the following specific (including date of material) sources(s): FEMA FIRM48029C0210G eff. 9/29/2010

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

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

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

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

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

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

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

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

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

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

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

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

26. ☐ Surface waters (including wetlands).

    ☒ N/A

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

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

28. ☒ Legal boundaries of the site are shown.

Administrative Information

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

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

Supplemental Attachments for

TCEQ F-0584 WPAP Application Form

Stadium Pointe PUD, Unit 2&3

Table of Attachments:

Attachment A: Factors Affecting Surface Water Quality
Attachment B: Volume and Character of Stormwater
Attachment C: Suitability Letter from Authorized Agent
Attachment D: Exception to the Required Geologic Assessment
Attachment E: TCEQ Site Plan

ATTACHMENT A | Factors Affecting Surface Water Quality

There are several factors that can affect water quality as a result of the proposed residential development. These may include, but are not limited to:

- Increased storm water runoff from the increase in impervious area.
- Increase contamination from vehicle traffic. This includes trash and debris from waste collection trucks as well as chemical contaminants (vehicle fluids) from personal vehicles.
- Contamination of soils from grading and site excavation activities during construction.
- Erosion and silt runoff from construction activities.

To address these potential factors, Temporary Best Management Practices (TBMPs) will be installed during construction and monitored/inspected periodically to prevent adverse impact to the water quality during construction. More detailed information can be found in the "Temporary Storm Water" Section of this WPAP Application. Two on-line batch detention facilities are proposed for post-construction BMP. The batch detention facilities will remove pollutants from stormwater by allowing a 12 hour settlement period following the conclusion of a rain event and subsequently releasing treated stormwater beginning with the top of the detained water quality volume over a 46 hour drawdown period. Additional details are provided in the "Permanent Stormwater" section of this report.

ATTACHMENT B | Volume and Character of Stormwater

Volume of Runoff

The following tables include the pre-development and ultimate conditions runoff calculations for Stadium Pointe (refer to Drainage Area Maps (Attachment G, Temporary Stormwater Section TCEQ-0602):

Pre-Development Conditions								
Study Point	**C (Coeff)**	**Area (ACRES)**	**I-5 (IN/HR)**	**I-25 (IN/HR)**	**I-100 (IN/HR)**	**Q-5 (CFS)**	**Q-25 (CFS)**	**Q-100 (CFS)**
1	0.51	11.5	4.167	5.780	7.200	24.6	34.2	42.6
2	0.56	6.2	4.355	6.042	7.533	15.2	21.2	26.4
3	0.47	6.7	3.926	5.444	6.778	12.5	17.3	21.5

Ultimate Conditions								
Study Point	**C (Coeff)**	**Area (ACRES)**	**I-5 (IN/HR)**	**I-25 (IN/HR)**	**I-100 (IN/HR)**	**Q-5 (CFS)**	**Q-25 (CFS)**	**Q-100 (CFS)**
1	0.77	11.8	5.711	7.956	10.016	52.3	72.9	91.8
2	0.75	7.8	4.459	6.189	7.718	26.3	36.5	45.5
3	0.75	4.8	4.572	6.347	7.919	16.6	23.0	28.7

Notes:
1. A 3.6 acre portion of Stadium Pointe Unit 2&3 lies within an 11.8 acre drainage area to an off-site water quality and stormwater detention facility.
2. Ultimate conditions flows shown represent undetained flows to outfall locations. Stormwater detention facilities reduce peak discharge to less than pre-development conditions at all outfalls (study points).

Character of Runoff

Stormwater runoff from a 11.5 acre portion of the Site Area will be captured and treated by two proposed batch detention facilities (see Permanent BMP Section of this Application). The batch detention facilities remove required pollutant loading prior to release downstream. The proposed batch detention facilities each provide stormwater detention volume stored above the water quality volume. The detention volumes and associated outfall structures capture and attenuate peak discharges to pre-development rates for the 5-, 25-, and 100-year storm events and are designed in accordance with the City of San Antonio Drainage Criteria Manual.

Stormwater runoff from a 3.6 acre portion of the Site Area will be conveyed to an existing partial sedimentation and filtration system that was designed and approved to receive and treat the runoff. A flow splitter upstream of the existing water quality basin routes stormwater exceeding the water quality volume to an existing detention facility that releases proposed condition runoff at pre-developed condition peak rates. The existing detention facility was designed to capture and attenuate runoff from the 3.6 acre portion of the Site Area.

ATTACHMENT C | Suitability Letter from Authorized Agent

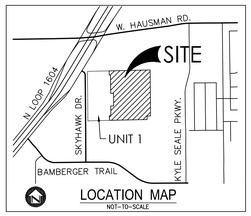
This section dos not apply. An onsite sewage facility is not proposed for this project. A Sewage Collection System (SCS) Application is being submitted with this applicatoin.

ATTACHMENT D | Exception to the Required Geologic Assessment

This section dos not apply. A Geologic Assessment was performed for the entire master planned development and attached in section TCEQ-0585 of this application.

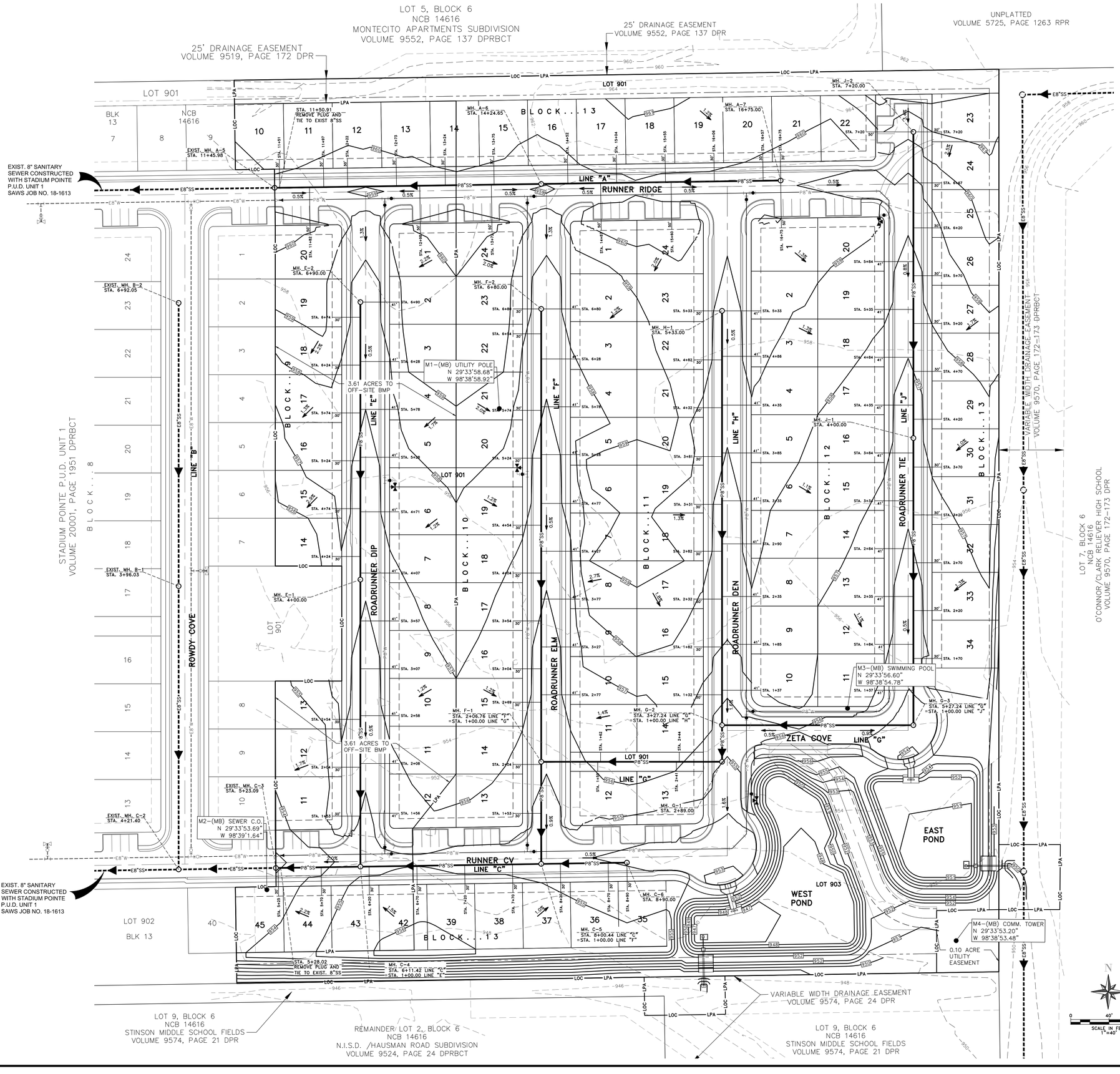
ATTACHMENT E | TCEQ Site Plan

The following Site Plan is substantially in compliance with the site plan requirements found in Items 17-28 of the WPAP Application Form (TCEQ-0584).



LEGEND

EXISTING MINOR CONTOUR	900
EXISTING MAJOR CONTOUR	900
EXISTING SANITARY SEWER MAIN	E8"SS
EXISTING SANITARY SEWER MANHOLE	
EXISTING WATERLINE	E8"W
DIRECTION OF FLOW	
LIMITS OF PLAT (16.38 AC)	
LIMITS OF CONSTRUCTION (16.46 AC)	LOC
LIMITS OF PLAN AREA (12.85 AC)	LPA
PROPOSED CONTOUR	900
PROPOSED SANITARY SEWER MAIN	P12"SS
PROPOSED SANITARY SEWER MANHOLE	
PROPOSED WATERLINE	P8"W
PROPOSED FLOW ARROW	X.X%



NOTES:

1. NO PART OF THE PROJECT SITE IS LOCATED WITHIN THE 100 YEAR FLOODPLAIN BOUNDARIES ACCORDING TO FEMA FIRM MAP NO.48029C0210G DATED SEPTEMBER 29, 2010.
2. THERE ARE NO WELLS OR TEST HOLES OF ANY KIND KNOWN TO EXISTING WITHIN THE PROJECT BOUNDARIES.
3. TOTAL PLATTED ACREAGE FOR STADIUM POINTE PUD UNIT 2 & 3 IS 16.38 ARCES.
4. TOTAL SITE AREA IS 16.28 ACRES (16.38 AC. PLAT AREA – 0.10 AC UTILITY EASEMENT)
5. ± 0.18 ACRE OFF-SITE AREA WILL BE DISTURBED TO TIE IN OUTFALLS.
6. TOTAL DISTURBED AREA (LIMITS OF CONSTRUCTION) IS 16.46 ACRES (16.28+0.18)
7. TOTAL PLAN AREA IS 12.85 ACRES (16.46–3.61 AC. TO OFF-SITE BMP)
8. PLEASE NOTE THE CONSTRUCTION OF THE DUPLEXES WILL COMMENCE MORE OR LESS AFTER THE PERMANENT BMP'S ARE IN PLACE.
9. CALCULATING THE AREA OF DISTURBANCE:

±4.76 ACRES	PRIVATE STREETS/SIDEWALKS/PARKING/GREENWAY
±1.80 ACRES	BATCH DETENTION FACILITIES
±9.72 ACRES	LOT GRADING
±0.18 ACRES	OFF-SITE DRAIN TIE-INS
±16.46 ACRES	TOTAL DISTURBED AREA (LIMITS OF CONSTRUCTION)

10. APPROXIMATELY 16.46 ACRES WILL BE DISTURBED BY CONSTRUCTION ACTIVITIES. SOIL STABILIZATION WILL BE IMPLEMENTED PRIMARILY BY THE FOLLOWING PRACTICES:
    a. RE-ESTABLISHMENT OF VEGETATION, AROUND THE PERIMETER OF THE DISTURBED AREAS, TO BE MAINTAINED BY THE OWNER AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED TO ENSURE IT HAS BEEN ADEQUATELY ESTABLISHED.
    b. INSTALLATION OF CONCRETE BUILDING SLAB AND SIDEWALKS.
    c. ALL DISTURBED SOIL WILL BE STABILIZED AS PER PROJECT SPECIFICATIONS IN ACCORDANCE TCEQ'S TECHNICAL GUIDANCE MANUAL (TGM) RG-348.

SUBMITTAL SET

NO.	REVISION	DATE

CDS Muery F-1733
STATE OF TEXAS
BRIAN A. CROWELL
82619
REGISTERED
PROFESSIONAL ENGINEER
09/21/2020

CDS muery
ENGINEERS | SURVEYORS
100 NE Loop 410, Ste. 300 | San Antonio, Texas 78216
(210) 581-1111 | TBPE No. F-1733 | TBPLS No. 100495-00

PLAT NO. 19-11800164

JOB NO. 118008.04
DATE AUGUST 2020
DESIGNER JBG
CHECKED BC DRAWN J.W.G.

STADIUM POINTE P.U.D.
UNIT 2 & 3
SAN ANTONIO, TEXAS
TCEQ SITE PLAN

SHEET EXH

Date: Sep 21, 2020, 5:06pm User ID: jon.gross
File: J:\2018\118008.04 Stadium Pointe Phase 2\Civil 3D\Dwg\Engineer\Exhibits\118008_TCEQ Site Plan.dwg

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: Brian Crowell, PE, LEED AP (Agent)

Date: 09/21/2020

Signature of Customer/Agent:

Regulated Entity Name: Stadium Pointe PUD, Unit 2&3

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: N/A

   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: French Creek (within Leon Creek watershed)

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.

Supplemental Attachments for

TCEQ F-0602 Temporary Stormwater Section

Stadium Pointe PUD, Unit 2&3

Table of Attachments:

Attachment A:	Spill Response Actions
Attachment B:	Potential Sources of Contamination
Attachment C:	Sequence of Major Activities
Attachment D:	Temporary Best Management Practices and Measures
Attachment E:	Request to Temporarily Seal a Feature (Not Applicable)
Attachment F:	Structural Practices
Attachment G:	Drainage Area Map
Attachment H:	Temporary Sediment Pond Plan and Calculations
Attachment I:	Inspection and Maintenance for BMPs
Attachment J:	Schedule of Interim and Permanent Soil Stabilization Practices

ATTACHMENT A | Spill Response Actions

Responsible Party

During construction, the responsible party for cleaning up spill can be any combination of the following individuals:

1. The owner or operator, including contractor (while during construction) of a facility from which a spill occurs.
2. The owner, operator, including contractor, operating a vehicle from which the spill occurs.
3. Other individual who caused or allowed the spill or discharge to occur.

Spill Classification

There are two main categories of spills that can be identified: Major Spills and Minor Spills. Spill response actions and notifications to municipal entities may differ depending on the type and degree of spill.

Major Spills can be classified as any spills where:

1. Material is considered a health or physical hazard based on its chemical or physical make up, or if the quantity of the spill exceeds the Reportable Quantity (RQ) as defined under Title 30 of the Texas Administrative Code (TAC) Chapter 327.4.
2. The spilled material has entered into the storm water drainage system, catchment basin, or adjoining creek or if it appears that discharge into the storm system will occur in the immediate future.
3. The spilled material has the ability to travel offsite.
4. The spilled material adversely affects the environment.
5. The spilled material cannot be controlled or contained by the responsible party.
6. The chemical or physical properties of the spilled material cannot be identified or is unknown.

Minor Spills are spills that do not meet the above criteria for major spills.

Notification and Reporting Agencies

The following entities shall be contact during discovery of a spill:

1. State of Texas 24-Hour Spill-Reporting Hotline and the State Emergency Response Commission at **1-800-832-8224**
2. Texas Commission on Environmental Quality (San Antonio Regional Office), Monday-Friday, 8:00 a.m.–5:00 p.m. at 14250 Judson Rd**,** San Antonio TX 78233-4480**,** Main Line: **210-490-3096**

Reporting Items for Major Spills

When reporting a spill, the following information may be required to help identify, log, and track the spill:

1. The date/time of the spill.
2. The identity/name of material released or spilled, and if the substance is considered hazardous.
3. The source of the release or spill.
4. The quantity of material released or spilled.
5. The time or duration of which the spill occurred.
6. The location/address of the spill.
7. The name of creek or waters involved or threatened and the extent of potential water pollution.
8. The contact information of the responsible party.
9. The steps being taken or proposed to contain and clean up the released or spilled material and any additional precautions.
10. Any injuries resulting from the spill, any known or anticipated health risks associated with the spill, or if additional medical precautions are required.
11. The identities of any municipal or private-sector representatives responding at the scene of the spill.

12. Possible hazards to the environment (air, soil, water, wildlife, etc.). This assessment may include references to accepted chemical databases, material safety data sheets, and health advisories. The TCEQ may request estimated or measured concentrations of the contaminant for the state's hazard assessment.

Reporting Items for Minor Spills

For minor spills that occur, the notification sequence described above is not required and can be treated directly onsite by the responsible parties involved by:

1. The first observer of the spill shall notify his/her supervisor and the onsite safety officer.
2. The supervisor must notify the owner, tenant, or their primary contact.
3. The immediate spill response plan/clean up actions shall be conveyed, documented and the owner/tenant shall be notified once cleanup is completed.

Equipment Needed for Minor Spills

Equipment and materials used to contain and/or restrict spreading of a spill can consist of spill pans and various forms of absorbent materials; which include granular material, socks, rock and gravel berms, pillows or pads, and sheets. Spill pans or pads can be placed under a continuing drip-type leak. Surrounding a minor spill with berms or socks can contain a small spill area until proper removal procedures can occur.

ATTACHMENT B | Potential Sources of Contamination

Potential sources of contamination for this project include:

- Drippings from vehicles, both construction and non-construction related.
- Grading and excavation activities: Stormwater runoff has the potential to be contaminated during the construction process with related excavation and site grading.
- Building materials: Materials include, but not limited to, concrete, wood, mortar, and paint among other materials.
- Trash and debris: These may include household trash items such as paper bags, cups, plastic ware, and food items.

ATTACHMENT C | Sequence of Major Activities

The following is the general sequence of major activities for this project:

1. Install temporary erosion control measures. (±1.5 Acres – Various Locations)
2. Demolition of existing sidewalks, driveways, parking areas, building foundations. (± 1.6 Acres)
3. Site grading and excavation. (± 16.5 Acres)
4. Trenching and utility work for on-site water and sewer mains. (±1.5 Acres)
5. Base material for roadways and sidewalks will be placed. (±3.8 Acres)
6. Construction of batch detention facilities and cell tower access drive (±1.8 Acres)
7. Asphalt and concrete flatwork, including parking facilities as well as curbing will be installed. (± 3.8 Acres)

For each of the items above, the necessary Temporary BMPs (TBMPs) and erosion control measures will be in-place prior to major construction activities such as grading, utility installation, and roadway construction. Following construction activities, soil stabilization controls will be implemented and temporary measures will be removed as needed on an individual basis.

Total disturbed area due to proposed construction will be approximately 16.46 acres. Duplexes will be constructed more or less after the permanent BMPs are established, which will bring the total impervious area to 9.39 acres.

ATTACHMENT D | Temporary Best Management Practices and Measures

a. Storm Water Up-gradient of the Project Site
No up-gradient offsite areas discharge stormwater to Stadium Pointe Unit 2 & 3 (Site Area). Stormwater runoff from up-gradient areas is intercepted and diverted around the Project Site by existing channels.

b. Storm Water Originating On-Site
No areas of the Project Site directly discharge into surface streams, sensitive features or the aquifer. All runoff from disturbed areas will have been treated by either temporary or permanent BMPs before ultimately discharging into French Creek (a tributary within the Leon Creek Watershed).

c. Prevention of Pollutants from Entering Surface Streams, Sensitive Features, and Aquifer
Temporary and permanent BMPs will be installed with respect to the Site Area drainage patterns. All runoff from disturbed areas will have been treated by either temporary or permanent BMPs before ultimately discharging into French Creek (a tributary within the Leon Creek Watershed).

d. Maintaining Flow During Construction
Temporary and permanent BMPs will be installed with respect to the Site Area drainage patterns. Temporary BMPs will be installed to control silt and sediment from leaving the Limits of Construction during permanent BMP installation.

ATTACHMENT E | Request to Temporarily Seal a Feature

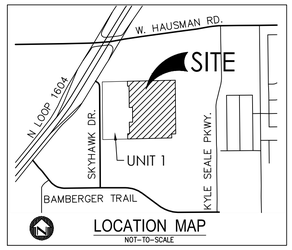
This section does not apply for this project. There will not be temporary sealing of naturally-occurring sensitive features on the site.

ATTACHMENT F | Structural Practices

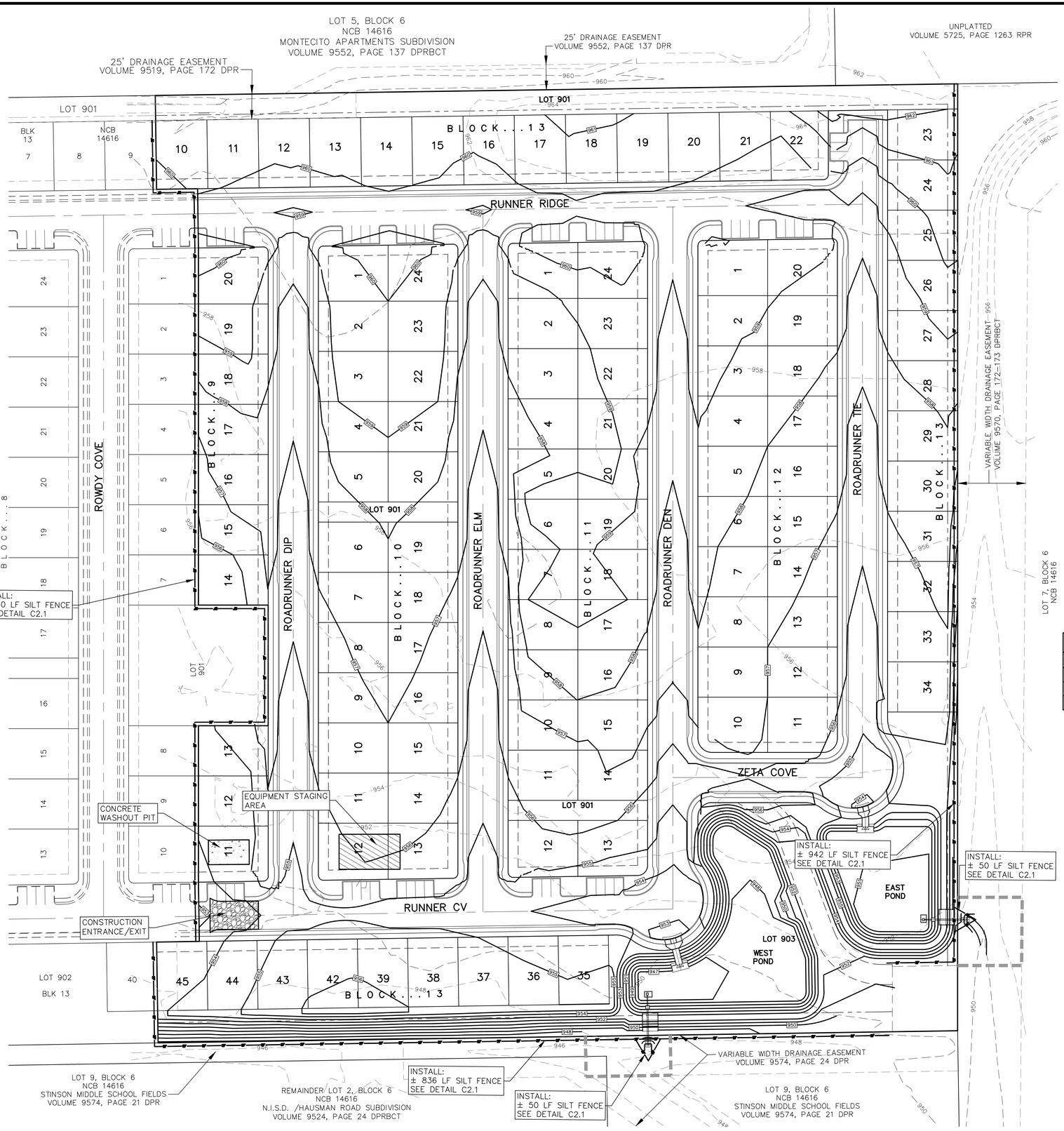
Temporary structural practices include:

- Silt Fencing: To be placed along the down gradient boundary of the limits of construction activities.
- Gravel Filter Bags: Shall be used at the entrance to curb openings, around inlets, etc. to minimize siltation of the storm drain system and/or batch detention basins.
- Rock Berms: To serve as a secondary barrier to silt fencing and is to be placed in areas of concentrated flows, where indicated on construction plans, such as proposed channels and drainage swales.
- Construction Entrance/Exit: Will be placed to limit migration of sediment from the jobsite as construction traffic enters and exits the construction site.
- Concrete Washout-Pits: To contain and control affected runoff from cement delivery trucks.

Please note that this site is not located within a studied floodplain and is not exposed to potential flooding that may occur during heavy rainfall periods. Therefore, site inundation is not expected to adversely impact proposed TBMP structures.



LOCATION MAP
NOT-TO-SCALE



LEGEND

EXISTING CONTOURS	885
FLOW ARROW	
SWALE	
LIMITS OF CONSTRUCTION	
APPROXIMATE 100YR WATER SURFACE	
STABILIZED CONSTRUCTION ENTRANCE/EXIT	
SILT FENCE AND/OR APPROPRIATE SUBSTITUTE	SF SF
*CONCRETE WASH OUT PIT	
*EQUIPMENT STAGING AREA	
BAGGED GRAVEL INLET FILTER AND/OR APPROPRIATE SUBSTITUTE	

* NOTE: ACTUAL LAYOUT DETERMINED IN FIELD, SHOULD BE PLACED IN THE PROXIMITY OF THE CONSTRUCTION ENTRANCE/EXIT AND NOT LOCATED NEAR A WELL, FLOODPLAIN, OR OTHER POTENTIAL SOURCES OF CONTAMINATION.

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 SITES 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 THESE 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.

CAUTION:

THE LOCATION OF EXISTING UTILITIES ARE APPROXIMATE. CONTRACTOR SHALL VERIFY THE EXACT LOCATION PRIOR TO COMMENCING WORK AND IS RESPONSIBLE FOR ANY/ALL DAMAGES RESULTING FROM THE FAILURE TO LOCATE AND PRESERVE UTILITIES.

GENERAL NOTES:

1. CONSTRUCTION ENTRANCE/EXIT LOCATION, CONCRETE WASHOUT PIT AND CONSTRUCTION EQUIPMENT AND STORAGE AREA ARE TO BE DETERMINED IN THE FIELD. THEY ARE SHOWN ON THIS PLAN FOR ILLUSTRATION PURPOSES ONLY.
2. IF NECESSARY, CONTRACTOR MAY MODIFY STORMWATER CONTROLS TO ACHIEVE THE DESIRED INTENT. ANY CHANGES ARE TO BE NOTED, SIGNED AND DATED BY THE RESPONSIBLE PARTY IN THE TPDES BOOK.
3. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL STORMWATER CONTROLS.
4. REFER TO TPDES BOOK FOR THIS PROJECT FOR MORE INFORMATION/DETAILS.
5. CONTRACTOR SHALL IMMEDIATELY NOTIFY ENGINEER OF ANY QUESTIONS REGARDING THE INTENT OF THIS PLAN.
6. CONTRACTOR IS REQUIRED TO FILE NOI'S (NOTICE OF INTENT) AND NOT'S (NOTICE OF TERMINATION) FOR THIS PROJECT. REFER TO TPDES FOR PROPER POSTING REQUIREMENTS AND DOCUMENTS.
7. A COPY OF THIS PLAN AND THE TPDES BOOK MUST REMAIN AT THE CONSTRUCTION SITE AT ALL TIMES.
8. BARE SOILS SHOULD BE HYDRO MULCHED WITHIN 14 CALENDAR DAYS AFTER FINAL GRADING OR WHERE CONSTRUCTION ACTIVITY HAS TEMPORARILY CEASED FOR MORE THAN 21 DAYS.
9. ALL DISTURBED OR EXPOSED AREAS SUBJECT TO EROSION SHALL BE STABILIZED WITH MULCH FOR TEMPORARY VEGETATIVE COVER. NO AREA SUBJECT TO EROSION SHALL BE LEFT DISTURBED AND UNSUITABLE FOR PERIODS LONGER THAN IS ABSOLUTELY NECESSARY TO CARRY OUT THAT PORTION OF THE CONSTRUCTION WORK, OR 1 WEEK AFTER SOIL HAS BEEN DISTURBED, WHICHEVER IS LESS.
10. CONTRACTOR TO PROVIDE A COPY OF THE SIGNED AND CERTIFIED CONSTRUCTION SITE NOTICE TO THE OPERATOR OF THE MUNICIPAL SEPARATE STORM SEWER SYSTEM RECEIVING THE DISCHARGE AT LEAST TWO DAYS PRIOR TO COMMENCING OF CONSTRUCTION ACTIVITY.

CIVIL SHEET INDEX

SHT. NO	SHEET TITLE
C2.0	STORMWATER POLLUTION PREVENTION PLAN
C2.1	STORMWATER POLLUTION PREVENTION PLAN DETAILS
C2.2	GRADING PLAN

N

0 50' 100'
SCALE IN FEET
1"=50'

OWNER'S CERTIFICATION

I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY SUPERVISION IN ACCORDANCE WITH SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION 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 (OWNER) DATE

CONTRACTOR'S CERTIFICATION

I CERTIFY UNDER PENALTY OF LAW THAT I UNDERSTAND THE TERMS AND CONDITIONS OF THE GENERAL NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) 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

SUBMITTAL SET

NO.	REVISION	DATE

CDS Muery F-1733

STATE OF TEXAS
BRIAN A. CROWELL
82619
REGISTERED PROFESSIONAL ENGINEER
09/21/2020

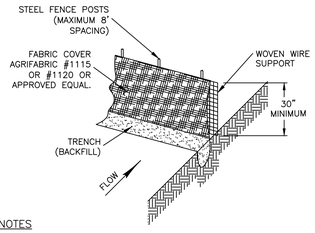
CDS muery
ENGINEERS | SURVEYORS
100 NE Loop 410, Ste. 300 | San Antonio, Texas 78216
(210) 581-1111 | TBPE No. F-1733 | TBPLS No. 100495-00

PLAT NO. 19-11800164
JOB NO. 118008.04
DATE -
DESIGNER -
CHECKED - DRAWN -

STADIUM POINTE P.U.D. UNIT 2 & 3
SAN ANTONIO, TEXAS
STORMWATER POLLUTION PREVENTION PLAN

SHEET C2.0

Date: Sep 21, 2020, 4:29pm User ID: jon.gross
File: F:\2018\118008.04 Stadium Point, Phase 2\Civil 3D\Dwg\Engineer\118008_C2.0-SWXP-Grading-Plan.dwg

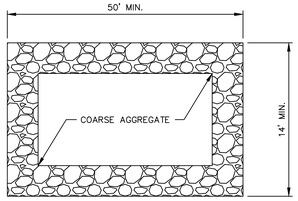


GENERAL NOTES

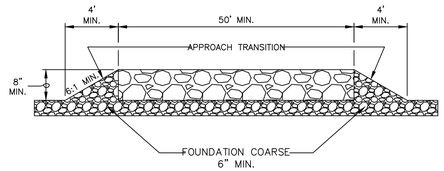
1. STEEL POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE.
2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW.
3. THE TRENCH SHOULD BE A MINIMUM OF 6 INCHES DEEP AND 4–8 INCHES WIDE TO ALLOW FOR THE SILT FENCE TO BE LAID IN THE GROUND AND BACKFILLED.
4. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE STEEL FENCE POSTS.
5. INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
6. SEDIMENT TRAPPED BY THIS PRACTICE SHALL BE DISPOSED OF IN AN APPROVED SITE IN A MANNER THAT WILL NOT CONTRIBUTE TO ADDITIONAL SILTATION.
7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 6 INCHES AND DISPOSED OF IN AN APPROVED SPOIL SITE OR AS IN NO. 6 ABOVE.

SILT FENCE

NOT TO SCALE



PLAN



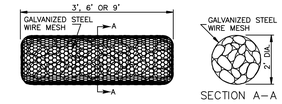
PROFILE

GENERAL NOTES

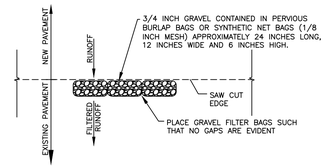
1. THE LENGTH OF THE TYPE 1 CONSTRUCTION EXIT SHALL BE AS INDICATED ON THE PLANS. BUT NOT LESS THAN 50'.
2. THE COARSE AGGREGATE SHOULD BE OPEN GRADED WITH A SIZE OF 4" TO 8".
3. THE APPROACH TRANSITIONS SHOULD BE NO STEEPER THAN 6:1 AND CONSTRUCTED AS DIRECTED BY THE ENGINEER.
4. THE CONSTRUCTION EXIT 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)

NOT TO SCALE

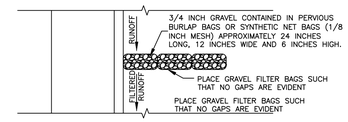


TYPE 4 (SACK GABIONS)

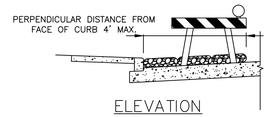


GRAVEL FILTER BAGS

NOT TO SCALE



PLAN

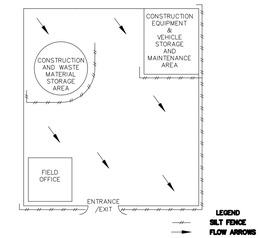


ELEVATION

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

NOT TO SCALE

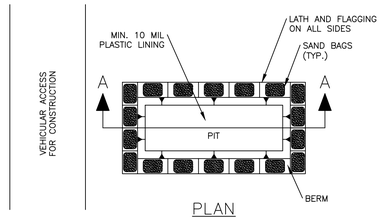


EQUIPMENT STAGING AREA

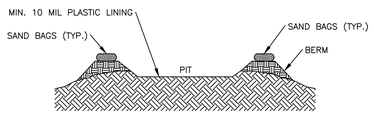
NOT TO SCALE

GENERAL NOTES

1. IF SHOWN ON THE PLANS OR DIRECTED BY THE ENGINEER, FILTER DAMS SHOULD BE PLACED NEAR THE TOE OF SLOPES WHERE EROSION IS ANTICIPATED, UPSTREAM AND/OR DOWNSTREAM AT DRAINAGE STRUCTURES, AND IN ROADWAY DITCHES AND CHANNELS TO COLLECT SEDIMENT.
2. MATERIALS (AGGREGATE, WIRE MESH, SANDBAGS, ETC.) SHALL BE AS INDICATED BY THE SPECIFICATION FOR ROCK FILTER DAMS FOR EROSION AND SEDIMENTATION CONTROL.
3. THE ROCK FILTER DAM DIMENSIONS SHALL BE AS INDICATED ON THE SW3P PLANS.
4. SIDE SLOPES SHOULD BE 2:1 OR FLATTER. DAMS WITHIN THE SAFETY ZONE SHALL HAVE SIDESLOPES OF 6:1 OR FLATTER.
5. MAINTAIN A MINIMUM OF 1' BETWEEN TOP OF ROCK FILTER DAM WEIR AND TOP OF EMBANKMENT FOR FILTER DAMS AT SEDIMENT TRAPS.
6. FILTER DAMS SHOULD BE EMBEDDED A MINIMUM OF 4' INTO EXISTING GROUND.
7. THE SEDIMENT TRAP FOR PONDING OF SEDIMENT LADEN RUNOFF SHALL BE OF THE DIMENSIONS SHOWN ON THE PLANS.
8. ROCK FILTER DAM TYPES 2 & 3 SHALL BE SECURED WITH 20 GAUGE GALVANIZED WOVEN WIRE MESH WITH 1" DIAMETER HEXAGONAL OPENINGS. THE AGGREGATE SHALL BE PLACED ON THE MESH TO THE HEIGHT AND SLOPES SPECIFIED. THE MESH SHALL BE FOLDED AT THE UPSTREAM SIDE OVER THE AGGREGATE AND TIGHTLY SECURED TO ITSELF ON THE DOWNSTREAM SIDE USING WIRE TIES OR HOG RINGS. IN STREAM USE. THE MESH SHOULD BE SECURED OR STAKED TO THE STREAM BED PRIOR TO AGGREGATE PLACEMENT.
9. SACK GABIONS SHOULD BE STAKED DOWN WITH 3/4" DIA. REBAR STAKES.
10. FLOW OUTLET SHOULD BE ONTO A STABILIZED AREA (VEGETATION, ROCK,ETC.).
11. DETAILS SHOWN ARE TYPICAL, SUBJECT TO CONTRACTOR'S SW3P PLAN REQUIREMENTS.
12. SEE SHEET C5.7 FOR EROSION CONTROL MATTING DETAILS.



PLAN



SECTION A–A

GENERAL NOTES

1. DETAIL ABOVE ILLUSTRATES MINIMUM DIMENSIONS. PIT CAN BE INCREASED IN SIZE DEPENDING ON EXPECTED FREQUENCY OF USE.
2. WASHOUT PIT SHALL BE LOCATED IN AN AREA EASILY ACCESSIBLE TO CONSTRUCTION TRAFFIC.
3. WASHOUT PIT SHALL NOT BE LOCATED IN AREAS SUBJECT TO INUNDATION FROM STORM WATER RUNOFF.
4. LOCATE WASHOUT AREA AT LEAST 50 FEET FROM SENSITIVE FEATURES, STORM DRAINS, OPEN DITCHES OR WATER BODIES.
5. TEMPORARY CONCRETE WASHOUT FACILITY SHOULD BE CONSTRUCTED WITH SUFFICIENT QUANTITY AND VOLUME TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS.

MATERIALS

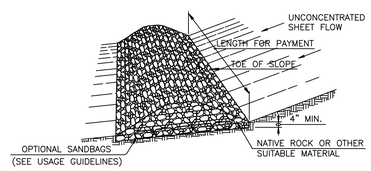
1. PLASTIC LINING MATERIAL SHOULD BE A MINIMUM OF 10 MIL IN POLYETHYLENE SHEETING AND SHOULD BE FREE OF HOLES, TEARS, OR OTHER DEFECTS THAT COMPROMISE THE IMPERMEABILITY OF THE MATERIAL.

MAINTENANCE

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

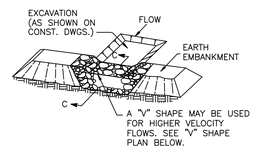
CONCRETE TRUCK WASHOUT PIT

NOT TO SCALE



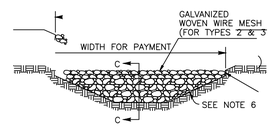
FILTER DAM AT TOE OF SLOPE

NOT TO SCALE



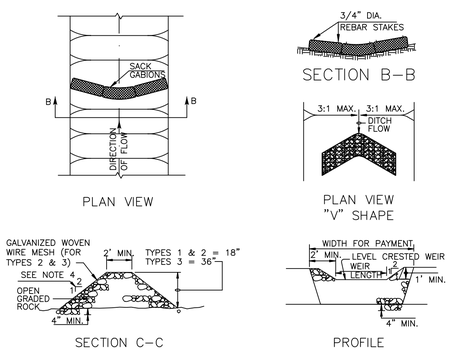
FILTER DAM AT SEDIMENT TRAP

NOT TO SCALE



FILTER DAM AT CHANNEL SECTIONS

NOT TO SCALE



PLANS SHEET LEGEND

TYPE 1 ROCK FILTER DAM — RFD1
TYPE 2 ROCK FILTER DAM — RFD2
TYPE 3 ROCK FILTER DAM — RFD3

MATERIAL NOTES

1. ALL AGGREGATE USED FOR THE CONSTRUCTION OF THE ROCK FILTER DAMS SHALL BE HARD, DURABLE, CLEAN, OPEN–GRADED, AND SHALL NATURALLY RESIST CRUMBLING, FLAKING AND ERODING. AGGREGATE GRADATION SHALL BE 3 TO 6 INCHES FOR ROCK FILTER DAMS TYPES 1, 2 AND 4 AND SHALL BE 4 TO 8 INCHES FOR TYPE 3.
2. THE GALVANIZED STEEL WIRE MESH AND TIE WIRES FOR TYPES 2 AND 3 SHALL BE A MINIMUM 20 GAUGE UNLESS SPECIFIED ON THE PLANS.
3. FOR TYPE 4: STEEL WIRE MESH SHALL UTILIZE A DOUBLE TWISTED HEXAGONAL WEAVE; MESH OPENING SHALL BE A NOMINAL 2.50 X 3.25 INCH, STEEL WIRE FOR NETTING SHALL BE 0.0866 INCH MINIMUM; STEEL WIRE FOR SELVEDGES AND CORNERS SHALL BE 0.1063 INCH (U.S. GAUGE NO. 11) MINIMUM; AND BINDING OR TIE WIRE SHALL BE 0.0866 INCH (U.S. GAUGE NO. 13) MINIMUM.
4. UNLESS OTHERWISE SPECIFIED, THE SANDBAG MATERIAL SHALL BE MADE OF POLYPROPYLENE, POLYETHYLENE OR POLYAMIDE WOVEN FABRIC, MINIMUM UNIT WEIGHT 4 OUNCES PER SQUARE YARD, MULLEN BURST STRENGTH EXCEEDING 300 PSI AND ULTRAVIOLET STABILITY EXCEEDING 70 PERCENT. THE SANDBAG SIZE SHALL BE 24 TO 30 INCHES IN LENGTH, 16 TO 18 INCHES IN WIDTH, 6 TO 8 INCHES THICK AND WEIGH 90 TO 125 POUNDS. THE SAND SHALL BE COARSE GRADE.

ROCK FILTER DAM

NOT TO SCALE

ROCK FILTER DAM USAGE GUIDELINES

1. ROCK FILTER DAMS SHOULD BE CONSTRUCTED DOWNSTREAM FROM DISTURBED AREAS TO INTERCEPT SEDIMENT FROM OVERLOAD RUNOFF AND/OR CONCENTRATED FLOW. THE DAMS SHOULD BE SIZED TO FILTER A MAXIMUM FLOW THROUGH RATE OF 60 GPM/FT OF CROSS SECTIONAL AREA. A 2 YEAR STORM FREQUENCY MAY BE USED TO CALCULATE THE FLOW RATE.
2. TYPE 1 (18" HIGH WITH NO WIRE MESH): TYPE 1 MAY BE USED AT THE TOE OF SLOPES. AROUND INLETS, IN SMALL DITCHES. AND AT DIKE OR SWALE OUTLETS. THIS TYPE OF DAM IS RECOMMENDED TO CONTROL EROSION FROM A DRAINAGE AREA OF 5 ACRES OR LESS. TYPE 1 MAY NOT BE USED IN CONCENTRATED HIGH VELOCITY FLOWS (APPROX. 8 FT./SEC. OR MORE) IN WHICH AGGREGATE WASH OUT MAY OCCUR. SANDBAGS MAY BE USED AT THE EMBEDDED FOUNDATION (4" DEEP MIN.) FOR BETTER FILTERING EFFICIENCY OF LOW FLOWS IF CALLED FOR ON THE PLANS OR DIRECTED BY THE ENGINEER.
3. TYPE 2 (18" HIGH WITH WIRE MESH): TYPE 2 MAY BE USED IN DITCHES AND AT DIKE OR SWALE OUTLETS.
4. TYPE 3 (36" HIGH WITH WIRE MESH): TYPE 3 MAY BE USED IN STREAM FLOW AND SHOULD BE SECURED TO THE STREAM BED.
5. TYPE 4 (SACK GABIONS): TYPE 4 MAY BE USED IN DITCHES AND SMALLER CHANNELS TO FORM AN EROSION CONTROL DAM.

SUBMITTAL SET

NO.	REVISION	DATE

CDS Muery F–1733

STATE OF TEXAS — BRIAN A. CROWELL — 82619 — REGISTERED PROFESSIONAL ENGINEER — 09/21/2020

CDS muery
ENGINEERS | SURVEYORS
100 NE Loop 410, Ste. 300 | San Antonio, Texas 78216
(210) 581-1111 | TBPE No. F-1733 | TBPLS No. 100495-00

PLAT NO. 19-11800164

JOB NO. 118008.04
DATE -
DESIGNER -
CHECKED - DRAWN -

STADIUM POINTE P.U.D. UNIT 2 & 3

SAN ANTONIO, TEXAS

STORMWATER POLLUTION PREVENTION PLAN DETAILS

SHEET C2.1

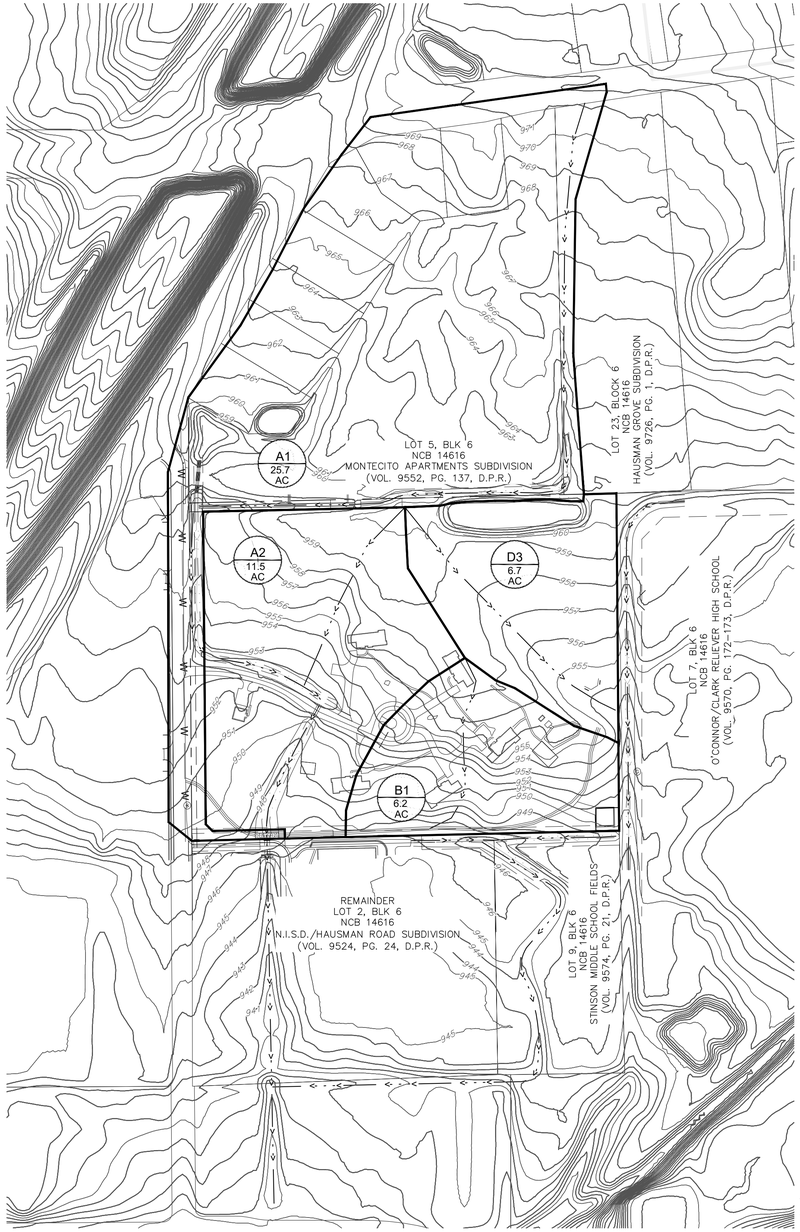
Date: Sep 21, 2020, 4:29pm User ID: jon.gross
File: F:\2018\118008.04 Stadium Point, Phase 2\Civil 3D\Dwg\Engineer\118008_C2.0-SW3P-Grading-Plan.dwg

ATTACHMENT G | Drainage Area Maps

Drainage Area Map - Pre-Development Conditions
Drainage Area Map - Existing and Ultimate Conditions

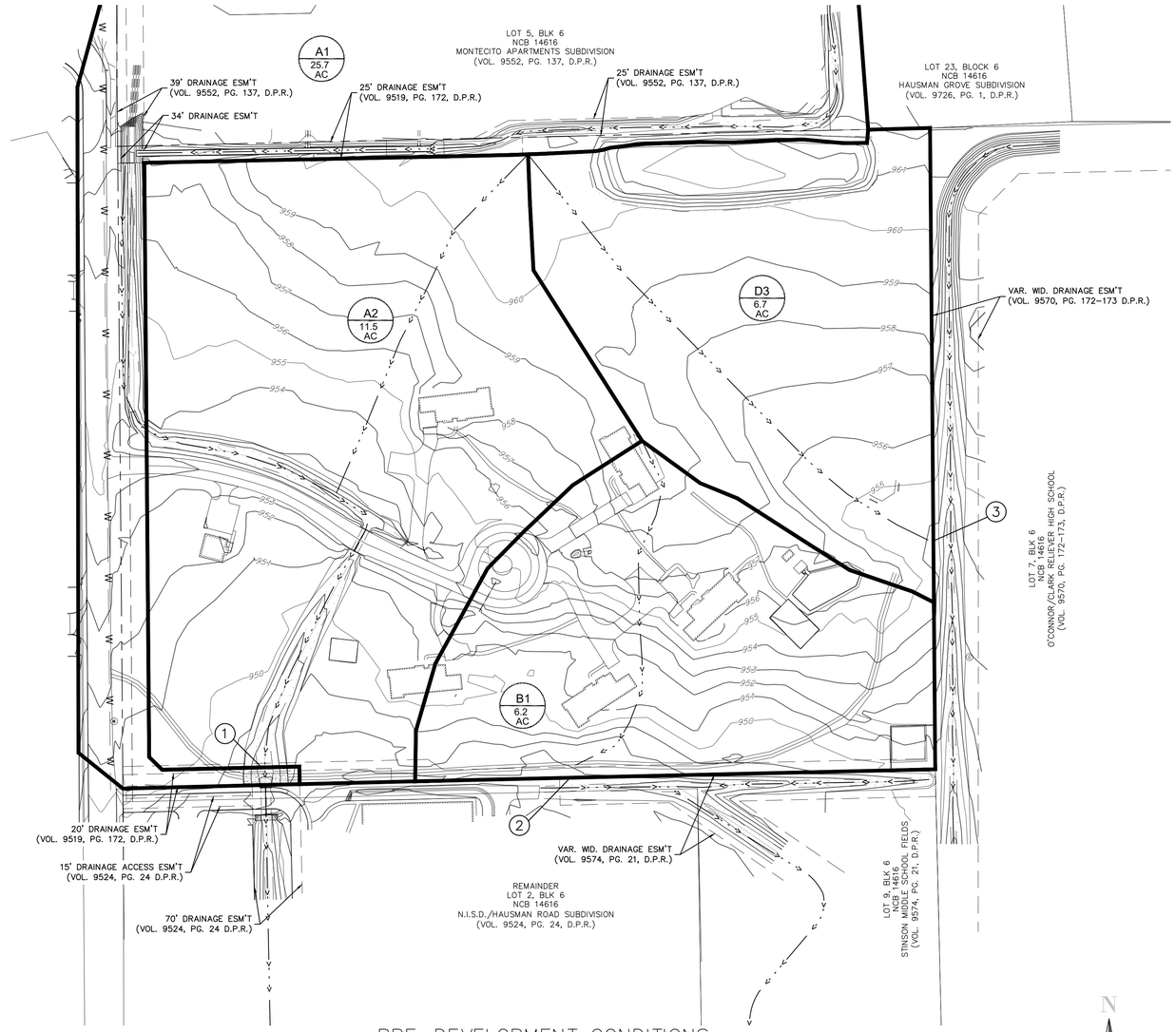
LEGEND

DRAINAGE BOUNDARY	
EXISTING CONTOURS	953
TIME OF CONCENTRATION FLOW PATHS	
DRAINAGE ESM'T	
NEW CITY BLOCK	NCB
DPRBCT	DEED PLAT RECORDS BEXAR COUNTY TEXAS
VOL.	VOLUME
PG.	PAGE
STUDY POINT	1



PRE–DEVELOPMENT CONDITIONS
SITE AND UPSTREAM
DRAINAGE AREAS

SCALE: 1" = 200'



PRE–DEVELOPMENT CONDITIONS
STADIUM POINTE P.U.D.
(3 UNITS)

SCALE: 1" = 100'

NO.	REVISION	DATE

CDS muery
ENGINEERS | SURVEYORS
100 NE Loop 410, Ste. 300 | San Antonio, Texas 78216
(210) 581-1111 | TBPE No. F-1733 | TBPLS No. 100495-00

PLAT NO. 19-11800164

JOB NO. 118008.04
DATE SEPTEMBER 2020
DRAWN J.W.G.
CHECKED BC DESIGN JBG

STADIUM POINTE P.U.D.
UNIT 2 & 3
DRAINAGE AREA MAP
PRE-DEVELOPMENT CONDITIONS

SUBMITTAL SET

SHEET EXH

Date: Sep 21, 2020, 11:26am User ID: john.gibson
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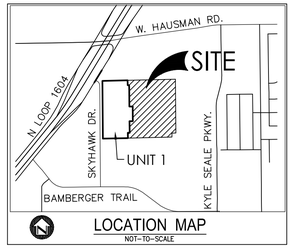
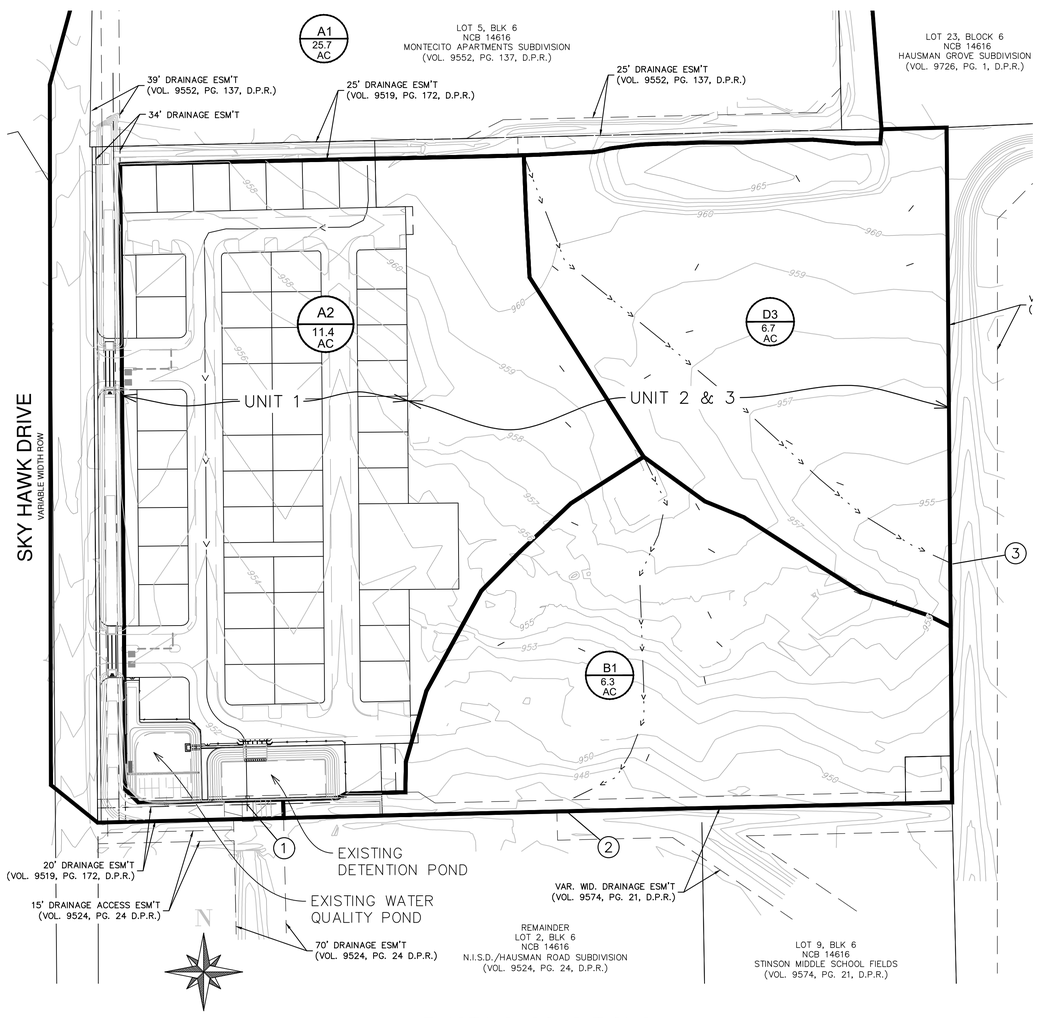


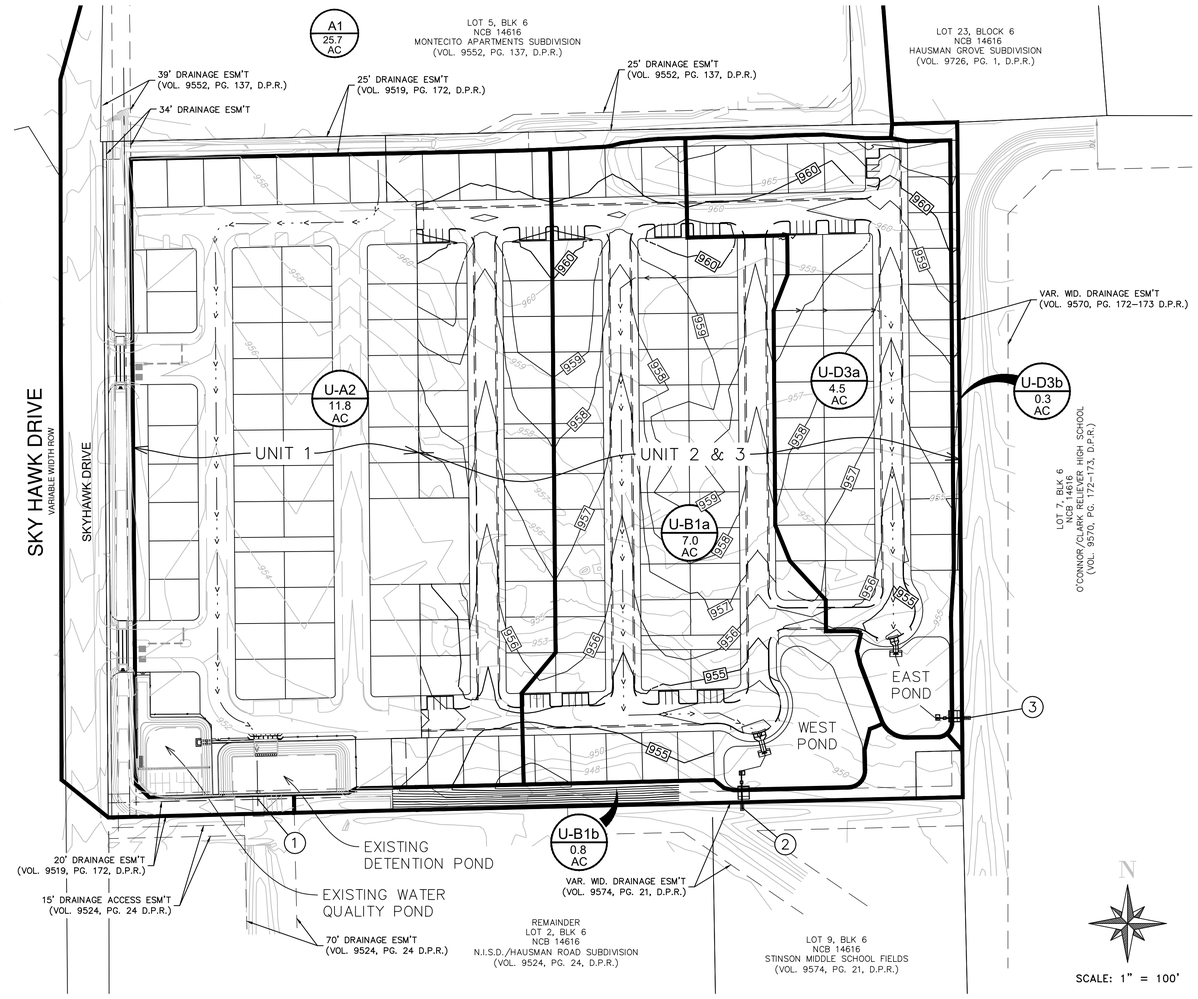
LOCATION MAP
NOT-TO-SCALE

LEGEND

DRAINAGE AREA BOUNDARY	
EXISTING MAJOR CONTOURS	960
EXISTING MINOR CONTOURS	959
PROPOSED MAJOR CONTOURS	960
PROPOSED MINOR CONTOURS	959
TIME OF CONCENTRATION FLOW PATHS	
DRAINAGE ESM'T	
NEW CITY BLOCK	NCB
DPRBCT	DEED PLAT RECORDS BEXAR COUNTY TEXAS
VOL.	VOLUME
PG.	PAGE
STUDY POINT	1



EXISTING CONDITIONS



ULTIMATE CONDITIONS

NO.	REVISION	DATE

CDS muery
ENGINEERS | SURVEYORS
100 NE Loop 410, Ste. 300 | San Antonio, Texas 78216
(210) 581-1111 | TBPE No. F-1733 | TBPLS No. 100495-00

PLAT NO. 19-11800164

JOB NO. 118008.04
DATE SEPTEMBER 2020
DRAWN J.W.G.
CHECKED BC DESIGN JBG

STADIUM POINTE P.U.D.
UNIT 2 & 3
DRAINAGE AREA MAP
EXISTING AND ULTIMATE CONDITIONS

SUBMITTAL SET

SHEET EXH

Date: Sep 21, 2020, 4:40pm User ID: john.gibson
File: F:\2018\118008.04 Stadium Point, Phase 2\Civil 3D\Dwg\Engineer\Exhibits_118008 -Stadium Pointe U2_3 EX & ULT Conditions DAMs.dwg

ATTACHMENT H | Temporary Sediment Pond(s) Plans and Calculations

This section does not apply for this project. There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time.

ATTACHMENT I | Inspection and Maintenance for BMPs

Silt Fence

1. Inspect all fencing weekly, and after any rainfall events.
2. Remove sediment when buildup reaches 6 inches.
3. Replace any torn fabric or install a second line of fencing parallel to the torn section.
4. Replace or repair any sections crushed or collapsed in the course of construction activity. If a section of fence is obstructing vehicular access, consider relocating it to a spot where it will provide equal protection, but will not obstruct vehicles. A triangular filter dike may be preferable to a silt fence at common vehicle access points.
5. When construction is complete, the sediment should be disposed of in a manner that will not cause additional siltation and the prior location of the silt fence should be re-vegetated. The fence itself should be disposed of in an approved landfill.

Gravel Filter Bags

1. Inspect all gravel filter bags weekly, and after any rainfall events.
2. Remove sediment when buildup reaches 4 inches.
3. Replace any torn bags or install a second line of bags parallel to the torn section.
4. When construction is complete, the sediment should be disposed of in a manner that will not cause additional siltation.

Rock Berm

1. Inspection should be made weekly and after each rainfall event by the responsible party. For installation in streambeds, additional daily inspections should be made.
2. Remove sediment and other debris when buildup reaches 6 inches and dispose of the accumulated silt in an approved manner that will not cause any additional siltation.
3. Repair any loose wire sheathing.
4. The berm should be reshaped as needed during inspection.
5. The berm should be replaced when the structure ceases to function as intended due to silt accumulation among the rocks, washout, construction traffic damage, etc.
6. The rock berm should be left in place until all upstream areas are stabilized and accumulated silt removed.

Temporary Construction Entrance/Exit

1. The entrance(s) should be maintained in a condition, which will prevent transfer of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment.
2. When necessary, wheels should be cleaned and sediment removed prior to entrance onto public right-of-way.
3. When washing is required, it should be done on an area stabilized with crushed stone that drains into an approved sediment trap or sediment basin.
4. All sediment should be prevented from entering any storm, drain, ditch or water course by using approved methods.

Concrete Washout Areas

1. To help reduce storm water pollution from concrete washes, ensure the following:
    a. Incorporate requirements for concrete waste management into material supplier and subcontractor agreements.
    b. Avoid mixing excess amounts of fresh concrete.
    c. Perform washout of concrete trucks in designated areas only.
    d. Do not wash out concrete trucks into storm drains, open ditches, streets, or streams.
    e. Do not allow excess concrete to be dumped onsite, except in designated areas.
2. Materials used to construct temporary concrete washout facilities should be removed from the site of the work and disposed of.
3. Do not allow runoff from this area by constructing a temporary pit or bermed area large enough for liquid and solid waste.
4. Wash out wastes into the temporary pit where the concrete can set, be broken up, and then disposed of properly.
5. When temporary concrete washout facilities are no longer required for the work, the hardened concrete should be removed and disposed of.
6. Holes, depressions or other ground disturbance caused by the removal of the temporary concrete washout facilities should be backfilled and repaired.

If any sediment escapes the site during construction activities, off-site accumulations must be removed to minimize offsite impacts to water quality. An inspection form has been attached.

Stadium Pointe PUD Unit 2 & 3
Storm Water Pollution Prevention Inspection Report Form
Inspections must occur at least once/7 days and within 24 hours of a storm event that is 0.50 inches or greater.

Project Name: _____ Inspection Date: _____

Inspector: _____ Inspector Qualifications: _____

Rainfall Amount: _____ Date of Rainfall: _____

Inspect the following areas:
- ❑ Disturbed Areas (not stabilized)
- ❑ Exposed Storage Areas
- ❑ Entrance/Exit Site(s)

Comments: _____

Specific Site Area Location	Type of control (see below)	Date installed / modified	Current Condition (see below)	Corrective Action/Other Remarks

Condition Code:
G = Good M= Marginal, needs maintenance P = Poor, needs immediate maintenance C = Needs to be cleaned O = Other

Control Type Codes:

1. Silt Fence	10. Storm Drain Inlet Protection	19. Reinforced Soil Retaining System	28. Tree Protection
2. Earth Dikes	11. Vegetative Buffer Strip	20. Gabion	29. Detention Pond
3. Structural Diversion	12. Vegetative Preservation Strip	21. Sediment Basin	30. Retention Pond
4. Swale	13. Retention Pond	22. Temporary Seed / Sod	31. Waste Disposal/ Housekeeping
5. Sediment Trap	14. Construction Entrance Stabilization	23. Permanent Seed / Sod	32. Dam
6. Check Dam	15. Perimeter Ditch	24. Mulch	33. Sand Bag
7. Subsurface Dam	16. Curb and Gutter	25. Hay Bales	34. Other
8. Pipe Slope Drain	17. Paved Road Surface	26. Geotextile	
9. Level Spreaders	18. Rock Outlet Protection	27. Rip-rap	

This site is in compliance with the SW3P? Yes _____ No _____

This site is in compliance with Temporary Stormwater Section ? Yes _____No _____

If not, please specify changes: _____

_____

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 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: _____.

ATTACHMENT J | Schedule of Interim and Permanent Soil Stabilization Practices

Interim on-site stabilization measures will be on-going. Soil disturbances should be limited to the smallest area and shortest duration of time practical. As soon as practical, all disturbed soil shall be stabilized as per project specifications in accordance with TCEQ's Technical Guidance Manual (TGM) RG-348. Project stabilization practices will include, but not limited to, the use of sod, erosion control blankets and seeding.

Stabilization measures are to be completed as soon as practicable at locations where construction activities have temporarily or permanently ceased. Bare soils are to be seeded or otherwise stabilized within 14 calendar days after final grading or where construction activity has temporarily ceased for more than 21 days.

Newly planted vegetation will be protected from construction traffic.

The project is scheduled for completion in the 2021 calendar year. During construction, Temporary BMPs will be implemented. All disturbed areas will be permanently stabilized as indicated on Site Plan by pavements, building foundations, or vegetative cover. Temporary BMPs may only be removed after all upgradient disturbed soils are permanently stabilized and all upgradient Permanent BMPs indicated in this WPAP are installed.

Permanent Stormwater Section

Texas Commission on Environmental Quality

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

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

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

Signature

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

Print Name of Customer/Agent: Brian Crowell, PE, LEED AP (Agent)

Date: 09/21/2020

Signature of Customer/Agent

Regulated Entity Name: Stadium Pointe PUD, Unit 2&3

Permanent Best Management Practices (BMPs)

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

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

   ☐ N/A

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

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

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

☐ N/A

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

   ☐ N/A

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

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

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

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

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

- ☐ A description of the BMPs and measures that will be used to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site is attached.
- ☒ No surface water, groundwater or stormwater originates upgradient from the site and flows across the site, and an explanation is attached.
- ☐ Permanent BMPs or measures are not required to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site, and an explanation is attached.

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

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

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

   ☐ N/A

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

   - ☒ The permanent sealing of or diversion of flow from a naturally-occurring sensitive feature that accepts recharge to the Edwards Aquifer as a permanent pollution abatement measure has not been proposed.
   - ☐ **Attachment E - Request to Seal Features**. A request to seal a naturally-occurring sensitive feature, that includes, for each feature, a justification as to why no reasonable and practicable alternative exists, is attached.

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

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

    ☐ N/A

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

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

    ☐ N/A

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

    ☒ N/A

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

    ☒ N/A

Responsibility for Maintenance of Permanent BMP(s)

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

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

    ☐ N/A

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

    ☐ N/A

Supplemental Attachments for

TCEQ F-0600 Permanent Stormwater Section

Stadium Pointe PUD, Unit 2&3

Table of Attachments:

Attachment A:	20% or Less Impervious Cover Waiver
Attachment B:	BMPs for Up-gradient Stormwater
Attachment C:	BMPs for On-site Stormwater
Attachment D:	BMPs for Surface Streams
Attachment E:	Request to Seal Features
Attachment F:	Construction Plans
Attachment G:	Inspection, Maintenance, Repair, and Retrofit Plan
Attachment H:	Pilot-Scale Field Testing Plan
Attachment I:	Measures for Minimizing Surface Stream Contamination

ATTACHMENT A | 20% or Less Impervious Cover Waiver

This section does not apply for this project. The site will not be used for multi-family residential development, schools, or small business with 20% or less impervious cover.

ATTACHMENT B | BMPs for Upgradient Stormwater

No up-gradient offsite areas discharge stormwater to Stadium Pointe Unit 2 & 3. Stormwater runoff from up-gradient areas is intercepted and diverted around the site by existing channels.

ATTACHMENT C | BMPs for On-Site Stormwater

Two batch detention ponds are proposed for Stadium Pointe Unit 2&3 as Permanent BMPs to remove stormwater TSS prior to discharge to the public waterway (French Creek). Plans for the batch detention ponds are included in Attachment F of this section.

Designed as one pond for both water quality and detention, each batch detention pond will feature a settling (water quality) volume controlled by an automatic actuator system and a detention volume stored above the water quality volume. The automatic actuator allows the pond to fill up to the provided water quality volume, holds the water quality volume for 12 hours after rain cessation, and then begins a 46-hour drawdown, releasing the cleanest water from the top. Incoming storm water runoff exceeding the provided water quality volume is stored in the same basin and release is controlled by the detention outfall structure. The lowest invert of the detention outfall structure is above the top of water quality volume.

Based on the TCEQ TSS Removal Spreadsheet, the following parameters must be provided by the on-site treatment facilities:

	West Pond	East Pond	Bypass-No BMP	Plan Area Total
Drainage Area (acres)	6.96	4.53	1.36	12.85
Impervious Cover (acres)	4.15	2.85	0.13	7.13
Impervious Cover (%)	59.6%	62.9%	9.6%	55.5%
$L_{M\text{-}BASIN}$ (lbs.)	3,386	2,326	--	5,818
$L_{M\text{-}Desired}$ (lbs.)	3,386	2,432	--	5,818
Total Capture Volume Required (CF)	16,713	14,841	--	--
Total Capture Volume Provided (CF)	17,224	16,109	--	--

Summary of Stadium Pointe Unit 2&3 Batch Detention Design Parameters

Stormwater runoff from a 3.61 acre portion of Stadium Pointe PUD Unit 2&3 discharges to an existing off-site Partial Sedimentation and Filtration System (Off-Site Facility).

The Off-Site Facility (within Stadium Pointe PUD Unit 1) was designed and constructed to treat stormwater runoff from a 3.63 acre portion of Unit 2&3. The volume and character of discharge from the proposed 3.61 acre portion of Unit 2&3 (Site Area) meets the design parameters of the Off-Site Facility.

The following pages are the TSS Load calculation sheets for the on-site facilities (Plan Area) and the Site Plan, WPAP Application Form, calculation sheets, and approval letter for the Off-Site Facility.

Plan Area TSS Removal Calculations

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Additional information is provided for cells with a red triangle in the upper right corner.
Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-34
Characters shown in red are data entry fields.
Characters shown in black (Bold) are calculated fields. Changes to these fields will rem

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

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

where:

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting
A_N = Net increase in impervious area
P = Average annual precipitation, inc

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

County =	Bexar	
Total project area included in plan * =	12.85	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	7.13	acres
Total post-development impervious cover fraction * =	0.55	
P =	30	inches
$L_{M\ TOTAL\ PROJECT}$ =	**5818**	lbs.

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

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

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

Drainage Basin/Outfall Area No. =	1	***U-B1A (West Pond)***
Total drainage basin/outfall area =	6.96	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	4.15	acres
Post-development impervious fraction within drainage basin/outfall area =	0.60	
$L_{M\ THIS\ BASIN}$ =	**3386**	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	Batch Detention	
Removal efficiency =	**91**	percent

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

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

where:

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

A_C =	**6.96**	acres
A_I =	**4.15**	acres
A_P =	**2.81**	acres
L_R =	**3961**	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	**3386**	lbs.
F =	**0.85**	

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

Rainfall Depth =	**1.32**	inches
Post Development Runoff Coefficient =	**0.42**	
On-site Water Quality Volume =	**13928**	cubic feet

Calculations from RG-348

Off-site area draining to BMP =	**0.00**	acres
Off-site Impervious cover draining to BMP =	**0.00**	acres
Impervious fraction of off-site area =	**0**	
Off-site Runoff Coefficient =	**0.00**	
Off-site Water Quality Volume =	**0**	cubic feet
Storage for Sediment =	**2786**	
Total Capture Volume (required water quality volume(s) x 1.20) =	**16713**	cubic feet

STATE OF TEXAS
BRIAN A. CROWELL
82619
LICENSED
PROFESSIONAL ENGINEER

09/21/2020

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Additional information is provided for cells with a red triangle in the upper right corner.
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1. The Required Load Reduction for the total project: Calculations from RG-348

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

where:

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting
A_N = Net increase in impervious area
P = Average annual precipitation, inc

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

County =	Bexar	
Total project area included in plan * =	12.85	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan * =	7.13	acres
Total post-development impervious cover fraction * =	0.55	
P =	30	inches
$L_{M\ TOTAL\ PROJECT}$ =	5818	lbs.

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

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

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

Drainage Basin/Outfall Area No. =	2	***U-D3A (East Pond)***
Total drainage basin/outfall area =	4.53	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	2.85	acres
Post-development impervious fraction within drainage basin/outfall area =	0.63	
$L_{M\ THIS\ BASIN}$ =	2326	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = **Batch Detention**
Removal efficiency = 91 percent

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

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

where:

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

A_C =	**4.53**	acres
A_I =	**2.85**	acres
A_P =	**1.68**	acres
L_R =	**2717**	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	**2432**	lbs.
F =	**0.90**	

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

Rainfall Depth =	**1.70**	inches
Post Development Runoff Coefficient =	**0.44**	
On-site Water Quality Volume =	**12367**	cubic feet

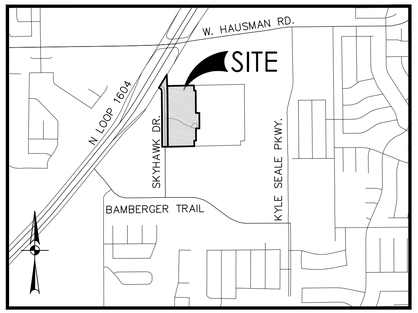
Calculations from RG-348

Off-site area draining to BMP =	**0.00**	acres
Off-site Impervious cover draining to BMP =	**0.00**	acres
Impervious fraction of off-site area =	**0**	
Off-site Runoff Coefficient =	**0.00**	
Off-site Water Quality Volume =	**0**	cubic feet
Storage for Sediment =	***2473***	
Total Capture Volume (required water quality volume(s) x 1.20) =	**14841**	cubic feet

STATE OF TEXAS
BRIAN A. CROWELL
82619
LICENSED
PROFESSIONAL ENGINEER
09/21/2020

Off-Site Facility Site Plan

PLAT ID 180390



LEGEND

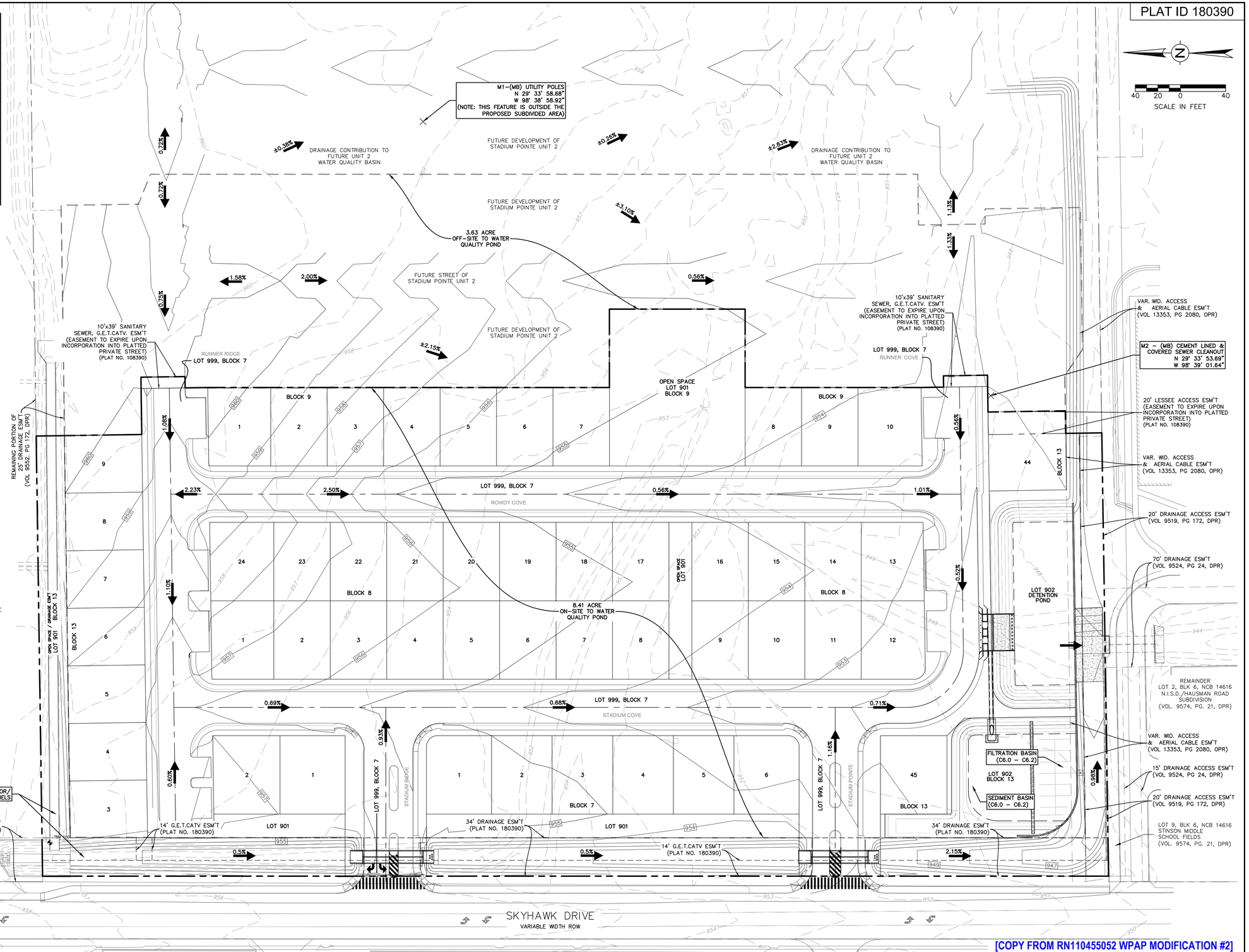
PROPOSED CONTOURS	960
EXISTING CONTOURS	960
PROPOSED FLOW ARROWS	
SITE BOUNDARY	
DRAINAGE AREA	
GEOLOGIC FEATURE	×
MANMADE FEATURE IN BEDROCK	MB

NOTES:

1. NO PART OF THE PROJECT SITE IS LOCATED WITHIN THE 100 YEAR FLOODPLAIN BOUNDARIES ACCORDING TO FEMA FIRM MAP NO.48029C0210G DATED SEPTEMBER 29, 2010.
2. THERE ARE NO WELLS OR TEST HOLES OF ANY KIND KNOWN TO EXISTING WITHIN THE PROJECT BOUNDARIES.
3. TOTAL PLATTED ACREAGE FOR STADIUM POINTE PUD UNIT 1 IS 9.548 ARCES.
4. PLEASE NOTE THE CONSTRUCTION OF THE DUPLEXES WILL COMMENCE MORE OR LESS AFTER THE PERMANENT BMP'S ARE IN PLACE.
5. CALCULATING THE AREA OF DISTURBANCE:

±0.136 ACRES	PARKING STALL
±1.734 ACRES	STREETS (DRIVE AISLES)
±4.430 ACRES	LOT GRADING WITH DRIVEWAYS
±0.600 ACRES	DETENTION AND WATER QUALITY POND
±1.100 ACRES	BYPASS DRAINAGE CHANNEL
±8.000 ACRES	SUB-TOTAL
(15%)	OVERBUILDING EXCAVATION
±9.200 ACRES	TOTAL DISTURBED AREA

6. APPROXIMATELY 9.200 ACRES OF THE OVERALL 9.548 ACRES WILL BE DISTURBED DURING INITIAL CONSTRUCTION ACTIVITIES. SOIL STABILIZATION WILL BE IMPLEMENTED PRIMARILY BY THE FOLLOWING PRACTICES:
   a. RE-ESTABLISHMENT OF VEGETATION, AROUND THE PERIMETER OF THE DISTURBED AREAS, TO BE MAINTAINED BY THE OWNER AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED TO ENSURE IT HAS BEEN ADEQUATELY ESTABLISHED.
   b. INSTALLATION OF CONCRETE BUILDING SLAB AND SIDEWALKS.
   c. OFF-SITE SOIL STABILIZATION LOCATIONS:
      ±1.00 ACRE OFF-SITE WATER MAIN
      ±1.00 ACRE OFF-SITE DRAINAGE EASEMENTS
   d. ALL DISTURBED SOIL WILL BE STABILIZED AS PER PROJECT SPECIFICATIONS IN ACCORDANCE TCEQ'S TECHNICAL GUIDANCE MANUAL (TGM) RG-348.
7. THE UNIT 1 WATER QUALITY BASIN DRAINAGE AREA IS APPROXIMATELY 12.04 ACRES.



[COPY FROM RN110455052 WPAP MODIFICATION #2]

NO	DATE	REVISION	BY
–			

DESIGNED BY SSL
DRAWN BY SAL
CHECKED BY MRH
REVIEWED BY SSL
DATE MARCH 2019

STATE OF TEXAS — STEPHEN S. LIN — 108721 — LICENSED PROFESSIONAL ENGINEER — 03/26/2019

CDS Muery F-1733

CDS muery ENGINEERS • SURVEYORS
3411 MAGIC DRIVE SAN ANTONIO TEXAS•(210)581-1111•TBPE NO F-1733•TBPLS NO 100495-00

TCEQ SITE PLAN

STADIUM POINTE P.U.D. UNIT 1

SHEET NO. EXH
OF 41 SHEETS
JOB NO. 118008.01

F:\2018\118008.01 STADIUM POINTE, PH 1\Civil 3D\Dwg\Engineer_118008 -Stadium Pointe - TCEQ Plan.dwg

Off-Site Facility WPAP Application Form

[COPY FROM RN110455052 WPAP MODIFICATION #2]

Water Pollution Abatement Plan Application

Texas Commission on Environmental Quality

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

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

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

Signature

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

Print Name of Customer/Agent: Stephen S. Lin, PE (Engineer and Authorized Agent)

Date: March 28, 2019

Signature of Customer/Agent:

03/26/2019

Regulated Entity Name: Stadium Pointe PUD, Unit 1

Regulated Entity Information

1. The type of project is:

   ☒ Residential: Number of Lots:51
   ☐ Residential: Number of Living Unit Equivalents:_____
   ☐ Commercial
   ☐ Industrial
   ☐ Other:_____

2. Total site acreage (size of property):9.548

3. Estimated projected population:306

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

Table 1 - Impervious Cover Table

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	79,829	÷ 43,560 =	1.81
Parking	5,925	÷ 43,560 =	0.14
Other paved surfaces	124,065	÷ 43,560 =	2.85
Total Impervious Cover	209,819	÷ 43,560 =	4.82

Total Impervious Cover 4.82 **÷ Total Acreage** 9.55 **X 100 =** 50**% Impervious Cover**

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

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

For Road Projects Only

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

7. Type of project:

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

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

☐ Concrete
☐ Asphaltic concrete pavement
☐ Other: _____

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

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

10. Length of pavement area: _____ feet.

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

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

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

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

Stormwater to be generated by the Proposed Project

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

Wastewater to be generated by the Proposed Project

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

100% Domestic	240 Gallons/day
_____% Industrial	_____Gallons/day
_____% Commingled	_____Gallons/day
TOTAL gallons/day 24,960	

15. Wastewater will be disposed of by:

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

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

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

☒ Sewage Collection System (Sewer Lines):

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

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

☐ The SCS was previously submitted on_____.

☒ The SCS was submitted with this application.

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

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

☒ Existing.
☐ Proposed.

16. ☒ All private service laterals will be inspected as required in 30 TAC §213.5.

Site Plan Requirements

Items 17 – 28 must be included on the Site Plan.

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

Site Plan Scale: 1" = 40'.

18. 100-year floodplain boundaries:

☐ Some part(s) of the project site is located within the 100-year floodplain. The floodplain is shown and labeled.
☒ No part of the project site is located within the 100-year floodplain.
The 100-year floodplain boundaries are based on the following specific (including date of material) sources(s): FEMA FIRM48029C0210G Dated 9-29-2010

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

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

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

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

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

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

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

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

22. ☒ The drainage patterns and approximate slopes anticipated after major grading activities.
23. ☒ Areas of soil disturbance and areas which will not be disturbed.
24. ☒ Locations of major structural and nonstructural controls. These are the temporary and permanent best management practices.
25. ☒ Locations where soil stabilization practices are expected to occur.
26. ☐ Surface waters (including wetlands).

    ☒ N/A
27. ☐ Locations where stormwater discharges to surface water or sensitive features are to occur.

    ☒ There will be no discharges to surface water or sensitive features.
28. ☒ Legal boundaries of the site are shown.

Administrative Information

29. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.
30. ☒ Any modification of this WPAP will require Executive Director approval, prior to construction, and may require submission of a revised application, with appropriate fees.

Off-Site Facility Calculations

[COPY FROM RN110455052 WPAP MODIFICATION #2]

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Additional information is provided for cells with a red triangle in the upper right corne
Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-3
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1. The Required Load Reduction for the total project: Calculations from RG-348

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

where:

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

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

County =	**Bexar**	
Total project area included in plan * =	**13.14**	acres
Predevelopment impervious area within the limits of the plan * =	**0.00**	acres
Total post-development impervious area within the limits of the plan* =	**7.08**	acres
Total post-development impervious cover fraction * =	**0.54**	
P =	**30**	inches
$L_{M\ TOTAL\ PROJECT}$ =	**5777**	lbs.

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

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

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

Drainage Basin/Outfall Area No. = **1**

Total drainage basin/outfall area =	**12.04**	acres	8.41(U1)+3.61(U2/3)=12.02 AC {OK}
Predevelopment impervious area within drainage basin/outfall area =	**0.00**	acres	
Post-development impervious area within drainage basin/outfall area =	**7.08**	acres	4.82(U1)+2.26(U2/3)=7.08 AC {OK}
Post-development impervious fraction within drainage basin/outfall area =	**0.59**		
$L_{M\ THIS\ BASIN}$ =	**5777**	lbs.	

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	**Sand Filter**	
Removal efficiency =	**89**	percent

[COPY FROM RN110455052 WPAP MODIFICATION #2]

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

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

where:

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

A_C =	12.04	acres
A_I =	7.08	acres
A_P =	**4.96**	acres
L_R =	**6612**	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	5800	lbs.
F =	**0.88**	

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

Rainfall Depth =	**1.50**	inches
Post Development Runoff Coefficient =	**0.41**	
On-site Water Quality Volume =	**26998**	cubic feet

Calculations from RG-348

Off-site area draining to BMP =	0.00	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	**0**	
Off-site Runoff Coefficient =	**0.00**	
Off-site Water Quality Volume =	**0**	cubic feet
Storage for Sediment =	**5400**	
Total Capture Volume (required water quality volume(s) x 1.20) =	**32398**	cubic feet

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

7. Retention/Irrigation System

Designed as Required in RG

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

Irrigation Area Calculations:

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

[COPY FROM RN110455052 WPAP MODIFICATION #2]

8. Extended Detention Basin System Designed as Required in RG

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

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

9A. Full Sedimentation and Filtration System

Water Quality Volume for sedimentation basin =	**32398**	cubic feet
Minimum filter basin area =	**1500**	square feet
Maximum sedimentation basin area =	**13499**	square feet
Minimum sedimentation basin area =	**3375**	square feet

9B. Partial Sedimentation and Filtration System

Water Quality Volume for combined basins =	**32398**	cubic feet
Minimum filter basin area =	**2700**	square feet
Maximum sedimentation basin area =	**10799**	square feet
Minimum sedimentation basin area =	**675**	square feet

STATE OF TEXAS
STEPHEN S. LIN
108721
LICENSED
PROFESSIONAL ENGINEER

03/26/2019

Off-Site Facility Approval Letter

VG-5-2019-20190122954

File Information

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LUCY ADAME-CLARK, BEXAR COUNTY CLERK

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Recorded Date:	June 28, 2019
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Total Pages:	7
Total Fees:	$46.00

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Any provision herein which restricts the sale or use of the described real property because of race is invalid and unenforceable under Federal law

STATE OF TEXAS, COUNTY OF BEXAR

I hereby Certify that this instrument was FILED in File Number Sequence on this date and at the time stamped hereon by me and was duly RECORDED in the Official Public Record of Bexar County, Texas on:
6/28/2019 9:31 AM

COUNTY CLERK BEXAR COUNTY, TEXAS

Lucy Adame-Clark
Lucy Adame-Clark
Bexar County Clerk

Deed Recordation Affidavit
Edwards Aquifer Protection Plan

SCANNED

THE STATE OF TEXAS §

County of BEXAR §

BEFORE ME, the undersigned authority, on this day personally appeared RAMANATHA YELLATURU who, being duly sworn by me, deposes and says:

(1) That my name is RAMANATHA YELLATURU and that I own the real property described below.

(2) That said real property is subject to an EDWARDS AQUIFER PROTECTION PLAN which was required under the 30 Texas Administrative Code (TAC) Chapter 213.

(3) That the EDWARDS AQUIFER PROTECTION PLAN for said real property was approved by the Texas Commission on Environmental Quality (TCEQ) on 5/14/19.

A copy of the letter of approval from the TCEQ is attached to this affidavit as Exhibit A and is incorporated herein by reference.

(4) The said real property is located in BEXAR County, Texas, and the legal description of the property is as follows:

STADIUM POINTE PUD UNIT 1

LANDOWNER-AFFIANT

SWORN AND SUBSCRIBED TO before me, on this 21 day of JUNE, 2019

NOTARY PUBLIC

THE STATE OF TEXAS §

County of BEXAR §

BEFORE ME, the undersigned authority, on this day personally appeared RAMANATHA YELATURU 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 21 day of JUNE, 2019.

NOTARY PUBLIC

Typed or Printed Name of Notary

MY COMMISSION EXPIRES: _____

NOTARY PUBLIC STATE OF TEXAS
Arthur Lee Wright
My Commission Expires
05/29/2022
ID No. 4880276

TCEQ-0625 (Rev. 10/01/04)

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

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

May 14, 2019

Mr. Ram Yellaturu
Skyhawk Villa de San Antonio, LLC
8117 Sutherland LN
Plano, Texas 75025 - 5545

Re: Edwards Aquifer, Bexar County

NAME OF PROJECT: Stadium Pointe PUD Unit 1; Located at 8406 Flanagan St.; San Antonio, 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. RN110455052; Additional ID No. 13000900

Dear Mr. Yellaturu:

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 CDS Muery on behalf of Skyhawk Villa de San Antonio, LLC on March 28, 2019. Final review of the WPAP Modification was completed after additional material was received on May 10, 2019. 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 was approved by letter dated September 20, 2018 and had a site area of 9.59 acres with 4.60 acres impervious cover. The project included the construction of residential duplexes designed as a Planned Unit Development (PUD) with associated streets. One sedimentation/filtration basin was approved to treat stormwater generated by the project.

A WPAP Modification was approved by letter dated January 15, 2019 for a 9.65-acre site with the 4.93 acres of impervious cover. The project proposed an increase in the total number of residential duplexes to 52 and to alter the design of the previously approved sedimentation/filtration basin to a sedimentation/filtration basin with a computer-controlled cartridge filter system.

PROJECT DESCRIPTION

This modification proposes to decrease the total site area to 9.548 acres, decrease the total number of residential duplexes to 51, and to alter the design of the previously approved sedimentation/filtration basin with a computer-controlled cartridge filter system to a sedimentation/filtration basin. The new impervious cover on site will be 4.82 acres (50.48-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 sedimentation filtration basin, 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 3,933 pounds of TSS generated from the 4.82 acres of impervious cover. The approved measures 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, the site is located on the Person Formation. Four non-sensitive manmade features were identified by the project geologist. The San Antonio Regional Office site assessment conducted on April 19, 2019 revealed the site was generally as described in the geologic assessment.

SPECIAL CONDITIONS

I. This modification is subject to all Special and Standard Conditions listed in the WPAP approval letter dated September 20, 2018 and subsequent modification dated January 15, 2019.

II. The permanent pollution abatement measure shall be operational prior to occupancy of the facility.

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

STANDARD CONDITIONS

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

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

Prior to Commencement of Construction:

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

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

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

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.

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

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 Nima Ghahremani of the Edwards Aquifer Protection Program of the San Antonio Regional Office at (210) 403-4034.

Sincerely,

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

RCS/ng

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

cc: Mr. Stephen Lin, P.E., CDS Muery
Mr. Scott Halty, San Antonio Water Systems
Ms. Renee Green, P.E., Bexar County Public Works
Mr. Roland Ruiz, Edwards Aquifer Authority

ATTACHMENT D | BMPs for Surface Streams

No adverse impacts to nearby surface streams are expected. Stadium Pointe Unit 2&3 will feature two on-site batch detention ponds. The batch detention ponds will provide the required water quality volume for pollutant removal and also provide a detention volume stored above the water quality volume. The detention volume is designed to capture runoff from the proposed development and release the runoff at less than pre-developed conditions peak rates for the 5-, 25-, and 100-year recurrence interval storm events. Attenuation of the storm water runoff reduces erosion of downstream channels.

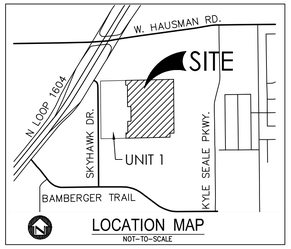
The batch detention basins protect downstream surface streams by removing stormwater pollutants and attenuating stormwater runoff. Furthermore, storm water will continue to be conveyed to an additional regional dentition pond located one block south of the property prior to reaching French Creek. French Creek is a tributary to the Leon Creek Watershed.

ATTACHMENT E | Request to Seal Features

This section does not apply for this project. The site does not have naturally occurring sensitive features. Please reference the Geologic Assessment Section of this application package.

ATTACHMENT F | Construction Plans

Construction plans, related details and required system information for the batch detention ponds are included herein.



WATER POLLUTION ABATEMENT PLAN AND BATCH DETENTION PLAN

FOR

STADIUM POINTE P.U.D. UNIT 2 & 3

SAN ANTONIO, TEXAS

CIVIL SHEET INDEX

Sht. No.	Sheet Title
C7.0	WPAP & BATCH DETENTION PLAN COVER SHEET
C7.1	BATCH DETENTION PONDS PLAN
C7.2	WEST POND OUTFALL DETAILS
C7.3	EAST POND OUTFALL DETAILS
C7.4	BATCH DETENTION CONTROL VALVE DETAILS
C7.5	MISCELLANEOUS BATCH DETENTION DETAILS

TCEQ WPAP GENERAL CONSTRUCTION NOTES

(REV. 07/2015)

1. A WRITTEN NOTICE OF CONSTRUCTION MUST BE SUBMITTED TO THE TCEQ REGIONAL OFFICE AT LEAST 48 HOURS PRIOR TO THE START OF ANY REGULATED ACTIVITIES. THIS NOTICE MUST INCLUDE:

   A. THE NAME OF THE APPROVED PROJECT
   B. THE ACTIVITY START DATE; AND
   C. THE CONTACT INFORMATION OF THE PRIME CONTRACTOR.

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

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

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

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

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

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

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

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

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

11. THE FOLLOWING RECORDS SHALL BE MAINTAINED AND MADE AVAILABLE TO THE TCEQ UPON REQUEST:

    A. THE DATES WHEN MAJOR GRADING ACTIVITIES OCCUR;
    B. THE DATES WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE; AND
    C. 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.

CONTACT INFORMATION FOR THE REGIONAL OFFICE IS AS FOLLOWS:

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

GENERAL NOTES

1. EXISTING UNDERGROUND UTILITIES ARE SHOWN FROM AVAILABLE UTILITY RECORDS AND OBSERVABLE SURFACE FEATURES. ACTUAL LOCATIONS MAY VERY AND UTILITIES NOT SHOWN ON THESE PLANS MY EXIST. CONTRACTOR SHALL COORDINATE WITH LOCAL UTILITY COMPANIES AND OWNER PERSONNEL FOR ASSISTANCE IN LOCATING ALL UNDERGROUND FACILITIES IN THE PROJECT AREA PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL VERIFY THE LOCATION AND GRADE OF UNDERGROUND FACILITIES WELL AHEAD OF CONSTRUCTION OPERATIONS AND SHALL BE RESPONSIBLE FOR PROTECTION OF SAME DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR AND REPLACEMENT OF ALL DAMAGED UTILITIES AND FOR DAMAGES CAUSED TO OWNER OR OTHER PARTIES ARISING FROM SERVICE INTERRUPTION OR LOSS OF USE.

2. THERE IS AN EXISTING COMMUNICATIONS TOWER STATION LOCATED IN THE SOUTHEAST CORNER OF THE SITE WITHIN A 0.10 ACRE UTILITY EASEMENT. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ALL-WEATHER ACCESS TO THE COMMUNICATION TOWER STATION UNTIL THE PERMANENT ACCESS DRIVE IS INSTALLED. ANY RESTRICTION OF ACCESS TO THE STATION SHALL BE COORDINATED WITH AND APPROVED BY AN AUTHORIZED AGENT OF THE COMMUNICATION TOWER OWNER AND/OR OPERATOR.

3. THERE ARE EXISTING PROPERTY FENCES ON ADJOINING LAND THAT NEED TO BE TEMPORARILY REMOVED FOR UNDERGROUND STORM DRAIN CONSTRUCTION. COORDINATE TEMPORARY REMOVAL WITH ADJOINING PROPERTY OWNERS (BRANDEIS HIGH SCHOOL AND STINSON MIDDLE SCHOOL). CONTRACTOR SHALL NOT LEAVE UNATTENDED FENCE OPENING AT ANYTIME AND RESTORE FENCES TO EXISTING CONDITION AS SOON AS PRACTICAL.

4. THE SMARTBATCH SYSTEM AND ASSOCIATED LOGIC CONTROLLER SHOWN ON THESE PLANS SHALL FUNCTION ACCORDING TO THE TCEQ RG-348 DESIGN CRITERIA [SECTION 3.4.18 "ADDENDUM SHEET – COMPLYING WITH THE EDWARDS AQUIFER RULES TECHNICAL GUIDANCE ON BEST MANAGEMENT PRACTICES RG-348 (REVISED JULY 2005)" JANUARY 20, 2017]
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL OR BETTER CONDITION FROM DAMAGE DONE TO EXISTING FENCES, CURBS, STREETS, DRIVEWAYS, SIDEWALKS, LANDSCAPING AND STRUCTURES. NO SEPARATE PAYMENT SHALL BE MADE FOR REQUIRED RESTORATIONS, UNLESS OTHERWISE SHOWN.
6. WHENEVER POWER POLES ARE ADJACENT TO THE PROPOSED CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE PROPER SHORING, BRACING, AND/.OR OTHER SUITABLE SUPPORT FOR THE POLES DURING CONSTRUCTION.
7. UNLESS OTHERWISE SPECIFIED BY THE ARCHITECT OR IN THE LANDSCAPE PLANS/SPECIFICATIONS THE FOLLOWING STATEMENT SHALL APPLY TO TOPSOIL SALVAGE, PLACEMENT AND SUPPLY: TOPSOIL SHALL BE STRIPPED AND STOCKPILED SEPARATELY FROM ALL OTHER MATERIALS IN ACCORDANCE WITH THE SPECIFICATIONS. STOCKPILED TOPSOIL MATERIAL SHALL BE SPREAD AND COMPACTED TO A DEPTH OF 6" TO ESTABLISH FINISHED GRADE IN ALL AREAS THAT ARE NOT TO BE PAVED. SHOULD STOCKPILED TOPSOIL FAIL TO COVER ALL AREAS TO A COMPACTED DEPTH OF 6", CONTRACTOR SHALL SUPPLY ADDITIONAL TOPSOIL FROM APPROVED OFF SITE SOURCES TO ESTABLISH FINISHED GRADE WITHOUT ADDITIONAL COMPENSATION.

8. ALL EXCAVATION IS UNCLASSIFIED AND SHALL INCLUDE ROCK AND ALL OTHER MATERIALS ENCOUNTERED REGARDLESS OF THEIR NATURE OR THE MANNER IN WHICH THEY ARE REMOVED.

9. CONTRACTOR IS RESPONSIBLE FOR GRADING ALL DISTURBED AREAS TO PREVENT PONDING OR BLOCKAGE OF SURFACE DRAINAGE.

10. CONTRACTOR SHALL PROVIDE EROSION CONTROL MEASURES AS NECESSARY TO PREVENT DAMAGE TO ADJACENT PROPERTIES AND TO CONFORM TO LOCAL JURISDICTIONAL AUTHORITY REQUIREMENTS.

11. WHERE FINISHED CONTOURS ARE SHOWN TO MATCH EXISTING CONTOURS ON THE GRADING PLANS, NO GRADE SEPARATION IS ALLOWABLE. CONTRACTOR SHALL ADJUST FINISHED CONTOURS AS NECESSARY TO ACCOMPLISH THIS REQUIREMENT.

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

13. CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL WASTE MATERIALS UPON COMPLETION.

WEST BATCH DETENTION POND STAGE-STORAGE

ELEVATION (FT)	AREA (SF)	INC. VOL (CF)	CUM. VOL. (CF)
946.00	48	-	-
947.00	2,674	1,027	1,027
948.00	11,076	6,397	7,424
948.75	**15,165**	**9,800**	**17,224**
949.00	15,646	3,851	21,076
950.00	17,682	16,654	37,729
951.00	19,787	18,725	56,454
952.00	21,961	20,865	77,318
952.30	22,585	6,682	84,000
TOP OF WATER QUALITY VOLUME			948.75
VOLUME REQUIRED (CF)			16,713
VOLUME PROVIDED (CF)			17,224
25-YEAR WSEL			950.58
SPILLWAY ELEVATION			951.60

EAST BATCH DETENTION POND STAGE-STORAGE

ELEVATION (FT)	AREA (SF)	INC. VOL (CF)	CUM. VOL. (CF)
950.25	48	-	-
951.00	4,386	1,223	1,223
951.60	8,841	3,891	5,114
952.00	9,292	3,626	8,740
952.75	**10,367**	**7,368**	**16,109**
953.00	10,668	2,629	18,738
954.00	12,126	11,389	30,127
955.00	13,665	12,888	43,015
955.30	14,142	4,171	47,186
TOP OF WATER QUALITY VOLUME			952.75
VOLUME REQUIRED (CF)			14,841
VOLUME PROVIDED (CF)			16,109
25-YEAR WSEL			953.75
SPILLWAY ELEVATION			954.80

SUBMITTAL SET

NO.	REVISION	DATE

CDS Muery F-1733

STATE OF TEXAS
BRIAN A. CROWELL
82619
REGISTERED PROFESSIONAL ENGINEER
09/21/2020

CDS muery
ENGINEERS | SURVEYORS
100 NE Loop 410, Ste. 300 | San Antonio, Texas 78216
(210) 581-1111 | TBPE No. F-1733 | TBPLS No. 100495-00

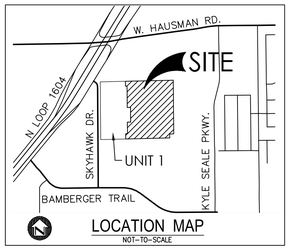
PLAT NO. 19-11800164

JOB NO. 118008.04
DATE AUGUST 2020
DESIGNER LMR
CHECKED KE DRAWN LJR

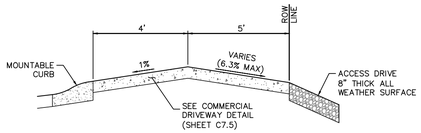
STADIUM POINTE P.U.D.
UNIT 2 & 3
SAN ANTONIO, TEXAS
BATCH DETENTION PONDS COVER SHEET

SHEET C7.0

Date: Sep 21, 2020, 2:32pm User ID: jon.gross
File: F:\2018\118008.04 Stadium Point, Phase 2\Civil 3D\Dwg\Engineer\118008_C7.0-Pond-Overall.dwg



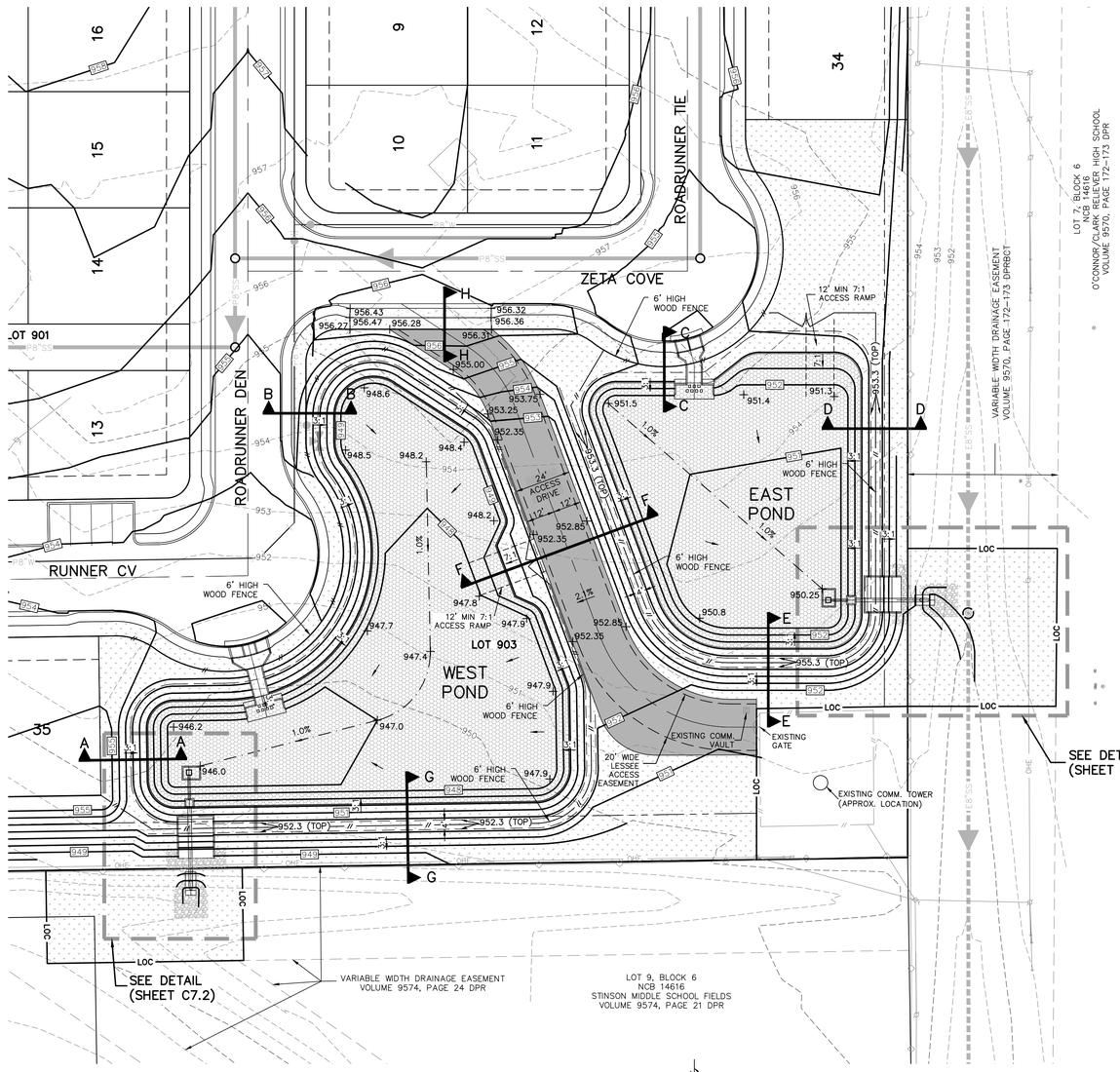
LOCATION MAP
NOT-TO-SCALE

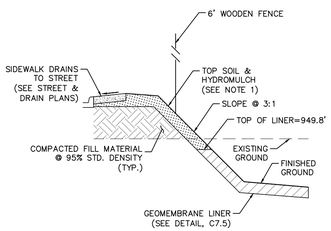


SECTION "H - H"
N.T.S.

LEGEND

EXISTING MINOR CONTOUR	900
EXISTING MAJOR CONTOUR	900
EXISTING SANITARY SEWER MAIN	E8"SS
EXISTING SANITARY SEWER MANHOLE	
EXISTING WATERLINE	E8"W
EXISTING CHAINLINK FENCE	
EXISTING WOODEN FENCE	//
EXISTING BARBWIRE FENCE	X
EXISTING BARBWIRE FENCE	OHE
DIRECTION OF FLOW	
PLAT BOUNDARY	
LIMITS OF CONSTRUCTION	LOC
PROPOSED CONTOUR	900
PROPOSED SANITARY SEWER MAIN	P12"SS
PROPOSED SANITARY SEWER MANHOLE	
PROPOSED WATERLINE	P8"W
PROPOSED WOODEN FENCE	//
PROPOSED POND FLOWLINE	
PROPOSED SPOT ELEVATION	+ 67.54
FLEXIBLE BASE DRIVE	
GEOMEMBRANE LINER	
TOP SOIL & HYDROMULCH	





SECTION "B - B"
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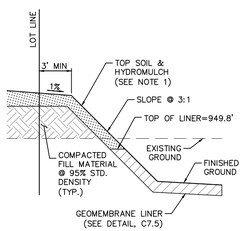

SECTION "A - A"
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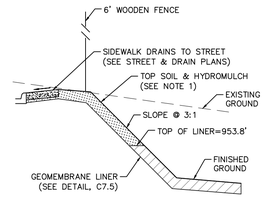

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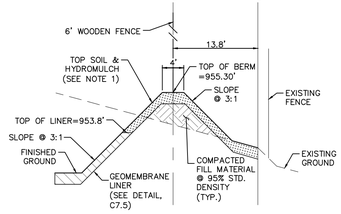

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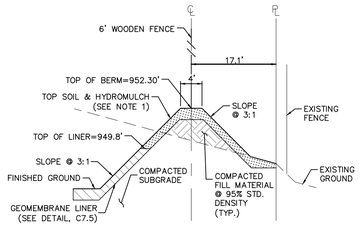

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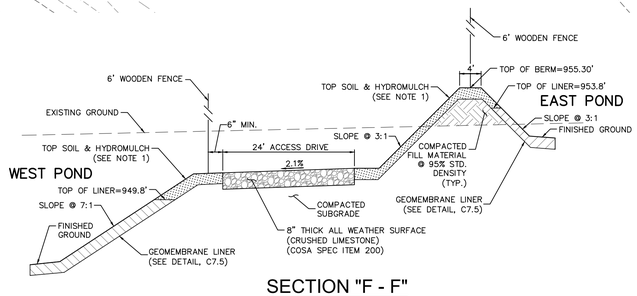

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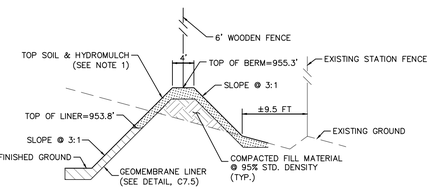

SECTION "E - E"
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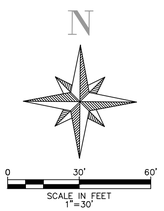


NOTES:

1. CONTRACTOR TO PLACE TOP SOIL AND REVEGETATE DISTURBED AREAS IN ACCORDANCE WITH COSA STANDARD ITEM 515 (TOP SOIL) AND ITEM 520 (HYDROMULCHING).
2. THE SMARTBATCH SYSTEM AND ASSOCIATED LOGIC CONTROLLER SHOWN ON THESE PLANS SHALL FUNCTION ACCORDING TO THE TCEQ RG-348 DESIGN CRITERIA [SECTION 3.4.18 "ADDENDUM SHEET – COMPLYING WITH THE EDWARDS AQUIFER RULES TECHNICAL GUIDANCE ON BEST MANAGEMENT PRACTICES RG-348 (REVISED JULY 2005)" JANUARY 20, 2017]

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 SITES 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 THESE 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.

SUBMITTAL SET

NO.	REVISION	DATE

CDS Muery F-1733
STATE OF TEXAS
BRIAN A. CROWELL
82619
REGISTERED PROFESSIONAL ENGINEER
09/21/2020

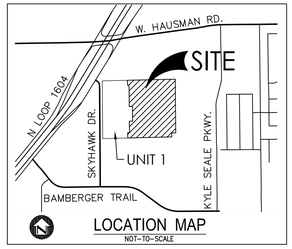
CDS muery
ENGINEERS | SURVEYORS
100 NE Loop 410, Ste. 300 | San Antonio, Texas 78216
(210) 581-1111 | TBPE No. F-1733 | TBPLS No. 100495-00

PLAT NO. 19-11800164
JOB NO. 118008.04
DATE AUGUST 2020
DESIGNER JBG
CHECKED KE DRAWN J.W.G.

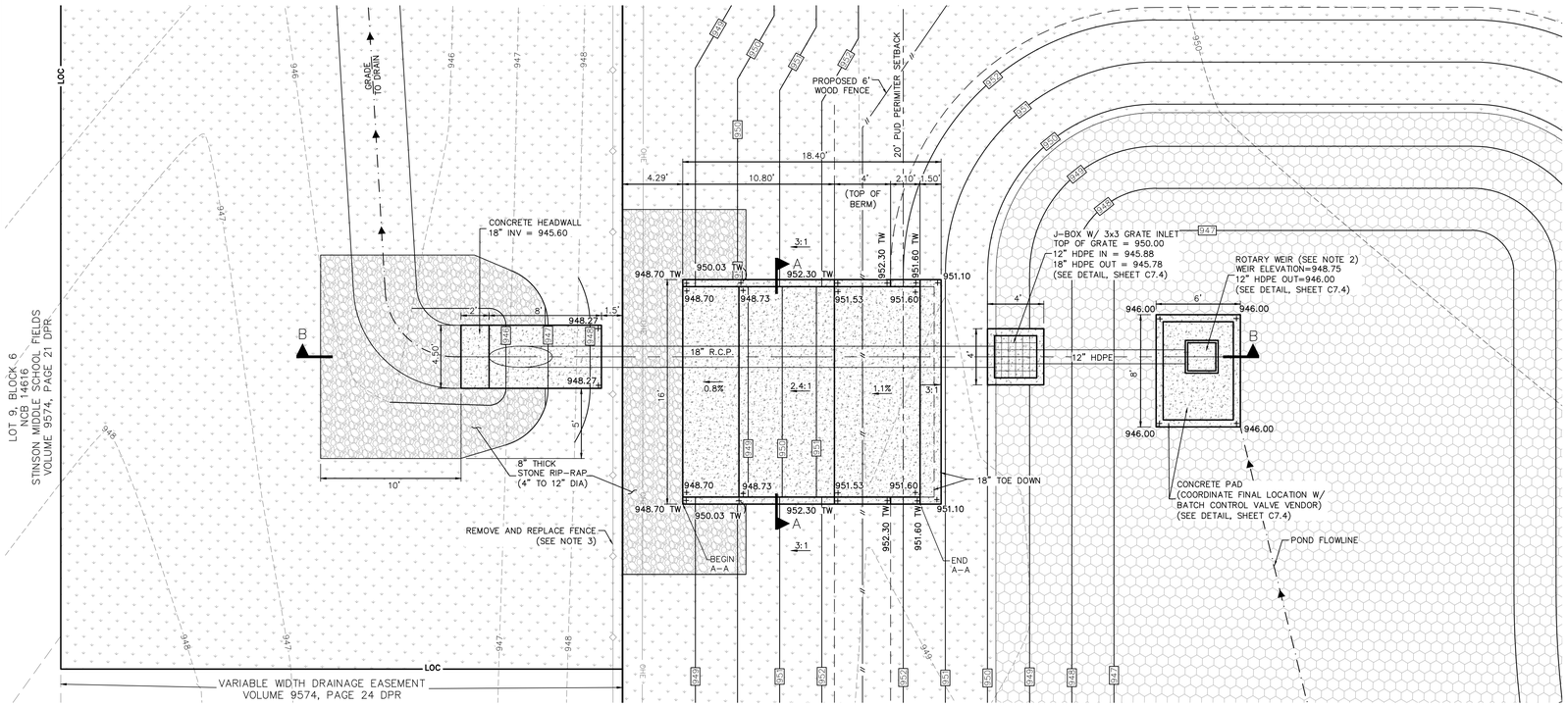
STADIUM POINTE P.U.D.
UNIT 2 & 3
SAN ANTONIO, TEXAS
BATCH DETENTION PONDS PLAN

SHEET C7.1

Date: Sep 21, 2020, 4:06pm User ID: jon.gross
File: F:\2018\118008.04 Stadium Point, Phase 2\Civil 3D\Dwg\Engineer\118008_C7.0-Pond-Overall.dwg



LOCATION MAP
NOT-TO-SCALE



PLAN VIEW

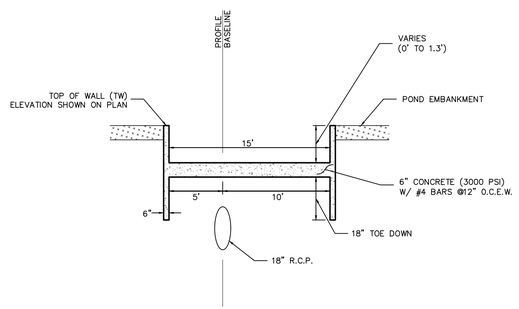
SCALE: 1"= 5'

LEGEND

EXISTING MINOR CONTOUR	900
EXISTING MAJOR CONTOUR	900
EXISTING SANITARY SEWER MAIN	E8"SS
EXISTING SANITARY SEWER MANHOLE	
EXISTING WATERLINE	E8"W
EXISTING CHAINLINK FENCE	
EXISTING WOODEN FENCE	//
EXISTING BARBWIRE FENCE	X
EXISTING BARBWIRE FENCE	OHE
DIRECTION OF FLOW	
PLAT BOUNDARY	
LIMITS OF CONSTRUCTION	LOC
PROPOSED CONTOUR	900
PROPOSED SANITARY SEWER MAIN	P12"SS
PROPOSED SANITARY SEWER MANHOLE	
PROPOSED WATERLINE	P8"W
PROPOSED WOODEN FENCE	//
PROPOSED POND FLOWLINE	
PROPOSED SPOT ELEVATION	+ 67.54
GEOMEMBRANE LINER	
TOP SOIL & HYDROMULCH	

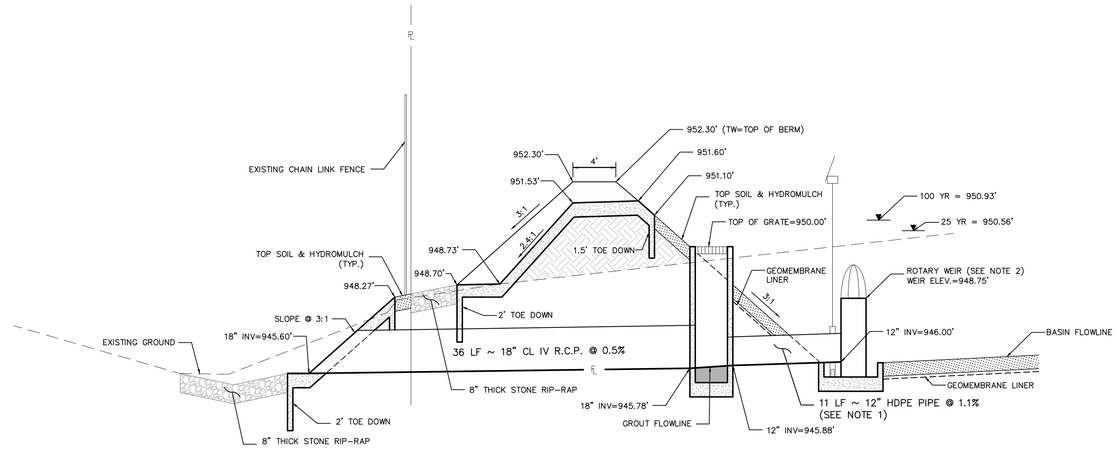
N

0 5' 10'
SCALE IN FEET
1"=5'



SECTION "A - A"

N.T.S.



SECTION "B - B"

N.T.S.

NOTES:

1. HDPE PIPE SHALL BE ADS N-12 DUAL WALL STORM PIPE OR EQUAL APPROVED BY ENGINEER.
2. ROTARY WEIR IS PART OF SMARTBATCH CONTROL VALVE TO BE INSTALLED BY VENDOR. GENERAL CONTRACTOR TO PROVIDE HDPE OUTLET PIPE AND CONCRETE PAD. REFER TO DETAILS, SHEET C7.4.
3. CONTRACTOR TO REMOVE AND SALVAGE FENCE AS NECESSARY TO INSTALL OUTFALL. RESTORE FENCE TO MATCH EXISTING CONDITION AS SOON AS PRACTICAL. COORDINATE FENCE OPENING WITH NEIGHBORING SCHOOL. CONTRACTOR SHALL NOT LEAVE UNATTENDED FENCE OPENING AT ANY TIME.

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 SITES 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 THESE 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.

SUBMITTAL SET

NO.	REVISION	DATE

CDS Muery F-1733

STATE OF TEXAS
BRIAN A. CROWELL
82619
REGISTERED PROFESSIONAL ENGINEER
09/21/2020

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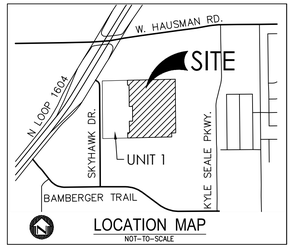
PLAT NO. 19-11800164

JOB NO. 118008.04
DATE AUGUST 2020
DESIGNER JBG
CHECKED KE DRAWN J.W.G.

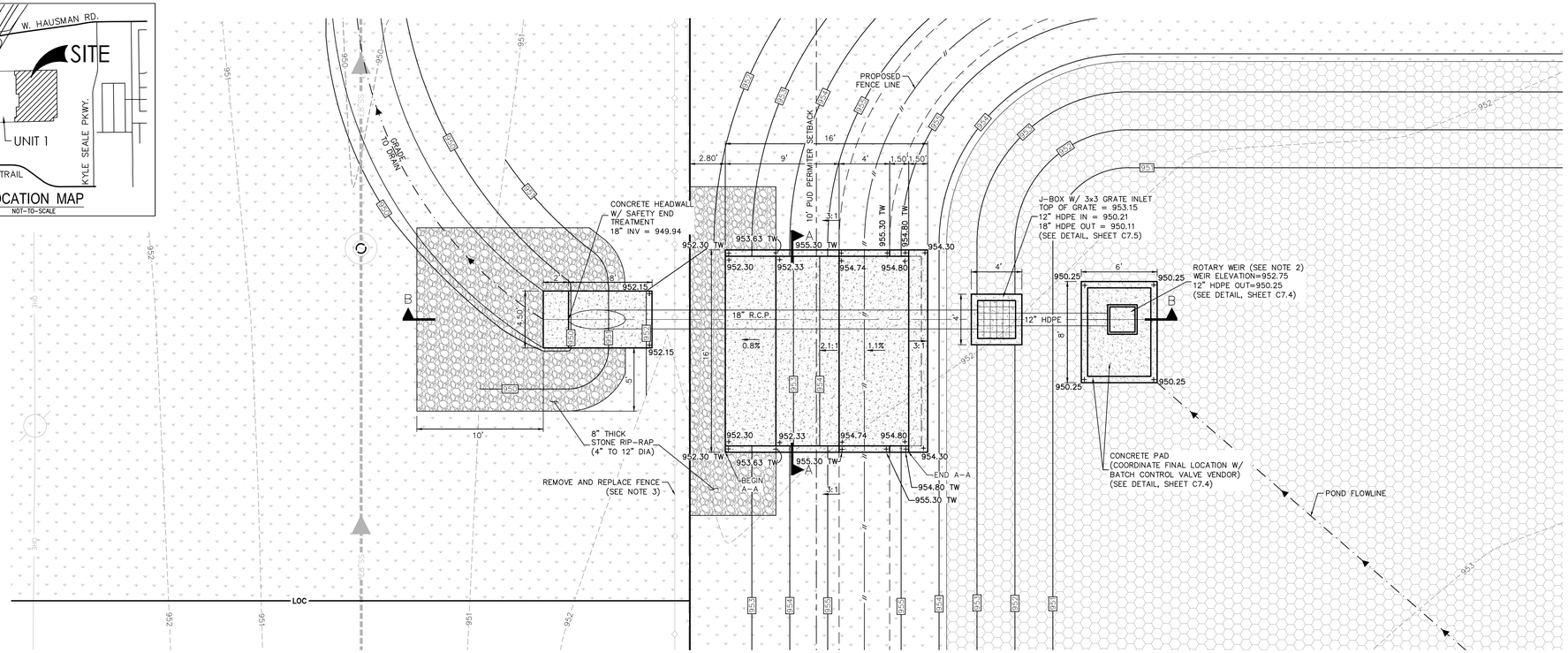
STADIUM POINTE P.U.D.
UNIT 2 & 3
SAN ANTONIO, TEXAS
WEST POND OUTFALL DETAILS

SHEET C7.2

Date: Sep 21, 2020, 2:32pm User ID: jon.gross
File: F:_2018\118008.04 Stadium Point, Phase 2\Civil 3D\Dwg\Engineer\118008_C7.2-Pond-Outfall.dwg



LOCATION MAP
NOT-TO-SCALE



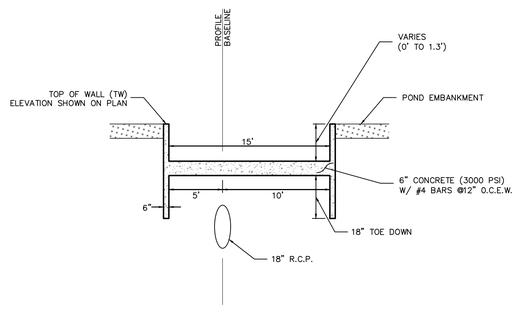
PLAN VIEW
SCALE: 1"= 5'

LEGEND

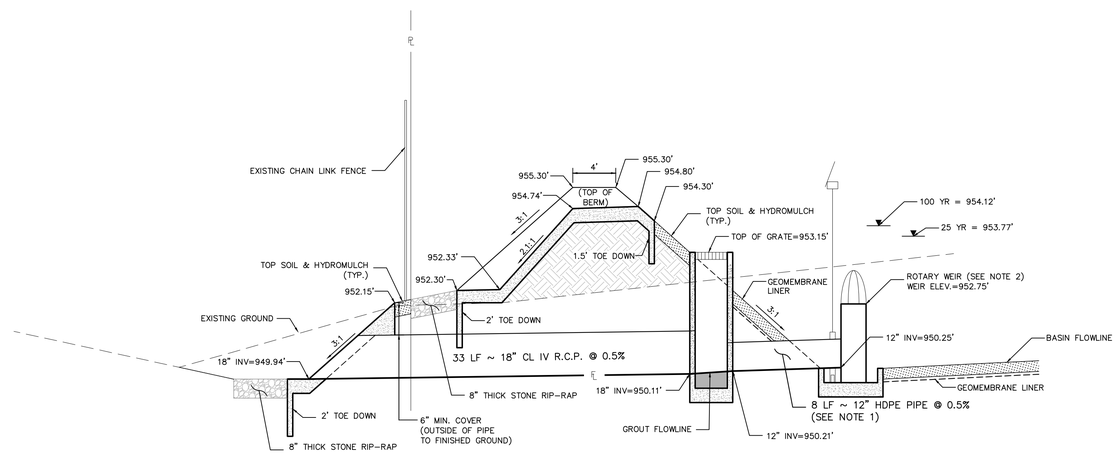
EXISTING MINOR CONTOUR	900
EXISTING MAJOR CONTOUR	900
EXISTING SANITARY SEWER MAIN	8"SS
EXISTING SANITARY SEWER MANHOLE	
EXISTING WATERLINE	8"W
EXISTING CHAINLINK FENCE	
EXISTING WOODEN FENCE	
EXISTING BARBWIRE FENCE	X
EXISTING BARBWIRE FENCE	OHE
DIRECTION OF FLOW	
PLAT BOUNDARY	
LIMITS OF CONSTRUCTION	LOC
PROPOSED CONTOUR	900
PROPOSED SANITARY SEWER MAIN	P12"SS
PROPOSED SANITARY SEWER MANHOLE	
PROPOSED WATERLINE	P8"W
PROPOSED WOODEN FENCE	
PROPOSED POND FLOWLINE	
PROPOSED SPOT ELEVATION	+ 67.54
GEOMEMBRANE LINER	
TOP SOIL & HYDROMULCH	

N

0 5' 10'
SCALE IN FEET
1"=5'



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



SECTION "B - B"
N.T.S.

NOTES:

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SUBMITTAL SET

NO.	REVISION	DATE

CDS Muery F-1733

STATE OF TEXAS
BRIAN A. CROWELL
82619
REGISTERED PROFESSIONAL ENGINEER
09/21/2020

CDS muery
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PLAT NO. 19-11800164

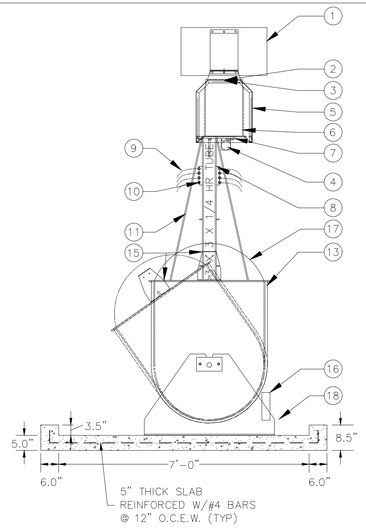
JOB NO. 118008.04
DATE AUGUST 2020
DESIGNER JBG
CHECKED KE DRAWN J.W.G.

STADIUM POINTE P.U.D.
UNIT 2 & 3
SAN ANTONIO, TEXAS
EAST POND OUTFALL DETAILS

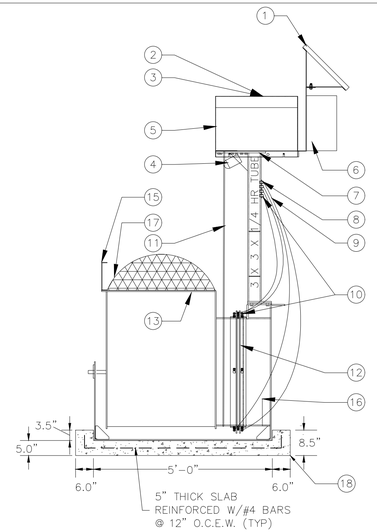
SHEET C7.3

Date: Sep 21, 2020, 2:32pm User ID: jon.gross
File: F:_2018\118008.04 Stadium Point, Phase 2\Civil 3D\Dwg\Engineer\118008_C7.2-Pond-Outfall.dwg

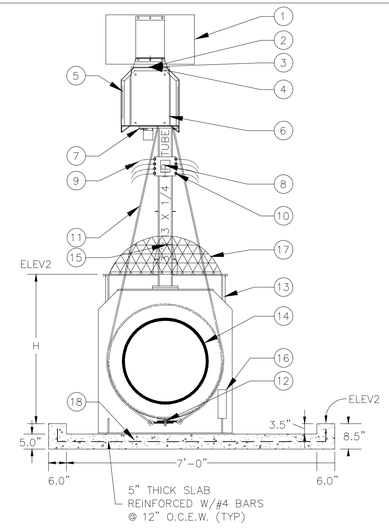
FRONT VIEW



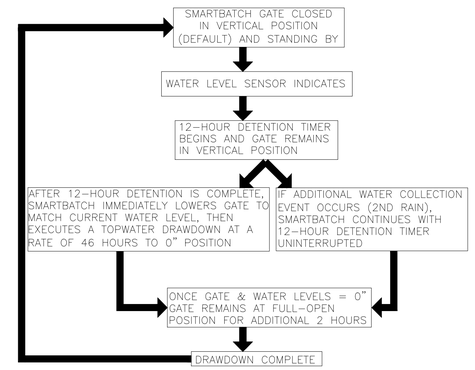
SIDE VIEW



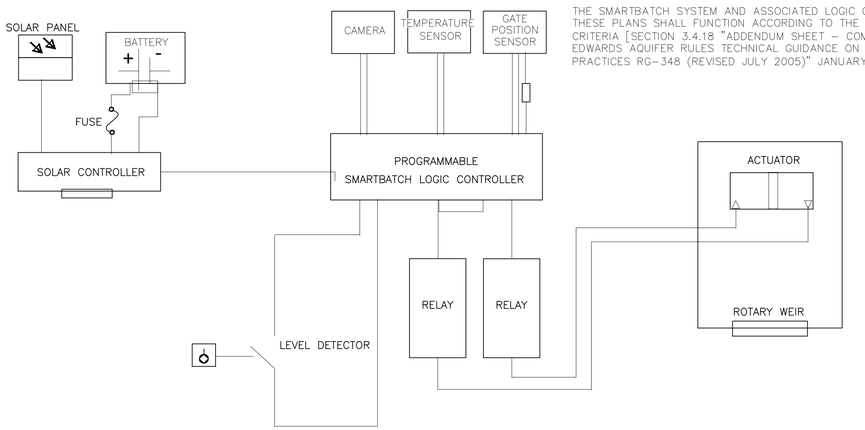
BACK VIEW



PROGRAMMABLE LOGIC FLOW CHART



BATCH DETENTION CONTROL VALVE DETAILS



THE SMARTBATCH SYSTEM AND ASSOCIATED LOGIC CONTROLLER SHOWN ON THESE PLANS SHALL FUNCTION ACCORDING TO THE TCEQ RG-348 DESIGN CRITERIA [SECTION 3.4.18 "ADDENDUM SHEET – COMPLYING WITH THE EDWARDS AQUIFER RULES TECHNICAL GUIDANCE ON BEST MANAGEMENT PRACTICES RG-348 (REVISED JULY 2005)" JANUARY 20, 2017]

CIRCUIT BOARD CONFIGURATION

PARTS LIST

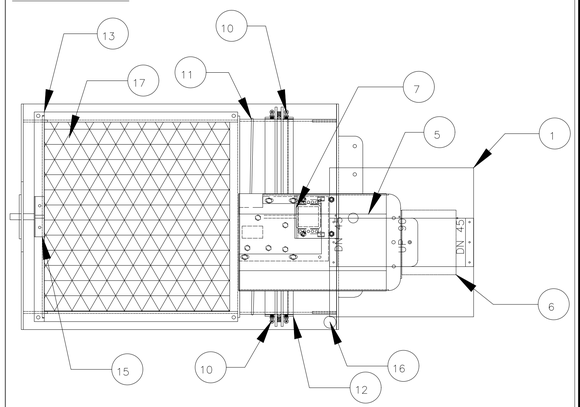
	ITEM	SMARTBATCH COMPONENTS
	1	12 V SOLAR PANEL WITH 30 WATT CHARGING CAPACITY
	2	ANTENNA (NOT DISPLAYED)
	3	CELL DATA MODEM (NOT DISPLAYED)
	4	CAMERA
	5	WEATHERPROOF ELECTRONIC BOX
	6	CONTROL BOX
	7	PEDESTAL
	8	REMOTE GREASE MANIFOLD
	9	GREASE TUBES
	10	GREASE FITTINGS
	11	$\frac{3}{16}$" GALVANIZED CABLES
	12	24" ROTARY VALVE
	13	24" DRUM (30"–70" TALL)
✳	14	12" HDPE OUTLET PIPE (ADS N-12 DUAL WALL OR EQUAL APPROVED BY ENGINEER)
	15	INCLINOMETER
	16	LEVEL TRANSDUCER
	17	BEEHIVE GRATE
✳	18	CONCRETE PAD (BY OTHERS, SIZE VARIES)

✳ GENERAL CONTRACTOR TO INSTALL OUTLET PIPE AND CONCRETE PAD. ALL OTHER PARTS PROVIDED BY SMARTBATCH VENDOR. GENERAL CONTRACTOR TO COORDINATE FINAL LOCATION OF CONCRETE PAD WITH VENDOR.

DIMENSION TABLE

ITEM	ELEV1	ELEV2	H
WEST POND	946.00	948.75	2.75'
EAST POND	950.25	952.75	2.50'

TOP VIEW



SUBMITTAL SET

NO.	REVISION	DATE

CDS Muery F-1733

STATE OF TEXAS
BRIAN A. CROWELL
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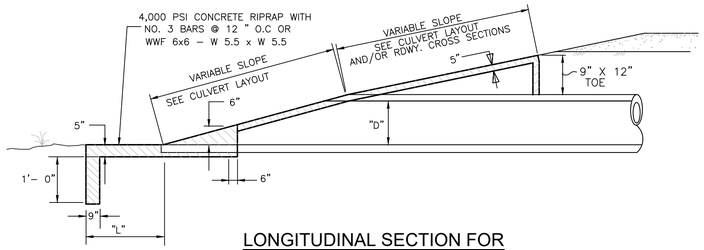
STADIUM POINTE P.U.D.
UNIT 2 & 3
SAN ANTONIO, TEXAS

BATCH DETENTION CONTROL VALVE DETAILS

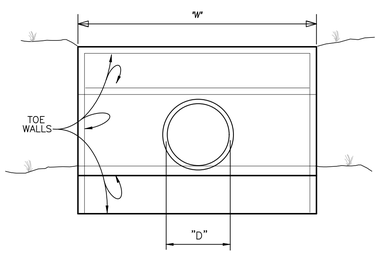
SHEET C7.4

Date: Sep 21, 2020, 2:32pm User ID: jon.gross
File: F:\2018\118008.04 Stadium Point, Phase 2\Civil 3D\Dwg\Engineer\118008_C7.0-Pond-Overall.dwg

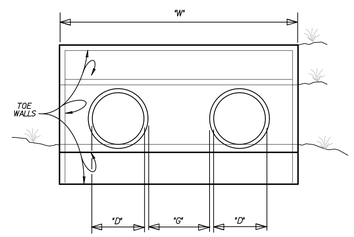


LONGITUDINAL SECTION FOR
CIRCULAR & ARCH PIPES

CONCRETE RIPRAP HEADWALLS



SINGLE CIRCULAR PIPE CULVERT
(CMP or RCP)
N.T.S.

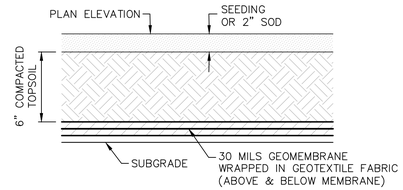


MULTIPLE CIRCULAR PIPE CULVERT
(CMP or RCP)
N.T.S.

"D" INSIDE DIA. of PIPE	"L"	"G"		SINGLE	DOUBLE	TRIPLE	QUADRUPLE
		CMP	RCP	"W"			
12"	1'–6"	1– 0"	0'– 6"	4'– 0"	6'– 0"	8'–0"	10'– 0"
18"	2'–0"	1– 2"	0'– 9"	4'– 6"	7'– 2"	9'–10"	12'– 6"
21"	2'–6"	1'– 3"	0'–10"	5'– 3"	8'– 4"	11'– 4"	13'– 4"
24"	3'–0"	1'– 5"	0'–11"	6'– 0"	9'– 5"	12'–10"	16'– 3"
30"	4'–0"	1'– 8"	1'– 1"	7'– 6"	11'–8"	15'–10"	20'– 0"
36"	5'–0"	1'–11"	1'– 3"	9'– 0"	13'–11"	18'–10"	23'– 9"
42"	6'–0"	2'– 2"	1'– 5"	10'–6"	16'– 2"	21'–10"	27'– 6"
48"	7'–0"	2'– 5"	1'– 7"	12'–0"	18'– 5"	24'–10"	31'– 3"
54"	8'–0"	2'–10"	1'–11"	13'–6"	20'–10"	28'– 2"	35'– 6"
60"	9'–0"	3'– 2"	2'– 0"	15'–0"	23'– 2"	31'– 4"	39'– 6"

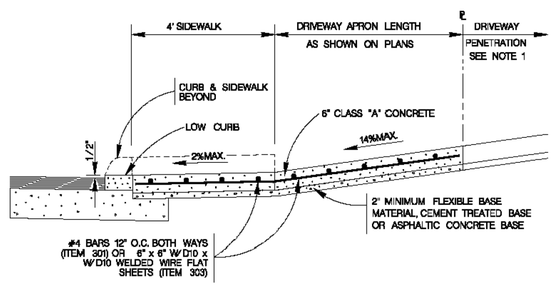
"G" IS MEASURED BETWEEN THE OUTER SURFACES OF THE PIPES.

DIMENSIONS FOR CIRCULAR (CMP and RCP)
PIPE CULVERTS



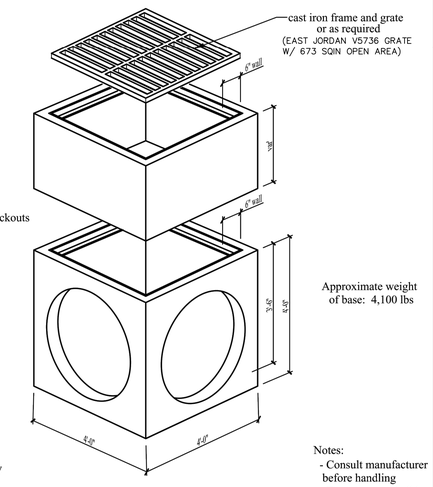
GEOMEMBRANE LINER
N.T.S.

GEOTEXTILE FABRIC SPECIFICATION			
PROPERTY	TEST METHOD	UNIT	SPECIFICATION (MINIMUM)
UNIT WEIGHT		oz/yd2	8
FILTRATION RATE		in/sec	0.08
PUNCTURE STRENGTH	ASTM D–751*	lb	125
MULLEN BURST STRENGTH	ASTM D–751	psi	400
TENSILE STRENGTH	ASTM D–1682	lb	200
EQUIVALENT OPENING SIZE	US STANDARD SIEVE	No.	80
* MODIFIED			



TYPICAL COMMERCIAL DRIVEWAY SECTION
WITH SIDEWALK ABUTTING CURB

3' x 3' x var Grate Inlet



Bottom Section
36" dia thinwall knockouts
all four sides

Approximate weight
of base: 4,100 lbs

Specifications:
- Concrete has a 28 day strength of 5,000 psi
- Steel reinforcement is ASTM A615 grade 60
- Load design is H-20

Notes:
- Consult manufacturer before handling
- The structure shall be placed on a compacted granular base

Capital Precast — CAPITAL PRECAST, INC. 800 WATSON LANE EAST NEW BRAUNFELS, TEXAS 78130 PH. (830) 606-6200	FOR 3' x 3' x var Grate Inlet		
	JOB		
	DRAWN RW	DATE 1/15/2013	Rev. No.
	FILE catalog/grate inlets/3x3 Grate Inlet		SHEET 1 OF 1

NO.	REVISION	DATE

CDS Muery F-1733
STATE OF TEXAS
BRIAN A. CROWELL
82619
REGISTERED PROFESSIONAL ENGINEER
09/21/2020

CDS muery
ENGINEERS | SURVEYORS
100 NE Loop 410, Ste. 300 | San Antonio, Texas 78216
(210) 581-1111 | TBPE No. F-1733 | TBPLS No. 100495-00

PLAT NO. 19-11800164

JOB NO. 118008.04
DATE AUGUST 2020
DESIGNER JBG
CHECKED KE DRAWN J.W.G.

STADIUM POINTE P.U.D.
UNIT 2 & 3
SAN ANTONIO, TEXAS
BATCH DETENTION POND DETAILS

SUBMITTAL SET

SHEET C7.5

Date: Sep 21, 2020, 2:32pm User ID: jon.gross
File: F:\2018\118008.04 Stadium Point, Phase 2\Civil 3D\Dwg\Engineer\118008_C7.0-Pond-Overall.dwg

ATTACHMENT G | Inspection, Maintenance, Repair and Retrofit Plan

Below are the inspection and maintenance guidelines required for the batch detention systems as regulated by this Water Pollution Abatement Plan. The owner/responsible party shall be responsible for the required inspection, maintenance, and repair of the BMP as well as keep all records of such events. Records are to be retained, along with a copy of this approved plan, and should be made available upon request or inspection by the Texas Commission on Environmental Quality (TCEQ)

For a batch detention pond, routine maintenance includes the following, including each specific component of the system identified.

Generally:

- Periodic scheduled inspections, with a specified checklist, shall be completed twice every calendar year at a minimum, or as outlined below.

- Inspections should be conducted after major rainfall events, especially rain events over a 24-hour period. One inspection should take place during wet weather to determine if the basin is meeting the target detention time of 12 hours and a drawdown time of no more than 48 hours. The remaining inspections should occur between storm events so that manual operation of the valve and controller can be verified.

- The level sensor in the basin should be inspected and any debris or sediment in the area should be removed.

- Inspections shall be documented in a logbook kept with a copy of the approved WPAP application package and approval letter.

- Automated Rotary Batch Detention System (ARBDS) – the automatic actuator systerm:

  - Grease
    - The ARBDS features a remote grease terminal on the pedestal. There are eight terminals that connect with grease tubes to the inner and outer flanges of the rotary valve. Autoflow recommends the ARBDS be greased at least twice per year. It is also recommended that a thick, mildly heat-resistant grease be used to avoid grease melting through lines during the summer months.
    - To grease the ARBDS flanges, use a standard grease gun to pump grease through the fittings. By either logging into the autoflow app and using the command page (see autoflow app, section ii), or by pressing the intermittent switches (see in case of failure, section 2), cycle the ARBDS from the full closed position to the fully open position. While the ARBDS valve rotates, alternate greasing between all eight grease fittings. When the ARBDS completes the movement, cycle it again from the fully open position to the full closed position and repeat the greasing process.
    - Besides the eight grease terminals on the pedestal, the only other location where grease is needed is the worm gear on the cable drive winch. To access the winch, loosen the four jam screws on the control box hood. It is not necessary to completely remove the jam screws. With the screws loose, remove the hood. Apply grease to the vertically oriented worm gear.

  - Flange Bolts

    - There are 10 bolts connecting the two flanges which encircle the ARBDS 24" swivel. These bolts should be evenly tightened, allowing for a 1/16" gap between the flanges and the stainless-steel packing band inside. Do not over-tighten the flange bolts, as this will pinch the steel packing band and cause the swivel to bind.

- Packing Band
    - The stainless-steel packing band between the two flanges of the ARBDS swivel tightens with an allen-head bolt to secure the packing material beneath in place. This band should be snug at all times but not over-tightened. Over time, the rotation of the ARDBS valve will wear on the packing material, so the packing band will need to be re-tightened on a semi-annual basis to ensure that the material is well seated against the swivel surface.

- Digging Around Valve
    - Silt, sediment, and debris can build up around the unit. An annual inspection of the unit is necessary to ensure that excess debris and sediment has not limited the rotation arc of the valve. If the ARBDS valve cannot rotate to the 0" or fully opened level, it will not be able to fully drain the impoundment area.

- Solar Panel
    - The solar panel is commonly utilized by birds and insects. It is important to keep the surface clean of bird litter, insect nests and debris in order to maintain optimal performance.

- Cable Slack
    - The drive cable of the ARBDS routes from the cable drive winch inside the control box to a tab at the bottom at the ARBDS valve. To test cable slack, move the valve of the ARDBS in either the closing or opening direction using the intermittent switches. Moving the valve will cause one side of the cable to tighten and the other side to loosen
    - The loose side should always have five inches of perpendicular slack. For slight adjustments, tighten or loosen the nut of the eye bolt on the loose cable side as needed. For major adjustments, loosen the cable clamps at the bottom of the ARBDS valve and adjust slack through the eye bolt. With the proper five inches of slack adjusted into the loose side cable, retighten the cable clamps. Clamps must be secured very tightly to avoid cable slippage.

- Cable Connections
    - The drive cable of the ARBDS is connected at the bottom of the ARBDS valve with eye bolts and cable clamps. Check annually for corrosion or broken parts. Make sure the cable clamps are secured tightly and the eye bolts are intact. Replace as needed.

- Battery
    - Over time, battery terminals may corrode. Check annually for corrosion and clean as needed. Camera is used to identify any issues with the system, including the battery system. If the battery system were to fail, this would be known by the data recorded and the ARBDS can be turned by hand. This is an extremely remote possibility given the ability to remotely monitor the system.

- Camera
    - Check the lens glass annually for insect nests or debris and clean as needed. One nut connects the camera frame to the control box and two small set screws secure the camera to the camera frame. These can be loosened in order to adjust the camera's aim and then retightened to secure it in place.

- Important safety information and warnings
    - Always keep hands clear of the ARBDS valve, swivel, and cable drive system when unit is in operation.

- Turn the power switch off when doing any electrical work
- Do not enter the water when the ARBDS is actively draining water
- Do not stand inside or on top of the ARBDS valve
- Always wear gloves when doing any work on the cable drive system

- Other Items

  - Trees and root systems should be removed to prevent growth in the impermeable liner of the batch detention basin bottom and through the rock rubble sides of the basin. Any degradation of a geomembrane or clay liner will be immediately repaired upon inspection.

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

  - The responsible party should limit the use of fertilizers and/or pesticides in and around the ponds. Twice a year, the facility should be evaluated in terms of nuisance control (insects, weeds, odors, algae, etc.) due to potential standing water (2-3") because of basin slope or spring flow.

  - The outlet structure and the trash screen should be inspected for signs of clogging at every inspection.

  - Sediment shall be removed from the basin at least every 5 years, when sediment depth exceeds 6 inches, when the sediment interferes with the level sensor or when the basin does not drain within 48 hours. Care should be taken not to compromise the basin lining during maintenance.

Transfer of Ownership/Responsibility:
The applicant (i.e. owner/operator) is the sole responsible party for maintaining the records for such inspections, maintenance, and repair once construction of the water quality pond is completed. Should the maintenance obligation supplant through either a change of ownership or control of the property (ie.an owner's association, new property owner, lessee, or a district/municipality) then maintenance of the water quality pond shall be transferred to the new responsible party. A copy of the transfer of responsibility must be filed with the executive director of the regional office of which the pond resides (San Antonio Regional Office) within 30 days of the transfer.

Responsible Party Acknowledgement:

Responsible Party: Skyhawk Villa de San Antonio, LLC
By its Manager, Ram Yellaturu
8117 Sutherland Lane
Plano, Texas 75025

Signature of Responsible Party: _____ 9/10/2020
Ram Yellaturu Date

Signature of Engineer of Record: _____
Brian Crowell, P.E.

ATTACHMENT H | Pilot-Scale Field Testing Plan

This section does not apply for this project.

ATTACHMENT I | Measures for Minimizing Surface Stream Contamination

This section does not apply for this project. To the fullest extent possible, existing drainage patterns were maintained post-construction.

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

I **Ramanatha Yellaturu**,
Print Name

Manager, Skyhawk Villa de San Antonio,
Title - Owner/President/Other

of **Skyhawk Villa de San Antonio, LLC**,
Corporation/Partnership/Entity Name

have authorized **Brian Crowell, P.E., LEED AP**
Print Name of Agent/Engineer

of **CDS Muery**
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:

Ramanatha Reddy
Applicant's Signature

09/11/2020
Date

THE STATE OF TEXAS §

County of collin §

BEFORE ME, the undersigned authority, on this day personally appeared **Ramanatha Yellaturu**, 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 11th day of September 2020.

Alka S. Kelkar.
NOTARY PUBLIC

Alka S. Kelkar
Typed or Printed Name of Notary

NOTARY PUBLIC STATE OF TEXAS
ALKA S KELKAR
Notary ID #11759723
My Commission Expires
March 4, 2024

MY COMMISSION EXPIRES: 3.4.2024

Application Fee Form

Texas Commission on Environmental Quality
Name of Proposed Regulated Entity: Stadium Pointe PUD, Unit 2&3
Regulated Entity Location: 29.5661°N , 98.6492°W (see description on core data form)
Name of Customer: Skyhawk Villa de San Antonio, LLC
Contact Person: Brian Crowell, P.E., LEED AP Phone: 210-581-1111
Customer Reference Number (if issued):CN 605548692
Regulated Entity Reference Number (if issued):RN 110455052

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	16.28 Acres	$ 6,500
Sewage Collection System	L.F.	$
Lift Stations without sewer lines	Acres	$
Underground or Aboveground Storage Tank Facility	Tanks	$
Piping System(s)(only)	Each	$
Exception	Each	$
Extension of Time	Each	$

Signature: [signature] Date: 09/21/2020

TCEQ-0574 (Rev. 02-24-15)

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

Organized Sewage Collection System Plan Checklist

- **01 Core Data Form (TCEQ-10400)**
- **02 Edwards Aquifer Application Cover Page (TCEQ-20705)**
- **03 General Information Form (TCEQ-0587)**

  Attachment A - Road Map
  Attachment B - USGS / Edwards Recharge Zone Map
  Attachment C - Project Description

- **04 Geologic Assessment Form (TCEQ-0585)**

  Attachment A - Geologic Assessment Table (TCEQ-0585-Table)
  Attachment B - Stratigraphic Column
  Attachment C - Site Geology
  Attachment D - Site Geologic Map(s)

- **05 Organized Sewage Collection System Plan (TCEQ-0582)**

  Attachment A - SCS Engineering Design Report
  Attachment B - Justification and Calculations for Deviation in Straight Alignment Without Manholes
  Attachment C - Justification for Variance from Maximum Manhole Spacing
  Attachment D – Calculations for Slopes for Flows Greater Than 10.0 Feet Per Second
  Site Plan
  Final Plan and Profile Sheets

- **N/A ~~Lift Station / Force Main System Application (TCEQ-0624) if applicable~~**
- **06 Temporary Stormwater Section (TCEQ-0602)**

  Attachment A - Spill Response Actions
  Attachment B - Potential Sources of Contamination
  Attachment C - Sequence of Major Activities
  Attachment D - Temporary Best Management Practices and Measures
  Attachment E - Request to Temporarily Seal a Feature (if requested)
  Attachment F - Structural Practices
  Attachment G - Drainage Area Map
  Attachment H - Temporary Sediment Pond(s) Plans and Calculations
  Attachment I - Inspection and Maintenance for BMPs
  Attachment J - Schedule of Interim and Permanent Soil Stabilization Practices

- **07 Agent Authorization Form (TCEQ-0599), if application submitted by agent**
- **08 Application Fee Form (TCEQ-0574)**
- **09 Check Payable to the "Texas Commission on Environmental Quality"**

TCEQ Use Only

TCEQ Core Data Form

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

SECTION I: General Information

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

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

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

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number *(if issued)*
CN 605548692		RN 105230411

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:*

Skyhawk Villa de San Antonio, LLC

7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number *(if applicable)*
802909145	32065955323	824072944	

11. Type of Customer: ☒ Corporation ☐ Individual Partnership: ☐ General ☐ Limited

Government: ☐ City ☐ County ☐ Federal ☐ State ☐ Other ☐ Sole Proprietorship ☐ Other:

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

13. Independently Owned and Operated?
☒ Yes ☐ No

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

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

15. Mailing Address:							
	8117 Sutherland Lane						
	City	Plano	State	TX	ZIP	75025	ZIP + 4	5545

16. Country Mailing Information *(if outside USA)*	17. E-Mail Address *(if applicable)*
N/A	ramanathayellaturu@gmail.com

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(214) 578-3414		(214) 383-1766

SECTION III: Regulated Entity Information

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

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

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

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

Stadium Pointe PUD Unit 2 & 3

23. Street Address of the Regulated Entity: *(No PO Boxes)*	see item 25							
	City		State		ZIP		ZIP + 4	
24. County	Bexar							

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:	APPROXIMATELY 0.18 MILES EAST OF NORTH LOOP 1604 W AND SKYHAWK DR INTERSECTION

26. Nearest City	State	Nearest ZIP Code
San Antonio	TX	78249

27. Latitude (N) In Decimal:	29.5661		28. Longitude (W) In Decimal:	98.6492	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
29	33	58	98	38	57

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		237110	

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

Multi-Family residential

34. Mailing Address:	8117 Sutherland Lane							
	City	PLANO	State	TX	ZIP	75025	ZIP + 4	5545

35. E-Mail Address:	ramanathayellaturu@gmail.com

36. Telephone Number	37. Extension or Code	38. Fax Number *(if applicable)*
(214) 578-3414		(214) 383-1766

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
		SCS		
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☐ Waste Water	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	Brian Crowell, PE, Leed AP	41. Title:	Senior Project Manager

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(210) 581-1111		(210) 581-5555	brian.crowell@cdsmuery.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:	CDS Muery	Job Title:	Senior Project Manager
Name *(In Print)*:	Brian Crowell, PE, Leed AP	Phone:	(210) 581- 1111
Signature:	B. Crowell	Date:	09/21/2020

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: Stadium Pointe PUD, Unit 2&3						**2. Regulated Entity No.:110455052**			
3. Customer Name: Skyhawk Villa de San Antonio, LLC						**4. Customer No.:605548692**			
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):**		16.28 acres
9. Application Fee:	$		**10. Permanent BMP(s):**					Batch detention basins (2)	
11. SCS (Linear Ft.):	N/A		**12. AST/UST (No. Tanks):**					N/A	
13. County:	Bexar		**14. Watershed:**					French Creek (within the Leon Creek watershed)	

Application Distribution

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

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

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

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

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

I certify that to the best of my knowledge, that the application is complete and accurate. This application is hereby submitted to TCEQ for administrative review and technical review. Brian Crowell, PE, LEED AP (Authorized Agent)
Print Name of Customer/Authorized Agent
Signature of Customer/Authorized Agent — Date 09/21/2020

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

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: Brian Crowell, PE, LEED AP (of CDS Muery)

Date: 09/21/2020

Signature of Customer/Agent:

Project Information

1. Regulated Entity Name: Stadium Pointe PUD Unit 2 & 3
2. County: Bexar
3. Stream Basin: French Creek (within the Leon Creek Watershed)
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: Ram Yellaturu
Entity: Skyhawk Villa de San Antonio, LLC
Mailing Address: 8117 Sutherland Lane
City, State: Plano Zip: 75025
Telephone: N/A FAX: N/A
Email Address: ramanathayellaturu@gmail.com

8. Agent/Representative (If any):

Contact Person: Brian Crowell, PE, LEED AP
Entity: CDS Muery
Mailing Address: 100 NE Loop 410, Ste 300
City, State: San Antonio Zip: 78216
Telephone: 210-581-1111 FAX: 210-581-5555
Email Address: _____

9. Project Location:

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

Property located east of RN110455052, 470 feet east of Skyhawk Drive at ends of Runner Ridge and Runner Cove. Monticeto apts to north, Brandeis High School to east, and Stinson Middle School to south.

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: A georeferenced pdf file showing the location of regulated activities is provided with the digital submittal in lieu of staking.

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

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

15. Existing project site conditions are noted below:

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

Prohibited Activities

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

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

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

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

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

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

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

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

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

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

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

Administrative Information

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

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

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

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

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

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

Supplemental Attachments for

TCEQ F-0587 General Information Form

Stadium Pointe PUD, Unit 2&3

Table of Attachments:

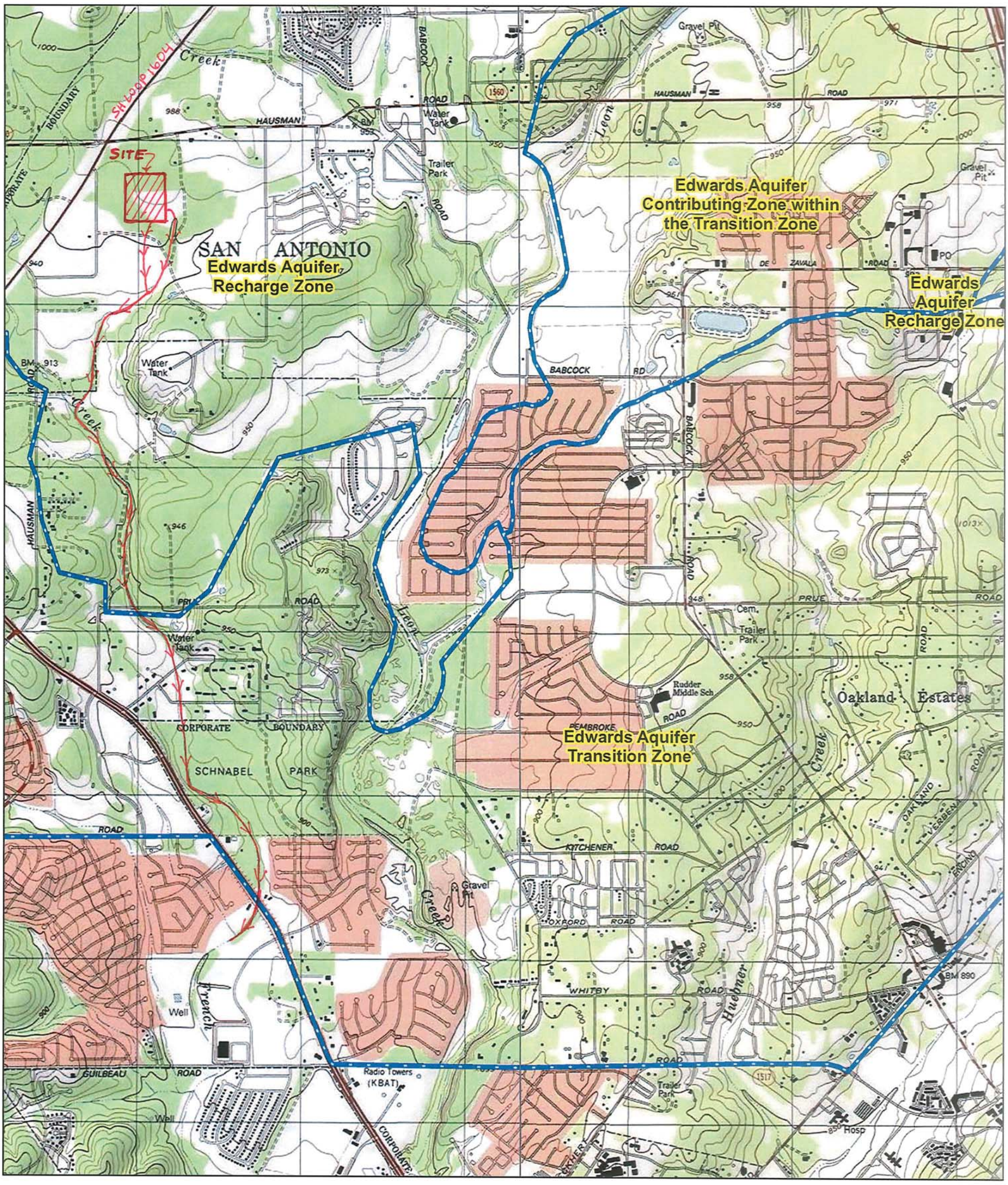
Attachment A: Road Map
Attachment B: USGS / Edwards Recharge Zone Map
Attachment C: Project Description

ATTACHMENT A | Road Map

Note: Image taken from Google Maps

ATTACHMENT B | USGS/Edwards Recharge Zone Map

Stadium Pointe P.U.D., Unit 2 & 3



8/18/2020, 3:23:05 PM

- Edwards Aquifer Boundary central line
- Edwards Aquifer Boundary
- Edwards Aquifer Label
- TX Counties
- 7.5 Minute Quad Grid

1:24,000

0 1,250 2,500 5,000 ft

0 437.5 875 1,750 m

USGS LONGHORN QUADRANGLE

Copyright:© 2013 National Geographic Society, i-cubed
TCEQ

Web AppBuilder for ArcGIS

ATTACHMENT C | Project Description

Proposed Site Use:
Stadium Pointe PUD, Unit 2&3 is a residential duplex development designed as a Planned Unit Development (PUD). Each of the 112 lots will consist of a duplex having two (2) residential dwelling units.

Organized Sewage Collection System:
A Sewage Collection System (SCS) is proposed to collect and convey wastewater flows from Stadium Pointe Unit 2&3 to an existing sewage collection system that ultimately discharges to the San Antonio Water System (SAWS) Leon Creek Wastewater Treatment Plant, an existing facility.

The proposed SCS includes 3,537 linear feet of 8 inch SDR 26 PVC pipe and 17 manholes. The SCS will gravity flow and tie into two existing 8 inch sewer lines located at the ends of Runner Ridge and Runner Cove.

Area of Site:
The Site Area is 16.28 acres. The platted area for Stadium Pointe PUD Unit 2&3 is 16.38 acres. The Site Area excludes a 0.10 acre utility easement which will remain undisturbed. The utility easement is situated in the southeast corner of the property.

Offsite Areas:
Two small off-site areas totaling 0.18 acre are situated within the limits of construction. The two areas lie within drainage easements and are located downstream of the proposed batch detention facilities.

No upgradient offsite areas discharge stormwater to the Site Area.

Limits of Construction:
A total of 16.46 acres lie within the Limits of Construction (16.28 acres + 0.18 acre = Area of Site + Offsite Areas).

Plan Area:
Plan Area used in TSS removal calculations is 12.85 acres (16.46 – 3.61=12.85) to exclude the 3.61 acre area that will be treated by the offsite facility.

Permanent BMP(s):
Post-development permanent BMPs include 2 batch detention basins (West Pond and East Pond). The batch detention basins will remove pollutants prior to release of stormwater to downstream drainage facilities. Each batch detention basin features a storm water detention volume stored above the required water quality volume to attenuate peak runoff rates and release downstream at pre-development rates. Plans for the batch detention basins are included in the Permanent Stormwater section of this WPAP.

Impervious Cover:
Post-development impervious cover is calculated to be 9.39 acres or 57.7% of the Site Area.

Proposed Site Use:
Stadium Pointe PUD, Unit 2&3 is a residential duplex development designed as a Planned Unit Development (PUD). Each lot will consist of a duplex having two (2) residential dwelling units.

Site History and Previous Development:
The Project Site is a portion of a 26 acre site subdivided in 1988 as the "Father Flanagan's Boys' Home" Subdivision and developed as a long-term residential program for residential care for youth. Operating as Father Flanagan's Girls and Boys Town of San Antonio and eventually as the Non-Profit organization Boys Town, the entire 26-acre property had five (5) homes and one (1) small office building. In-mid 2017, the property ended its services and closed this location.

The western 9.5 acre portion of the 26 acre property was redeveloped as Stadium Pointe PUD Unit 1 in 2019. An existing communications tower located in the southeast corner of the site is situated within a 0.10 acre utility easement and will remain undisturbed.

Areas to be Demolished:
Building foundations and miscellaneous flatwork from the original development will be removed following temporary BMP placement.

Geologic Assessment

Texas Commission on Environmental Quality

For Regulated Activities on The Edwards Aquifer Recharge/transition Zones and Relating to 30 TAC §213.S(b)(3), Effective June I, 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: Douglas McGookey, P.G. **Telephone:** (210) 694-4545

Date: July 18, 2018 **Fax:** (210) 694-4577

Representing: Medina Consulting Co., Inc. TBPG No.50118

Signature of Geologist:

Regulated Entity Name: Stadium Pointe

STATE OF TEXAS
Douglas A. McGookey
Geologist
License Number 368
LICENSED
PROFESSIONAL GEOSCIENTIST

Project Information

1. Date(s) Geologic Assessment was performed: May 14, 2018

7-27-18

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 and Bexar Stony Soils (Cb)	**D**	**1.7-3.3**
Anhalt clay (Ca)	**D**	**1.7-3.3**

** Soil Group Definitions (Abbreviated)*

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

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

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

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

   Applicant's Site Plan Scale: 1" = 40'
   Site Geologic Map Scale: 1" = 40'
   Site Soils Map Scale (if more than 1 soil type): 1" = 40'

9. Method of collecting positional data:

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

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

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

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

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

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

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

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

Administrative Information

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

ATTACHMENT A –

GEOLOGIC ASSESSMENT TABLE

GEOLOGIC ASSESSMENT TABLE

PROJECT NAME: STADIUM POINTE

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								<40	≥40	<1.6	≥1.6	
M1	29°33'58.68"	-98°38'58.92"	MB	30	Kep	NA	NA	2-3	NA	NA	NA	NA	NA	5	35	x		x		Hillside
M2	29°33'53.69"	-98°39'1.64"	MB	30	Kep	~7'	~7'	~4'	NA	NA	NA	NA	NA	5	35	x		x		Hillside
M3	29°33'55.60"	-98°38'54.78"	MB	30	Kep	~52'	~23'	~6.5'	NA	NA	NA	NA	NA	0	30	x		x		Hillside
M4	29°33'53.20"	-98°38'53.48"	MB	30	Kep	NA	NA	15-20	NA	NA	NA	NA	NA	0	30	x		x		Hillside

• DATUM: WGS 84

2A TYPE	TYPE	28 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 rock
C	Coarse – cobbles, breakdown, sand, gravel
O	Loose or soft mud or soil, organics, leaves, dark colors
F	Fines, compacted clay-rich sediment, soil profile, gray or red colors
V	Vegetation. Give details in narrative description
FS	Flowstone, cements, cave deposits
X	Other materials

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

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

My signature certifies that I am qualified as a geologist as defined

Douglas McGookey, P.G.

Date 7-17-18

Sheet 1 of 1

STATE OF TEXAS
Douglas A. McGookey
Geologist
License Number 368
LICENSED
PROFESSIONAL GEOSCIENTIST

7-17-18

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

ATTACHMENT B –

STRATIGRAPHIC COLUMN

STRATIGRAPHIC COLUMN

STRATIGRAPHIC COLUMN									
Time Period (Era)	Hydrologic Sub-division	Group, Formation/ Member			Hydrologic Function	Thickness (ft)	Lithology	Cavern Development	Porosity/ Permeability type
	Erosional Surface								
Lower Cretaceous	Edwards Aquifer	Edwards Group	Person FM	Cyclic & marine members undivided	AQ	80-100	Mudstone to packstone, miliolid grainstone, chert	Many subsurface	Laterally extensive, water yielding
				Leached and collapsed members	AQ	80-100	Limestone: Crystalline, mudstone to grainstone, chert, collapsed breccia	Extensive lateral development, large rooms	Permeable, most not fabric porosity
				Regional dense member	CU	20-24	Limestone: dense argillaceous mudstone	Very few, only vertical fracture development	Not fabric, low permeability, vertical barrier
			Kainer FM	Grainstone member	AQ	50-60	Limestone: miliolid grainstone, mudstone to wackestone, chert	Few	Not fabric, recrystallization reduces permeability
				Kirschberg evaporite member	AQ	50-60	Limestone: highly altered, crystalline, chalky mudstone, chert	Probably extensive cave development	Most fabric, one of the most permeable
				Dolomitic member	AQ	110-130	Limestone: mudstone to grainstone, crystalline, chert	Caves related to structure or bedding planes	Mostly not fabric, some bedding plane fabric
				Basal nodular member	Karst AQ	50-60	Limestone: shaly, nodular, mudstone to miliolid grainstone	Large lateral caves at surface	Fabric, stratigraphically controlled
	Lower Confining Unit	Glen Rose Fm	GR FM	Upper Member Glen Rose Limestone	CU	350-500	Limestone: yellowish tan, thinly bedded, marl	Some surface cave development	Relatively impermeable

Notes: CU = Confining Unit; AQ =Aquifer

Source: *Geologic Framework and Hydrogeologic Characteristics of the Edwards Aquifer Recharge Zone, Bexar County, Texas:* US Geological Survey, Water Resource Investigations Report (95-4030).

STATE OF TEXAS
Douglas A. McGookey
Geologist
License Number 368
LICENSED
PROFESSIONAL GEOSCIENTIST

12-22-18

ATTACHMENT C –

SITE GEOLOGY

GEOLOGY NARRATIVE

Location and Narrative Overview

The 26-acre Stadium Pointe Site consists of a paved street (Flanagan St.), residential buildings with driveways, outbuildings and playground structures, an in-ground swimming pool, packed gravel and caliche roads, drainage features, footpaths, fire hydrants, wood utility poles for electricity transmission and area lighting, and a cellular communications tower. The drainage features include a rectangular cement ditch along the northern Site boundary (starting over one-third of the way into the property and ending in the northwestern corner - Photo 5), a cement culvert under Flanagan St., one end of a cement culvert that runs under a driveway of the south-adjacent Katherine Stinson Middle School, and a long swale.

Areas surrounding the site have been developed with residential and commercial land uses. There are marked buried utility lines and pipes along the west boundary of the Site. The location is shown on Figures 1 and 2 and the topographic setting is shown in Figure 3. Photographs of the Site follow the text in the Geologic Narrative.

Edwards Aquifer Zone

The Site lies entirely within the recharge zone of the Edwards Aquifer. Maps showing the location of the Site within the recharge zone is shown in Figure 7.

100-Year Floodplain

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for Bexar County Texas Community Panel Number 48029C0210G, September 29, 2010 was used to determine if the project site is located within areas prone to flooding. The Site is located within Zone X which represents areas determined to be outside the 0.2% chance of annual flooding. The floodplain is noted, in blue, in Figure 5.

Site Soils - Literature Review:

Soil Units*:* According to the US Department of Agriculture's web soil survey, the Site lies on Crawford and Bexar stony soils (Cb) (23.9 acres) and Anhalt clay, 0 to 2 percent slopes (Ca) (2.1 acres). The soils map is shown in Attachment D.

Soil Descriptions

Crawford and Bexar stony soils (Cb) (0 to 5 percent slopes): These soils occur as large areas, generally several hundred acres in size, and form a nearly continuous belt extending westward from the northeastern part of the county to a little south of Helotes. Crawford and similar soils make up

about 64 percent of the acreage. About 90 percent of this consists of soils that are stony clay in texture and are shallow to moderately deep over hard limestone. The surface layer is very dark gray to dark reddish-brown, noncalcareous clay and is 8 or 9 inches thick. From 10 to 40 percent of this layer consists of chert and limestone fragments. These fragments, which are on the surface and in the surface layer, range from a quarter of an inch to 24 inches in diameter. The subsurface layer generally contains a few chert fragments or small flags of cherty limestone. Bexar and similar soils make up 36 percent of the acreage. The surface layer of these soils ranges from cherty clay loam to gravelly loam in texture and from 14 to 22 inches in thickness. The subsoil is cherty clay and ranges from 6 to 14 inches in thickness.

Crawford and Bexar soils are well-drained. In Crawford soils, the capacity of the most limiting layer to transmit water is very low to moderately low (0.00 to 0.06 in/hr). In Bexar soils, the capacity of the most limiting layer to transmit water is moderately low to moderately high (0.06 to 0.20 in/hr). Both soil types belong to the hydrologic soil group D.

Anhalt clay, 0 to 2 percent slopes (Ca): The Anhalt series consists of moderately deep, well drained, very slowly permeable, dark reddish-brown clay soils that formed in residuum over limestone bedrock. The soils are on nearly level to gently sloping uplands. The typical profile, A (0-12 in.), Bss (12-28 in.), and Cr (28-30 in.) horizons, is 30 inches. The Cr horizon is described as fractured moderately cemented limestone bedrock with dark reddish-brown clay in crevices. Surface and subsurface thickness, and depth to fractured limestone bedrock or limestone interbedded with clayey marls, ranges from 20 to 40 inches. Limestone fragments and stones, and chert fragments of pebble and cobble size range from 1 to 20 percent of the soil volume or on the soil surface. The soil is usually moist, but when dry it has cracks ranging from 0.5 to 2 inches wide. Cracks remain open from 90 to 150 cumulative days in most years. The soil texture is clay and clay content ranges from 60 to 80 percent.

Anhalt soils are of the well-drained. Permeability is very slow and the capacity of the most limiting layer to transmit water is very low to moderately low (0.00 to 0.06 in/hr). Runoff is low, and the hydrologic soil group is D.

***Site Soils - Observations*:**

Most of the Site is covered with grasses and trees. The northwest quadrant is densely covered with nearly-impenetrable brush and trees. Much of the soil on the Site have been previously disturbed as part of prior road, housing, and swale construction. In areas where soil was exposed, the soil resembled the description in the soil survey and was dark gray to medium brown, clay loam with limestone fragments, scattered stones, gravels, cobblestones, and flagstones within the surface layer.

Narrative of Site Geology:

Literature Review: Figure 6 shows surface geology of the area from the USGS *Geologic framework and hydrostratigraphy of the Edwards and Trinity aquifers within northern Bexar and Comal Counties, Texas* (Clark, et al., 2016; updated from Blome, 2005). Clark (2016) maps the Site in the cyclic and marine member of the Person Formation (Kep). The Geologic Atlas of Texas (Figure 4) indicates Edwards Limestone, undivided is the uppermost geologic formation over most of the Site, with some Kdr in the southwest corner. No Kdr outcropping was observed during the Site visit.

Person Formation **-** The following description is quoted from the Blome (2005) map legend. The cyclic and marine member (Lower Cretaceous) is a chert-bearing mudstone to packstone and miliolid grainstone. It weathers to massive, light-tan outcrops with scattered Toucasia present. The member is one of the most productive hydrologically because of the large number of subsurface caverns associated with incipient karstification. It is very permeable with laterally extensive, fabric and non-fabric selective porosity. The thickness of the member ranges from 10 to 100 feet.

Del Rio Clay Formation **–** The Del Rio Clay Formation is the primary upper confining unit of the Edwards Aquifer. It is described as a blue-green to yellow-brown, variably gypsiferous clay containing iron nodules, abundant pectin-type fossil clams, and the fossil oyster *Llymatogyra arietina.* Minor, thin lenticular beds of highly calcareous siltstone may also occur. Unweathered Del Rio Clay is composed of kaolinite, illite, and lesser amounts of montmorillonite. Secondary gypsum occurs as fracture fillings in clay-rich exposures near igneous bodies. The Del Rio has no recognized cavern development and no significant porosity or permeability, and it directly overlies the Lower Cretaceous formations in many areas. The thickness is about 40 to 110 ft.

Site Geology - Observations: Most of the surface of the Site is well vegetated with grass, trees, and shrubs. Improvements on the Site include roads (paved and unpaved), houses, playground structures, outbuildings, and manmade features such as drainage culverts and swales, a cement-lined and covered sewer cleanout, utility poles, and a cellular communications tower. The drainage features include (1) a rectangular cement ditch along the northern Site boundary (starting over one-third of the way into the property and ending in the northwestern corner - Photo 5), (2) a cement culvert under Flanagan St., (3) one end of a cement culvert that runs under a driveway of the south-adjacent Katherine Stinson Middle School, and (4) a long swale. The swale starts at the culvert in the northwest corner, runs southward for about 370 ft., makes an approximate 100-degree curve east-southeastward to run parallel to Flanagan Street for about 340 ft. to the culvert under Flanagan St., makes a 90-degree right turn and bears southwest for 340 ft., and ends at the middle school boundary to the south. Under the driveway of the northern-most house is a small culvert connected by a short and shallow second swale to the central culvert that runs under Flanagan St.

A couple of small outcrops of weathered fossiliferous limestone were observed around the Site. An example of a small outcropping, showing weathered limestone consistent with the description for the limestone within the Person Formation cyclic and marine member, is shown in Photograph 9.

No fractures or other structural elements were observed in the field.

The manmade features in bedrock were identified and are listed in the Geologic Assessment Table in Attachment A. Small limestone outcrops and limestone rocks were observed on the Site. Limestone rocks may have been redistributed during past construction activities and ground disturbance. There was little evidence that recharge is enhanced through features observed on the Site.

The features are described below, and photographs are shown following the text.

M1: There are utility poles providing electrical services into and throughout the Site. The poles are embedded about 2 to 3 feet into the ground and are sealed with concrete or clay rich soils for stability, which deceases the chance for water infiltration. One pole is located near an outcrop and has a guide wire for stability. It is presumed that this one is not as deeply set and may be touching bedrock. The surrounding vegetation is the same as that surrounding the nearby trees. Probability of rapid infiltration is low. The pole is shown in Photograph 7.

M2: A cement-lined and covered sewer cleanout is shown in Photograph 15. At the time of the site visit, the cover was off and there appeared to be collected rainwater. Soil and vegetation covered the entire edge of the cement and the vegetation was similar to that found farther away from the cleanout's housing. The large amount of standing water indicates the cement housing is intact and the probability of rapid infiltration is low.

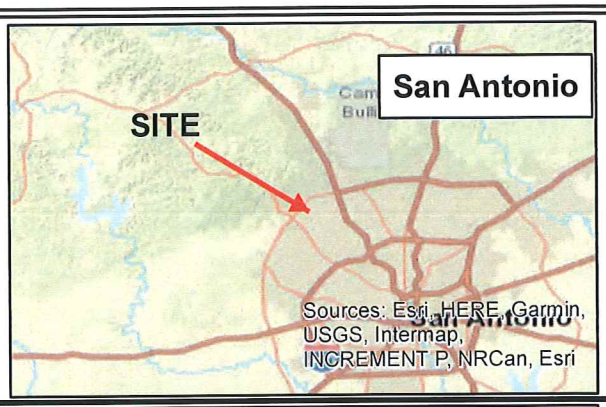
M3: An in-ground swimming pool is shown in Photograph 12. The pool is oblong-shaped (about 52 ft. by 23 ft.), with a shallow end and a deep end. Surrounding the pool is a cement pad that varies in width from about 9 ft. to 27 ft. The pool contains collected rainwater, indicating the lining is intact. The probability of rapid infiltration is low.

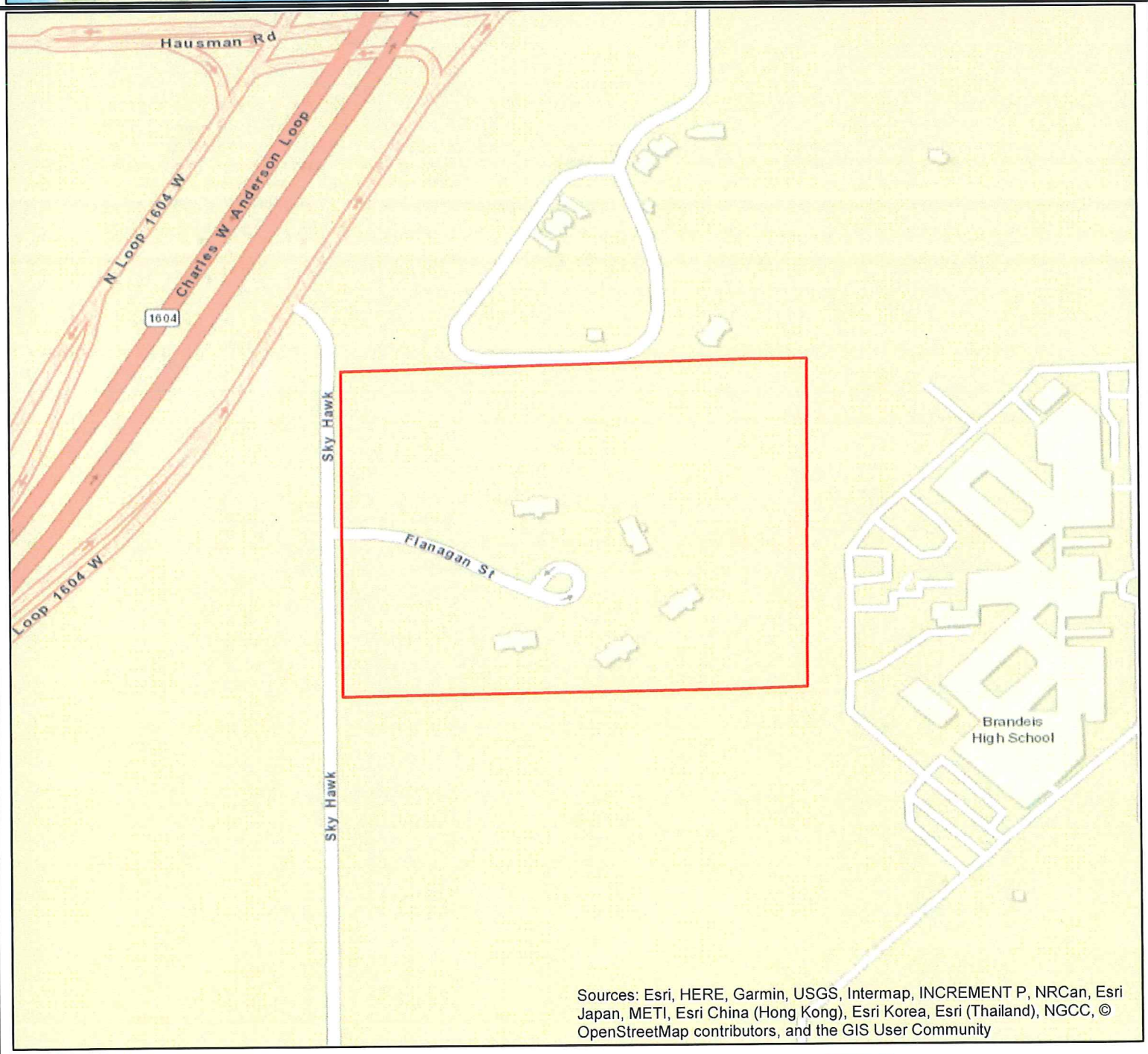
M4: There is a cellular communications tower surrounded by a concrete foundation. The tower is likely also set in concrete to several feet below the ground surface. The probability of rapid infiltration is low. The tower is shown in Photograph 16.

Man-made features associated with utilities are unlikely to provide conduits for storm water flow to the subsurface. Photographs showing the Site and examples of manmade features are in Figures and Photographs.

If features are discovered during construction, work should stop and the Texas Commission on Environmental Quality (TCEQ) notified so that the feature can be evaluated.

FIGURES





Source: ArcMap GIS

Project area

Medina Consulting Company, Inc.

Figure 1: Site Location Map
Stadium Pointe
Geologic Assessment
San Antonio, Bexar County, Texas

N

Author: Dawne M. Butler

0.075 0 0.075 Miles

Date: 5/22/2018

Source: ArcMap GIS.

Project area

Medina Consulting Company, Inc.

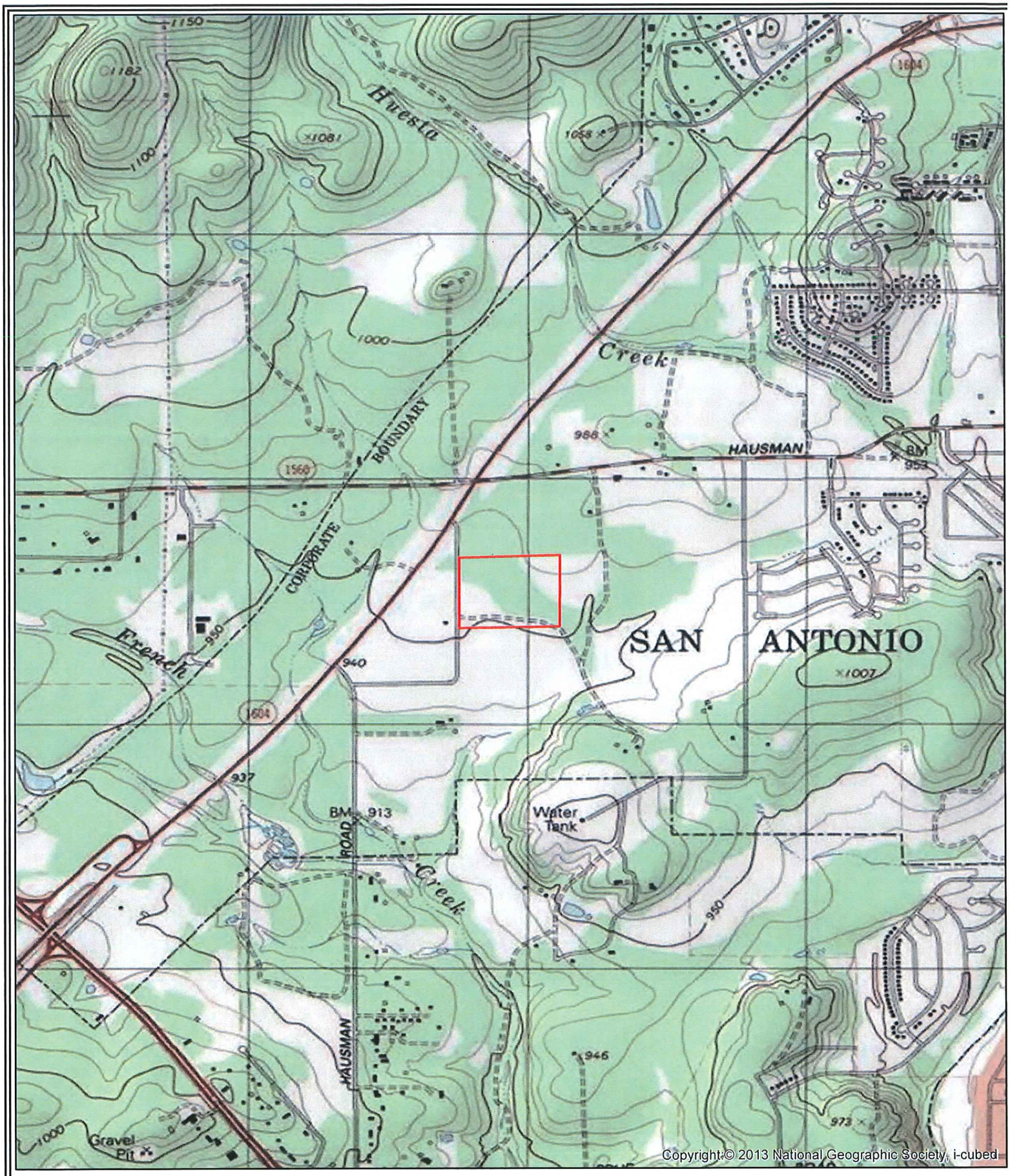
Figure 2: Site and Vicinity Map
Stadium Pointe
Geologic Assessment
San Antonio, Bexar County, Texas

N

Author: Dawne M. Butler

0.075 0 0.075 Miles

Date: 5/22/2018



Source: ArcMap GIS Topographic Map, 2013, *Helotes, Texas* Quad.

Project area

Medina Consulting Company, Inc.

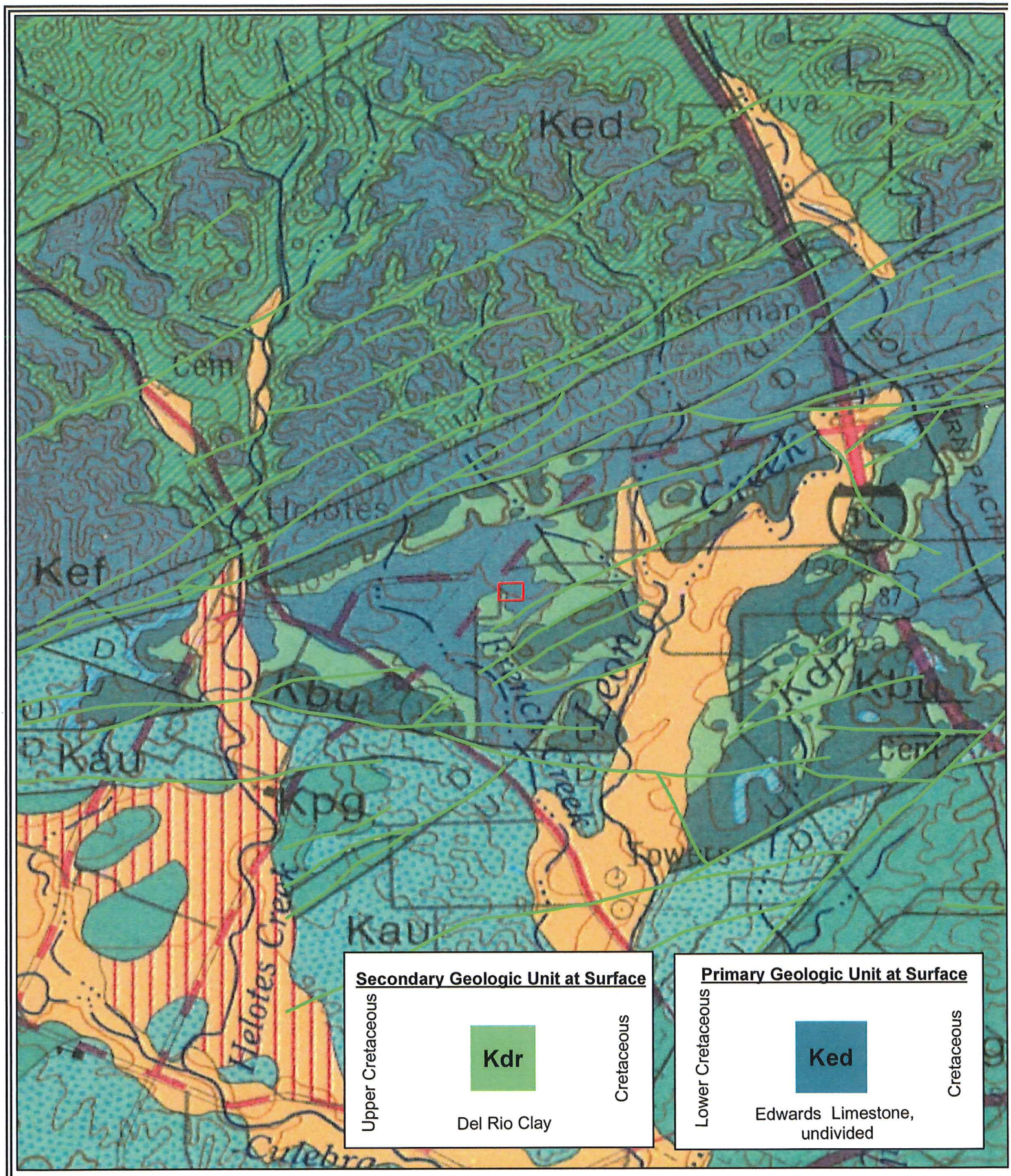
Figure 3: Topographic Map
Stadium Pointe
Geologic Assessment
San Antonio, Bexar County,Texas

N

Author: Dawne M. Butler

0.3 0 0.3 Miles

Date: 5/22/2018



Source: USGS, Geological Atlas of Texas, San Antonio sheet, 1982.

Project area

Medina Consulting Company, Inc.

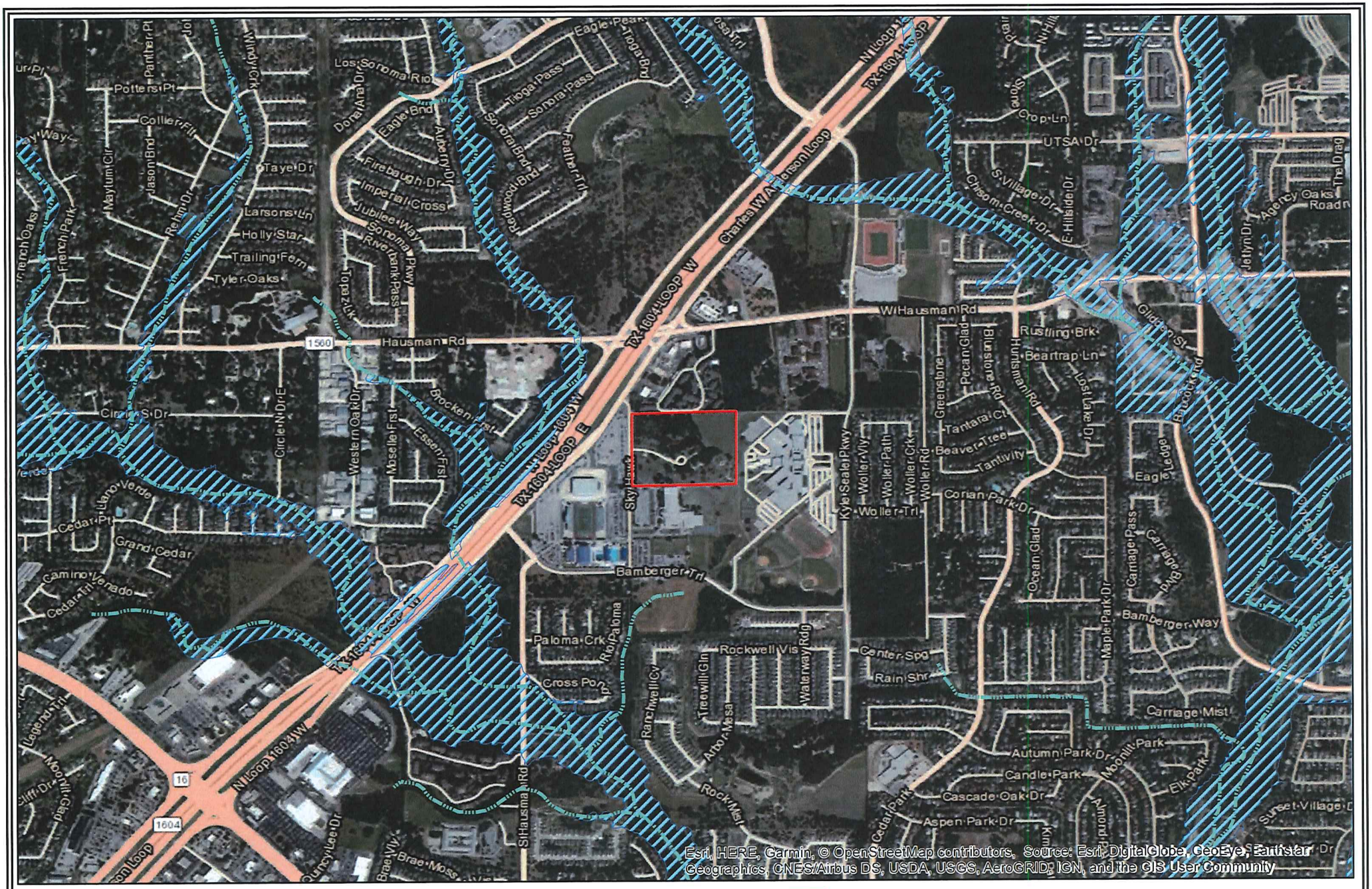
Figure 4: Geology Map
Stadium Pointe
Geologic Assessment
San Antonio, Bexar County,Texas

N

Author: Dawne M. Butler

1 0 1 Miles

Date: 5/31/2018



Source: FEMA FIRM, 48029C0210G, September 29, 2010.

Project area | 100-year Floodplain | Tributaries

Medina Consulting Company, Inc.

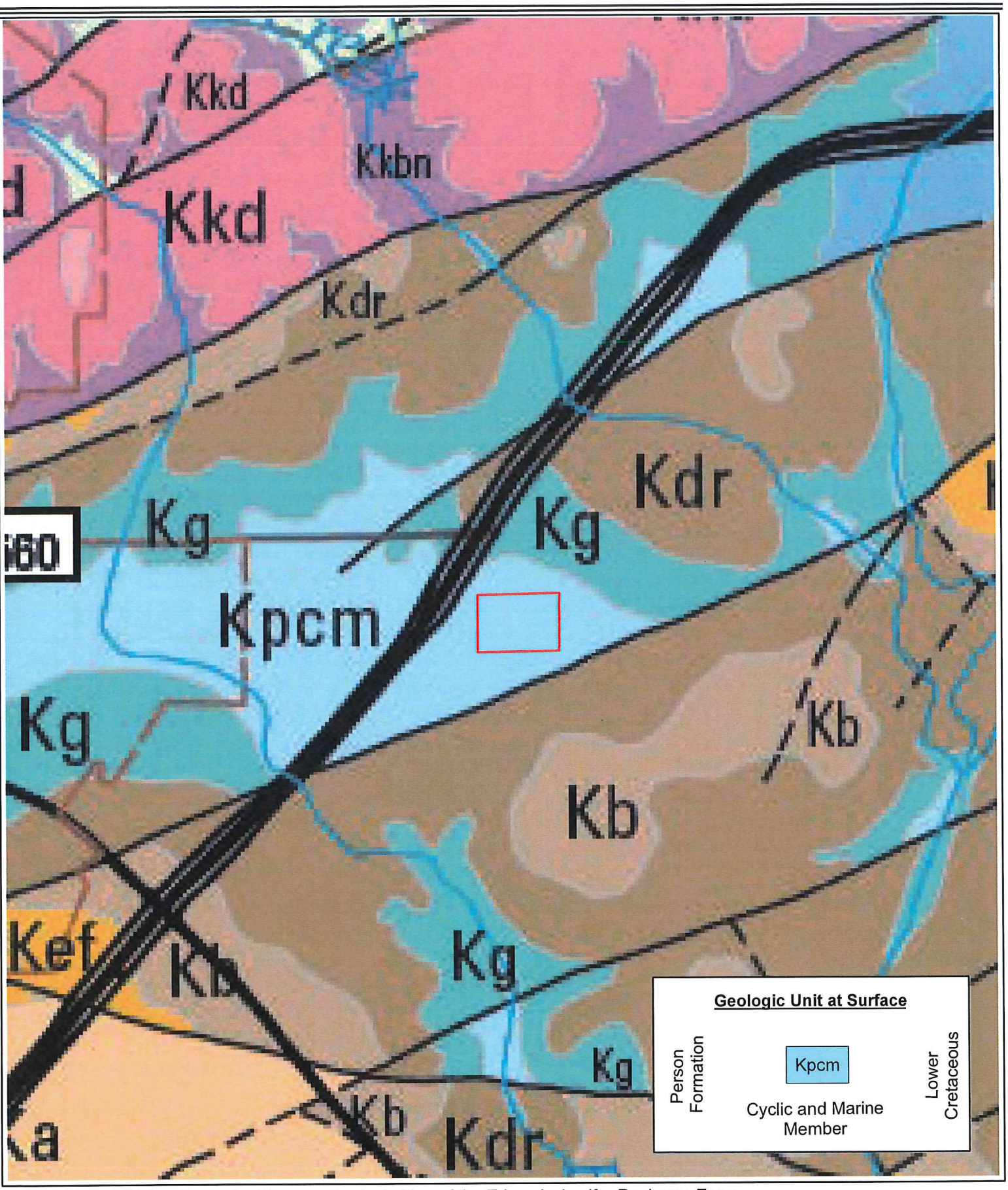
Figure 5: FEMA Map
Stadium Pointe
Geologic Assessment
San Antonio, Bexar County, Texas

N

Author: Dawne M. Butler

0.3 0 0.3 Miles

Date: 5/22/2018



Source: United States Geological Survey, Geologic Map of the Edwards Aquifer Recharge Zone, South-Central Texas, 2016.

Project area

Medina Consulting Company, Inc.

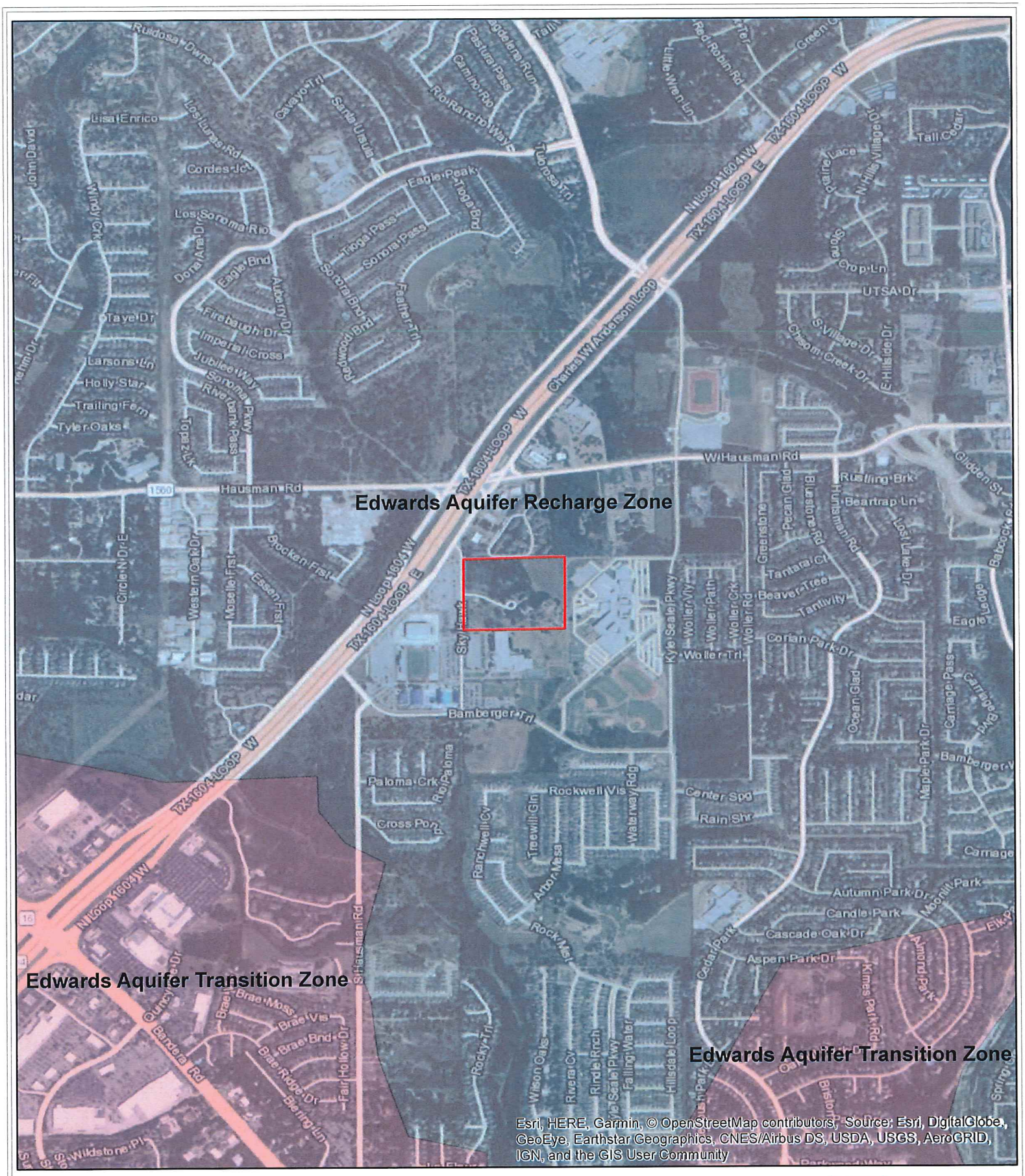
Figure 6: Project Area Geology
Stadium Pointe
Geologic Assessment
San Antonio, Bexar County, Texas

N

Author: Dawne M. Butler

0.35 0 0.35 Miles

Date: 5/31/2018



Source: Edwards Aquifer Authority.

Project area

Medina Consulting Company, Inc.

Figure 7: Edwards Aquifer Recharge Zone
Stadium Pointe
Geologic Assessment
San Antonio, Bexar County, Texas

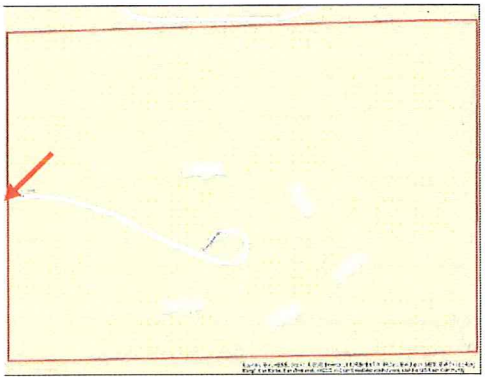
N

Author: Dawne M. Butler

0.3 0 0.3 Miles

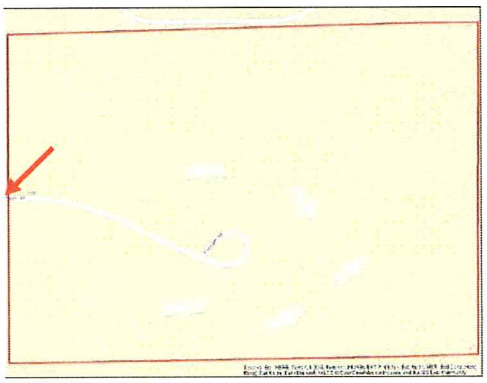
Date: 5/22/2018

PHOTOGRAPHS



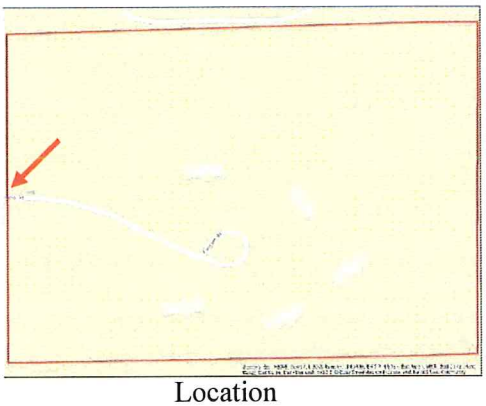
Location

Photo 1: Photo view facing east towards the Site.



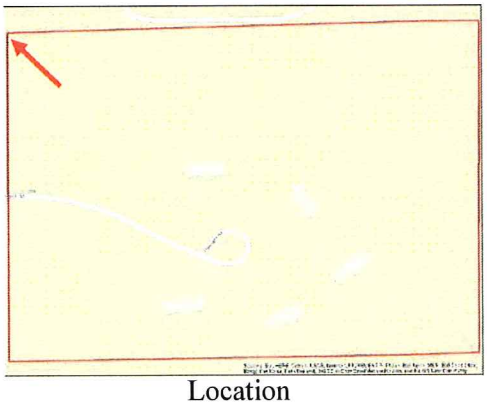
Location

Photo 2: Photo view facing south along Skyhawk Drive on the western edge of the Site.



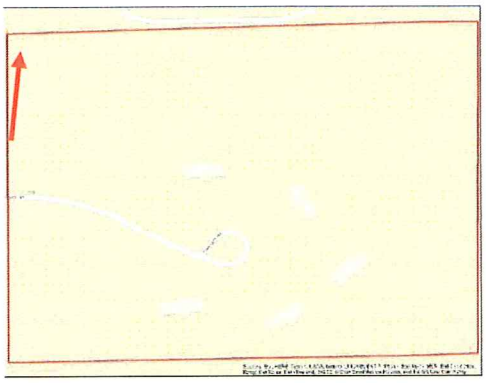
Location

Photo 3: Photo view facing north along Skyhawk Drive on the western edge of the Site.



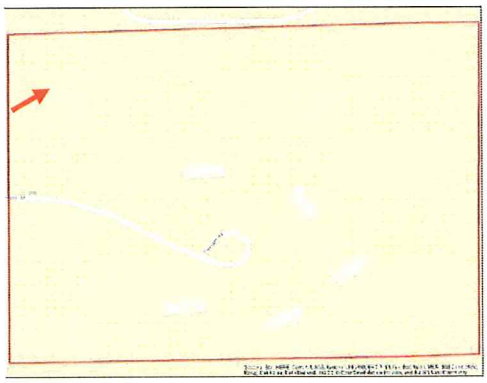
Location

Photo 4: Photo view of culvert and drainage near the northwest corner of the site.



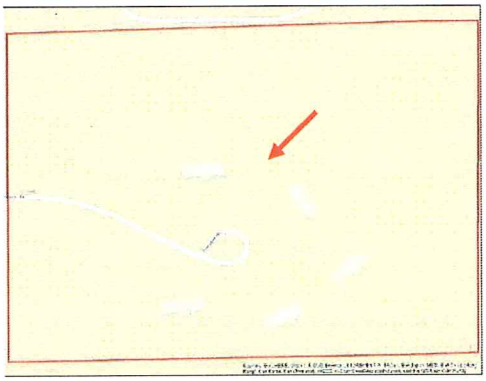
Location

Photo 5: Photo view facing east, showing the cement drainage that extends approximately 450 feet eastward along the northern Site boundary.



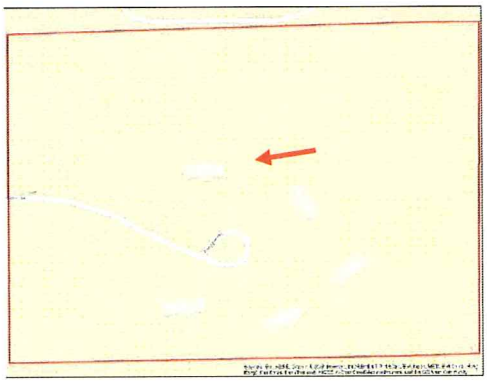
Location

Photo 6: Photo view of dense brush, primarily white sage, that fills the northwest portion of the Site.



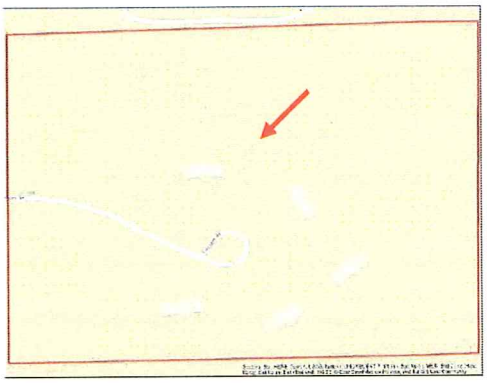
Location

Photo 7: Photo view of a pole (M1) and surrounding vegetation near the center or the Site.



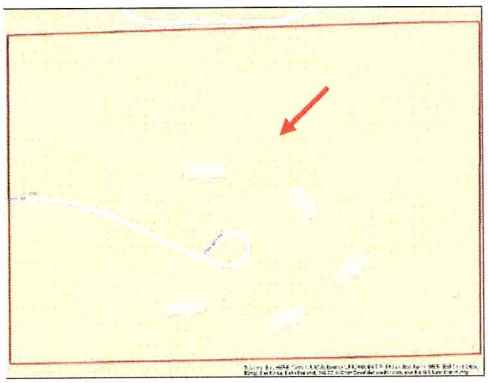
Location

Photo 8: Photo view of a typical residential building and a play structure on the Site.



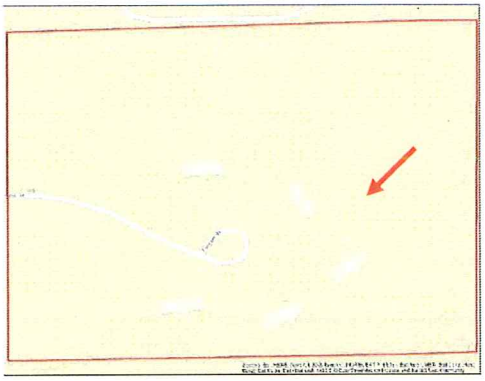
Location

Photo 9: Photo view of limestone outcropping.



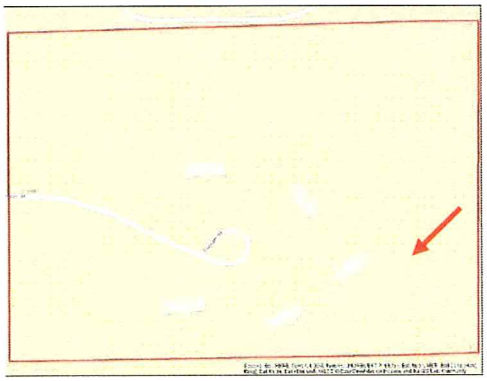
Location

Photo 10: Photo view showing trees in the residential portion of the Site.



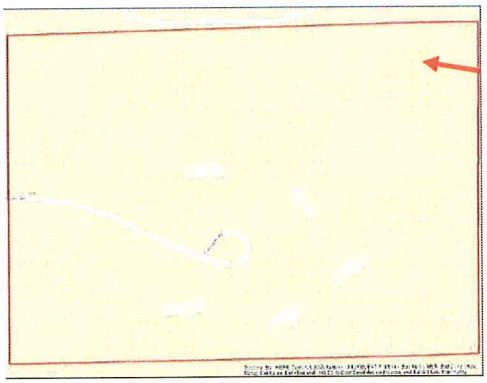
Location

Photo 11: Photo view of weathered limestone boulder.



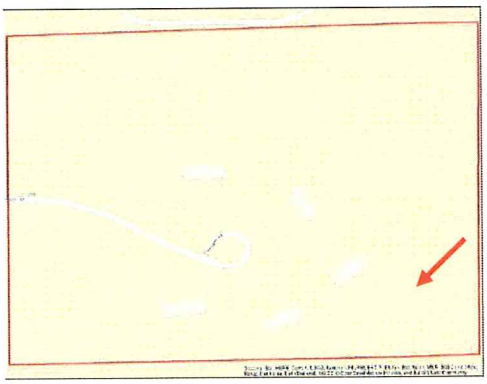
Location

Photo 12: Photo view of disused swimming pool (M3) and associated equipment building, and one of the residential houses near the southeast corner of the Site.



Location

Photo 13: Photo view facing west from the east end of the berm in the northeast corner of the Site.

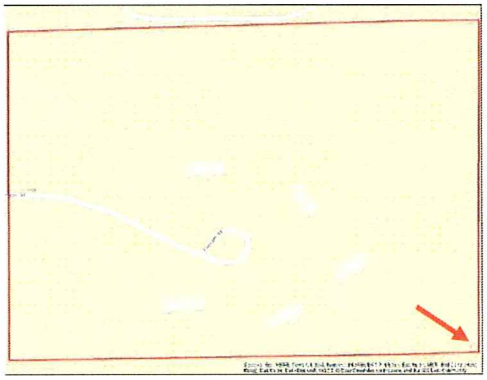


Location

Photo 14: Photo view of a large fossiliferous limestone boulder near the southeast corner of the Site; presumed removed from elsewhere on the Site during construction.

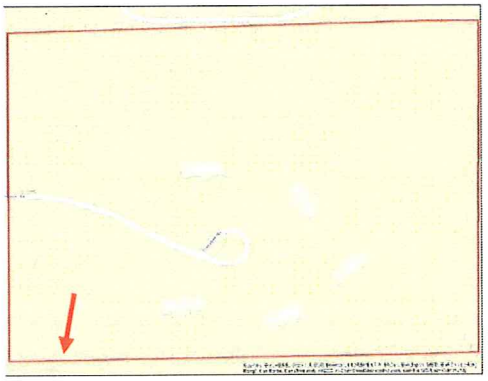
Location

Photo 15: Photo view of cement lined and covered sewer cleanout (M2), behind the second building on the right (when heading into the Site on Flanagan St.).



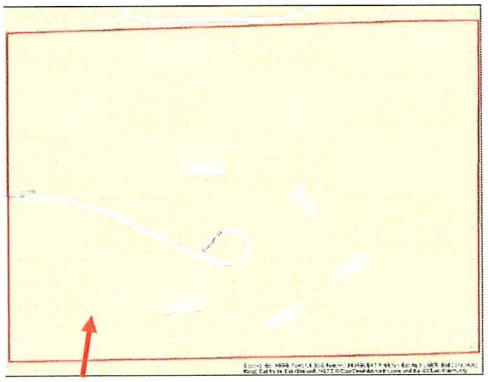
Location

Photo 16: Photo view of cellular communications tower (M4) in the far southeast corner of the Site.



Location

Photo 17: Photo view facing south of culvert on the southern boundary of the Site.



Location

Photo 18: Photo view facing north, of swale and culvert in the background.

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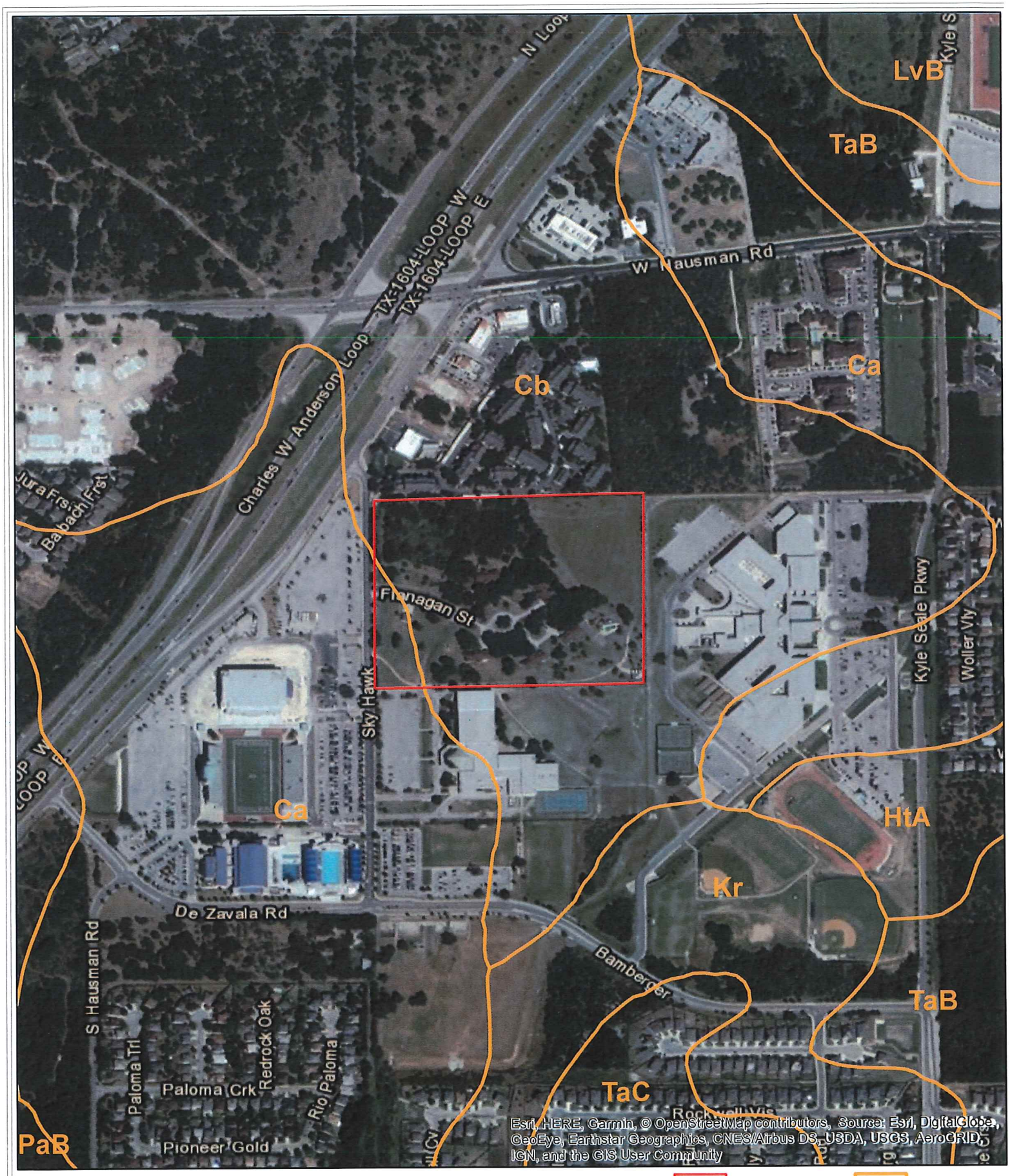
ATTACHMENT D –
SITE GEOLOGIC MAPS



Source: NRCS, Web Soil Survey.

Project area Soils

Medina Consulting Company, Inc.

Attachment D1: Soil Map
Stadium Pointe
Geologic Assessment
San Antonio, Bexar County, Texas

N

Author: Dawne M. Butler

0.1 0 0.1 Miles

Date: 5/22/2018

Attachment D1: Project area Geology
Stadium Pointe Geologic Assessment
San Antonio, Bexar County, Texas

Project area
Manmade features
Faults
Geology
Person fm., cyclic and marine member

STATE OF TEXAS
Douglas A. McGookey
Geologist
License Number 368
LICENSED
PROFESSIONAL GEOSCIENTIST
8-27-18

N

Author: Dawne M. Butler

40 0 40 Feet

Date: 8/27/2018

Medina Consulting Company, Inc.

Source: United States Geological Survey, https://mrdata.usgs.gov/geology/state/state.php?state=TX

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: Stadium Pointe PUD, Unit 2&3

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: Ramanatha Yellaturu
   Entity: Skyhawk Villa de San Antonio, LLC
   Mailing Address: 8117 Sutherland Lane
   City, State: Plano, Texas Zip: 75025-5545
   Telephone: 214-578-3414 Fax: n/a
   Email Address: ramanathayellaturu@gmail.com
   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: Brian Crowell, PE, LEED AP
   Texas Licensed Professional Engineer's Number: 82619
   Entity: CDS Muery
   Mailing Address: 100 NE Loop 410, Suite 300
   City, State:San Antonio, Texas Zip: 78216
   Telephone:210-581-1111 Fax:210-581-5555
   Email Address:brian.crowell@cdsmuery.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: _____
   ☒ Multi-family: Number of residential units: 224
   ☐ Commercial
   ☐ Industrial
   ☐ Off-site system (not associated with any development)
   ☐ Other: _____

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

100% Domestic	26,880 gallons/day
_____% Industrial	_____ gallons/day
_____% Commingled	_____ gallons/day

   Total gallons/day: 26,880

6. Existing and anticipated infiltration/inflow is 4,914 gallons/day. This will be addressed by: using sum of wastewater discharge and infiltration/flow flow rates for design flow. (See Attachment A: SCS Engineering Report).

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 _____. A copy of the approval letter is attached.
   ☒ The WPAP application for this development was submitted to the TCEQ on CONCURRENTLY, 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"	3,537	PVC SDR 26	ASTM D2241

Total Linear Feet: 3,537

(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 San Antonio (San Antonio Water System) 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?*
A	5 Of 11 (C4.4)	11+46	EXISTING MH A-5
A	5 Of 11 (C4.4)	16+75	MH A-7
C	6 Of 11 (C4.5)	5+23	EXISTING MH C-3
C	6 Of 11 (C4.5)	8+90	MH C-6
E	7 Of 11 (C4.6)	1+00	MH C-4
E	7 Of 11 (C4.6)	6+90	MH E-2

Line	*Shown on Sheet*	*Station*	*Manhole or Clean-out?*
F	8 Of 11 (C4.7)	1+00	MH C-5
F	8 Of 11 (C4.7)	6+80	MH F-2
See continued table attached.	Of		
See continued table attached.	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" = 40'.

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*
N/A	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*
N/A	of	to
	of	to
	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*
E	1+13	CROSSING	N/A	1.5'
F	1+13	CROSSING	N/A	0.5'
G	3+53	CROSSING	N/A	1.0'

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*
N/A			

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*
N/A			

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*
N/A					

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]**	11 of 11 (C4.10)
Manhole, showing inverts comply with 30 TAC §217.55(l)(2) **[Required]**	11 of 11 (C4.10)
Alternate method of joining lateral to existing SCS line for potential future connections **[Required]**	N/A of
Typical trench cross-sections **[Required]**	11 of 11 (C4.10)
Bolted manholes **[Required]**	11 of 11 (C4.10)
Sewer Service lateral standard details **[Required]**	11 of 11 (C4.10)
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]**	4 of 11 (C4.3)
Mandrel detail or specifications showing compliance with 30 TAC §217.57(b) and (c) **[Required, if Flexible Pipe is used]**	11 of 11 (C4.10)

Standard Details	*Shown on Sheet*
Drop manholes **[Required, if a pipe entering a manhole is more than 24 inches above manhole invert]**	11 of 11 (C4.10)

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: A georeferenced pdf file showing the location of the SCS is provided with the digital submittal in lieu of staking.

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: Brian Crowell PE, Leed AP

Date: _____

Place engineer's seal here:

STATE OF TEXAS
BRIAN A. CROWELL
82619
LICENSED
PROFESSIONAL ENGINEER

Signature of Licensed Professional Engineer:

09/21/2020

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)

Supplemental Attachments for

TCEQ F-0582 SCS Application

Stadium Pointe PUD, Unit 2&3

Table of Attachments:

Table 2 (Con't):	Continuation of Table 2 – Manholes and Cleanouts
Attachment A:	SCS Engineering Design Report
Attachment B:	Justification and Calculations for Deviation in Straight Alignment
Attachment C:	Justification for Variance from Maximum Manhole Spacing
Attachment D:	Calculations for Slopes for Flows Greater than 10.0 Feet per Second

TABLE 2 (CON'T) | Manholes and Cleanouts

Line	*Shown on Sheet*	*Station*	*Manhole or Cleanout?*
G	9 Of 11 (C4.8)	1+00	MH F-1
G	9 Of 11 (C4.8)	5+27	MH G-3
H	9 Of 11 (C4.8)	1+00	MH G-2
H	9 Of 11 (C4.8)	5+33	MH H-1

ATTACHMENT A | SCS Engineering Design Report

The following SCS Engineering Design Report was prepared for this project and intended to fulfil the requirements of 30 TAC Chapter 217, including 217.10 of Subchapter A, Sections 217.51 through 217.70 of Subchapter C, and Subchapter D as applicable.

Attachment A
SCS Engineering Design Report

STADIUM POINTE P.U.D., UNIT 2&3
September 2020

STATE OF TEXAS
BRIAN A. CROWELL
82619
LICENSED
PROFESSIONAL ENGINEER
09/21/2020

Prepared By:

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PROJECT INFORMATION

Project Name:	Stadium Pointe PUD, Unit 2&3
Location:	Ends of Runner Cove and Runner Ridge, San Antonio, Bexar County, Texas
Subdivision:	Stadium Pointe PUD, Unit 2&3
Sewer Provider:	San Antonio Water System
Type of Project:	Multi-Family Duplex Subdivision
Size/Number of Units:	112 Duplexes

PROPOSED SEWAGE FLOW

This development is considered a multi-family development with 2 units per duplex. Using the calculation from the San Antonio Water System, the proposed sewage flow is calculated as:

224 Units @ 0.5 Equivalent Dwelling Units (EDUs) totals 112 EDUs.
SAWS considers One (1) EDU equal to 240 gallons per day of average sewage flow.
112 EDUs x 240 GPD = 26,880 GPD of average sewage flow
26,880 GPD of average sewage flow = 0.0416 CFS

PVC PIPE STANDARDS

The American Society for Testing and Materials (ASTM) also known as ASTM International (Reference: www.astm.org) governs the manufacturing specifications for Polyvinyl Chloride (PVC) pipes, including the dimension ratio and water pressure allowable for use of each pipe, through its D-2241 standard. ASTM D-2241 lists its pipe dimensions and pipe classes using the "SDR" mark up, such as SDR-13.5, SDR-21, SDR-26 and SDR-41. The SDR refers to the standard dimension ratio (SDR) of the outside pipe diameter and the wall thickness. This project specifies the use of SDR-26 PVC pipe, which are to meet the ASTM pressure rating of greater than 150 psi and fall in the size category listed below. ASTM D-2241 standards must be meticulously adhered to by all PVC pipe manufacturers and is recognized as the standard during PVC pressure pipe testing and quality checks. Other in-depth information can be found published in Thermoplastic Pressure Pipe Design and Selection UNI-TR-7, by the Uni-Bell PVC Pipe Association.

SDR 26 Pipe Size Matrix **(Per ASTM D-2241-15)**			
Size (in)	**O.D. (in)**	**Calc I.D. (in)**	**Thickness (in)**
4	4.500	4.154	0.173
6	6.625	6.115	0.255
8	8.625	7.961	0.332
10	10.750	9.924	0.413
12	12.750	11.770	0.490
16	16.000	14.770	0.615

PROPOSED TYPE OF PIPE

Type I, Grade I, Polyvinyl Chloride (PVC) Specifications:

Size of Pipe Used for the Project (SDR-26) in inches:	**8.00**
Pipe Compliance:	ASTM D-2241
Joint Compliance:	ASTM D-3139
Cell Classification:	12454
Minimum Tensile Strength (psi):	7,000
Minimum Modulus of Elasticity (psi):	400,000
Calculated Inner Diameter (in) = (Outer Diameter - 2t)	7.961
Outer Diameter (inch):	8.625
Wall Thickness (inch):	0.332
Mean Pipe Diameter (in) = (Outer Diameter - Thickness)	8.293
Approximate Trenching Width (feet):	2.72
Minimum Pipe Depth (Cover) used (feet):	3.6
Maximum Pipe Depth (Cover) used (feet):	9.0

FLOW/CAPACITY ANALYSIS

Proposed Wastewater/Sewage Flow:	26,880	GPD
Inflow/Infiltration (300 gpd / ac * 16.38 ac) per SAWS USR:	4,914	GPD
Q_{max} (GPD) =	31,794	GPD
Q_{max} (CFS) =	0.0492	CFS

Using the following eqation, solving for the pipe capacity when flowing full, where:

$$Q_{full} = \frac{1.486}{n} \times A \times R^{\frac{2}{3}} \times \sqrt{S}$$

And:

A = Cross-Sectional Area, (ft^2)	=	0.346
S = Slope, decimal, minimum used	=	0.004
R_h = hydraulic radius (ft)	=	0.166

For the pipe specified for this project at the minimum design slope, the flow capacity is (in CFS):

Q_{full} = **0.754** **CFS**

Comparing the pipe capacity with the Maximum Flow (Q) above (in CFS):

0.049 < 0.754

Design meets TCEQ Guidelines

MINIMUM AND MAXIMUM GRADES FOR PIPES (30 TAC §217.53(I)(2)(A))

Size of Pipe	Minimum Slope (%)	Maximum Slope (%)
6	0.5	12.35
8	0.33	8.4
10	0.25	6.23
12	0.2	4.88
15	0.15	3.62
18	0.11	2.83
21	0.09	2.3
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	*	*

Note: For pipes larger than 39 inches in diameter, the slope is determined using Manning's formula to maintain a velocity greater than **2.0 feet per second and less than 10.0 feet per second** when flowing full.

MINIMUM AND MAXIMUM VELOCITY FOR THE PROPOSED SYSTEM:

Based on the pipe size specified above, the velocity of sewage flow within the pipe can be found using the following equation, where:

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

V = velocity (ft/sec)	=	(solve)
n = Manning's Roughness Coeff.	=	0.013
Calculated Inner Diameter (in)	=	7.961
A = Cross-Sectional Area, ft^2	=	0.346
Wp = Wetted Perimeter, ft	=	2.084
R_h = hydraulic radius, A/Wp	=	0.166
S = slope (ft/ft)	=	0.004

Minimum Slope Used (Percent %):	**0.40**	Maximum Slope Used (Percent %):	**0.60**
V_{min} for proposed pipe (ft/sec)	2.19	V_{max} for proposed pipe (ft/sec)	2.68

2.19 > 2.00
Design meets TCEQ Guidelines

2.68 < 10.00
Design meets TCEQ Guidelines

AVERAGE VALUES OF MODULUS OF SOIL REACTION, E'

Soil type-pipe bedding material (Unified Classification System)	E' for Degree of Compaction of Bedding, in pounds per square inch			
	Dumped	Slight <85% Proctor, <40% relative density	Moderate 85%-95% Proctor, 40%-70% relative density	High, >95% Proctor, >70% relative density
(1)	(2)	(3)	(4)	(5)
Fine-grained Soils (LL>50) Soils with medium to high plasticity CH, MH, CH-MH	No data available; consult a competent soils engineer; Otherwise use E'=0			
Fine-grained Soils (LL<50) Soils with medium to no plasticity, CL, ML, ML-CL, with less than 25% coarse-grained particles	50	200	400	1000
Fine-grained Soils (LL<50) Soils with medium to no plasticity, CL, ML, ML-CL, with more than 25% coarse-grained particles	100	400	1000	2000
Coarse-grained Soils with Fines GM, GC, SM, SC contains more than 12% fines				
Coarse-grained Soils with Little or no Fines GW, GP, SW, SP contains less than 12% fines	200	1000	2000	3000
Crushed Rock	1000	3000	3000	3000
Accuracy in Terms of Percentage Deflection	± 2	± 2	± 1	± 0.5

Taken from: Howard, Amster K. "Soil Reaction for Buried Flexible Pipe"
U.S. Bureau of Reclamation, Denver, CO and the American Society of Civil Engineers.

Using the table above, the Modulus of Soil Reaction for the in-situ soil is determined as (in PSI): **1000**

PIPE BEDDING CLASS

Taken from the American Society for Testing and Material (ASTM) D 2321 and American Association of State Highway and Transportation Officials (AASHTO) M43, and as published on Table 7, in Deflection: The Pipe/Soil Mechanism UNI-TR-1-97, Uni-Bell PVC Pipe Association, Pg 24.

Pipe Embedment Material						E', psi (kPa) for Degree of Embedment Compaction				
ASTM D 2321*		ASTM D 2487		AASHTO M43 Notation	Min. Std. Proctor Density (%)	Lift Placement Depth	Dumped	Slightly < 85%	Moderate 85% - 95%	High > 95%
Class	Description	Notation	Description							
IA	Open-graded, clean manu-factured aggregates	N/A	Angular crushed stone or rock, crushed gravel, crushed slag; large voids with little or no fines	5 56	Dumped	18" (0.45 m)	1000 (6,900)	3000 (20,700)	3000 (20,700)	3000 (20,700)
IB	Dense-graded, clean manu-factured, processed aggregates	N/A	Angular crushed stone or other Class IA material and stone/sand mixtures; little or no fines							
II	Clean, coarse-grained soils	GW	Well-graded gravel, gravel/sand mixtures; little or no fines	57 6 67	85%	12" (0.30 m)	N/R	1000 (6,900)	2000 (13,800)	3000 (20,700)
		GP	Poorly graded gravel, gravel/sand mixtures; little or no fines							
		SW	Well-graded sands, gravelly sands; little or no fines							
		SP	Poorly graded sands, gravelly sands; little or no fines							
III	Coarse-grained soils with fines	GM	Silty gravels, gravel/sand/silt mixtures	Gravel and sand with <10% fines	90%	9" (0.20 m)	N/R	N/R	1000 (6,900)	2000 (13,800)
		GC	Clayey gravels, gravel/sand/clay mixtures							
		SM	Silty sands, sand/silt mixtures							
		SC	Clayey sands, sand/clay mixtures							

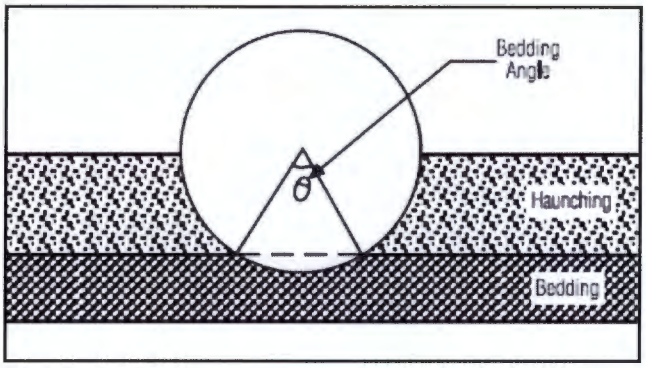
NOTE:

Per TCEQ guidelines, a contractor is allowed to use ASTM D 2321 Bedding Class 1A, 1B, II, or III at no less than 85% percent compaction. To grant the contractor its ability to make the proper judgment of which bedding class to use, the calculations provided in this Engineering Design Report reflect the use of **Bedding Class III, at 85%-95%** compaction, with an E' value of 1000 psi. This provides the "worst case" scenario for the SCS line. All other Bedding Class options will provide an improved value for the zeta factor as well as pipe deflection.

For Bedding Class III, 85%-95% Compaction, E_b = **1000** **psi**

PIPE BEDDING ANGLE

As Published on Figure 8 and Table 5, in Deflection: The Pipe/Soil Mechanism UNI-TR-1-97, Uni-Bell PVC Pipe Association, Pgs 18-19.



Bedding Constant Values

Bedding Angle, degrees	Bedding Constant
0	0.110
30	0.108
45	0.105
60	0.102
90	0.096
120	0.090
180	0.083

LIVE LOAD DETERMINATION

Source: AASHTO H20 and E80 Loads and as Published on Table 4, in Deflection: The Pipe/Soil Mechanism UNI-TR-1-97, Uni-Bell PVC Pipe Association, Pg 14.

Height of Cover (ft)	Live Load Transferred to Pipe, lb/in²			Height of Cover (ft)	Live Load Transferred to Pipe, lb/in²		
	Highway H20[1]	Railway E80[2]	Airport [3]		Highway H20[1]	Railway E80[2]	Airport [3]
1	12.50			14	*	4.17	3.06
2	5.56	26.39	13.14	16	*	3.47	2.29
3	4.17	23.61	12.28	18	*	2.78	1.91
4	2.78	18.40	11.27	20	*	2.08	1.53
5	1.74	16.67	10.09	22	*	1.91	1.14
6	1.39	15.63	8.79	24	*	1.74	1.05
7	1.22	12.15	7.85	26	*	1.39	*
8	0.69	11.11	6.93	28	*	1.04	*
10	*	7.64	6.09	30	*	0.69	*
12	*	5.56	4.76	35	*	*	*
				40	*	*	*

[1] Simulates 20 ton truck + impact
[2] Simulates 80,000 lb/ft railway load + impact
[3] 180,000 lbs. dual tandem gear assembly. 26 inch spacing between tires and 66 inch center-to-center spacing between fore and aft tires under a rigid pavement 12 inches thick + impact.
* Negligible live load influence

PRISM LOAD DETERMINATION

Also referred to as the 'dead' load, the prism load is the pressure acting on the pipe by the weight of the soil column above a given section of the pipe. The following prism load columns are industry standards as referenced from Table 3, Deflection: The Pipe/Soil Mechanism UNI-TR-1-97, Uni-Bell PVC Pipe Association, Pg 13 and shown below.

Table 3
Prism Load Soil Pressure (lbs/in²)

Height of Cover (ft)	Soil Unit Weight (lb/ft³) 100	110	120	125	130
1	0.69	0.76	0.83	0.87	0.90
2	1.39	1.53	1.67	1.74	1.81
3	2.08	2.29	2.50	2.60	2.71
4	2.78	3.06	3.33	3.47	3.61
5	3.47	3.82	4.17	4.34	4.51
6	4.17	4.58	5.00	5.21	5.42
7	4.86	5.35	5.83	6.08	6.32
8	5.56	6.11	6.67	6.94	7.22
9	6.25	6.88	7.50	7.81	8.13
10	6.94	7.64	8.33	8.68	9.03
11	7.64	8.40	9.17	9.55	9.93
12	8.33	9.17	10.00	10.42	10.83
13	9.03	9.93	10.83	11.28	11.74
14	9.72	10.69	11.67	12.15	12.64
15	10.42	11.46	12.50	13.02	13.54
16	11.11	12.22	13.33	13.89	14.44
17	11.81	12.99	14.17	14.76	15.35
18	12.50	13.75	15.00	15.63	16.25
19	13.19	14.51	15.83	16.49	17.15
20	13.89	15.28	16.67	17.36	18.06
21	14.58	16.04	17.50	18.23	18.96
22	15.28	16.81	18.33	19.10	19.86
23	15.97	17.57	19.17	19.97	20.76
24	16.67	18.33	20.00	20.83	21.67
25	17.36	19.10	20.83	21.70	22.57
26	18.06	19.86	21.67	22.57	23.47
27	18.75	20.63	22.50	23.44	24.38
28	19.44	21.39	23.33	24.31	25.28
29	20.14	22.15	24.17	25.17	26.18
30	20.83	22.92	25.00	26.04	27.08
31	21.53	23.68	25.83	26.91	27.99
32	22.22	24.44	26.67	27.78	28.89
33	22.92	25.21	27.50	28.65	29.79
34	23.61	25.97	28.33	29.51	30.69
35	24.31	26.74	29.17	30.38	31.60
36	25.00	27.50	30.00	31.25	32.50
37	25.69	28.26	30.83	32.12	33.40
38	26.39	29.03	31.67	32.99	34.31
39	27.08	29.79	32.50	33.85	35.21
40	27.78	30.56	33.33	34.72	36.11
41	28.47	31.32	34.17	35.59	37.01
42	29.17	32.08	35.00	36.46	37.92
43	29.86	32.85	35.83	37.33	38.82
44	30.56	33.61	36.67	38.19	39.72
45	31.25	34.38	37.50	39.06	40.63
46	31.94	35.14	38.33	39.93	41.53
47	32.64	35.90	39.17	40.80	42.43
48	33.33	36.67	40.00	41.67	43.33
49	34.03	37.43	40.83	42.53	44.24
50	34.72	38.19	41.67	43.40	45.14

Note that the Prism Loads are calculated based upon the Marston Theory of Loads, developed by Professor Anson Marston, circa 1913, and is calculated using the formula:

$$P = \frac{\gamma_s * H}{144}$$

This formula determines the earth load on a flexible pipe and is regarded as a conservative approach to determining the dead load placed upon a buried flexible pipe.

At maximum burial depth of 9.00 feet, the prism load (in PSI) is: 7.50

BUCKLING PRESSURE (ALLOWABLE)

Where:	q_a	=	Allowable buckling pressure (psi)		
	h	=	Height of soil above top of pipe (in)	h =	108.00
	H	=	Depth of burial, feet, from ground surface to top of pipe		
	B'	=	Empirical coefficient of elastic support		
	E_b	=	Modulus of soil reaction for the bedding material (psi)		
	E	=	Modulus of elasticity of the pipe material (psi)		
	I	=	Moment of inertia of the pipe, per linear inch of pipe (in^3)		
	t	=	Pipe wall thickness (in)		
	D	=	Mean Pipe Diameter (in)	D =	8.293

Solving for the Empirical coefficient of elastic support, given by Luscher in 1966, as referenced on Pg 113 of Moser, A.P., Buried Pipe Design. 2nd Ed., McGraw-Hill:

$$B' = \frac{4(h^2 + Dh)}{1.5(2h + D)^2}$$

$$B' = \frac{50238.576}{75461.025} = 0.666$$

$$I = \left(\frac{t^3}{12}\right) = \left(\frac{inches^3}{in_{linear}}\right) =$$

$$I = \frac{0.0365944}{12} = 0.0030$$

Using the Allowable Buckling Pressure Equation as shown in Moser, A.P., Buried Pipe Design. 2nd Ed., McGraw-Hill, Pg 112, and an initial factor of safety (FS) of 2.5, the Allowable Buckling Pressure is then:

$$q_a = \frac{1}{FS} * \sqrt{32 * R_w * B' * E_b * \left(E * \frac{I}{D^3}\right)}$$

Where,

$$R_W = 1 - 0.33(h_w / h)$$

$$q_a = \frac{1}{2.5}\sqrt{\left[32\right]\left[1\right]\left[0.666\right]\left[1000\right]\left[400000 \quad \frac{0.0030}{570.34}\right]}$$

$$q_a = \mathbf{85.38\ PSI}$$

BUCKLING PRESSURE (INSTALLED CONDITION)

Where:	q_P	=	Pressure applied to pipe under installed conditions (psi)		
	γ_W	=	Specific Weight of Water = 0.0361 (pci)		
	γ_S	=	Specific Weight of Soil (pcf)		
	W_c	=	Vertical Soil Load on the pipe per unit length (lb/in)		
	L_L	=	Live load as determined from chart		
	hw	=	Height of Groundwater above pipe, typically = 0		
	D	=	Mean Pipe Diameter (in)	D =	8.293
	t	=	Pipe Wall Thickness (in)	t =	0.332

The Vertical Soil Load can be calculated using Equation 6.6 of Uni-Bell's Handbook of PVC Pipe , Ch VI Superimposed Loads on Buried Pipe, Pg 183

$$W_c = H \times \gamma_s \times (D + t)$$

Where: γ_S = 120

$$W_C = \left[\ 9.00\ \right]\left[\ 12\ \text{in/ft}\ \right]\left[\ 120.00\ \right]\left[\frac{1\ \text{ft}^3}{1728\ \text{in}^3}\right]\left[\ 8.63\ \right]$$

W_C = 64.69 lb/in

At Max Design Pipe Depth (H) of 9.00 ft

Using the Equation on Pg 114 of Moser, A.P., Buried Pipe Design. 2nd Ed., McGraw-Hill, Pressure Applied to Pipe under installed conditions at its deepest installed depth (Note, since hw = 0, the Water Buoyancy Factor (Rw) = 1) is calculated to be:

$$q_p = \gamma_w h_w + R_w\left(\frac{W_c + L_L}{D}\right) \quad \text{and } L_L = 2.78 \quad R_W = 1 - 0.33(h_w / h)$$

$$q_P = 0.0361 \times 0 + 1 \times \left[\frac{67.47}{8.293}\right]$$

q_P = **8.14 psi**

Note: The pressure applied to the pipe under installed conditions is less than the Allowable Buckling Pressure of the specified pipe, (i.e.. $q_a > q_p$) therefore the design is acceptable for installation.

WALL CRUSHING CALCULATION

Where:	D_o	=	outside pipe diameter, in.	=	8.625
	P_c	=	Compressive stress or hydrostatic design basis (HDB). For typical PVC pipe assume 4,000 psi. For any other pipe material the HDB must be supplied by the pipe manufacturer.		
	A	=	surface area of the pipe wall, in.^{2}/ft	=	0.332
	γ_S	=	specific weight of soil, pcf,	=	120
	H	=	Depth of burial (ft) from ground surface to crown of pipe		

Using the Wall Crushing and Wall Thrust equations, as referenced in Plastic Pipe Design Manual published by Vylon Pipe, Pg 14 the Wall Crushing due to compressive stress can be found using the following:

$$P_c = \frac{T}{A} \qquad \text{where T, Thrust, is calculated as} \qquad T = \frac{P_y D}{2}$$

Substituting the Thrust equation into the Wall Crushing equation:

$$P_c = \frac{\frac{P_y D}{2}}{A} = \frac{P_y D}{2A}$$

From the Marston Equation determining the Prism Load Calculation (See previous section on Prism Load), substitute the equation for P_y:

$$P_c = \frac{\frac{\gamma_s * H}{144} D}{2A} \qquad \text{Rearranging this equation, it becomes:} \qquad 2AP_c = \frac{\gamma_s * H}{144} D$$

And simplifies to: $288AP_c = \gamma_s HD$

Note that the Surface Area of the Pipe Wall, A, is per unit length in inches^2 per foot, a conversion factor (from feet to inches) of 12 must be applied, therefore,

$$24AP_c = \gamma_s HD$$

Solving for H, the equation becomes:

$$H = \frac{24 * P_c * A}{\gamma_s * D_o}$$

Using this equation, and converting all units, solve for "height" of the soil column, or in other words, the depth of burial of the PVC pipe:

$$H = \frac{[24][4000][0.332 \times 12]}{120 \times 8.625} = \mathbf{369.53}$$

H = 369.53 feet

Note: The resulting Wall Crushing will occur at a greater depth than the deepest burial depth of the proposed SCS lines, therefore pipe design is acceptable.

DEFLECTION ANALYSIS: LEONHARDT'S ZETA FACTOR

The Leonhardt's Zeta Factor Equation can be calculated using Equation 7.32 of Uni-Bell's Handbook of PVC Pipe , Ch VII Design of Buried PVC Pipe, Pg 268

Where:	Do	=	Pipe Outer Diameter, in =	8.625
	B	=	Trench Width, in, =	32.63
	E_b	=	Modulus of soil reaction, bedding material (psi) =	1000
	E_n'	=	Modulus of soil reaction for the in-situ soil (psi) =	1000

$$zeta = \frac{1.44}{f + [1.44 - f] \times \left[\frac{E_b}{E_n'}\right]}$$

where,

$$f = \frac{\frac{B}{Do} - 1}{1.154 + 0.444\left[\frac{B}{Do} - 1\right]}$$

$$f = \frac{2.7826087}{2.3874783} = 1.1655012$$

Substituting f into the zeta equation:

$$zeta = \frac{1.44}{[1.166] + [0.274] \times [1.000]}$$

The Leonhardt Zeta factor is then determined as: **1.000**

PIPE STIFFNESS (Figure: 30 TAC §217.53(k)(3))

Using Equation B.1, as directed in 30 TAC §217.53(k)(3), to Calculate the Pipe Stiffness:

$$PS = C \times RSC \times \left(\frac{8.337}{D}\right)$$

Where:	PS	=	Pipe Stiffness, for SDR-26 PVC (in PSI and Typ. 115) =	115
	C	=	Conversion factor =	0.8
	D	=	Mean Pipe Diameter (in), D =	8.293
	RSC	=	Ring Stiffness Constant	

The RSC can be supplied by the manufacturer or calculated by rearranging Equation B.1

$$RSC = \frac{PS}{C \times \left(\frac{8.337}{D}\right)}$$

$$RSC = \frac{115}{0.8042445}$$

$$RSC = 142.991$$

PREDICTED PIPE DEFLECTION

Using the Modified Iowa Equation, referenced and published by the Uni-Bell PVC Pipe association and found at http://www.uni-bell.org/faq.html, and Equation 14 of Deflection: The Pipe/Soil Mechanism UNI-TR-1-97, Uni-Bell PVC Pipe Association Pgs 17, the predicted pipe deflection can be calculated.

Where:	%ΔY/D	=	Predicted % vertical deflection under load			
	P	=	Prism Load, psi			
	K	=	Bedding angle constant, Assumed to =			0.096
	W'	=	Live Load, psi, =	4.17	At min depth (ft) :	3.60
	DR	=	Dimension Ratio =	26		
	E	=	Modulus of tensile elasticity of the pipe material, psi			
	E'	=	Modulus of Soil Reaction (zeta x Eb)		=	1000.00
	D_L	=	Deflection Lag Factor		=	1.5

And using the Modified Iowa Equation:

$$(\%)\frac{\Delta Y}{D} = \frac{(D_L KP + KW')\times 100}{[2E/(3(DR-1)^3)] + 0.061E'}$$

Where, Prism Load, $P = \frac{\gamma_s * H}{144}$

and/or from previous chart, prism load = 7.50 psi

The Predicted Deflection is determined as:

$$(\%)\frac{\Delta Y}{D} = \frac{\left[\left[1.5 \times 0.720\right] + 0.40032\right] \times 100}{\left[\frac{800000}{46875}\right] + \left[0.061 \times 1000.00\right]} = \mathbf{1.90}\ \%$$

NOTE: **1.90 < 5%,** therefore pipe design is acceptable

A deflection lag factor of 1.0 is typical for new pipes. Over the life of the pipe, the pipe will tend to deflect. Therefore, 1.5 is a conservative factor for the 50 year life.

PIPE STRAIN

Pipe strain is also known as the elongation of the pipe over the original length of the pipe. Under normal loading conditions of the PVC pipe, the variable that affects the elongation or straining of the pipe stems from the either the flexure/deflection (i.e.. bending) of the pipe within the bedding material (i.e. increased or excessive pipe deflection causing the pipe to elongate) or hoop stress within the pipe wall. Please note that pipe strain is not generally known to be the limiting performance factor during pipe failure. For this system, pipe deflection is limited to 5% for a SDR 26 pipe. Since the calculated deflection above is shown to be less than 5%, the pipe and bedding class used in this system is within the acceptable straining limits for this pipe.

The total Pipe strain is calculated as the combination of the hoop stress and the maximum strain due to deflection. Both items are calculated below using Equations 15 and 16 found in Deflection: the Pipe/Soil Mechanism, UNI-TR-1-97, Published by the Uni-Bell PVC Pipe Association (Pgs 28-30):

$$\in_h = \frac{PD}{2tE}$$

Where:	E_h	=	Maximum Pipe Strain due to Hoop Stress, in/in		
	P	=	Pressure on the pipe (Live + Prism Loads), psi		
	E	=	Modulus of Elasticity of the Pipe, psi		
	t	=	Pipe Wall thickness (in)	=	0.332
	D	=	Pipe Diameter, Outer (in)	=	8.625

Using the maximum cover for both live loads and prism loads as well as the previous unit weight of the soil:

$$\in_h = \frac{[\ 4.17 \ + \ 7.50\ ] \times 8.625}{2 \times 0.332 \times 400{,}000} = 3.790\text{E-}04 \ \frac{\text{in}}{\text{in}}$$

Maximum strain of the pipe due to ring deflection is calculated below:

Where:	E_f	=	Maximum Pipe Strain due to Ring Deflection, in/in		
	ΔY	=	Change in vertical pipe dia. under load (in)	=	0.16
	t	=	Pipe Wall thickness (in)	=	0.332
	D	=	Pipe Diameter, Outer (in)	=	8.625
	DR	=	Dimension Ratio, PVC Pipe	=	26

$$\in_f = \frac{t}{D}\left[\frac{3\Delta Y / D}{1 - 2\Delta Y / D}\right] = \frac{1}{DR}\left[\frac{3\Delta Y}{D - 2\Delta Y}\right]$$

$$\in_f = \frac{0.332}{8.625} \times \frac{0.491}{8.625 - 0.327} = 0.002276 \ \frac{\text{in}}{\text{in}}$$

Therefore, the maximum combined strain in the pipe wall (in/in) is as follows:

$$\in_{total} = \mathbf{0.0027} \ \frac{\text{in}}{\text{in}}$$

ATTACHMENT B | Justification and Calculations for Deviation in Straight Alignment

This section is not applicable for this project. There are no deviations from straight alignment in this sewage collection system without manholes.

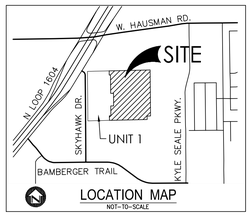
ATTACHMENT C | Justification for Variance from Maximum Manhole Spacing

This section is not applicable for this project. Manholes on this project for each pipe diameter is spaced at a distance no greater than:

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

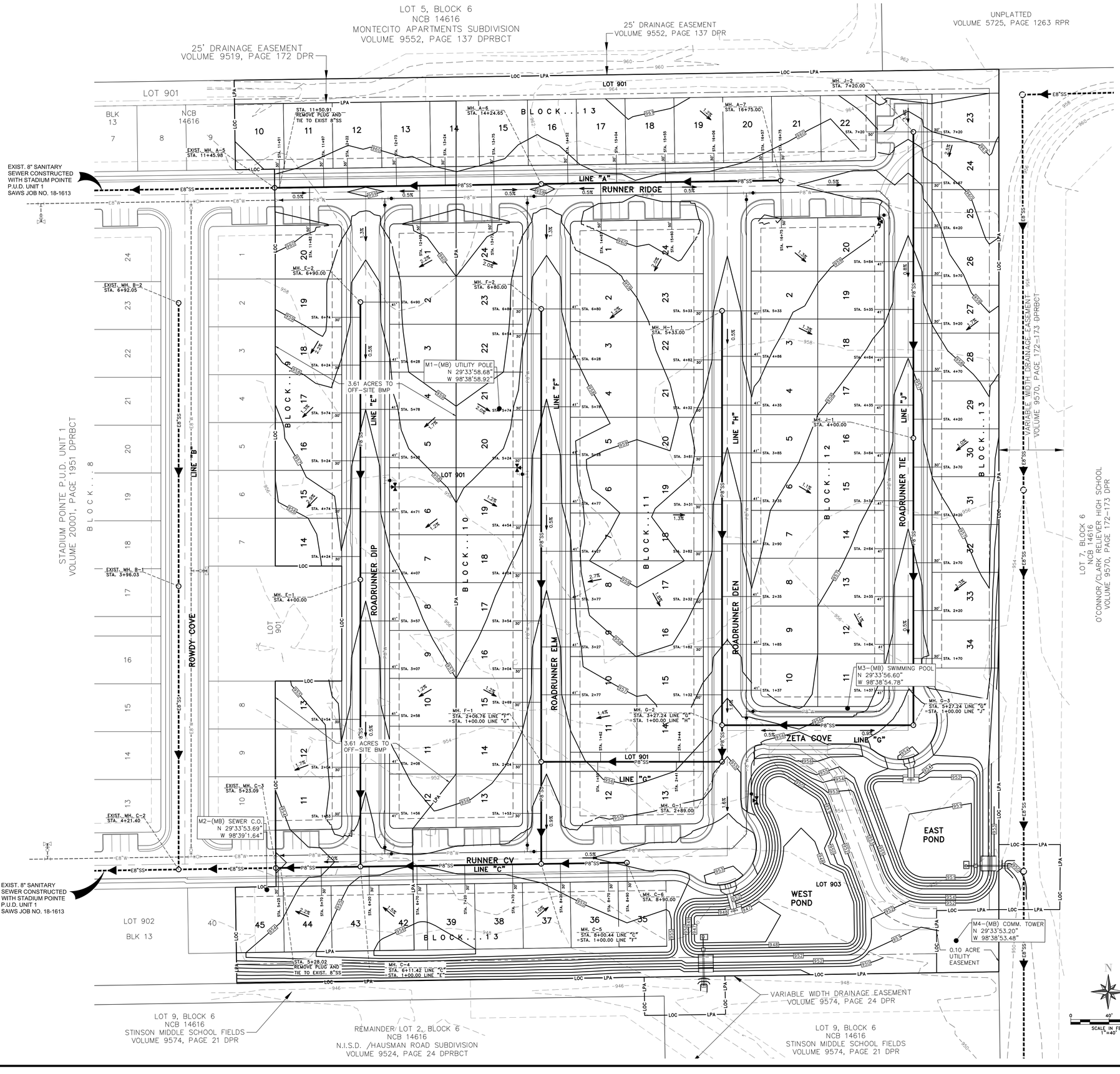
ATTACHMENT D | Calculations for Slopes for Flows Greater than 10.0 Feet per Second

This section is not applicable for this project. Velocities within pipes are between 2 ft/sec and 10 ft/sec. Calculations can be found in “Attachment A: SCS Engineering Design Report”



LEGEND

EXISTING MINOR CONTOUR	900
EXISTING MAJOR CONTOUR	900
EXISTING SANITARY SEWER MAIN	E8"SS
EXISTING SANITARY SEWER MANHOLE	
EXISTING WATERLINE	E8"W
DIRECTION OF FLOW	
LIMITS OF PLAT (16.38 AC)	
LIMITS OF CONSTRUCTION (16.46 AC)	LOC
LIMITS OF PLAN AREA (12.85 AC)	LPA
PROPOSED CONTOUR	900
PROPOSED SANITARY SEWER MAIN	P12"SS
PROPOSED SANITARY SEWER MANHOLE	
PROPOSED WATERLINE	P8"W
PROPOSED FLOW ARROW	X.X%



NOTES:

1. NO PART OF THE PROJECT SITE IS LOCATED WITHIN THE 100 YEAR FLOODPLAIN BOUNDARIES ACCORDING TO FEMA FIRM MAP NO.48029C0210G DATED SEPTEMBER 29, 2010.
2. THERE ARE NO WELLS OR TEST HOLES OF ANY KIND KNOWN TO EXISTING WITHIN THE PROJECT BOUNDARIES.
3. TOTAL PLATTED ACREAGE FOR STADIUM POINTE PUD UNIT 2 & 3 IS 16.38 ARCES.
4. TOTAL SITE AREA IS 16.28 ACRES (16.38 AC. PLAT AREA – 0.10 AC UTILITY EASEMENT)
5. ± 0.18 ACRE OFF-SITE AREA WILL BE DISTURBED TO TIE IN OUTFALLS.
6. TOTAL DISTURBED AREA (LIMITS OF CONSTRUCTION) IS 16.46 ACRES (16.28+0.18)
7. TOTAL PLAN AREA IS 12.85 ACRES (16.46–3.61 AC. TO OFF-SITE BMP)
8. PLEASE NOTE THE CONSTRUCTION OF THE DUPLEXES WILL COMMENCE MORE OR LESS AFTER THE PERMANENT BMP'S ARE IN PLACE.
9. CALCULATING THE AREA OF DISTURBANCE:

±4.76 ACRES	PRIVATE STREETS/SIDEWALKS/PARKING/GREENWAY
±1.80 ACRES	BATCH DETENTION FACILITIES
±9.72 ACRES	LOT GRADING
±0.18 ACRES	OFF-SITE DRAIN TIE-INS
±16.46 ACRES	TOTAL DISTURBED AREA (LIMITS OF CONSTRUCTION)

10. APPROXIMATELY 16.46 ACRES WILL BE DISTURBED BY CONSTRUCTION ACTIVITIES. SOIL STABILIZATION WILL BE IMPLEMENTED PRIMARILY BY THE FOLLOWING PRACTICES:
    a. RE-ESTABLISHMENT OF VEGETATION, AROUND THE PERIMETER OF THE DISTURBED AREAS, TO BE MAINTAINED BY THE OWNER AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED TO ENSURE IT HAS BEEN ADEQUATELY ESTABLISHED.
    b. INSTALLATION OF CONCRETE BUILDING SLAB AND SIDEWALKS.
    c. ALL DISTURBED SOIL WILL BE STABILIZED AS PER PROJECT SPECIFICATIONS IN ACCORDANCE TCEQ'S TECHNICAL GUIDANCE MANUAL (TGM) RG-348.

SUBMITTAL SET

NO.	REVISION	DATE

CDS Muery F-1733
STATE OF TEXAS
BRIAN A. CROWELL
82619
REGISTERED
PROFESSIONAL ENGINEER
09/21/2020

CDS muery
ENGINEERS | SURVEYORS
100 NE Loop 410, Ste. 300 | San Antonio, Texas 78216
(210) 581-1111 | TBPE No. F-1733 | TBPLS No. 100495-00

PLAT NO. 19-11800164

JOB NO. 118008.04
DATE AUGUST 2020
DESIGNER JBG
CHECKED BC DRAWN J.W.G.

STADIUM POINTE P.U.D.
UNIT 2 & 3
SAN ANTONIO, TEXAS
TCEQ SITE PLAN

SHEET EXH

Date: Sep 21, 2020, 5:06pm User ID: jon.gross
File: J:\2018\118008.04 Stadium Pointe Phase 2\Civil 3D\Dwg\Engineer\Exhibits\118008_TCEQ Site Plan.dwg

SAN ANTONIO WATER SYSTEM

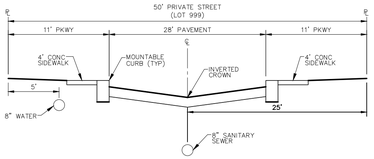
SAWS JOB NO. XX–XXXX

SANITARY SEWER PLANS

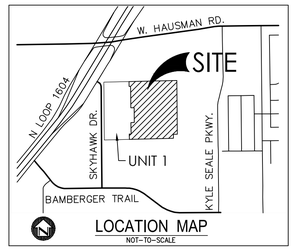
FOR

STADIUM POINTE P.U.D.
UNIT 2 & 3

SAN ANTONIO, TEXAS



TYPICAL STREET SECTION
N.T.S.



LOCATION MAP
NOT–TO–SCALE

ENGINEER:

CDS MUERY
ATTN: BRIAN CROWELL, P.E.
100 NE LOOP 410, SUITE 300
SAN ANTONIO, TEXAS 78216
TEL: (210) 581-1111
FAX: (210) 581-5555

OWNER/DEVELOPER:

RAM YELLATURA
SKYHAWK VILLA DE SAN ANTONIO, LLC.
8117 SUTHERLAND LANE
PLANO, TEXAS 75025

SURVEY CONTROL

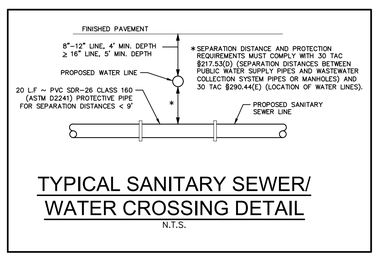
HORIZONTAL DATUM= NAD83(2011)EPOCH:2010
TEXAS STATE PLANE COORDINATE SYSTEM, ZONE 4204 (US SURVEY FT)
VERTICAL DATUM = NAVD88 OPUS GEOID12A
SURFACE ADJUSTMENT FACTOR=1.00017
SURFACE = GRID X 1.00017
PROJECT COORDINATES DATA IS BASED ON BENCHMARK #100
N. 13,756,276.73, E. 2,097,565.66 (SURFACE)
TBM 100
SET IN TOP OF CONCRETE CHANNEL
± 35' EAST OF NW PROPERTY CORNER
ELEV.=956.54'

SITE INFORMATION:

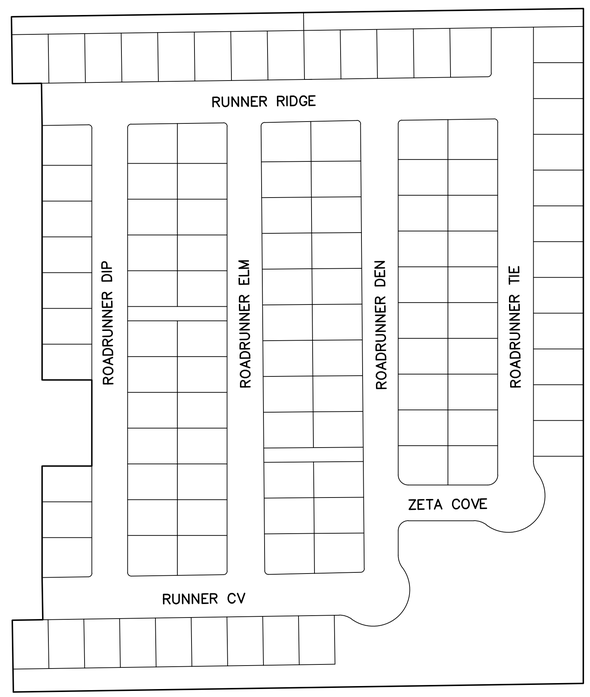
BEING A REPLAT OF 16.376 ACRES OF LAND, ESTABLISHING LOTS 11–20, BLOCK 9, LOTS 1–24 & 901, BLOCK 10, LOTS 1–24 & 901, BLOCK 11, LOTS 1–20, BLOCK 12, LOTS 10–43, 901 & 903, BLOCK 13, AND LOT 999 (PRIVATE STREET), BLOCK 7, IN NEW CITY BLOCK 14616, IN THE CITY OF SAN ANTONIO, BEXAR COUNTY, TEXAS, OUT OF LOT 1, BLOCK 6, NCB 14616, FATHER FLANAGAN'S BOY'S HOME SUBDIVISION, RECORDED IN VOLUME 9519, PAGE 172 OF THE DEED AND PLAT RECORDS OF BEXAR COUNTY, TEXAS.

CIVIL SHEET INDEX

SHT. NO	SHEET TITLE
C4.0	SANITARY SEWER COVER SHEET
C4.1	SANITARY SEWER SAWS NOTES
C4.2	SANITARY SEWER TCEQ SEWER NOTES
C4.3	SANITARY SEWER PLAN
C4.4	SANITARY SEWER LINE A
C4.5	SANITARY SEWER LINE C
C4.6	SANITARY SEWER LINE E
C4.7	SANITARY SEWER LINE F
C4.8	SANITARY SEWER LINE G & LINE H
C4.9	SANITARY SEWER LINE J
C4.10	SANITARY SEWER DETAILS



TYPICAL SANITARY SEWER/
WATER CROSSING DETAIL
N.T.S.



OVERALL SITE MAP

SAWS SEWER LINE			
ITEM	DESCRIPTION	UNIT	QUANTITIY
1	6" SANITARY SEWER LATERALS, INCLUDES WYES (SDR–26)	LF	3849
2	8" SANITARY SEWER PIPE SDR–26 (0'–6')	LF	2833
3	8" SANITARY SEWER PIPE SDR–26 (0'–6')*	LF	40
4	8" SANITARY SEWER PIPE SDR–26 (6'–8')	LF	644
5	8" SANITARY SEWER PIPE SDR–26 (6'–8')*	LF	20
6	WATERTIGHT RING & COVER SEWER MANHOLES (0'–6')	EA	15
7	EXTRA DEPTH MANHOLE (>6')	VF	8.4
8	SEWER MAIN T.V. INSPECTION	LF	3537
9	TRENCH EXCAVATION PROTECTION	LF	7370

* INCLUDES CLASS 160

EASEMENT KEYNOTES

1. 10' GAS, ELECTRIC, TELEPHONE AND CABLE TV EASEMENT
2. 20' LESSEE ACCESS
3. 20' PUD PERIMETER SETBACK
4. 10' PUD PERIMETER SETBACK
5. REMOVING FINAL PORTION OF 25' DRAINAGE ESMT (VOL 9519, PG 172, DPR)
6. 25' DRAINAGE EASEMENT (VOL 9552, PG 137, DPR)
7. VAR WID DRAINAGE EASEMENT (VOL 9570, PG 172–173, DPR)
8. 15' WATER QUALITY EASEMENT (VOL 12955, PG 2038–2048, OPR)
9. 0.097 AC LEASE EASEMENT (VOL 12955, PG 2038, OPR)
10. 16' WIDE UTILITY EASEMENT (VOL 12955, PG 2038, OPR)
11. VAR WID ACCESS & AERIAL CABLE EASEMENT (VOL 13353, PG 2080, OPR)
12. VAR WID DRAINAGE EASEMENT (VOL 9574, PG 21, DPR)
13. 10' GAS, ELECTRIC, TELEPHONE AND CABLE TV EASEMENT (PLAT NO. 180390)
14. 20' PUD PERIMETER SETBACK (PLAT NO. 180390)

Developer's Name SKYHAWK VILLA DE SAN ANTONIO, LLC
Developer's Address 8117 SUTHERLAND LANE
City PLANO State TEXAS Zip 75025
Phone # 214-578-3414 Fax # 214-383-1766
SAWS Block Maps 110630 Total EDU's 112 Total Acreage 16.376
Total Linear Footage of Pipe 3,536 LF ~ 8" SEWER Plat No. LAND-PLAT-19-11800164
Number of Lots 112 SAWS Job No. XX-XXXX

SAWS JOB NO. XX-XXXX

SUBMITTAL SET

NO.	REVISION	DATE

CDS Muery F–1733
STATE OF TEXAS
BRIAN A. CROWELL
82619
REGISTERED PROFESSIONAL ENGINEER
8–04/21/2020

CDS muery
ENGINEERS | SURVEYORS
100 NE Loop 410, Ste. 300 | San Antonio, Texas 78216
(210) 581-1111 | TBPE No. F-1733 | TBPLS No. 100495-00

PLAT NO. 19-11800164
JOB NO. 118008.04
DATE AUGUST 2020
DESIGNER LMR
CHECKED KE DRAWN LJR

STADIUM POINTE P.U.D.
UNIT 2 & 3
SAN ANTONIO, TEXAS
SANITARY SEWER COVER SHEET

SHEET C4.0

Date: Sep 18, 2020, 4:15pm User ID: jared.ramirez
File: F:\2018\118008.04 Stadium Point, Phase 2\Civil 3D\Dwg\Engineer\118008_C4.0–Sewer–Overall.dwg

SAWS GENERAL WATER NOTES
LAST REVISED: 7/2017

GENERAL SECTION

1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE APPROVED BY THE SAN ANTONIO WATER SYSTEM (SAWS) AND COMPLY WITH THE PLANS, SPECIFICATIONS, GENERAL CONDITIONS AND WITH THE FOLLOWING AS APPLICABLE:

   A. CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) "DESIGN CRITERIA FOR DOMESTIC WASTEWATER SYSTEM", TEXAS ADMINISTRATIVE CODE (TAC) TITLE 30 PART 1 CHAPTER 217 AND "PUBLIC DRINKING WATER", TAC TITLE 30 PART 1 CHAPTER 290.
   B. CURRENT TXDOT "STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND DRAINAGE".
   C. CURRENT "SAN ANTONIO WATER SYSTEM STANDARD SPECIFICATIONS FOR WATER AND SANITARY SEWER CONSTRUCTION".
   D. CURRENT CITY OF SAN ANTONIO "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION".
   E. CURRENT CITY OF SAN ANTONIO "UTILITY EXCAVATION CRITERIA MANUAL"(UECM).

2. THE CONTRACTOR SHALL NOT PROCEED WITH ANY PIPE INSTALLATION WORK UNTIL THEY OBTAIN A COPY OF THE APPROVED COUNTER PERMIT OR GENERAL CONSTRUCTION PERMIT (GCP) FROM THE CONSULTANT AND HAS BEEN NOTIFIED BY SAWS CONSTRUCTION INSPECTION DIVISION TO PROCEED WITH THE WORK AND HAS ARRANGED A MEETING WITH THE INSPECTOR AND CONSULTANT FOR THE WORK REQUIREMENTS. WORK COMPLETED BY THE CONTRACTOR WITHOUT AN APPROVED COUNTER PERMIT AND/OR A GCP WILL BE SUBJECT TO REMOVAL AND REPLACEMENT AT THE EXPENSE OF THE CONTRACTORS AND/OR THE DEVELOPER.

3. THE CONTRACTOR SHALL OBTAIN THE SAWS STANDARD DETAILS FROM THE SAWS WEBSITE, HTTP://WWW.SAWS.ORG/BUSINESS_CENTER/SPECS. UNLESS OTHERWISE NOTED WITHIN THE DESIGN PLANS.

4. THE CONTRACTOR IS TO MAKE ARRANGEMENTS WITH THE SAWS CONSTRUCTION INSPECTION DIVISION AT

   (210) 233-2973, ON NOTIFICATION PROCEDURES THAT WILL BE USED TO NOTIFY AFFECTED HOME RESIDENTS AND/OR PROPERTY OWNERS 48 HOURS PRIOR TO BEGINNING ANY WORK.

5. LOCATION AND DEPTH OF EXISTING UTILITIES AND SERVICE LATERALS SHOWN ON THE PLANS ARE UNDERSTOOD TO BE APPROXIMATE. ACTUAL LOCATIONS AND DEPTHS MUST BE FIELD VERIFIED BY THE CONTRACTOR AT LEAST 1 WEEK PRIOR TO CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE UTILITY SERVICE LINES AS REQUIRED FOR CONSTRUCTION AND TO PROTECT THEM DURING CONSTRUCTION AT NO COST TO SAWS.

6. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF UNDERGROUND UTILITIES AND DRAINAGE STRUCTURES AT LEAST 1-2 WEEKS PRIOR TO CONSTRUCTION WHETHER SHOWN ON PLANS OR NOT. PLEASE ALLOW UP TO 7 BUSINESS DAYS FOR LOCATES REQUESTING PIPE LOCATION MARKERS ON SAWS FACILITIES. THE FOLLOWING CONTACT INFORMATION ARE SUPPLIED FOR VERIFICATION PURPOSES:
   - SAWS UTILITY LOCATES: HTTP://WWW.SAWS.ORG/SERVICE/LOCATES
   - COSA DRAINAGE (210) 207-0724 OR (210) 207-6026
   - COSA TRAFFIC SIGNAL OPERATIONS (210) 206-8480
   - COSA TRAFFIC SIGNAL DAMAGES (210) 207-3951
   - TEXAS STATE WIDE ONE CALL LOCATOR 1-800-545-6005 OR 811

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING EXISTING FENCES, CURBS, STREETS, DRIVEWAYS, SIDEWALKS, LANDSCAPING AND STRUCTURES TO ITS ORIGINAL OR BETTER CONDITION IF DAMAGES ARE MADE AS A RESULT OF THE PROJECT'S CONSTRUCTION.

8. ALL WORK IN TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT) AND/OR BEXAR COUNTY RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH RESPECTIVE CONSTRUCTION SPECIFICATIONS AND PERMIT REQUIREMENTS.

9. THE CONTRACTOR SHALL COMPLY WITH CITY OF SAN ANTONIO OR OTHER GOVERNING MUNICIPALITY'S TREE ORDINANCES WHEN EXCAVATING NEAR TREES.

10. THE CONTRACTOR SHALL NOT PLACE ANY WASTE MATERIALS IN THE 100-YEAR FLOOD PLAIN WITHOUT FIRST OBTAINING AN APPROVED FLOOD PLAIN PERMIT.

11. HOLIDAY WORK: CONTRACTORS WILL NOT BE ALLOWED TO PERFORM SAWS WORK ON SAWS RECOGNIZED HOLIDAYS. REQUEST SHOULD BE SENT TO CONSTWORKREQ@SAWS.ORG.

    WEEKEND WORK: CONTRACTORS ARE REQUIRED TO NOTIFY THE SAWS INSPECTION CONSTRUCTION DEPARTMENT 48 HOURS IN ADVANCE TO REQUEST WEEKEND WORK. REQUEST SHOULD BE SENT TO CONSTWORKREQ@SAWS.ORG.

    ANY AND ALL SAWS UTILITY WORK INSTALLED WITHOUT HOLIDAY/WEEKEND APPROVAL WILL BE SUBJECT TO BE UNCOVERED FOR PROPER INSPECTION.

12. COMPACTION NOTE (ITEM 804): THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING THE COMPACTION REQUIREMENTS ON ALL TRENCH BACKFILL AND FOR PAYING FOR THE TESTS PERFORMED BY A THIRD PARTY. COMPACTION TESTS WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED, OR AS INDICATED BY THE SAWS INSPECTOR AND/OR THE TEST ADMINISTRATOR, PER EACH 12-INCH LOOSE LIFT PER 400 LINEAR FEET AT A MINIMUM. THIS PROJECT WILL NOT BE ACCEPTED AND FINALIZED BY SAWS WITHOUT THIS REQUIREMENT BEING MET AND VERIFIED BY PROVIDING ALL NECESSARY DOCUMENTED TEST RESULTS.

13. A COPY OF ALL TESTING REPORTS SHALL BE FORWARDED TO SAWS CONSTRUCTION INSPECTION DIVISION.

SEWER SECTION

1. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT NO SANITARY SEWER OVERFLOW (SSO) OCCURS AS A RESULT OF THEIR WORK. ALL CONTRACTOR PERSONNEL RESPONSIBLE FOR SSO PREVENTION AND CONTROL SHALL BE TRAINED ON PROPER RESPONSE. SHOULD AN SSO OCCUR, THE CONTRACTOR SHALL:

   A. IDENTIFY THE SOURCE OF THE SSO AND NOTIFY SAWS EMERGENCY OPERATIONS CENTER (EOC) IMMEDIATELY AT (210) 233-2014. PROVIDE THE ADDRESS OF THE SPILL AND AN ESTIMATED VOLUME OR FLOW.
   B. ATTEMPT TO ELIMINATE THE SOURCE OF THE SSO.
   C. CONTAIN SEWAGE FROM THE SSO TO THE EXTENT OF PREVENTING A POSSIBLE CONTAMINATION OF WATERWAYS.
   D. CLEAN UP SPILL SITE (RETURN CONTAINED SEWAGE TO THE COLLECTION SYSTEM IF POSSIBLE) AND PROPERLY DISPOSE OF CONTAMINATED SOIL/MATERIALS.
   E. CLEAN THE AFFECTED SEWER MAINS AND REMOVE ANY DEBRIS.
   F. MEET ALL POST-SSO REQUIREMENTS AS PER THE EPA CONSENT DECREE, INCLUDING LINE CLEANING AND TELEVISING THE AFFECTED SEWER MAINS (AT SAWS DIRECTION) WITHIN 24 HOURS.

   SHOULD THE CONTRACTOR FAIL TO ADDRESS AN SSO IMMEDIATELY AND TO SAWS SATISFACTION, THEY WILL BE RESPONSIBLE FOR ALL COSTS INCURRED BY SAWS, INCLUDING ANY FINES FROM EPA, TCEQ AND/OR ANY OTHER FEDERAL, STATE OR LOCAL AGENCIES.

   NO SEPARATE MEASUREMENT OR PAYMENT SHALL BE MADE FOR THIS WORK. ALL WORK SHALL BE DONE ACCORDING TO GUIDELINES SET BY THE TCEQ AND SAWS.

2. IF BYPASS PUMPING IS REQUIRED, THE CONTRACTOR SHALL PERFORM SUCH WORK IN ACCORDANCE WITH SAWS STANDARD SPECIFICATION FOR WATER AND SANITARY SEWER CONSTRUCTION, ITEM NO. 864, "BYPASS PUMPING".

3. PRIOR TO TIE-INS, ANY SHUTDOWNS OF EXISTING FORCE MAINS OF ANY SIZE MUST BE COORDINATED WITH THE SAWS CONSTRUCTION INSPECTION DIVISION AT (210) 233-2973 AT LEAST ONE WEEK IN ADVANCE OF THE SHUTDOWN. THE CONTRACTOR MUST ALSO PROVIDE A SEQUENCE OF WORK AS RELATED TO THE TIE-INS; THIS IS AT NO ADDITIONAL COST TO SAWS OR THE PROJECT AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SEQUENCE THE WORK ACCORDINGLY.

4. SEWER PIPE WHERE WATER LINE CROSSES SHALL BE 160 PSI AND MEET THE REQUIREMENTS OF ASTM D2241, TAC 217.53 AND TCEQ 290.44(E)(4)(B). CONTRACTOR SHALL CENTER A 20' JOINT OF 160 PSI PRESSURE RATED PVC AT THE PROPOSED WATER CROSSING.

5. ELEVATIONS POSTED FOR TOP OF MANHOLES ARE FOR REFERENCE ONLY; IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE ALLOWANCES AND ADJUSTMENTS FOR TOP OF MANHOLES TO MATCH THE FINISHED GRADE OF THE PROJECT'S IMPROVEMENTS. (NSPI)

6. SPILLS, OVERFLOWS, OR DISCHARGES OF WASTEWATER: ALL SPILLS, OVERFLOWS, OR DISCHARGES OF WASTEWATER, RECYCLED WATER, PETROLEUM PRODUCTS, OR CHEMICALS MUST BE REPORTED IMMEDIATELY TO THE SAWS INSPECTOR ASSIGNED TO THE COUNTER PERMIT OR GENERAL CONSTRUCTION PERMIT (GCP). THIS REQUIREMENT APPLIES TO EVERY SPILL, OVERFLOW, OR DISCHARGE REGARDLESS OF SIZE.

7. MANHOLE AND DEFLECTION (MANDREL) TESTING AND THE TV INSPECTION MUST BE PERFORMED AND PASSED PRIOR TO FINAL FIELD ACCEPTANCE BY SAWS CONSTRUCTION INSPECTION DIVISION.

8. ALL PVC PIPE OVER 14 FEET OF COVER SHALL BE EXTRA STRENGTH WITH MINIMUM PIPE STIFFNESS OF 115 PSI.

GENERAL UTILITY NOTES

1. THERE ARE UTILITY CROSSINGS ON THIS PROJECT. THE CONTRACTOR SHALL VERIFY ALL GRAVITY LINE CROSSINGS (SANITARY SEWER, STORM SEWER, WALL DRAINS, ETC.) TO ENSURE NO CONFLICTS OCCUR PRIOR TO UTILITY LINE CONSTRUCTION. CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER IF GRAVITY LINE VERTICAL ADJUSTMENTS ARE NECESSARY. CONTRACTOR IS EXPECTED TO MAKE ADJUSTMENT OF NON-GRAVITY UTILITY LINES AS NECESSARY TO AVOID CONFLICTS AND MAINTAIN THE MINIMUM BURY DEPTHS OF EACH UTILITY AS SPECIFIED.

2. WHEN SANITARY SEWER LINES ARE INSTALLED IN THE VICINITY OF POTABLE WATER MAINS, SUCH INSTALLATION OF SANITARY SEWER AND WATER FACILITIES SHALL BE IN STRICT COMPLIANCE WITH TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) CHAPTER 290 – "PUBLIC DRINKING WATER ", SUBCHAPTER D, "RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS " AND CHAPTER 217 – "DESIGN CRITERIA FOR DOMESTIC WASTEWATER SYSTEMS ".

3. FITTINGS FOR WATER SHOWN ON THE DRAWINGS REPRESENT GENERAL ALIGNMENT AND INSTALLATION INTENTION AND DO NOT REPRESENT ALL FITTINGS REQUIRED FOR CONSTRUCTION. CONTRACTOR SHALL PROVIDE ALL ADDITIONAL INCIDENTAL FITTINGS AND APPURTENANCES FOR HORIZONTAL AND VERTICAL ALIGNMENT ADJUSTMENTS, MATERIAL ADAPTERS, PIPE SIZE REDUCTION, TIE-INS TO EXISTING MAINS, INSTALLATION SPECIALTIES, ETC.

EXCAVATION, SHORING, AND RESTORATION

1. 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 SYSTEM, 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 OF ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

2. CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL WASTE MATERIALS UPON PROJECT COMPLETION. THE CONTRACTOR SHALL NOT PERMANENTLY PLACE ANY WASTE MATERIALS IN THE 100-YEAR FLOOD PLAIN WITHOUT FIRST OBTAINING AN APPROVED FLOOD PLAIN DEVELOPMENT PERMIT.

3. WATER JETTING THE BACKFILL WITHIN A STREET WILL NOT BE PERMITTED. SANITARY SEWER TRENCHES SUBJECT TO TRAFFIC SHALL CONFORM TO THE SAWS STANDARD SPECIFICATIONS FOR CONSTRUCTION, ITEM NO. 550 & 804.

4. PROTECTION OF EXISTING BUILDING STRUCTURES ALONG THE PIPELINE ROUTE SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND ACCOMPLISHED IN ACCORDANCE WITH SPECIFICATION ITEM 804. THERE WILL BE NO SEPARATE PAYMENT FOR STRUCTURE PROTECTION (SHEETING, SHORING, ETC.). THE COST FOR THIS WORK MUST BE INCLUDED IN THE APPROPRIATE BID ITEM(S).

5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL OR BETTER CONDITION FROM DAMAGE DONE TO EXISTING FENCES, CURBS, STREETS, DRIVEWAYS, SIDEWALKS, LANDSCAPING AND STRUCTURES. NO SEPARATE PAYMENT SHALL BE MADE FOR REQUIRED RESTORATIONS, UNLESS OTHERWISE SHOWN.

6. DUE TO FEDERAL REGULATIONS TITLE 49, PART 192.181, CITY PUBLIC SERVICE MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND GAS VALVES THAT ARE IN THE PROJECT AREAS.

7. NO EXTRA PAYMENT SHALL BE ALLOWED FOR WORK CALLED FOR ON THE PLANS BUT NOT INCLUDED ON THE BID SCHEDULE. THIS INCIDENTAL WORK WILL BE REQUIRED AND SHALL BE INCLUDED UNDER THE PAY ITEM TO WHICH IT RELATES.

8. WHENEVER POWER POLES ARE ADJACENT TO THE PROPOSED CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE PROPER SHORING, BRACING, AND/OR OTHER SUITABLE SUPPORT FOR THE POLES DURING CONSTRUCTION.

9. THE CONTRACTOR SHALL PROVIDE EMERGENCY VEHICLES, RESIDENTS AND BUSINESSES WITH ACCESS TO AND FROM THEIR HOMES AND ESTABLISHMENTS AND ACCESS FOR THE DELIVERY OF MAIL BY THE U.S. POSTAL SERVICE. (NO SEPARATE PAY ITEM.)

10. CONTRACTOR TO NOTIFY CUSTOMERS 24 HOURS PRIOR TO ANY SERVICE OUTAGE.

11. CONTRACTOR SHALL NOTIFY BEXAR COUNTY RIGHT-OF-WAY DEPT. AT LEAST 24 HOURS BEFORE TEMPORARY ROAD CLOSURES.

12. CONTRACTOR SHALL PROTECT ROADWAY PAVEMENTS USED FOR STORAGE OF PIPE MATERIALS AND EQUIPMENT. BEXAR COUNTY RIGHT-OF-WAY DEPT. WILL DETERMINE LEVEL OF REPAIR REQUIRED FOR ANY PAVEMENT DAMAGED BY CONTRACTOR. NO SEPARATE PAYMENT WILL BE MADE FOR REPAIR OF DAMAGED PAVEMENT CAUSED BY CONTRACTOR.

13. CONTRACTOR TO PLACE 4-INCHES OF FLEXIBLE BASE MATERIAL AT TRENCH SURFACE PER SPECIFICATION ITEM NO. 804 (NSPI).

GENERAL SITE NOTES

1. CONTRACTOR WILL BE PROVIDED WITH GROUND CONTROL POINTS ESTABLISHING LAYOUT "CONTROL LINES" AS SHOWN ON THE PLANS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ALL OTHER LAYOUT AND GRADE CONTROL SURVEYING FOR CONSTRUCTION OF THE PROJECT.

2. EXISTING UNDERGROUND UTILITIES ARE SHOWN FROM AVAILABLE UTILITY RECORDS AND OBSERVABLE SURFACE FEATURES. ACTUAL LOCATIONS MAY VERY AND UTILITIES NOT SHOWN ON THESE PLANS MY EXIST. CONTRACTOR SHALL COORDINATE WITH LOCAL UTILITY COMPANIES AND OWNER PERSONNEL FOR ASSISTANCE IN LOCATING ALL UNDERGROUND FACILITIES IN THE PROJECT AREA PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL VERIFY THE LOCATION AND GRADE OF UNDERGROUND FACILITIES WELL AHEAD OF CONSTRUCTION OPERATIONS AND SHALL BE RESPONSIBLE FOR PROTECTION OF SAME DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR AND REPLACEMENT OF ALL DAMAGED UTILITIES AND FOR DAMAGES CAUSED TO OWNER OR OTHER PARTIES ARISING FROM SERVICE INTERRUPTION OR LOSS OF USE.

3. CONTRACTOR SHALL BE RESPONSIBLE FOR PERMANENT SERVICE TERMINATION ASSOCIATED WITH UTILITY LINES TO BE REMOVED OR ABANDONED.

4. WHERE NECESSARY, CONTRACTOR SHALL PROVIDE FOR BARRICADES AND TRAFFIC CONTROL DEVICES AS PER THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD).

5. AS APPLICABLE, TREES ON SITE ARE TO REMAIN IN UNDAMAGED CONDITION UNLESS REMOVAL OR TRIMMING IS IDENTIFIED ON THE PLANS OR IS NECESSARY FOR CONSTRUCTION OF THE PROJECT. CONTRACTOR IS RESPONSIBLE FOR NOTIFICATION OF ARCHITECT/LANDSCAPE ARCHITECT IF UNIDENTIFIED REMOVAL OR TRIMMING BECOMES NECESSARY. RESPONSE TO SUCH NOTIFICATION IS REQUIRED BEFORE TREE REMOVAL OR TRIMMING MAY PROCEED.

6. UNLESS OTHERWISE SPECIFIED BY THE ARCHITECT OR IN THE LANDSCAPE PLANS/SPECIFICATIONS THE FOLLOWING STATEMENT SHALL APPLY TO TOPSOIL SALVAGE, PLACEMENT AND SUPPLY: TOPSOIL SHALL BE STRIPPED AND STOCKPILED SEPARATELY FROM ALL OTHER MATERIALS IN ACCORDANCE WITH THE SPECIFICATIONS. STOCKPILED TOPSOIL MATERIAL SHALL BE SPREAD AND COMPACTED TO A DEPTH OF 6" TO ESTABLISH FINISHED GRADE IN ALL AREAS THAT ARE NOT TO BE PAVED. SHOULD STOCKPILED TOPSOIL FAIL TO COVER ALL AREAS TO A COMPACTED DEPTH OF 6", CONTRACTOR SHALL SUPPLY ADDITIONAL TOPSOIL FROM APPROVED OFF SITE SOURCES TO ESTABLISH FINISHED GRADE WITHOUT ADDITIONAL COMPENSATION.

7. ALL EXCAVATION IS UNCLASSIFIED AND SHALL INCLUDE ROCK AND ALL OTHER MATERIALS ENCOUNTERED REGARDLESS OF THEIR NATURE OR THE MANNER IN WHICH THEY ARE REMOVED.

8. CONTRACTOR IS RESPONSIBLE FOR GRADING ALL DISTURBED AREAS TO PREVENT PONDING OR BLOCKAGE OF SURFACE DRAINAGE.

9. CONTRACTOR SHALL PROVIDE EROSION CONTROL MEASURES AS NECESSARY TO PREVENT DAMAGE TO ADJACENT PROPERTIES AND TO CONFORM TO LOCAL JURISDICTIONAL AUTHORITY REQUIREMENTS.

10. WHERE FINISHED CONTOURS ARE SHOWN TO MATCH EXISTING CONTOURS ON THE GRADING PLANS, NO GRADE SEPARATION IS ALLOWABLE. CONTRACTOR SHALL ADJUST FINISHED CONTOURS AS NECESSARY TO ACCOMPLISH THIS REQUIREMENT.

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

12. CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL WASTE MATERIALS UPON COMPLETION.

Developer's Name SKYHAWK VILLA DE SAN ANTONIO, LLC
Developer's Address 8117 SUTHERLAND LANE
City PLANO State TEXAS Zip 75025
Phone # 214-578-3414 Fax # 214-383-1766
SAWS Block Maps 110630 Total EDU's 112 Total Acreage 16.376
Total Linear Footage of Pipe 3,536 LF ~ 8" SEWER Plat No. LAND-PLAT-19-11800164
Number of Lots 112 SAWS Job No. XX-XXXX

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SUBMITTAL SET

NO.	REVISION	DATE

CDS Muery F-1733
STATE OF TEXAS
BRIAN A. CROWELL
82619
REGISTERED PROFESSIONAL ENGINEER
8-24-2020

CDS muery
ENGINEERS | SURVEYORS
100 NE Loop 410, Ste. 300 | San Antonio, Texas 78216
(210) 581-1111 | TBPE No. F-1733 | TBPLS No. 100495-00

PLAT NO. 19-11800164
JOB NO. 118008.04
DATE AUGUST 2020
DESIGNER LMR
CHECKED KE DRAWN LJR

STADIUM POINTE P.U.D.
UNIT 2 & 3
SAN ANTONIO, TEXAS
SANITARY SEWER SAWS NOTES

SHEET C4.1

Date: Sep 18, 2020, 4:15pm User ID: jared.ramirez
File: F:\2018\118008.04 Stadium Point, Phase 2\Civil 3D\Dwg\Engineer\118008_C4.0-Sewer-Overall.dwg

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.

Developer's Name SKYHAWK VILLA DE SAN ANTONIO, LLC
Developer's Address 8117 SUTHERLAND LANE
City PLANO State TEXAS Zip 75025
Phone # 214-578-3414 Fax # 214-383-1766
SAWS Block Maps 110630 Total EDU's 112 Total Acreage 16.376
Total Linear Footage of Pipe 3,536 LF ~ 8" SEWER Plat No. LAND-PLAT-19-11800164
Number of Lots 112 SAWS Job No. XX-XXXX

SAWS JOB NO. XX-XXXX

SUBMITTAL SET

NO.	REVISION	DATE

CDS Muery F-1733
STATE OF TEXAS
BRIAN A. CROWELL
82619
REGISTERED
PROFESSIONAL ENGINEER
8-04/21/2020

CDS muery
ENGINEERS | SURVEYORS
100 NE Loop 410, Ste. 300 | San Antonio, Texas 78216
(210) 581-1111 | TBPE No. F-1733 | TBPLS No. 100495-00

PLAT NO. 19-11800164
JOB NO. 118008.04
DATE AUGUST 2020
DESIGNER LMR
CHECKED KE DRAWN LJR

STADIUM POINTE P.U.D.
UNIT 2 & 3
SAN ANTONIO, TEXAS
SANITARY SEWER TCEQ SEWER NOTES

SHEET C4.2

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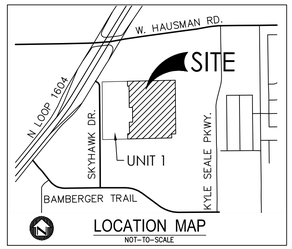
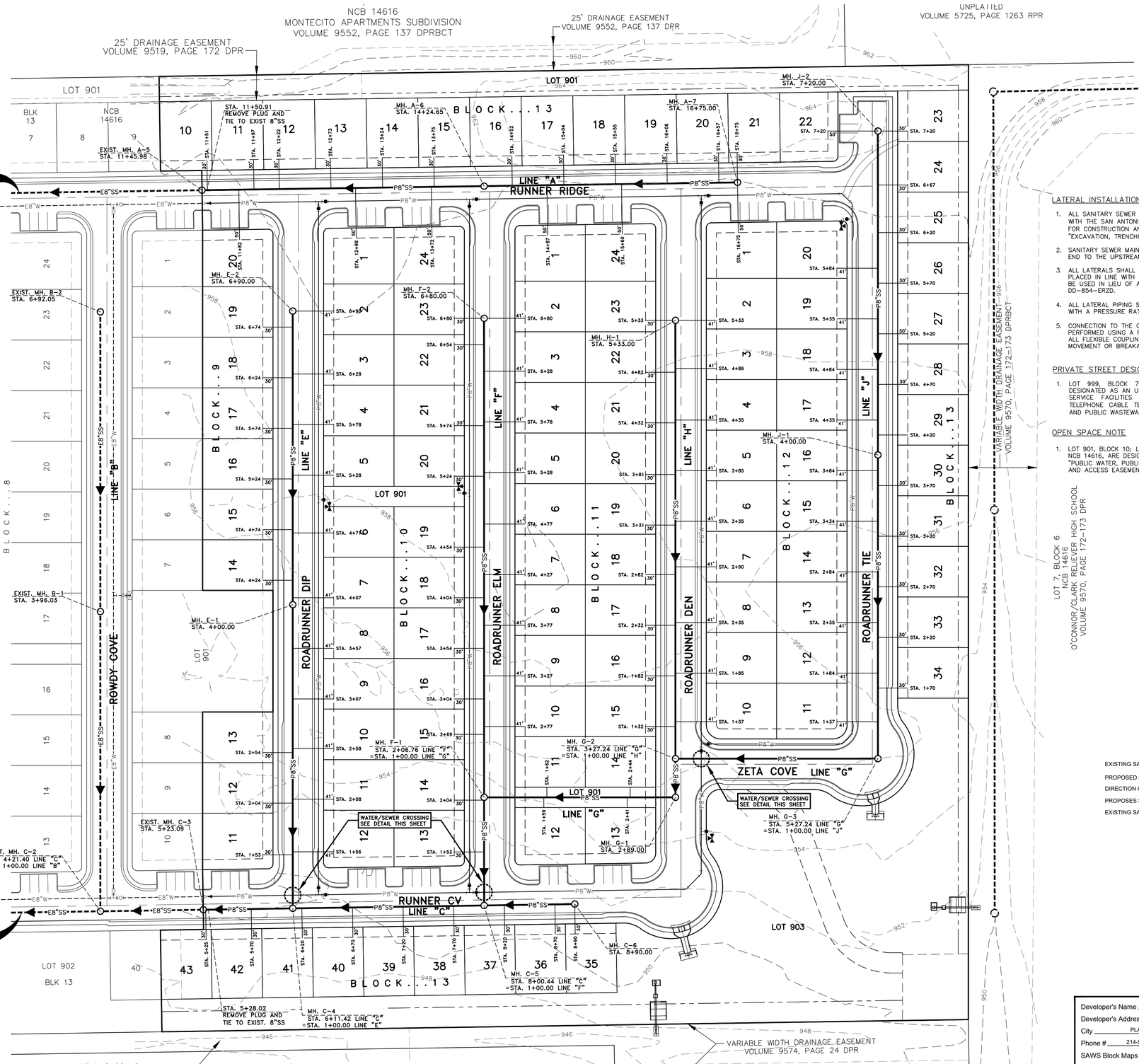
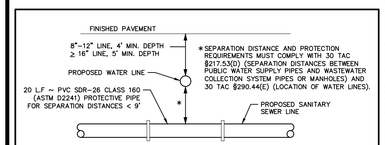


LOCATION MAP
NOT-TO-SCALE



EASEMENT KEYNOTES

1. 10' GAS, ELECTRIC, TELEPHONE AND CABLE TV EASEMENT
2. 20' LESSEE ACCESS
3. 20' PUD PERIMETER SETBACK
4. 10' PUD PERIMETER SETBACK
5. REMOVING FINAL PORTION OF 25' DRAINAGE ESMT (VOL 9519, PG 172, DPR)
6. 25' DRAINAGE EASEMENT (VOL 9552, PG 137, DPR)
7. VAR WID DRAINAGE EASEMENT (VOL 9570, PG 172-173, DPR)
8. 15' WATER QUALITY EASEMENT (VOL 12955, PG 2038-2048, OPR)
9. 0.097 AC LEASE EASEMENT (VOL 12955, PG 2038, OPR)
10. 16' WIDE UTILITY EASEMENT (VOL 12955, PG 2038, OPR)
11. VAR WID ACCESS & AERIAL CABLE EASEMENT (VOL. 13353, PG 2080, OPR)
12. VAR WID DRAINAGE EASEMENT (VOL 9574, PG 21, DPR)
13. 10' GAS, ELECTRIC, TELEPHONE AND CABLE TV EASEMENT (PLAT NO. 180390)
14. 20' PUD PERIMETER SETBACK (PLAT NO. 180390)



TYPICAL SANITARY SEWER/ WATER CROSSING DETAIL

N.T.S.

COMPACTION NOTE

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING THE COMPACTION REQUIREMENTS ON ALL TRENCH BACKFILL AND PAYING FOR THE TESTS PERFORMED BY A THIRD PARTY. COMPACTION TESTS WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED, OR AS INDICATED BY THE SAWS INSPECTOR AND/OR TEST ADMINISTRATOR, PER EACH 12-INCH LOOSE LIFT PER 400 LINEAR FEET AT A MINIMUM. THIS PROJECT WILL NOT BE ACCEPTED AND FINALIZED BY SAWS WITHOUT THIS REQUIREMENT BEING MET AND VERIFIED BY PROVIDING ALL NECESSARY DOCUMENTED TEST RESULTS.

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 SITES 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 THESE 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.

LATERAL INSTALLATION NOTES:

1. ALL SANITARY SEWER LATERALS SHALL BE INSTALLED IN ACCORDANCE WITH THE SAN ANTONIO WATER SYSTEM (SAWS) STANDARD SPECIFICATION FOR CONSTRUCTION AND ITEM NOS. 848; "SANITARY SEWERS" 804, "EXCAVATION, TRENCHING AND BACKFILL".
2. SANITARY SEWER MAINS SHALL BE INSTALLED FROM THE DOWNSTREAM END TO THE UPSTREAM END.
3. ALL LATERALS SHALL BE CONNECTED USING THE APPROPRIATE SIZE WYE PLACED IN LINE WITH THE MAIN LINE. A PRECAST TEE WITH BEND MAY BE USED IN LIEU OF A WYE CONNECTION. SEE SAWS STANDARD DETAIL DD-854-ERZD.
4. ALL LATERAL PIPING SHALL BE SDR-26 PVC PIPE (ASTM D2241-09), WITH A PRESSURE RATING OF 150 PSI.
5. CONNECTION TO THE CUSTOMER'S END OF THE LATERAL SHALL BE PERFORMED USING A FLEXIBLE COUPLING, OR PRE-APPROVED EQUAL. ALL FLEXIBLE COUPLINGS SHALL BE CONCRETE-ENCASED TO PREVENT MOVEMENT OR BREAKAGE OF THE STEEL BANDS.

PRIVATE STREET DESIGNATION NOTE

1. LOT 999, BLOCK 7, NCB 14616, IS A PRIVATE STREET AND IS DESIGNATED AS AN UNDERGROUND AND AT-GRADE INFRASTRUCTURE AND SERVICE FACILITIES EASEMENT FOR GAS, ELECTRIC, STREET LIGHT, TELEPHONE CABLE TELEVISION, DRAINAGE, PEDESTRIAN, "PUBLIC WATER AND PUBLIC WASTEWATER".

OPEN SPACE NOTE

1. LOT 901, BLOCK 10; LOT 901, BLOCK 11; AND LOTS 901, 903, BLOCK 13; NCB 14616, ARE DESIGNATED OPEN SPACE, COMMON AREA, DRAINAGE, "PUBLIC WATER, PUBLIC SEWER", ELECTRIC, GAS, TELEPHONE, CABLE TV AND ACCESS EASEMENTS.

LEGEND

- EXISTING SANITARY SEWER MAIN — E8"SS
- PROPOSED SANITARY SEWER MAIN — P8"SS
- DIRECTION OF FLOW
- PROPOSES SANITARY SEWER MANHOLE
- EXISTING SANITARY SEWER MANHOLE

N

0 50' 100'
SCALE IN FEET
1"=50'

Developer's Name	SKYHAWK VILLA DE SAN ANTONIO, LLC
Developer's Address	8117 SUTHERLAND LANE
City	PLANO
State	TEXAS
Zip	75025
Phone #	214-578-3414
Fax #	214-383-1766
SAWS Block Maps	110630
Total EDU's	112
Total Acreage	16.376
Total Linear Footage of Pipe	3,536 LF ~ 8" SEWER
Plat No.	LAND-PLAT-19-11800164
Number of Lots	112
SAWS Job No.	XX-XXXX

SAWS JOB NO. XX-XXXX

SUBMITTAL SET

NO.	REVISION	DATE

CDS Muery F-1733
STATE OF TEXAS
BRIAN A. CROWELL
82619
REGISTERED
PROFESSIONAL ENGINEER
8-04/27/2020

CDS muery
ENGINEERS | SURVEYORS
100 NE Loop 410, Ste. 300 | San Antonio, Texas 78216
(210) 581-1111 | TBPE No. F-1733 | TBPLS No. 100495-00

PLAT NO. 19-11800164

JOB NO. 118008.04
DATE AUGUST 2020
DESIGNER LMR
CHECKED KE DRAWN LJR

STADIUM POINTE P.U.D.
UNIT 2 & 3
SAN ANTONIO, TEXAS
SANITARY SEWER PLAN

SHEET C4.3

Date: Sep 18, 2020, 4:16pm User ID: jared.romrez
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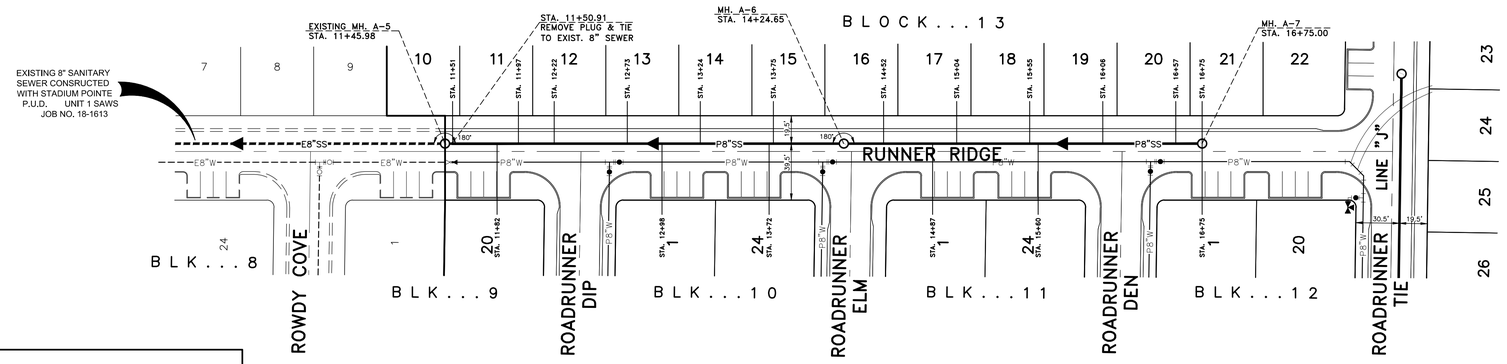

NOTES

1. LATERALS TO LOTS THAT SLOPE AWAY FROM STREET SHALL BE SLOPED FROM THE TEE OR STACK AT 2% TO THE PROPERTY LINE.
2. CONTRACTOR TO INSURE LATERALS AT PROPOSED DRY UITLITY CROSSINGS ARE LOCATED AT A DEPTH TO AVOID ANY CONFLICT WITH DRY UTILITY INSTALLATION.

PRIVATE STREET DESIGNATION NOTE

1. LOT 999, BLOCK 7, NCB 14616, IS A PRIVATE STREET AND IS DESIGNATED AS AN UNDERGROUND AND AT-GRADE INFRASTRUCTURE AND SERVICE FACILITIES EASEMENT FOR GAS, ELECTRIC, STREET LIGHT, TELEPHONE CABLE TELEVISION, DRAINAGE, PEDESTRIAN, "PUBLIC WATER AND PUBLIC WASTEWATER".

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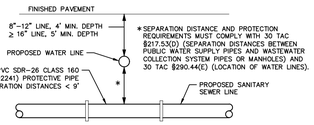
1. LOT 901, BLOCK 10; LOT 901, BLOCK 11; AND LOTS 901, 903, BLOCK 13; NCB 14616, ARE DESIGNATED OPEN SPACE, COMMON AREA, DRAINAGE, "PUBLIC WATER, PUBLIC SEWER", ELECTRIC, GAS, TELEPHONE, CABLE TV AND ACCESS EASEMENTS.

LEGEND

EXISTING SANITARY SEWER MAIN	E8"SS
PROPOSED SANITARY SEWER MAIN	P8"SS
DIRECTION OF FLOW	▶
PROPOSES SANITARY SEWER MANHOLE	○
EXISTING SANITARY SEWER MANHOLE	○



TYPICAL SANITARY SEWER/
WATER CROSSING DETAIL
N.T.S.

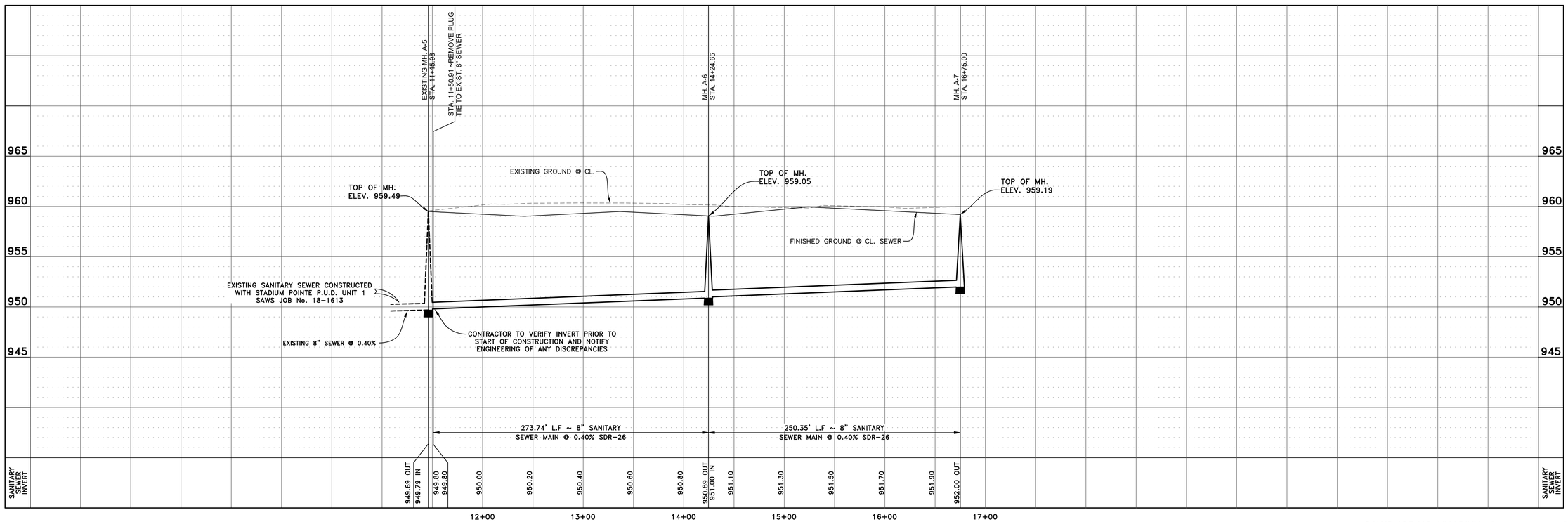
Developer's Name	SKYHAWK VILLA DE SAN ANTONIO, LLC
Developer's Address	8117 SUTHERLAND LANE
City	PLANO State TEXAS Zip 75025
Phone #	214-578-3414 Fax # 214-383-1766
SAWS Block Maps	110630 Total EDU's 112 Total Acreage 16.376
Total Linear Footage of Pipe	3,536 LF ~ 8" SEWER Plat No. LAND-PLAT-19-11800164
Number of Lots	112 SAWS Job No. XX-XXXX

N

SCALE: 1" = 50' HORIZ.
1" = 5' VERT.

LINE "A"

STA. 11+50.91 TO STA. 16+75.00



SAWS JOB NO. XX-XXXX SUBMITTAL SET

NO.	REVISION	DATE

CDS Muery F-1733
STATE OF TEXAS
BRIAN A. CROWELL
82619
REGISTERED
PROFESSIONAL ENGINEER
8-04/21/2020

CDS muery
ENGINEERS | SURVEYORS
100 NE Loop 410, Ste. 300 | San Antonio, Texas 78216
(210) 581-1111 | TBPE No. F-1733 | TBPLS No. 100495-00

PLAT NO. 19-11800164

JOB NO. 118008.04
DATE AUGUST 2020
DESIGNER LMR
CHECKED KE DRAWN LJR

STADIUM POINTE P.U.D.
UNIT 2 & 3
SAN ANTONIO, TEXAS
SANITARY SEWER LINE A

SHEET C4.4

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File: F:\2018\118008.04 Stadium Point, Phase 2\Civil 3D\Dwg\Engineer\118008_C4.4-Sewer_A_P&P.dwg

COMPACTION NOTE

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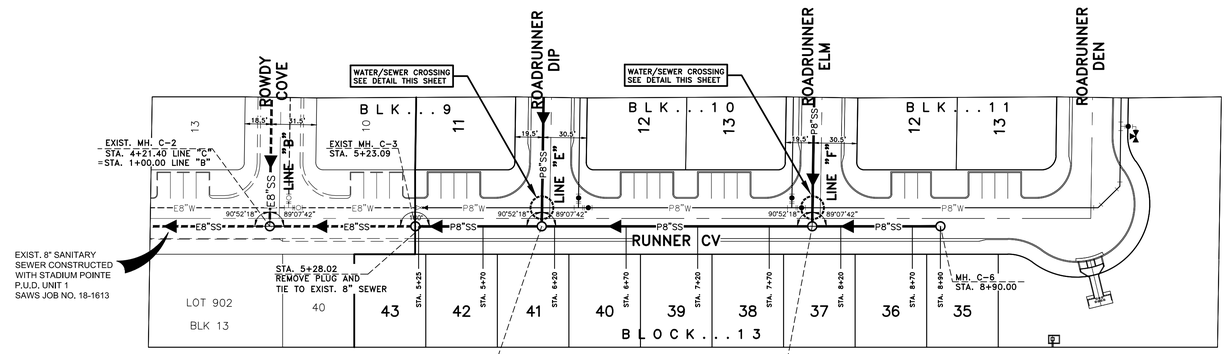
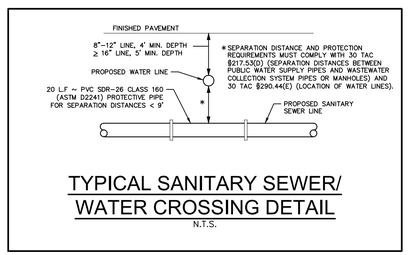




TYPICAL SANITARY SEWER/ WATER CROSSING DETAIL

N.T.S.

LEGEND

- EXISTING SANITARY SEWER MAIN — E8"SS
- PROPOSED SANITARY SEWER MAIN — P8"SS
- DIRECTION OF FLOW
- PROPOSES SANITARY SEWER MANHOLE
- EXISTING SANITARY SEWER MANHOLE

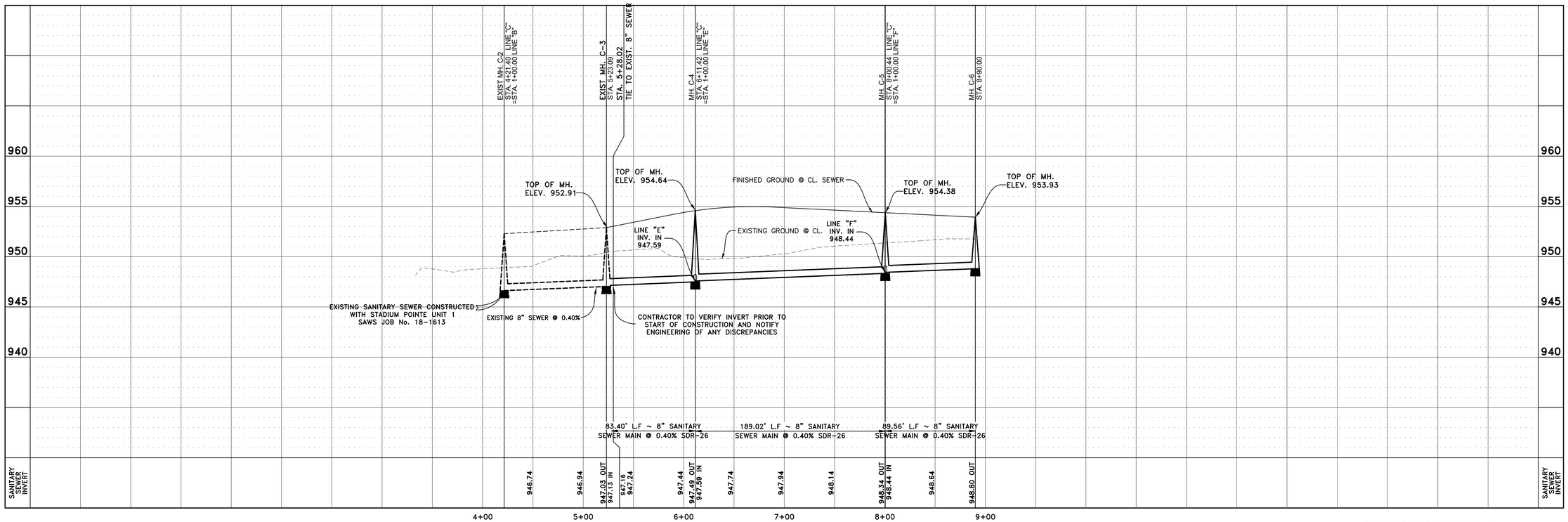
Developer's Name	SKYHAWK VILLA DE SAN ANTONIO, LLC
Developer's Address	8117 SUTHERLAND LANE
City	PLANO
State	TEXAS
Zip	75025
Phone #	214-578-3414
Fax #	214-383-1766
SAWS Block Maps	110630
Total EDU's	112
Total Acreage	16.376
Total Linear Footage of Pipe	3,536 LF ~ 8" SEWER
Plat No.	LAND-PLAT-19-11800164
Number of Lots	112
SAWS Job No.	XX-XXXX

N

SCALE: 1" = 50' HORIZ.
1" = 5' VERT.

LINE "C"

STA. 5+28.02 TO STA. 8+90.00



SAWS JOB NO. XX-XXXX SUBMITTAL SET

NO.	REVISION	DATE

CDS Muery F-1733
STATE OF TEXAS
BRIAN A. CROWELL
82619
REGISTERED PROFESSIONAL ENGINEER
09/21/2020

CDS muery
ENGINEERS | SURVEYORS
100 NE Loop 410, Ste. 300 | San Antonio, Texas 78216
(210) 581-1111 | TBPE No. F-1733 | TBPLS No. 100495-00

PLAT NO. 19-11800164

JOB NO. 118008.04
DATE AUGUST 2020
DESIGNER LMR
CHECKED KE DRAWN LJR

STADIUM POINTE P.U.D.
UNIT 2 & 3
SAN ANTONIO, TEXAS
SANITARY SEWER LINE C

SHEET C4.5

Date: Sep 18, 2020, 4:18pm User ID: jared.ramirez
File: F:\2018\118008.04 Stadium Point, Phase 2\Civil 3D\Dwg\Engineer\118008_C4.5-Sewer_C_P&P.dwg

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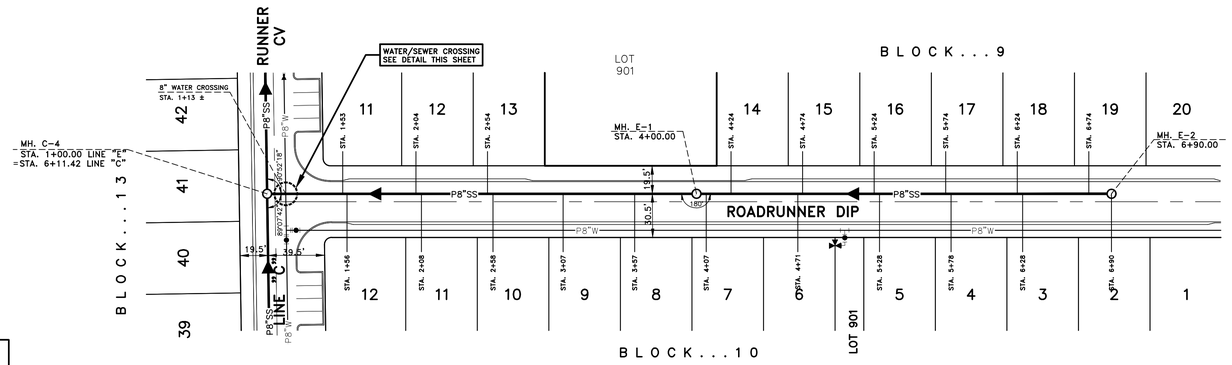
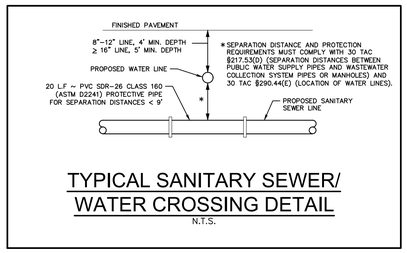




TYPICAL SANITARY SEWER/ WATER CROSSING DETAIL

N.T.S.

LEGEND

EXISTING SANITARY SEWER MAIN	E8"SS
PROPOSED SANITARY SEWER MAIN	P8"SS
DIRECTION OF FLOW	
PROPOSES SANITARY SEWER MANHOLE	
EXISTING SANITARY SEWER MANHOLE	

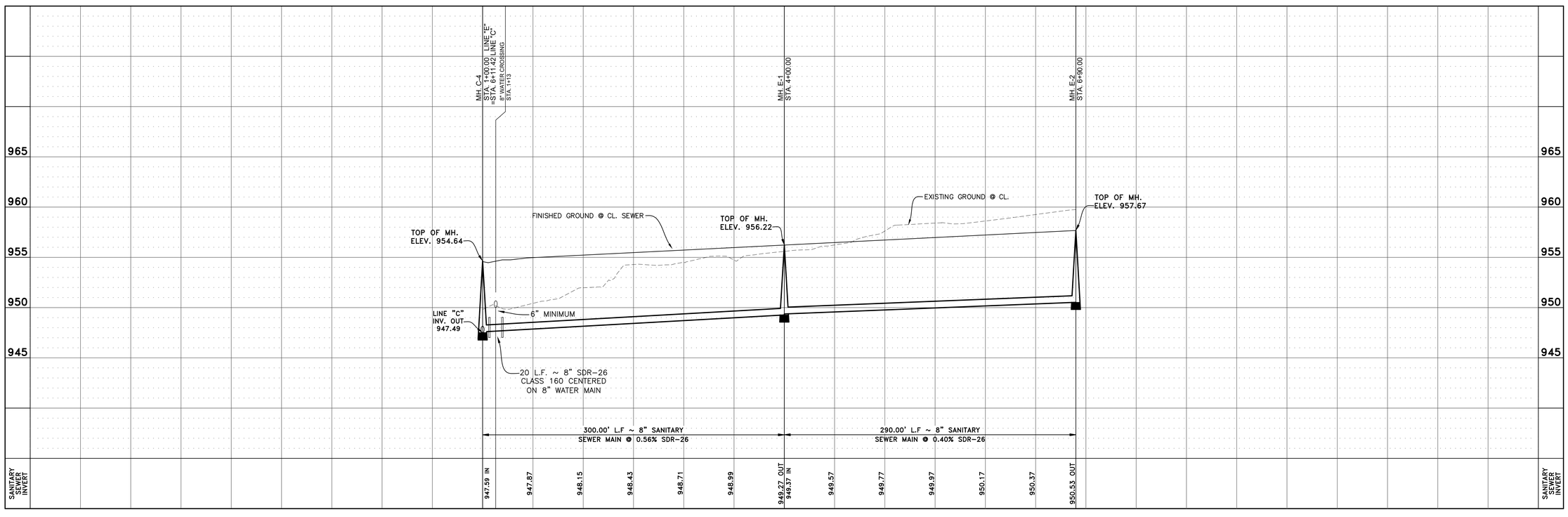
Developer's Name	SKYHAWK VILLA DE SAN ANTONIO, LLC
Developer's Address	8117 SUTHERLAND LANE
City	PLANO State TEXAS Zip 75025
Phone #	214-578-3414 Fax # 214-383-1766
SAWS Block Maps	110630 Total EDU's 112 Total Acreage 16.376
Total Linear Footage of Pipe	3,536 LF ~ 8" SEWER Plat No. LAND-PLAT-19-11800164
Number of Lots	112 SAWS Job No. XX-XXXX

N

SCALE: 1" = 50' HORIZ.
1" = 5' VERT.

LINE "E"

STA. 1+00.00 TO STA. 6+90.00



SAWS JOB NO. XX-XXXX SUBMITTAL SET

NO.	REVISION	DATE

CDS Muery F-1733
STATE OF TEXAS
BRIAN A. CROWELL
82619
REGISTERED
PROFESSIONAL ENGINEER
09/21/2020

CDS muery
ENGINEERS | SURVEYORS
100 NE Loop 410, Ste. 300 | San Antonio, Texas 78216
(210) 581-1111 | TBPE No. F-1733 | TBPLS No. 100495-00

PLAT NO. 19-11800164

JOB NO. 118008.04
DATE AUGUST 2020
DESIGNER LMR
CHECKED KE DRAWN LJR

STADIUM POINTE P.U.D.
UNIT 2 & 3
SAN ANTONIO, TEXAS
SANITARY SEWER LINE E

SHEET C4.6

Date: Sep 18, 2020, 4:18pm User ID: jared.ramirez
File: F:\2018\118008.04 Stadium Point, Phase 2\Civil 3D\Dwg\Engineer\118008_C4.6-Sewer_E_P&P.dwg

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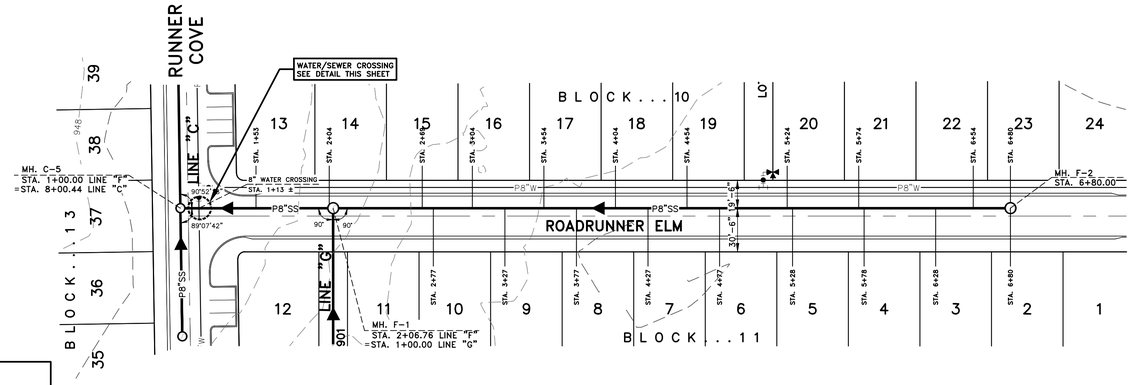

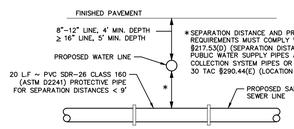

TYPICAL SANITARY SEWER/ WATER CROSSING DETAIL

N.T.S.

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LEGEND

EXISTING SANITARY SEWER MAIN	E8"SS
PROPOSED SANITARY SEWER MAIN	P8"SS
DIRECTION OF FLOW	▶
PROPOSES SANITARY SEWER MANHOLE	
EXISTING SANITARY SEWER MANHOLE	

Developer's Name SKYHAWK VILLA DE SAN ANTONIO, LLC
Developer's Address 8117 SUTHERLAND LANE
City PLANO State TEXAS Zip 75025
Phone # 214-578-3414 Fax # 214-383-1766
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Number of Lots 112 SAWS Job No. XX-XXXX

N

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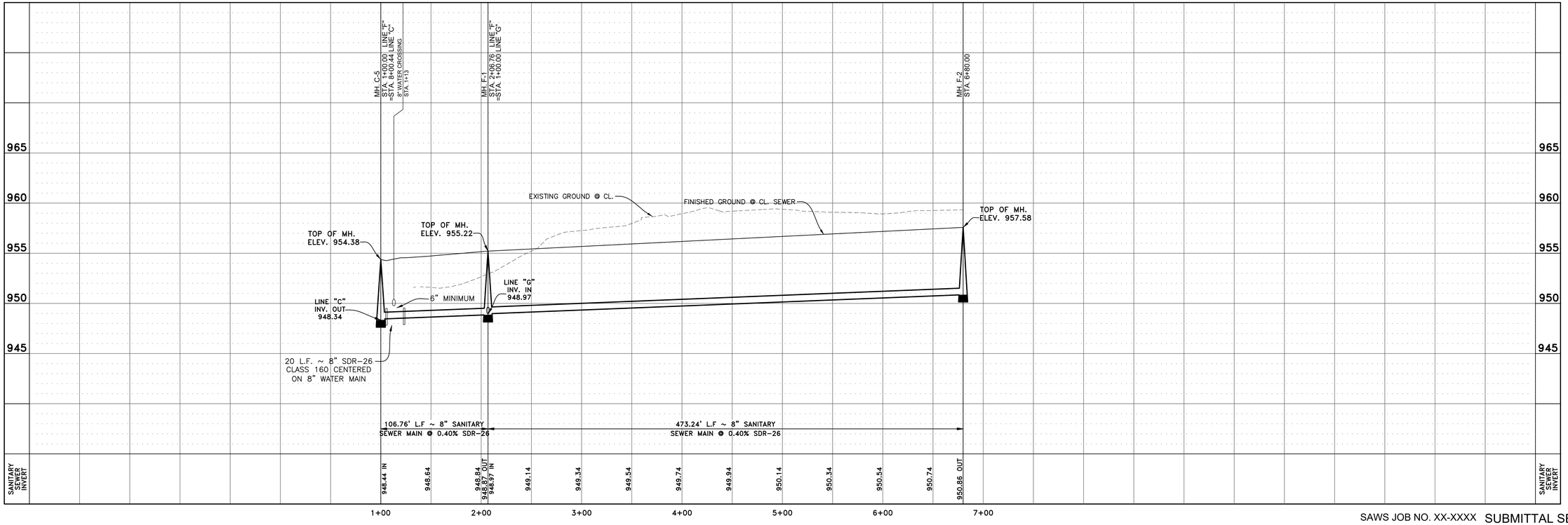
LINE "F"

STA. 1+00.00 TO STA. 6+80.00



SAWS JOB NO. XX-XXXX SUBMITTAL SET

NO.	REVISION	DATE

CDS Muery F-1733
STATE OF TEXAS
BRIAN A. CROWELL
82619
REGISTERED
PROFESSIONAL ENGINEER
8-24-2020

CDS muery
ENGINEERS | SURVEYORS
100 NE Loop 410, Ste. 300 | San Antonio, Texas 78216
(210) 581-1111 | TBPE No. F-1733 | TBPLS No. 100495-00

PLAT NO. 19-11800164

JOB NO. 118008.04
DATE AUGUST 2020
DESIGNER LMR
CHECKED KE DRAWN LJR

STADIUM POINTE P.U.D.
UNIT 2 & 3
SAN ANTONIO, TEXAS
SANITARY SEWER LINE F

SHEET C4.7

Date: Sep 18, 2020, 4:19pm User ID: jared.ramirez
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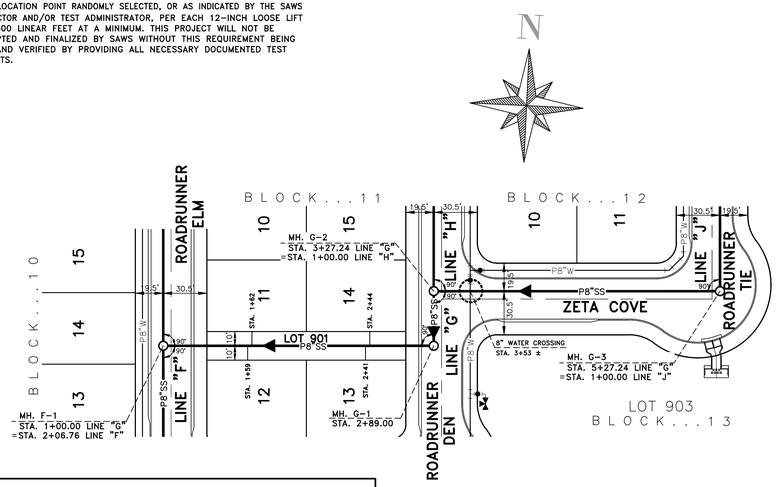

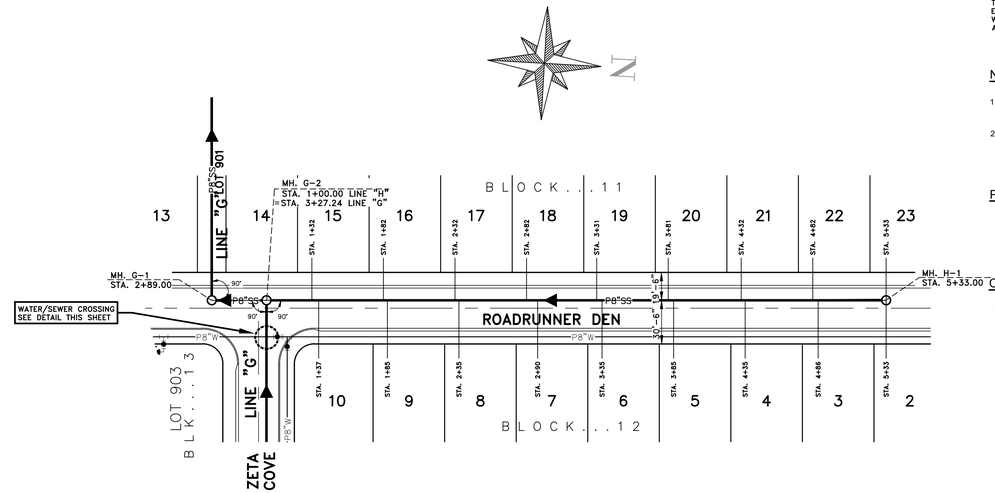

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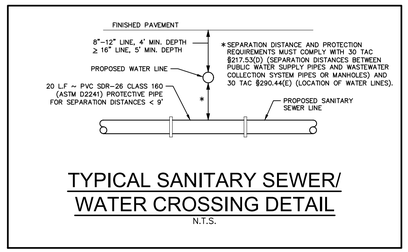

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N.T.S.

Developer's Name	SKYHAWK VILLA DE SAN ANTONIO, LLC
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City	PLANO
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LINE "G"

STA. 1+00.00 TO STA. 5+27.24

SCALE: 1" = 50' HORIZ.
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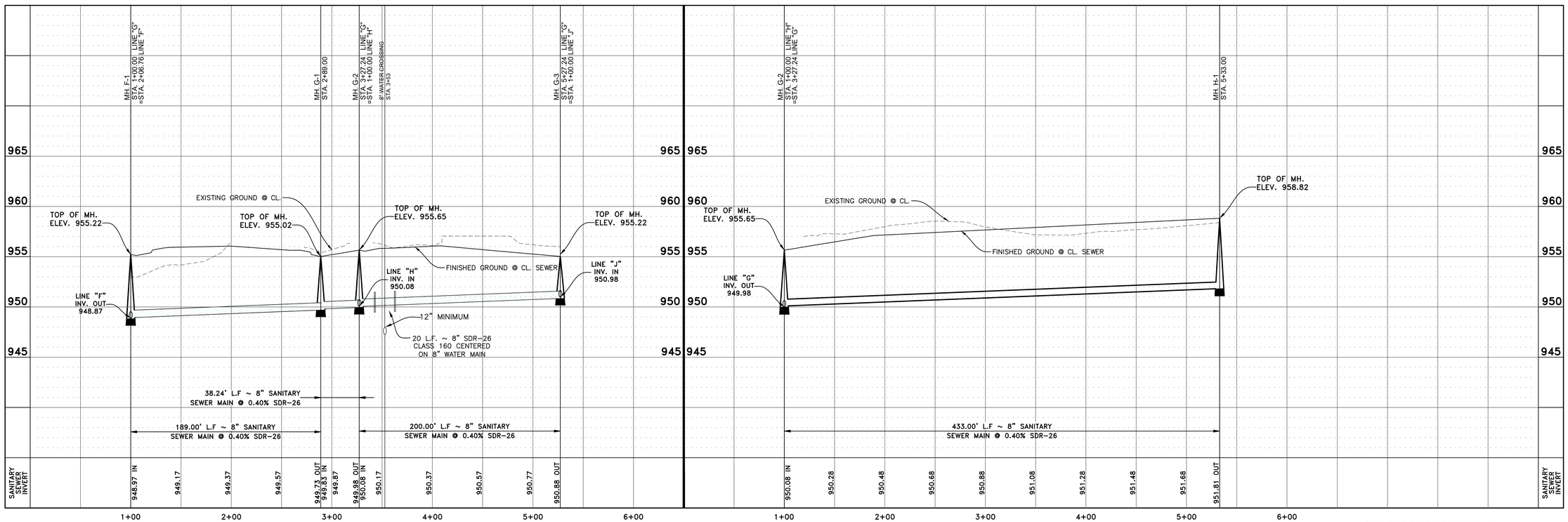
LINE "H"

STA. 1+00.00 TO STA. 5+33.00



SAWS JOB NO. XX-XXXX SUBMITTAL SET

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CDS Muery F-1733

STATE OF TEXAS — BRIAN A. CROWELL — 82619 — REGISTERED PROFESSIONAL ENGINEER — 8-24-2020

CDS muery ENGINEERS | SURVEYORS
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STADIUM POINTE P.U.D.
UNIT 2 & 3
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SANITARY SEWER LINE G & LINE H

SHEET C4.8

Date: Sep 18, 2020, 4:19pm User ID: jared.ramirez
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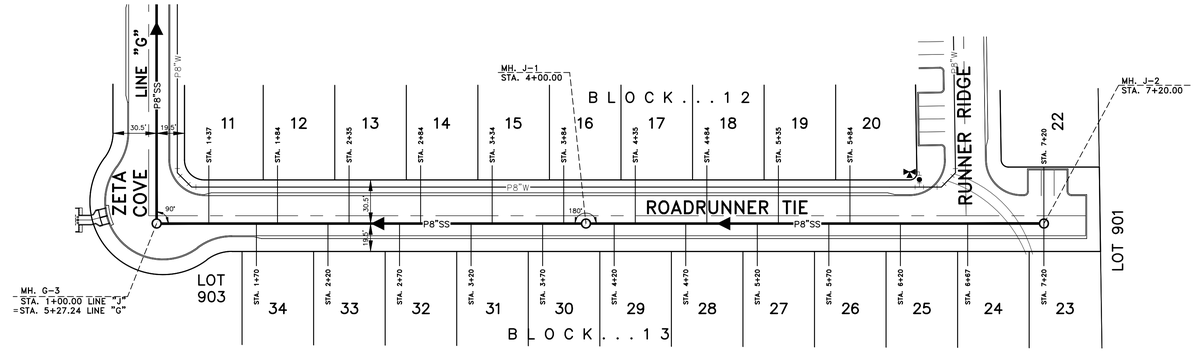

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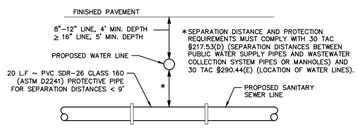
1. LOT 999, BLOCK 7, NCB 14616, IS A PRIVATE STREET AND IS DESIGNATED AS AN UNDERGROUND AND AT-GRADE INFRASTRUCTURE AND SERVICE FACILITIES EASEMENT FOR GAS, ELECTRIC, STREET LIGHT, TELEPHONE CABLE TELEVISION, DRAINAGE, PEDESTRIAN, "PUBLIC WATER AND PUBLIC WASTEWATER".

OPEN SPACE NOTE

1. LOT 901, BLOCK 10; LOT 901, BLOCK 11; AND LOTS 901, 903, BLOCK 13; NCB 14616, ARE DESIGNATED OPEN SPACE, COMMON AREA, DRAINAGE, "PUBLIC WATER, PUBLIC SEWER", ELECTRIC, GAS, TELEPHONE, CABLE TV AND ACCESS EASEMENTS.

LEGEND

EXISTING SANITARY SEWER MAIN	E8"SS
PROPOSED SANITARY SEWER MAIN	P8"SS
DIRECTION OF FLOW	▶
PROPOSES SANITARY SEWER MANHOLE	
EXISTING SANITARY SEWER MANHOLE	



*SEPARATION DISTANCE AND PROTECTION REQUIREMENTS MUST COMPLY WITH 30 TAC §217.53(D) (SEPARATION DISTANCES BETWEEN PUBLIC WATER SUPPLY PIPES AND WASTEWATER COLLECTION SYSTEM PIPES OR MANHOLES) AND 30 TAC §290.44(E) (LOCATION OF WATER LINES).

TYPICAL SANITARY SEWER/ WATER CROSSING DETAIL

N.T.S.

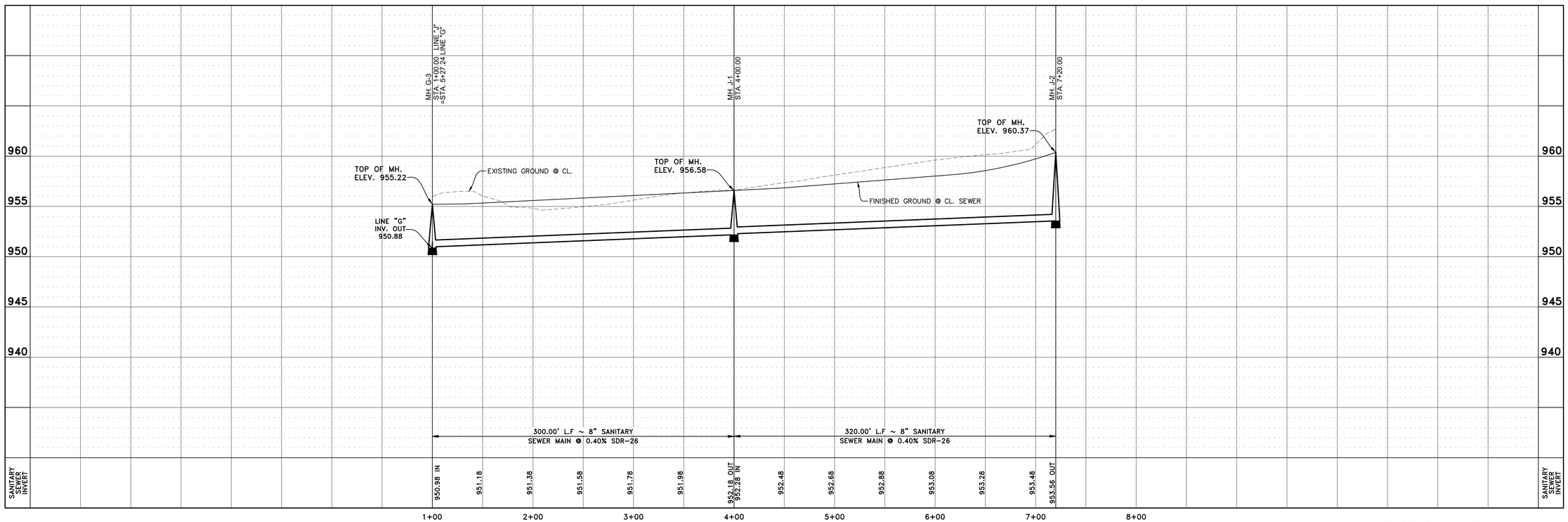
Developer's Name	SKYHAWK VILLA DE SAN ANTONIO, LLC
Developer's Address	8117 SUTHERLAND LANE
City	PLANO
State	TEXAS
Zip	75025
Phone #	214-578-3414
Fax #	214-383-1766
SAWS Block Maps	110630
Total EDU's	112
Total Acreage	16.376
Total Linear Footage of Pipe	3,536 LF ~ 8" SEWER
Plat No.	LAND-PLAT-19-11800164
Number of Lots	112
SAWS Job No.	XX-XXXX

N

SCALE: 1" = 50' HORIZ.
1" = 5' VERT.

LINE "J"

STA. 1+00.00 TO STA. 7+20.00



SAWS JOB NO. XX-XXXX SUBMITTAL SET

NO.	REVISION	DATE

CDS Muery F-1733
STATE OF TEXAS
BRIAN A. CROWELL
82619
REGISTERED
PROFESSIONAL ENGINEER
8-04/21/2020

CDS muery
ENGINEERS | SURVEYORS
100 NE Loop 410, Ste. 300 | San Antonio, Texas 78216
(210) 581-1111 | TBPE No. F-1733 | TBPLS No. 100495-00

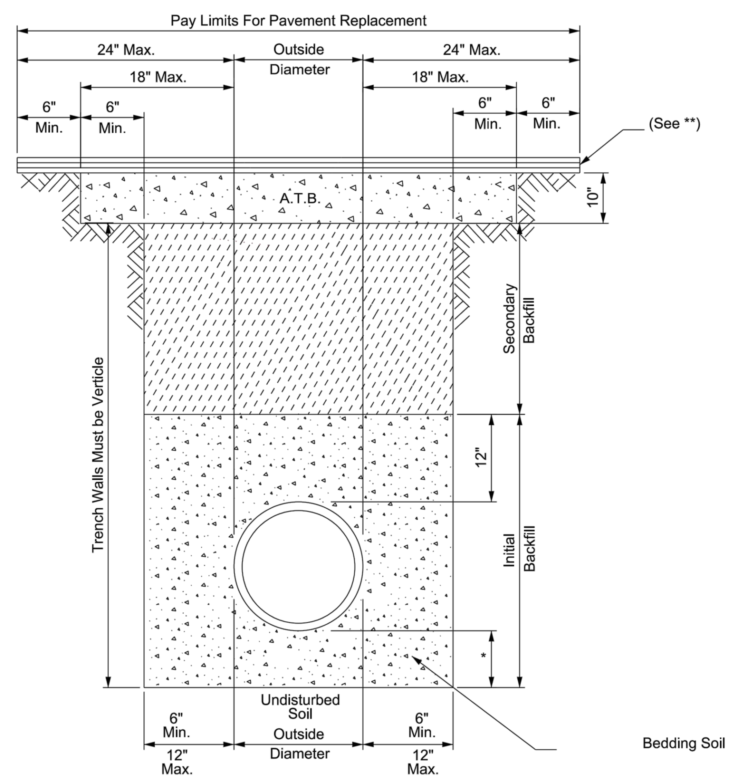
PLAT NO. 19-11800164

JOB NO. 118008.04
DATE AUGUST 2020
DESIGNER LMR
CHECKED KE DRAWN LJR

STADIUM POINTE P.U.D.
UNIT 2 & 3
SAN ANTONIO, TEXAS
SANITARY SEWER LINE J

SHEET C4.9

Date: Sep 18, 2020, 4:20pm User ID: jared.ramirez
File: F:\2018\118008.04 Stadium Point, Phase 2\Civil 3D\Dwg\Engineer\118008_C4.9-Sewer_J_P&P.dwg



The Existing Materialat the Bearing Level shall be Removed and Replaced to a Minimum Depth of 6-Inches or ⅙ of the Outside Diameter of the Pipe, whichever is Greater, with Bedding Material.

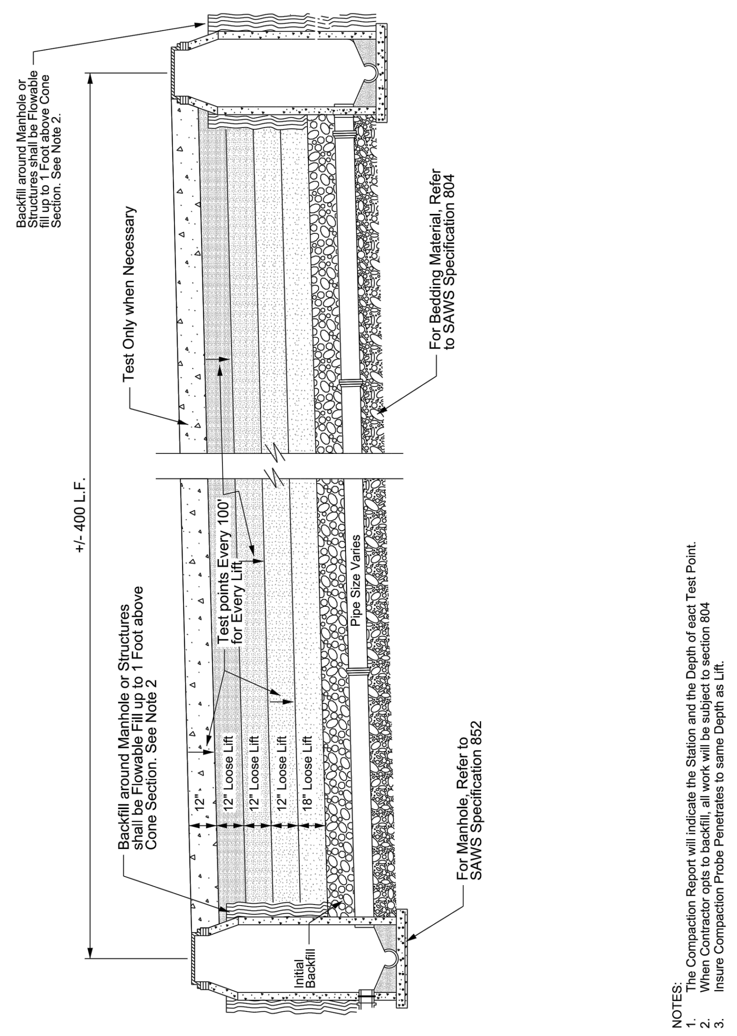
In Areas of over Excavation, Encasement shall extend from Trench Wall. Pay Limits shall not Exceed 12" Max. as shown on Detail. Additional Encasement shall be Incidental.

* Sewer Gravel 6" Min.or ⅙ O.D. of the Pipe, whichever is Greater.

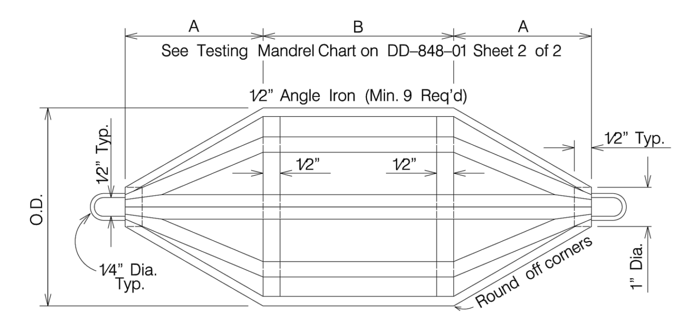
** Minimum 2" HMAC Type "D" for Trench Repair in Local / Residential Streets.

** Minimum 3" HMAC Type "C" for Trench Repair in Collector / Arterial Streets.

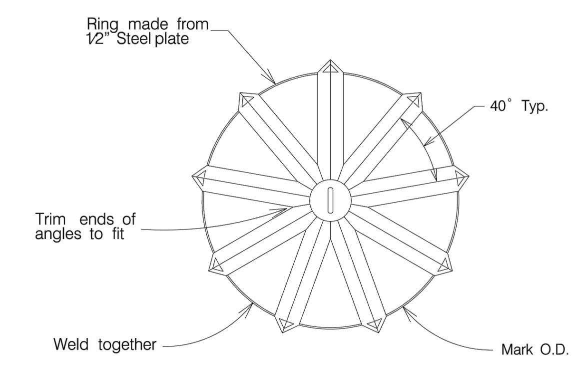
PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	SANITARY SEWER PIPE LAID IN TRENCH	APPROVED MARCH 2008	REVISED DEC 2018
		DD-804-01	SHEET 1 OF 1



PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	TRENCH COMPACTION DETAIL	APPROVED MARCH 2018	REVISED DEC 2018
		DD 804-02	SHEET 1 OF 1



SIDE OR TOP VIEW



END VIEW

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

			MANDREL O.D.	RING O.D.
SIZE	A	B*	PVC (SDR-26)	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

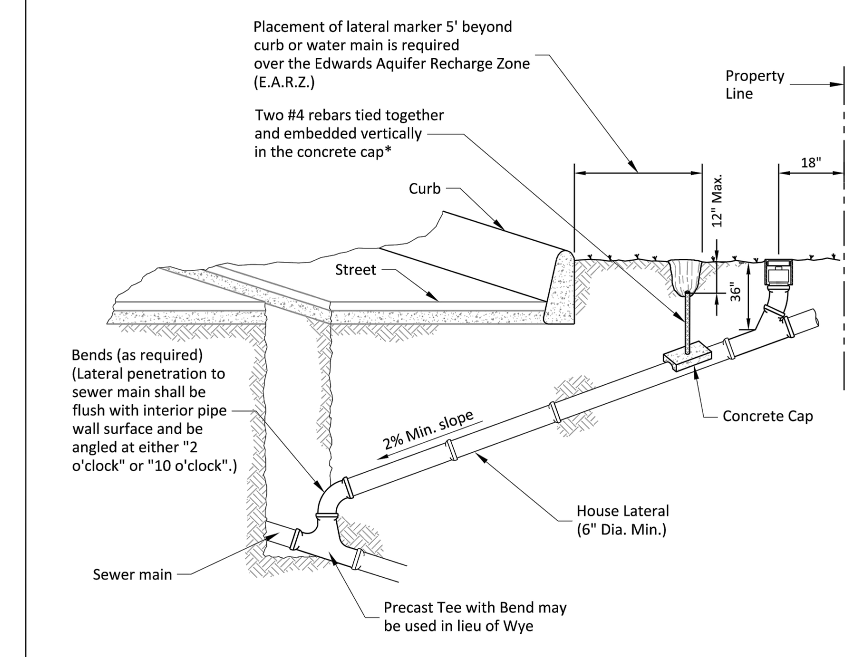
CHART

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

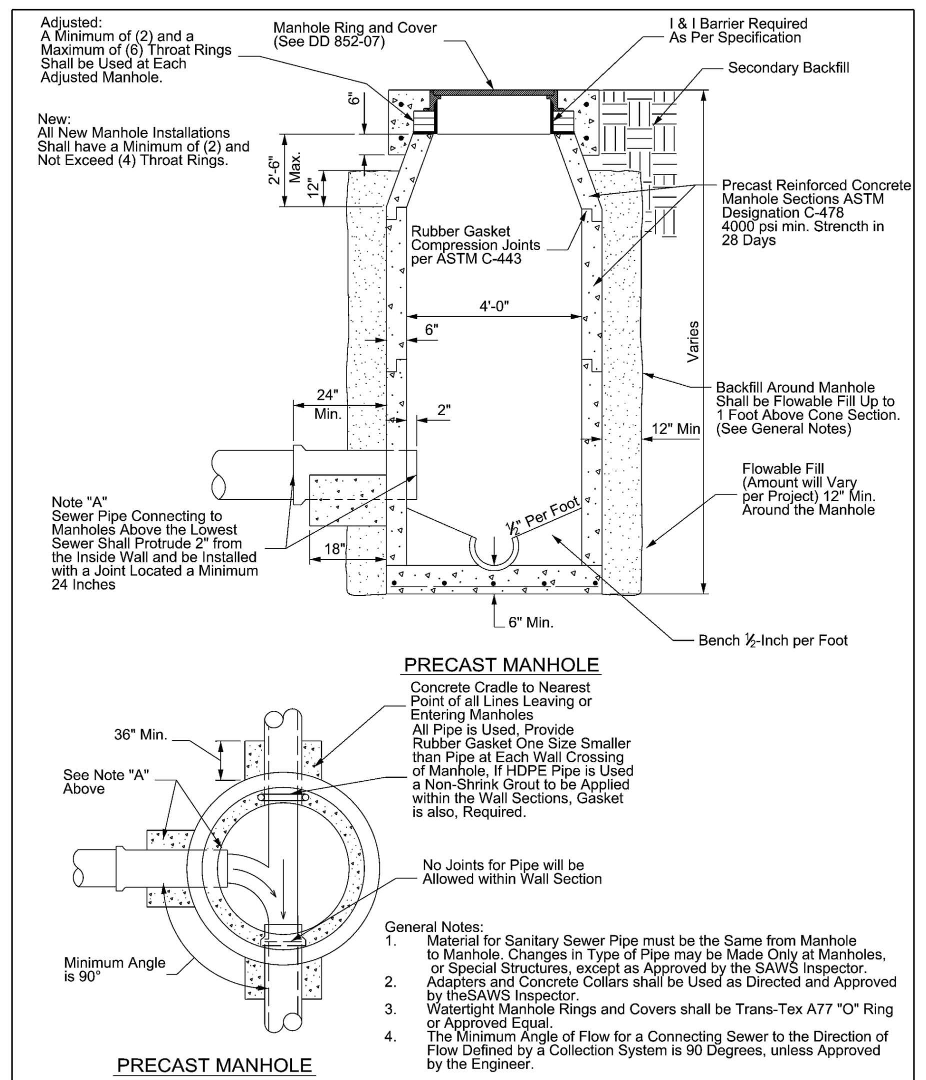
Depth and grade of service laterals as shown, are typical only. Actual depth, alignment and grade of service laterals shall be determined by the Engineer based on the elevations of the sewer main, street, natural ground and building to be serviced.



HOUSE LATERAL DETAIL

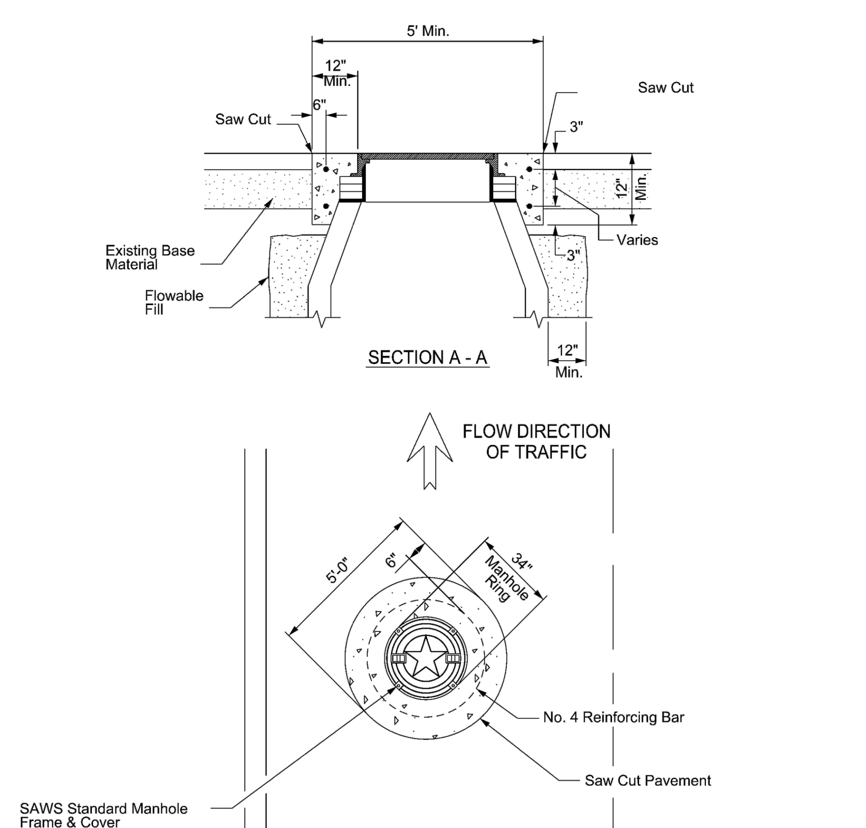
Note:
A minimum of 3' of cover to subgrade is necessary, otherwise concrete encasement will be required.

PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	HOUSE LATERAL DETAIL (IN THE E.A.R.Z.)	APPROVED March 2008	REVISED December 2018
		DD-854-EARZ	SHEET 1 OF 1



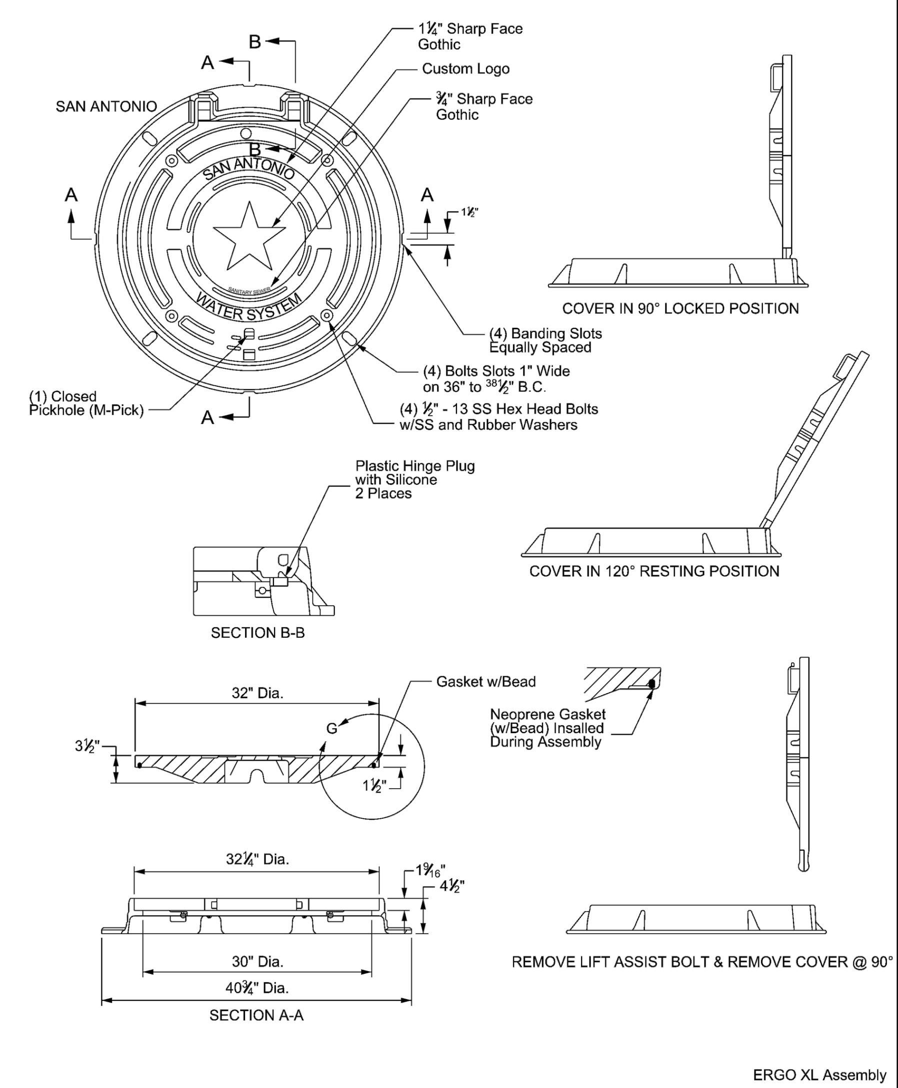
General Notes:
1. Material for Sanitary Sewer Pipe must be the Same from Manhole to Manhole. Changes in Type of Pipe may be Made Only at Manholes, or Special Structures, except as Approved by the SAWS Inspector.
2. Adapters and Concrete Collars shall be Used as Directed and Approved by theSAWS Inspector.
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

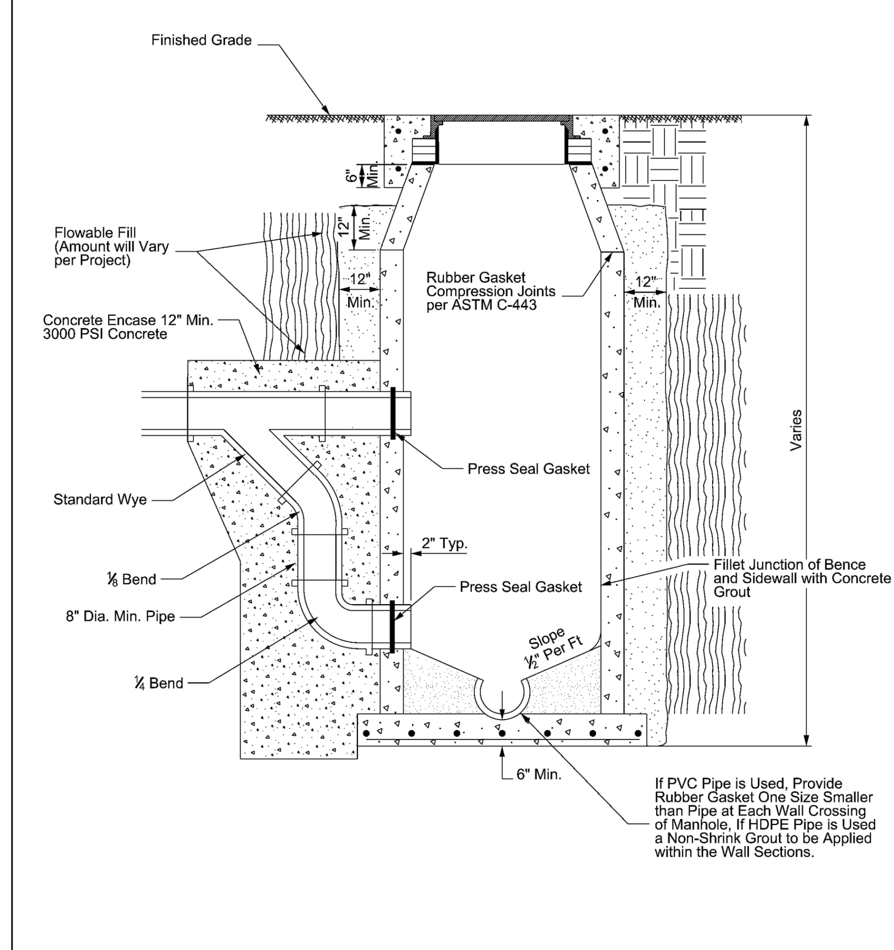


NOTE:
1. The Concrete Shall be 4000 PSI Minimum and Reinforced with No. 4 Bars as Shown.
2. The Concrete Shall Extend to Edge of Saw Cut Pavement.
3. Manhole Ring Encasement is Required on all Manholes.
4. Manhole Lid shall Open in the Direction of Traffic or Downstream in Parkway

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

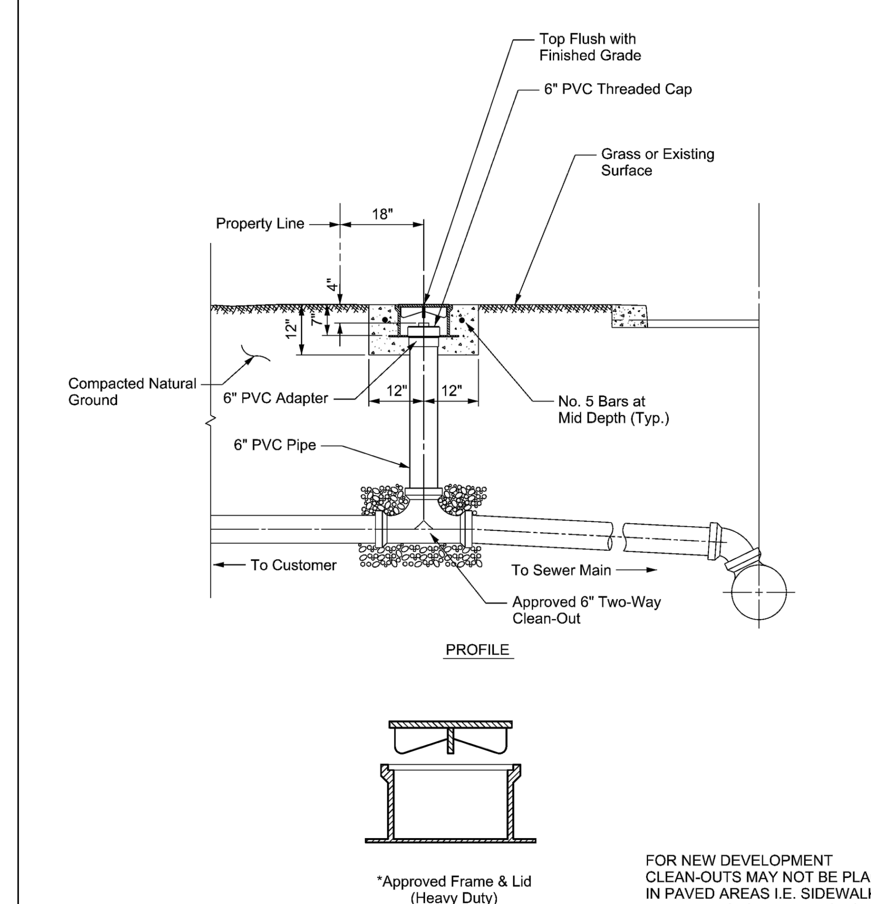


PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	MANHOLE RING AND COVER DETAIL	APPROVED MARCH 2008	REVISED AUG 2019
		DD 852-07	SHEET 3 OF 5



NOTE: Price for Drop Fittings and Encasement to be Included with the Price of Manhole.

PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	DROP MANHOLE DETAIL	APPROVED MARCH 2008	REVISED AUG 2019
		DD-852-08	SHEET 1 OF 1



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

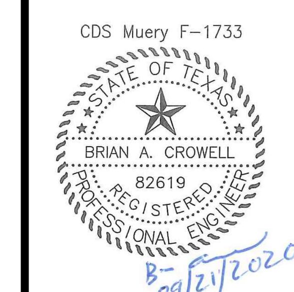
Developer's Name	SKYHAWK VILLA DE SAN ANTONIO, LLC
Developer's Address	8117 SUTHERLAND LANE
City	PLANO
State	TEXAS
Zip	75025
Phone #	214-578-3414
Fax #	214-383-1766
SAWS Block Maps	110630
Total EDU's	112
Total Acreage	16.376
Total Linear Footage of Pipe	3,536 LF ~ 8" SEWER
Plat No.	LAND-PLAT-19-11800164
Number of Lots	112
SAWS Job No.	XX-XXXX

SAWS JOB NO. XX-XXXX

SUBMITTAL SET

NO.	REVISION	DATE

CDS Muery F–1733



CDS muery
ENGINEERS | SURVEYORS
100 NE Loop 410, Ste. 300 | San Antonio, Texas 78216
(210) 581-1111 | TBPE No. F-1733 | TBPLS No. 100495-00

PLAT NO. 19-11800164

JOB NO. 118008.04
DATE AUGUST 2020
DESIGNER LMR
CHECKED KE DRAWN LJR

STADIUM POINTE P.U.D.
UNIT 2 & 3
SAN ANTONIO, TEXAS
SANITARY SEWER DETAILS

SHEET C4.10

Date: Sep 18, 2020, 4:16pm User ID: jared.ramirez
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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: Brian Crowell, PE, LEED AP (Agent)

Date: 09/21/2020

Signature of Customer/Agent:

_____

Regulated Entity Name: Stadium Pointe PUD, Unit 2&3

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: N/A

   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: French Creek (within Leon Creek watershed)

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.

Supplemental Attachments for

TCEQ F-0602 Temporary Stormwater Section

Stadium Pointe PUD, Unit 2&3

Table of Attachments:

Attachment A:	Spill Response Actions
Attachment B:	Potential Sources of Contamination
Attachment C:	Sequence of Major Activities
Attachment D:	Temporary Best Management Practices and Measures
Attachment E:	Request to Temporarily Seal a Feature (Not Applicable)
Attachment F:	Structural Practices
Attachment G:	Drainage Area Map
Attachment H:	Temporary Sediment Pond Plan and Calculations
Attachment I:	Inspection and Maintenance for BMPs
Attachment J:	Schedule of Interim and Permanent Soil Stabilization Practices

ATTACHMENT A | Spill Response Actions

Responsible Party

During construction, the responsible party for cleaning up spill can be any combination of the following individuals:

1. The owner or operator, including contractor (while during construction) of a facility from which a spill occurs.
2. The owner, operator, including contractor, operating a vehicle from which the spill occurs.
3. Other individual who caused or allowed the spill or discharge to occur.

Spill Classification

There are two main categories of spills that can be identified: Major Spills and Minor Spills. Spill response actions and notifications to municipal entities may differ depending on the type and degree of spill.

Major Spills can be classified as any spills where:

1. Material is considered a health or physical hazard based on its chemical or physical make up, or if the quantity of the spill exceeds the Reportable Quantity (RQ) as defined under Title 30 of the Texas Administrative Code (TAC) Chapter 327.4.
2. The spilled material has entered into the storm water drainage system, catchment basin, or adjoining creek or if it appears that discharge into the storm system will occur in the immediate future.
3. The spilled material has the ability to travel offsite.
4. The spilled material adversely affects the environment.
5. The spilled material cannot be controlled or contained by the responsible party.
6. The chemical or physical properties of the spilled material cannot be identified or is unknown.

Minor Spills are spills that do not meet the above criteria for major spills.

Notification and Reporting Agencies

The following entities shall be contact during discovery of a spill:

1. State of Texas 24-Hour Spill-Reporting Hotline and the State Emergency Response Commission at **1-800-832-8224**
2. Texas Commission on Environmental Quality (San Antonio Regional Office), Monday-Friday, 8:00 a.m.–5:00 p.m. at 14250 Judson Rd**,** San Antonio TX 78233-4480**,** Main Line: **210-490-3096**

Reporting Items for Major Spills

When reporting a spill, the following information may be required to help identify, log, and track the spill:

1. The date/time of the spill.
2. The identity/name of material released or spilled, and if the substance is considered hazardous.
3. The source of the release or spill.
4. The quantity of material released or spilled.
5. The time or duration of which the spill occurred.
6. The location/address of the spill.
7. The name of creek or waters involved or threatened and the extent of potential water pollution.
8. The contact information of the responsible party.
9. The steps being taken or proposed to contain and clean up the released or spilled material and any additional precautions.
10. Any injuries resulting from the spill, any known or anticipated health risks associated with the spill, or if additional medical precautions are required.
11. The identities of any municipal or private-sector representatives responding at the scene of the spill.

12. Possible hazards to the environment (air, soil, water, wildlife, etc.). This assessment may include references to accepted chemical databases, material safety data sheets, and health advisories. The TCEQ may request estimated or measured concentrations of the contaminant for the state's hazard assessment.

Reporting Items for Minor Spills

For minor spills that occur, the notification sequence described above is not required and can be treated directly onsite by the responsible parties involved by:

1. The first observer of the spill shall notify his/her supervisor and the onsite safety officer.
2. The supervisor must notify the owner, tenant, or their primary contact.
3. The immediate spill response plan/clean up actions shall be conveyed, documented and the owner/tenant shall be notified once cleanup is completed.

Equipment Needed for Minor Spills

Equipment and materials used to contain and/or restrict spreading of a spill can consist of spill pans and various forms of absorbent materials; which include granular material, socks, rock and gravel berms, pillows or pads, and sheets. Spill pans or pads can be placed under a continuing drip-type leak. Surrounding a minor spill with berms or socks can contain a small spill area until proper removal procedures can occur.

ATTACHMENT B | Potential Sources of Contamination

Potential sources of contamination for this project include:

- Drippings from vehicles, both construction and non-construction related.
- Grading and excavation activities: Stormwater runoff has the potential to be contaminated during the construction process with related excavation and site grading.
- Building materials: Materials include, but not limited to, concrete, wood, mortar, and paint among other materials.
- Trash and debris: These may include household trash items such as paper bags, cups, plastic ware, and food items.

ATTACHMENT C | Sequence of Major Activities

The following is the general sequence of major activities for this project:

1. Install temporary erosion control measures. (±1.5 Acres – Various Locations)
2. Demolition of existing sidewalks, driveways, parking areas, building foundations. (± 1.6 Acres)
3. Site grading and excavation. (± 16.5 Acres)
4. Trenching and utility work for on-site water and sewer mains. (±1.5 Acres)
5. Base material for roadways and sidewalks will be placed. (±3.8 Acres)
6. Construction of batch detention facilities and cell tower access drive (±1.8 Acres)
7. Asphalt and concrete flatwork, including parking facilities as well as curbing will be installed. (± 3.8 Acres)

For each of the items above, the necessary Temporary BMPs (TBMPs) and erosion control measures will be in-place prior to major construction activities such as grading, utility installation, and roadway construction. Following construction activities, soil stabilization controls will be implemented and temporary measures will be removed as needed on an individual basis.

Total disturbed area due to proposed construction will be approximately 16.46 acres. Duplexes will be constructed more or less after the permanent BMPs are established, which will bring the total impervious area to 9.39 acres.

ATTACHMENT D | Temporary Best Management Practices and Measures

a. Storm Water Up-gradient of the Project Site
No up-gradient offsite areas discharge stormwater to Stadium Pointe Unit 2 & 3 (Site Area). Stormwater runoff from up-gradient areas is intercepted and diverted around the Project Site by existing channels.

b. Storm Water Originating On-Site
No areas of the Project Site directly discharge into surface streams, sensitive features or the aquifer. All runoff from disturbed areas will have been treated by either temporary or permanent BMPs before ultimately discharging into French Creek (a tributary within the Leon Creek Watershed).

c. Prevention of Pollutants from Entering Surface Streams, Sensitive Features, and Aquifer
Temporary and permanent BMPs will be installed with respect to the Site Area drainage patterns. All runoff from disturbed areas will have been treated by either temporary or permanent BMPs before ultimately discharging into French Creek (a tributary within the Leon Creek Watershed).

d. Maintaining Flow During Construction
Temporary and permanent BMPs will be installed with respect to the Site Area drainage patterns. Temporary BMPs will be installed to control silt and sediment from leaving the Limits of Construction during permanent BMP installation.

ATTACHMENT E | Request to Temporarily Seal a Feature

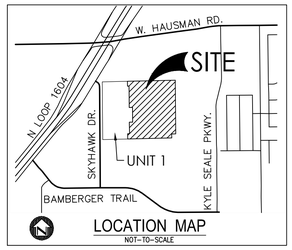
This section does not apply for this project. There will not be temporary sealing of naturally-occurring sensitive features on the site.

ATTACHMENT F | Structural Practices

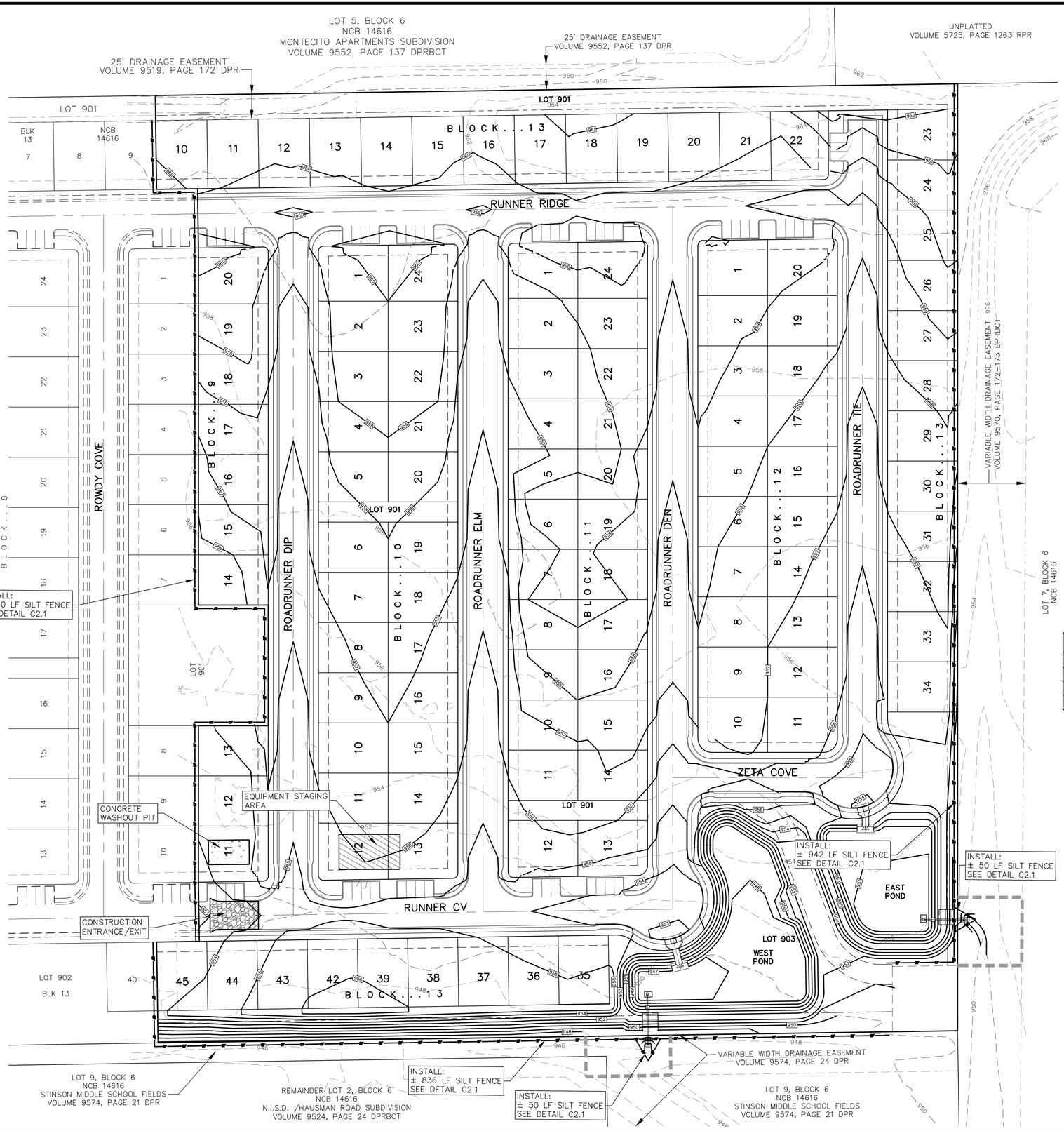
Temporary structural practices include:

- Silt Fencing: To be placed along the down gradient boundary of the limits of construction activities.
- Gravel Filter Bags: Shall be used at the entrance to curb openings, around inlets, etc. to minimize siltation of the storm drain system and/or batch detention basins.
- Rock Berms: To serve as a secondary barrier to silt fencing and is to be placed in areas of concentrated flows, where indicated on construction plans, such as proposed channels and drainage swales.
- Construction Entrance/Exit: Will be placed to limit migration of sediment from the jobsite as construction traffic enters and exits the construction site.
- Concrete Washout-Pits: To contain and control affected runoff from cement delivery trucks.

Please note that this site is not located within a studied floodplain and is not exposed to potential flooding that may occur during heavy rainfall periods. Therefore, site inundation is not expected to adversely impact proposed TBMP structures.



LOCATION MAP
NOT-TO-SCALE



LEGEND

EXISTING CONTOURS	885
FLOW ARROW	
SWALE	
LIMITS OF CONSTRUCTION	
APPROXIMATE 100YR WATER SURFACE	
STABILIZED CONSTRUCTION ENTRANCE/EXIT	
SILT FENCE AND/OR APPROPRIATE SUBSTITUTE	SF SF
*CONCRETE WASH OUT PIT	
*EQUIPMENT STAGING AREA	
BAGGED GRAVEL INLET FILTER AND/OR APPROPRIATE SUBSTITUTE	

* NOTE: ACTUAL LAYOUT DETERMINED IN FIELD, SHOULD BE PLACED IN THE PROXIMITY OF THE CONSTRUCTION ENTRANCE/EXIT AND NOT LOCATED NEAR A WELL, FLOODPLAIN, OR OTHER POTENTIAL SOURCES OF CONTAMINATION.

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 SITES 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 THESE 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.

CAUTION:

THE LOCATION OF EXISTING UTILITIES ARE APPROXIMATE. CONTRACTOR SHALL VERIFY THE EXACT LOCATION PRIOR TO COMMENCING WORK AND IS RESPONSIBLE FOR ANY/ALL DAMAGES RESULTING FROM THE FAILURE TO LOCATE AND PRESERVE UTILITIES.

GENERAL NOTES:

1. CONSTRUCTION ENTRANCE/EXIT LOCATION, CONCRETE WASHOUT PIT AND CONSTRUCTION EQUIPMENT AND STORAGE AREA ARE TO BE DETERMINED IN THE FIELD. THEY ARE SHOWN ON THIS PLAN FOR ILLUSTRATION PURPOSES ONLY.
2. IF NECESSARY, CONTRACTOR MAY MODIFY STORMWATER CONTROLS TO ACHIEVE THE DESIRED INTENT. ANY CHANGES ARE TO BE NOTED, SIGNED AND DATED BY THE RESPONSIBLE PARTY IN THE TPDES BOOK.
3. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL STORMWATER CONTROLS.
4. REFER TO TPDES BOOK FOR THIS PROJECT FOR MORE INFORMATION/DETAILS.
5. CONTRACTOR SHALL IMMEDIATELY NOTIFY ENGINEER OF ANY QUESTIONS REGARDING THE INTENT OF THIS PLAN.
6. CONTRACTOR IS REQUIRED TO FILE NOI'S (NOTICE OF INTENT) AND NOT'S (NOTICE OF TERMINATION) FOR THIS PROJECT. REFER TO TPDES FOR PROPER POSTING REQUIREMENTS AND DOCUMENTS.
7. A COPY OF THIS PLAN AND THE TPDES BOOK MUST REMAIN AT THE CONSTRUCTION SITE AT ALL TIMES.
8. BARE SOILS SHOULD BE HYDRO MULCHED WITHIN 14 CALENDAR DAYS AFTER FINAL GRADING OR WHERE CONSTRUCTION ACTIVITY HAS TEMPORARILY CEASED FOR MORE THAN 21 DAYS.
9. ALL DISTURBED OR EXPOSED AREAS SUBJECT TO EROSION SHALL BE STABILIZED WITH MULCH FOR TEMPORARY VEGETATIVE COVER. NO AREA SUBJECT TO EROSION SHALL BE LEFT DISTURBED AND UNSUITABLE FOR PERIODS LONGER THAN IS ABSOLUTELY NECESSARY TO CARRY OUT THAT PORTION OF THE CONSTRUCTION WORK, OR 1 WEEK AFTER SOIL HAS BEEN DISTURBED, WHICHEVER IS LESS.
10. CONTRACTOR TO PROVIDE A COPY OF THE SIGNED AND CERTIFIED CONSTRUCTION SITE NOTICE TO THE OPERATOR OF THE MUNICIPAL SEPARATE STORM SEWER SYSTEM RECEIVING THE DISCHARGE AT LEAST TWO DAYS PRIOR TO COMMENCING OF CONSTRUCTION ACTIVITY.

CIVIL SHEET INDEX

SHT. NO	SHEET TITLE
C2.0	STORMWATER POLLUTION PREVENTION PLAN
C2.1	STORMWATER POLLUTION PREVENTION PLAN DETAILS
C2.2	GRADING PLAN

N

0 50' 100'
SCALE IN FEET
1"=50'

OWNER'S CERTIFICATION

I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY SUPERVISION IN ACCORDANCE WITH SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION 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 (OWNER) DATE

CONTRACTOR'S CERTIFICATION

I CERTIFY UNDER PENALTY OF LAW THAT I UNDERSTAND THE TERMS AND CONDITIONS OF THE GENERAL NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) 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

SUBMITTAL SET

NO.	REVISION	DATE

CDS Muery F-1733

STATE OF TEXAS
BRIAN A. CROWELL
82619
REGISTERED PROFESSIONAL ENGINEER
09/21/2020

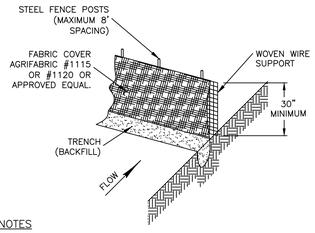
CDS muery
ENGINEERS | SURVEYORS
100 NE Loop 410, Ste. 300 | San Antonio, Texas 78216
(210) 581-1111 | TBPE No. F-1733 | TBPLS No. 100495-00

PLAT NO. 19-11800164
JOB NO. 118008.04
DATE -
DESIGNER -
CHECKED - DRAWN -

STADIUM POINTE P.U.D. UNIT 2 & 3
SAN ANTONIO, TEXAS
STORMWATER POLLUTION PREVENTION PLAN

SHEET C2.0

Date: Sep 21, 2020, 4:29pm User ID: jon.gross
File: F:\2018\118008.04 Stadium Point, Phase 2\Civil 3D\Dwg\Engineer\118008_C2.0-SWXP-Grading-Plan.dwg

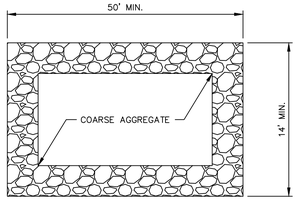


GENERAL NOTES

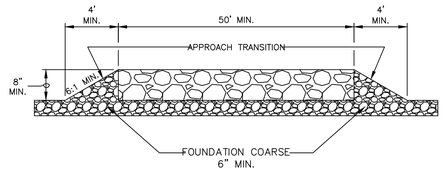
1. STEEL POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE.
2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW.
3. THE TRENCH SHOULD BE A MINIMUM OF 6 INCHES DEEP AND 4–8 INCHES WIDE TO ALLOW FOR THE SILT FENCE TO BE LAID IN THE GROUND AND BACKFILLED.
4. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE STEEL FENCE POSTS.
5. INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
6. SEDIMENT TRAPPED BY THIS PRACTICE SHALL BE DISPOSED OF IN AN APPROVED SITE IN A MANNER THAT WILL NOT CONTRIBUTE TO ADDITIONAL SILTATION.
7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 6 INCHES AND DISPOSED OF IN AN APPROVED SPOIL SITE OR AS IN NO. 6 ABOVE.

SILT FENCE

NOT TO SCALE



PLAN



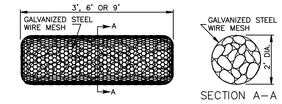
PROFILE

GENERAL NOTES

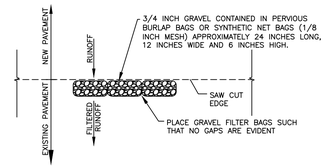
1. THE LENGTH OF THE TYPE 1 CONSTRUCTION EXIT SHALL BE AS INDICATED ON THE PLANS. BUT NOT LESS THAN 50'.
2. THE COARSE AGGREGATE SHOULD BE OPEN GRADED WITH A SIZE OF 4" TO 8".
3. THE APPROACH TRANSITIONS SHOULD BE NO STEEPER THAN 6:1 AND CONSTRUCTED AS DIRECTED BY THE ENGINEER.
4. THE CONSTRUCTION EXIT 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)

NOT TO SCALE

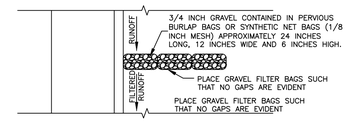


TYPE 4 (SACK GABIONS)

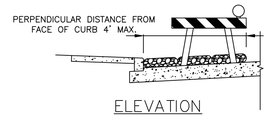


GRAVEL FILTER BAGS

NOT TO SCALE



PLAN

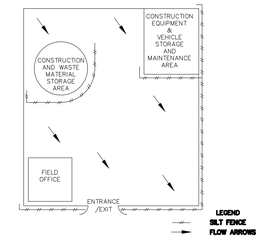


ELEVATION

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

NOT TO SCALE

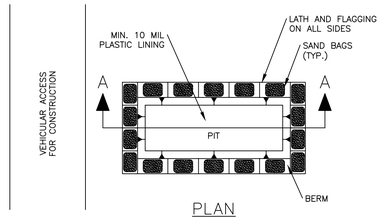


EQUIPMENT STAGING AREA

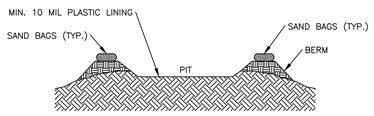
NOT TO SCALE

GENERAL NOTES

1. IF SHOWN ON THE PLANS OR DIRECTED BY THE ENGINEER, FILTER DAMS SHOULD BE PLACED NEAR THE TOE OF SLOPES WHERE EROSION IS ANTICIPATED, UPSTREAM AND/OR DOWNSTREAM AT DRAINAGE STRUCTURES, AND IN ROADWAY DITCHES AND CHANNELS TO COLLECT SEDIMENT.
2. MATERIALS (AGGREGATE, WIRE MESH, SANDBAGS, ETC.) SHALL BE AS INDICATED BY THE SPECIFICATION FOR ROCK FILTER DAMS FOR EROSION AND SEDIMENTATION CONTROL.
3. THE ROCK FILTER DAM DIMENSIONS SHALL BE AS INDICATED ON THE SW3P PLANS.
4. SIDE SLOPES SHOULD BE 2:1 OR FLATTER. DAMS WITHIN THE SAFETY ZONE SHALL HAVE SIDESLOPES OF 6:1 OR FLATTER.
5. MAINTAIN A MINIMUM OF 1' BETWEEN TOP OF ROCK FILTER DAM WEIR AND TOP OF EMBANKMENT FOR FILTER DAMS AT SEDIMENT TRAPS.
6. FILTER DAMS SHOULD BE EMBEDDED A MINIMUM OF 4' INTO EXISTING GROUND.
7. THE SEDIMENT TRAP FOR PONDING OF SEDIMENT LADEN RUNOFF SHALL BE OF THE DIMENSIONS SHOWN ON THE PLANS.
8. ROCK FILTER DAM TYPES 2 & 3 SHALL BE SECURED WITH 20 GAUGE GALVANIZED WOVEN WIRE MESH WITH 1" DIAMETER HEXAGONAL OPENINGS. THE AGGREGATE SHALL BE PLACED ON THE MESH TO THE HEIGHT AND SLOPES SPECIFIED. THE MESH SHALL BE FOLDED AT THE UPSTREAM SIDE OVER THE AGGREGATE AND TIGHTLY SECURED TO ITSELF ON THE DOWNSTREAM SIDE USING WIRE TIES OR HOG RINGS. IN STREAM USE. THE MESH SHOULD BE SECURED OR STAKED TO THE STREAM BED PRIOR TO AGGREGATE PLACEMENT.
9. SACK GABIONS SHOULD BE STAKED DOWN WITH 3/4" DIA. REBAR STAKES.
10. FLOW OUTLET SHOULD BE ONTO A STABILIZED AREA (VEGETATION, ROCK,ETC.).
11. DETAILS SHOWN ARE TYPICAL, SUBJECT TO CONTRACTOR'S SW3P PLAN REQUIREMENTS.
12. SEE SHEET C5.7 FOR EROSION CONTROL MATTING DETAILS.



PLAN



SECTION A–A

GENERAL NOTES

1. DETAIL ABOVE ILLUSTRATES MINIMUM DIMENSIONS. PIT CAN BE INCREASED IN SIZE DEPENDING ON EXPECTED FREQUENCY OF USE.
2. WASHOUT PIT SHALL BE LOCATED IN AN AREA EASILY ACCESSIBLE TO CONSTRUCTION TRAFFIC.
3. WASHOUT PIT SHALL NOT BE LOCATED IN AREAS SUBJECT TO INUNDATION FROM STORM WATER RUNOFF.
4. LOCATE WASHOUT AREA AT LEAST 50 FEET FROM SENSITIVE FEATURES, STORM DRAINS, OPEN DITCHES OR WATER BODIES.
5. TEMPORARY CONCRETE WASHOUT FACILITY SHOULD BE CONSTRUCTED WITH SUFFICIENT QUANTITY AND VOLUME TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS.

MATERIALS

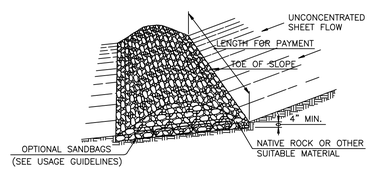
1. PLASTIC LINING MATERIAL SHOULD BE A MINIMUM OF 10 MIL IN POLYETHYLENE SHEETING AND SHOULD BE FREE OF HOLES, TEARS, OR OTHER DEFECTS THAT COMPROMISE THE IMPERMEABILITY OF THE MATERIAL.

MAINTENANCE

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

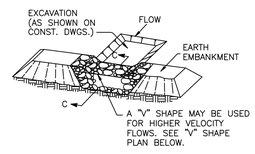
CONCRETE TRUCK WASHOUT PIT

NOT TO SCALE



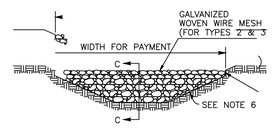
FILTER DAM AT TOE OF SLOPE

NOT TO SCALE



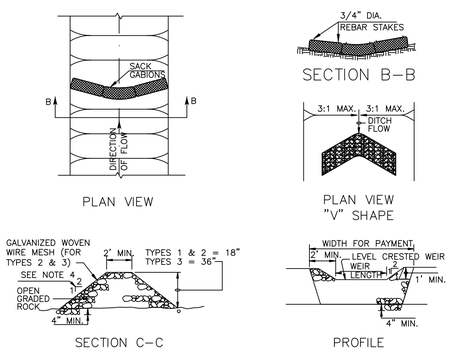
FILTER DAM AT SEDIMENT TRAP

NOT TO SCALE



FILTER DAM AT CHANNEL SECTIONS

NOT TO SCALE



PLANS SHEET LEGEND

TYPE 1 ROCK FILTER DAM — RFD1
TYPE 2 ROCK FILTER DAM — RFD2
TYPE 3 ROCK FILTER DAM — RFD3

MATERIAL NOTES

1. ALL AGGREGATE USED FOR THE CONSTRUCTION OF THE ROCK FILTER DAMS SHALL BE HARD, DURABLE, CLEAN, OPEN–GRADED, AND SHALL NATURALLY RESIST CRUMBLING, FLAKING AND ERODING. AGGREGATE GRADATION SHALL BE 3 TO 6 INCHES FOR ROCK FILTER DAMS TYPES 1, 2 AND 4 AND SHALL BE 4 TO 8 INCHES FOR TYPE 3.
2. THE GALVANIZED STEEL WIRE MESH AND TIE WIRES FOR TYPES 2 AND 3 SHALL BE A MINIMUM 20 GAUGE UNLESS SPECIFIED ON THE PLANS.
3. FOR TYPE 4: STEEL WIRE MESH SHALL UTILIZE A DOUBLE TWISTED HEXAGONAL WEAVE; MESH OPENING SHALL BE A NOMINAL 2.50 X 3.25 INCH, STEEL WIRE FOR NETTING SHALL BE 0.0866 INCH MINIMUM; STEEL WIRE FOR SELVEDGES AND CORNERS SHALL BE 0.1063 INCH (U.S. GAUGE NO. 11) MINIMUM; AND BINDING OR TIE WIRE SHALL BE 0.0866 INCH (U.S. GAUGE NO. 13) MINIMUM.
4. UNLESS OTHERWISE SPECIFIED, THE SANDBAG MATERIAL SHALL BE MADE OF POLYPROPYLENE, POLYETHYLENE OR POLYAMIDE WOVEN FABRIC, MINIMUM UNIT WEIGHT 4 OUNCES PER SQUARE YARD, MULLEN BURST STRENGTH EXCEEDING 300 PSI AND ULTRAVIOLET STABILITY EXCEEDING 70 PERCENT. THE SANDBAG SIZE SHALL BE 24 TO 30 INCHES IN LENGTH, 16 TO 18 INCHES IN WIDTH, 6 TO 8 INCHES THICK AND WEIGH 90 TO 125 POUNDS. THE SAND SHALL BE COARSE GRADE.

ROCK FILTER DAM

NOT TO SCALE

ROCK FILTER DAM USAGE GUIDELINES

1. ROCK FILTER DAMS SHOULD BE CONSTRUCTED DOWNSTREAM FROM DISTURBED AREAS TO INTERCEPT SEDIMENT FROM OVERLOAD RUNOFF AND/OR CONCENTRATED FLOW. THE DAMS SHOULD BE SIZED TO FILTER A MAXIMUM FLOW THROUGH RATE OF 60 GPM/FT OF CROSS SECTIONAL AREA. A 2 YEAR STORM FREQUENCY MAY BE USED TO CALCULATE THE FLOW RATE.
2. TYPE 1 (18" HIGH WITH NO WIRE MESH): TYPE 1 MAY BE USED AT THE TOE OF SLOPES. AROUND INLETS, IN SMALL DITCHES. AND AT DIKE OR SWALE OUTLETS. THIS TYPE OF DAM IS RECOMMENDED TO CONTROL EROSION FROM A DRAINAGE AREA OF 5 ACRES OR LESS. TYPE 1 MAY NOT BE USED IN CONCENTRATED HIGH VELOCITY FLOWS (APPROX. 8 FT./SEC. OR MORE) IN WHICH AGGREGATE WASH OUT MAY OCCUR. SANDBAGS MAY BE USED AT THE EMBEDDED FOUNDATION (4" DEEP MIN.) FOR BETTER FILTERING EFFICIENCY OF LOW FLOWS IF CALLED FOR ON THE PLANS OR DIRECTED BY THE ENGINEER.
3. TYPE 2 (18" HIGH WITH WIRE MESH): TYPE 2 MAY BE USED IN DITCHES AND AT DIKE OR SWALE OUTLETS.
4. TYPE 3 (36" HIGH WITH WIRE MESH): TYPE 3 MAY BE USED IN STREAM FLOW AND SHOULD BE SECURED TO THE STREAM BED.
5. TYPE 4 (SACK GABIONS): TYPE 4 MAY BE USED IN DITCHES AND SMALLER CHANNELS TO FORM AN EROSION CONTROL DAM.

SUBMITTAL SET

NO.	REVISION	DATE

CDS Muery F–1733

STATE OF TEXAS — BRIAN A. CROWELL — 82619 — REGISTERED PROFESSIONAL ENGINEER — 09/21/2020

CDS muery
ENGINEERS | SURVEYORS
100 NE Loop 410, Ste. 300 | San Antonio, Texas 78216
(210) 581-1111 | TBPE No. F-1733 | TBPLS No. 100495-00

PLAT NO. 19-11800164

JOB NO. 118008.04
DATE -
DESIGNER -
CHECKED - DRAWN -

STADIUM POINTE P.U.D. UNIT 2 & 3

SAN ANTONIO, TEXAS

STORMWATER POLLUTION PREVENTION PLAN DETAILS

SHEET C2.1

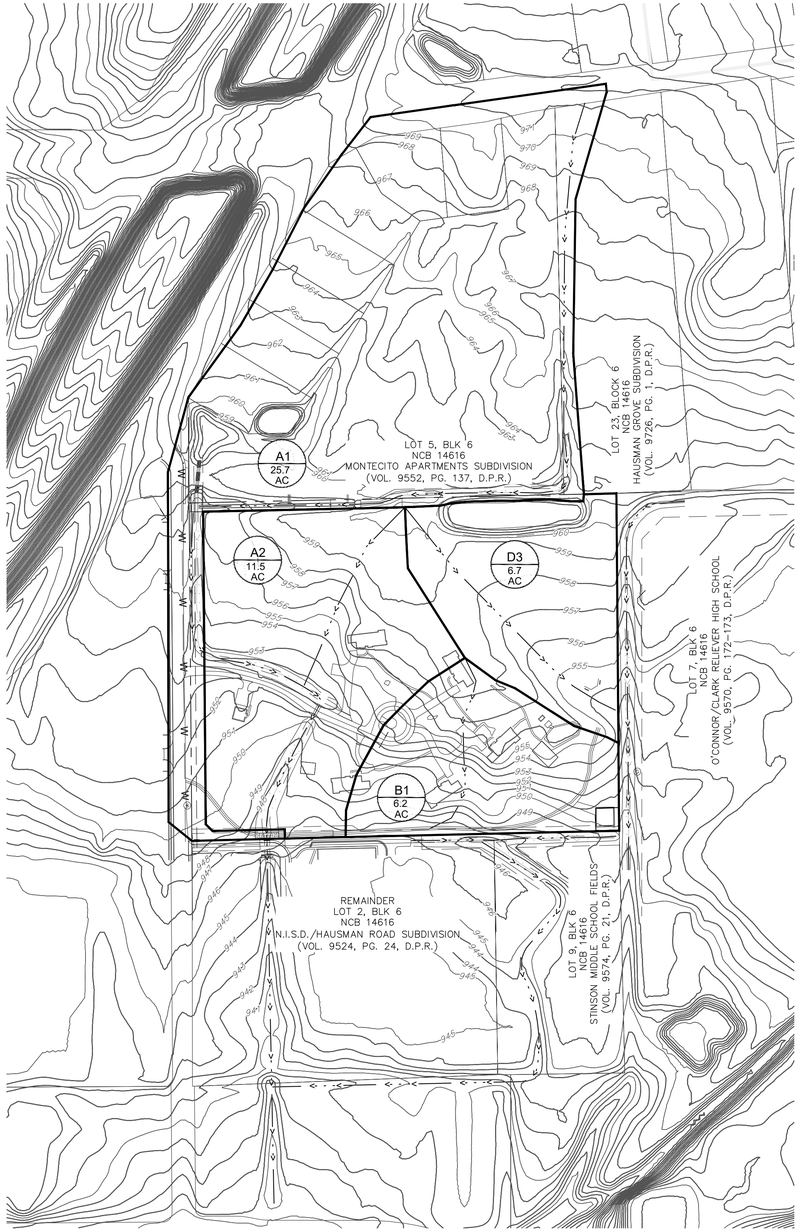
Date: Sep 21, 2020, 4:29pm User ID: jon.gross
File: F:\2018\118008.04 Stadium Point, Phase 2\Civil 3D\Dwg\Engineer\118008_C2.0-SW3P-Grading-Plan.dwg

ATTACHMENT G | Drainage Area Maps

Drainage Area Map - Pre-Development Conditions
Drainage Area Map - Existing and Ultimate Conditions

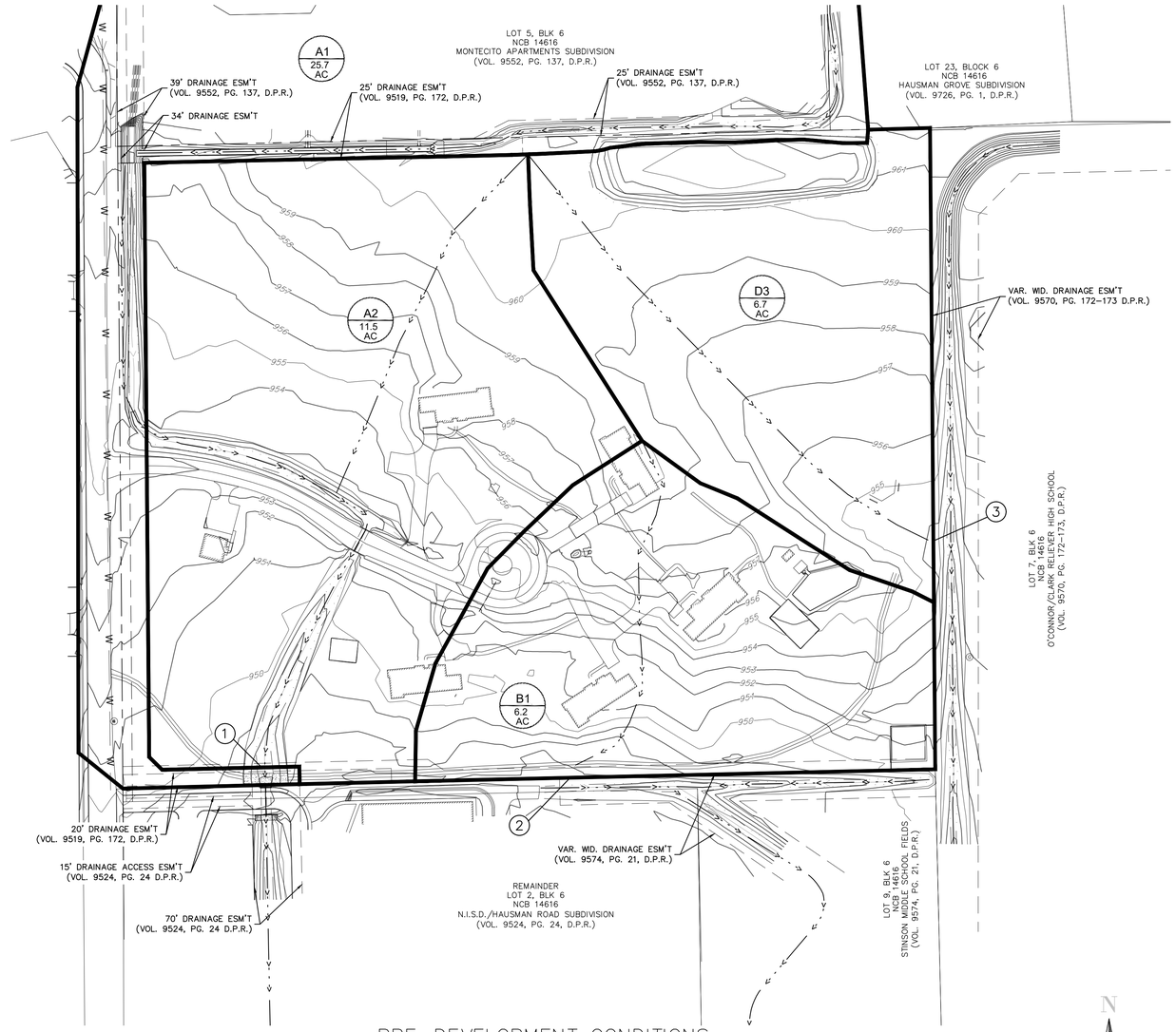
LEGEND

DRAINAGE BOUNDARY	
EXISTING CONTOURS	953
TIME OF CONCENTRATION FLOW PATHS	
DRAINAGE ESM'T	
NEW CITY BLOCK	NCB
DPRBCT	DEED PLAT RECORDS BEXAR COUNTY TEXAS
VOL.	VOLUME
PG.	PAGE
STUDY POINT	1



PRE–DEVELOPMENT CONDITIONS
SITE AND UPSTREAM
DRAINAGE AREAS

SCALE: 1" = 200'



PRE–DEVELOPMENT CONDITIONS
STADIUM POINTE P.U.D.
(3 UNITS)

SCALE: 1" = 100'

NO.	REVISION	DATE

CDS muery
ENGINEERS | SURVEYORS
100 NE Loop 410, Ste. 300 | San Antonio, Texas 78216
(210) 581-1111 | TBPE No. F-1733 | TBPLS No. 100495-00

PLAT NO. 19-11800164

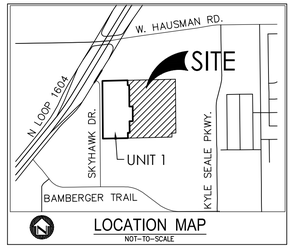
JOB NO. 118008.04
DATE SEPTEMBER 2020
DRAWN J.W.G.
CHECKED BC DESIGN JBG

STADIUM POINTE P.U.D.
UNIT 2 & 3
DRAINAGE AREA MAP
PRE-DEVELOPMENT CONDITIONS

SUBMITTAL SET

SHEET EXH

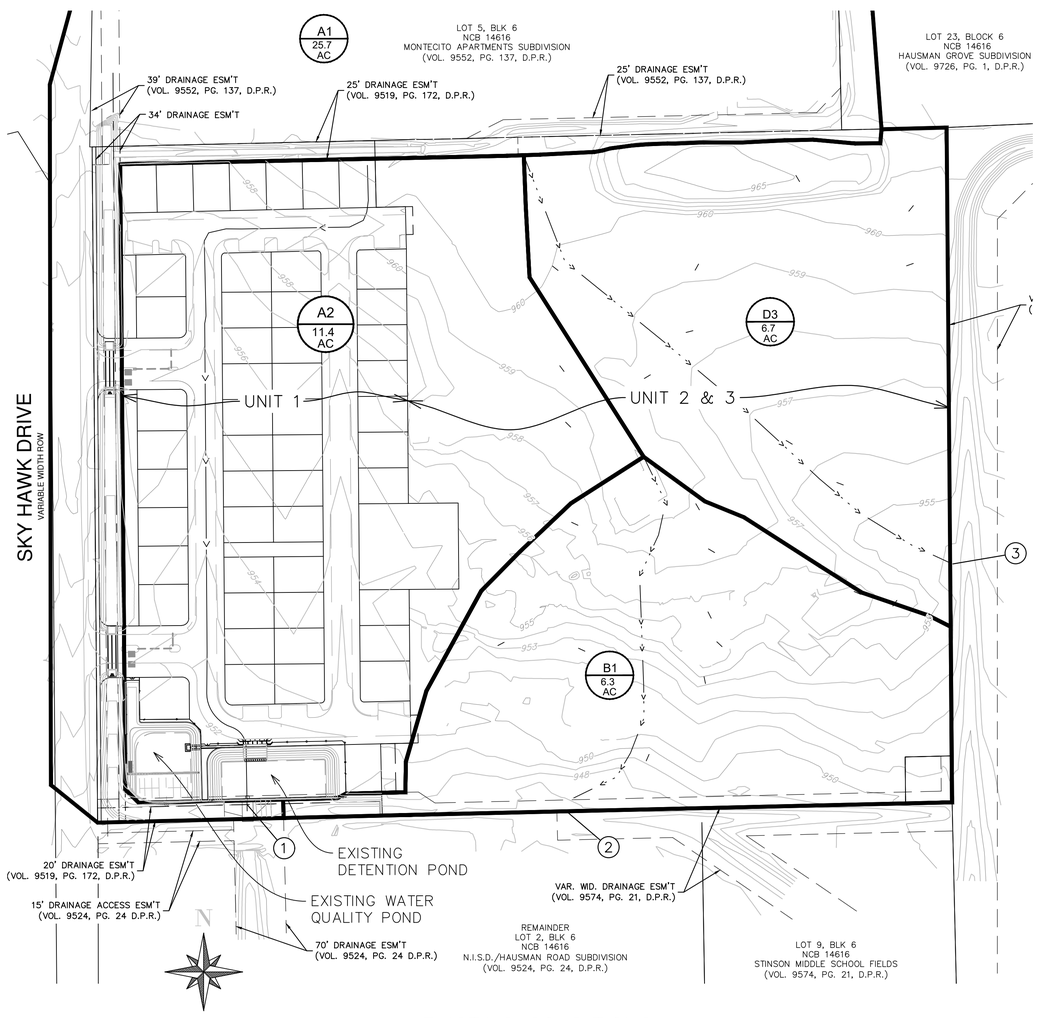
Date: Sep 21, 2020, 11:26am User ID: john.gibson
File: F:\2018\118008.04 Stadium Point, Phase 2\Civil 3D\Dwg\Engineer\Exhibits_118008 –Stadium Pointe U2_3 PreDev Conditions DAMs.dwg



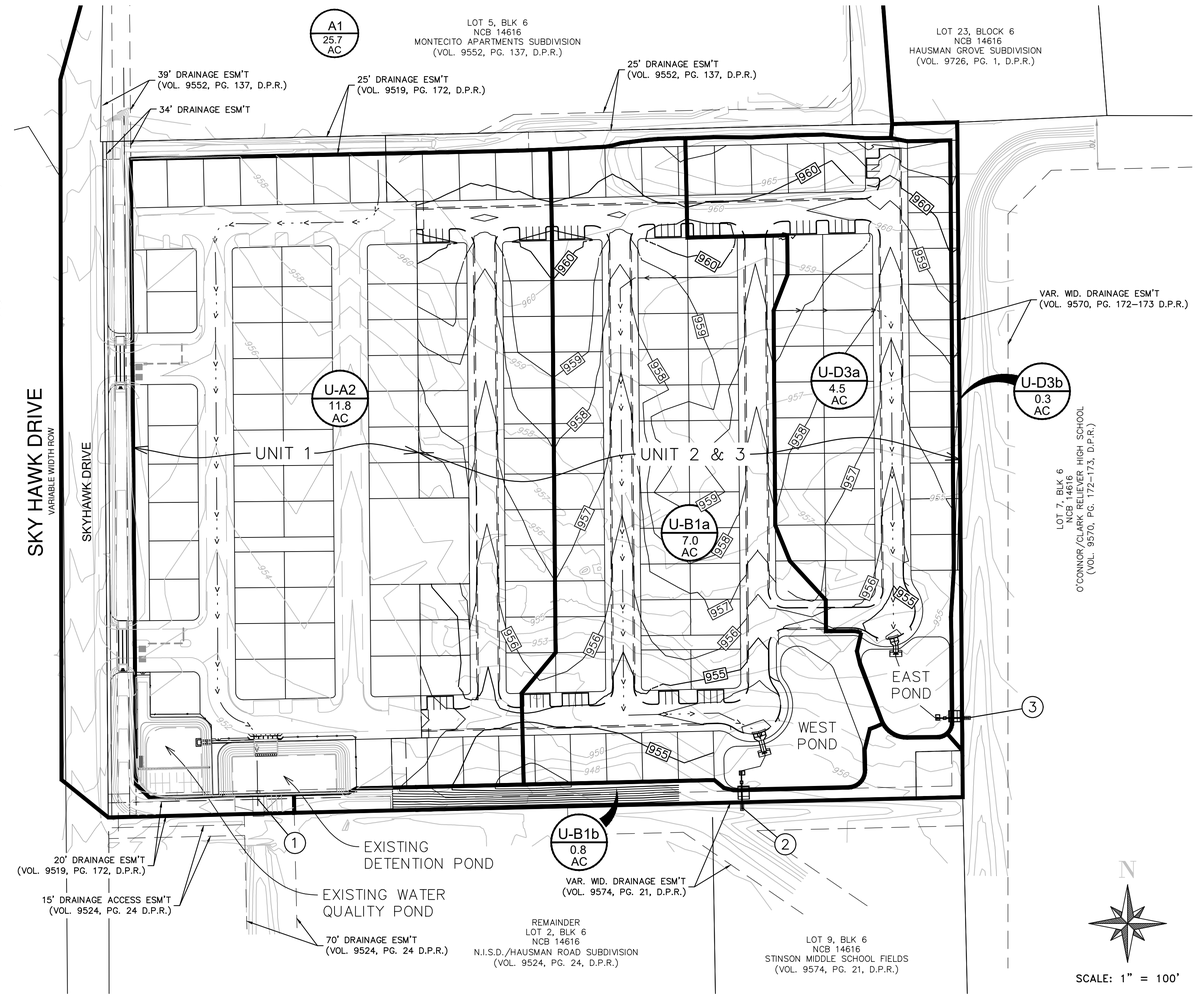
LOCATION MAP
NOT-TO-SCALE

LEGEND

DRAINAGE AREA BOUNDARY	
EXISTING MAJOR CONTOURS	960
EXISTING MINOR CONTOURS	959
PROPOSED MAJOR CONTOURS	960
PROPOSED MINOR CONTOURS	959
TIME OF CONCENTRATION FLOW PATHS	
DRAINAGE ESM'T	
NEW CITY BLOCK	NCB
DPRBCT	DEED PLAT RECORDS BEXAR COUNTY TEXAS
VOL.	VOLUME
PG.	PAGE
STUDY POINT	1



EXISTING CONDITIONS



ULTIMATE CONDITIONS

NO.	REVISION	DATE

CDS muery
ENGINEERS | SURVEYORS
100 NE Loop 410, Ste. 300 | San Antonio, Texas 78216
(210) 581-1111 | TBPE No. F-1733 | TBPLS No. 100495-00

PLAT NO. 19-11800164

JOB NO. 118008.04
DATE SEPTEMBER 2020
DRAWN J.W.G.
CHECKED BC DESIGN JBG

STADIUM POINTE P.U.D.
UNIT 2 & 3
DRAINAGE AREA MAP
EXISTING AND ULTIMATE CONDITIONS

SUBMITTAL SET

SHEET EXH

Date: Sep 21, 2020, 4:40pm User ID: john.gibson
File: F:\2018\118008.04 Stadium Point, Phase 2\Civil 3D\Dwg\Engineer\Exhibits_118008 -Stadium Pointe U2_3 EX & ULT Conditions DAMs.dwg

ATTACHMENT H | Temporary Sediment Pond(s) Plans and Calculations

This section does not apply for this project. There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time.

ATTACHMENT I | Inspection and Maintenance for BMPs

Silt Fence

1. Inspect all fencing weekly, and after any rainfall events.
2. Remove sediment when buildup reaches 6 inches.
3. Replace any torn fabric or install a second line of fencing parallel to the torn section.
4. Replace or repair any sections crushed or collapsed in the course of construction activity. If a section of fence is obstructing vehicular access, consider relocating it to a spot where it will provide equal protection, but will not obstruct vehicles. A triangular filter dike may be preferable to a silt fence at common vehicle access points.
5. When construction is complete, the sediment should be disposed of in a manner that will not cause additional siltation and the prior location of the silt fence should be re-vegetated. The fence itself should be disposed of in an approved landfill.

Gravel Filter Bags

1. Inspect all gravel filter bags weekly, and after any rainfall events.
2. Remove sediment when buildup reaches 4 inches.
3. Replace any torn bags or install a second line of bags parallel to the torn section.
4. When construction is complete, the sediment should be disposed of in a manner that will not cause additional siltation.

Rock Berm

1. Inspection should be made weekly and after each rainfall event by the responsible party. For installation in streambeds, additional daily inspections should be made.
2. Remove sediment and other debris when buildup reaches 6 inches and dispose of the accumulated silt in an approved manner that will not cause any additional siltation.
3. Repair any loose wire sheathing.
4. The berm should be reshaped as needed during inspection.
5. The berm should be replaced when the structure ceases to function as intended due to silt accumulation among the rocks, washout, construction traffic damage, etc.
6. The rock berm should be left in place until all upstream areas are stabilized and accumulated silt removed.

Temporary Construction Entrance/Exit

1. The entrance(s) should be maintained in a condition, which will prevent transfer of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment.
2. When necessary, wheels should be cleaned and sediment removed prior to entrance onto public right-of-way.
3. When washing is required, it should be done on an area stabilized with crushed stone that drains into an approved sediment trap or sediment basin.
4. All sediment should be prevented from entering any storm, drain, ditch or water course by using approved methods.

Concrete Washout Areas

1. To help reduce storm water pollution from concrete washes, ensure the following:
    a. Incorporate requirements for concrete waste management into material supplier and subcontractor agreements.
    b. Avoid mixing excess amounts of fresh concrete.
    c. Perform washout of concrete trucks in designated areas only.
    d. Do not wash out concrete trucks into storm drains, open ditches, streets, or streams.
    e. Do not allow excess concrete to be dumped onsite, except in designated areas.
2. Materials used to construct temporary concrete washout facilities should be removed from the site of the work and disposed of.
3. Do not allow runoff from this area by constructing a temporary pit or bermed area large enough for liquid and solid waste.
4. Wash out wastes into the temporary pit where the concrete can set, be broken up, and then disposed of properly.
5. When temporary concrete washout facilities are no longer required for the work, the hardened concrete should be removed and disposed of.
6. Holes, depressions or other ground disturbance caused by the removal of the temporary concrete washout facilities should be backfilled and repaired.

If any sediment escapes the site during construction activities, off-site accumulations must be removed to minimize offsite impacts to water quality. An inspection form has been attached.

Stadium Pointe PUD Unit 2 & 3
Storm Water Pollution Prevention Inspection Report Form
Inspections must occur at least once/7 days and within 24 hours of a storm event that is 0.50 inches or greater.

Project Name: _____ Inspection Date: _____

Inspector: _____ Inspector Qualifications: _____

Rainfall Amount: _____ Date of Rainfall: _____

Inspect the following areas:
- ❑ Disturbed Areas (not stabilized)
- ❑ Exposed Storage Areas
- ❑ Entrance/Exit Site(s)

Comments: _____

Specific Site Area Location	Type of control (see below)	Date installed / modified	Current Condition (see below)	Corrective Action/Other Remarks

Condition Code:
G = Good M= Marginal, needs maintenance P = Poor, needs immediate maintenance C = Needs to be cleaned O = Other

Control Type Codes:

1. Silt Fence	10. Storm Drain Inlet Protection	19. Reinforced Soil Retaining System	28. Tree Protection
2. Earth Dikes	11. Vegetative Buffer Strip	20. Gabion	29. Detention Pond
3. Structural Diversion	12. Vegetative Preservation Strip	21. Sediment Basin	30. Retention Pond
4. Swale	13. Retention Pond	22. Temporary Seed / Sod	31. Waste Disposal/ Housekeeping
5. Sediment Trap	14. Construction Entrance Stabilization	23. Permanent Seed / Sod	32. Dam
6. Check Dam	15. Perimeter Ditch	24. Mulch	33. Sand Bag
7. Subsurface Dam	16. Curb and Gutter	25. Hay Bales	34. Other
8. Pipe Slope Drain	17. Paved Road Surface	26. Geotextile	
9. Level Spreaders	18. Rock Outlet Protection	27. Rip-rap	

This site is in compliance with the SW3P? Yes _____ No _____

This site is in compliance with Temporary Stormwater Section ? Yes _____No _____

If not, please specify changes: _____

_____

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 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: _____.

ATTACHMENT J | Schedule of Interim and Permanent Soil Stabilization Practices

Interim on-site stabilization measures will be on-going. Soil disturbances should be limited to the smallest area and shortest duration of time practical. As soon as practical, all disturbed soil shall be stabilized as per project specifications in accordance with TCEQ's Technical Guidance Manual (TGM) RG-348. Project stabilization practices will include, but not limited to, the use of sod, erosion control blankets and seeding.

Stabilization measures are to be completed as soon as practicable at locations where construction activities have temporarily or permanently ceased. Bare soils are to be seeded or otherwise stabilized within 14 calendar days after final grading or where construction activity has temporarily ceased for more than 21 days.

Newly planted vegetation will be protected from construction traffic.

The project is scheduled for completion in the 2021 calendar year. During construction, Temporary BMPs will be implemented. All disturbed areas will be permanently stabilized as indicated on Site Plan by pavements, building foundations, or vegetative cover. Temporary BMPs may only be removed after all upgradient disturbed soils are permanently stabilized and all upgradient Permanent BMPs indicated in this WPAP are installed.

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

I **Ramanatha Yellaturu**,
Print Name

Manager, Skyhawk Villa de San Antonio,
Title - Owner/President/Other

of **Skyhawk Villa de San Antonio, LLC**,
Corporation/Partnership/Entity Name

have authorized **Brian Crowell, P.E., LEED AP**
Print Name of Agent/Engineer

of **CDS Muery**
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:

Ramanatha Reddy
Applicant's Signature

09/11/2020
Date

THE STATE OF TEXAS §

County of collin §

BEFORE ME, the undersigned authority, on this day personally appeared **Ramanatha Yellaturu**, 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 11th day of September 2020.

Alka S. Kelkar.
NOTARY PUBLIC

Alka S. Kelkar
Typed or Printed Name of Notary

NOTARY PUBLIC STATE OF TEXAS
ALKA S KELKAR
Notary ID #11759723
My Commission Expires
March 4, 2024

MY COMMISSION EXPIRES: 3.4.2024

Application Fee Form

Texas Commission on Environmental Quality
Name of Proposed Regulated Entity: Stadium Pointe PUD, Unit 2&3
Regulated Entity Location: 29.5661°N , 98.6492°W (see description on core data form)
Name of Customer: Skyhawk Villa de San Antonio, LLC
Contact Person: Brian Crowell, P.E., LEED AP Phone: 210-581-1111
Customer Reference Number (if issued):CN N/A
Regulated Entity Reference Number (if issued):RN N/A

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	3540 L.F.	$ 1770
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: B- [illegible] Date: 08/21/2020

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