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TEXAS REGISTERED ENGINEERING FIRM F-181

Water Pollution Abatement Plan

For

Sun City Berry Creek Amenity Center

In the

City of Georgetown

Williamson County, Texas

Submitted: 03/05/2025

Job Number: 22226-41

Water Pollution Abatement Plan

For

Sun City Berry Creek Amenity Center

In

City of Georgetown

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Job Number: 22226-41

Prepared by:
Erik J Haberman

STEGER BIZZELL

Texas Registered Engineering Firm-181
1978 S. Austin Ave
Georgetown, TX 78626

Water Pollution Abatement Plan Checklist

Edwards Aquifer Application Cover Page (TCEQ-20705)
General Information Form (TCEQ-0587)
- Attachment A - Road Map
- Attachment B - USGS / Edwards Recharge Zone Map
- Attachment C - Project Description

Geologic Assessment Form (TCEQ-0585)
- Attachment A - Geologic Assessment Table (TCEQ-0585-Table)
- Comments to the Geologic Assessment Table
- Attachment B - Soil Profile and Narrative of Soil Units
- Attachment C - Stratigraphic Column
- Attachment D - Narrative of Site Specific Geology
- Site Geologic Map(s)
- Table or list for the position of features' latitude/longitude (if mapped using GPS)

Water Pollution Abatement Plan Application Form (TCEQ-0584)
- Attachment A - Factors Affecting 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 requesting an exception)
- Site Plan

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 sealing a feature
- 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

Permanent Stormwater Section (TCEQ-0600)
- Attachment A - 20% or Less Impervious Cover Waiver, if project is multi-family residential, a school, or a small business and 20% or less impervious cover is proposed for the 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 BMPs not based on Complying with the Edwards Aquifer Rules: Technical Guidance for BMPs
- Attachment I -Measures for Minimizing Surface Stream Contamination

Agent Authorization Form (TCEQ-0599), if application submitted by agent
Application Fee Form (TCEQ-0574)
Check Payable to the "Texas Commission on Environmental Quality"
Core Data Form (TCEQ-10400)

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: Sun City Berry Creek Amenity Center						**2. Regulated Entity No.:** N/A			
3. Customer Name: Arroyo CAP III-2, LLC						**4. Customer No.:** 606180032			
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):**			7.019
9. Application Fee:	$5000		**10. Permanent BMP(s):**					Batch Detention Pond, Vegetative Filter Strips	
11. SCS (Linear Ft.):	N/A		**12. AST/UST (No. Tanks):**					N/A	
13. County:	Williamson		**14. Watershed:**					Berry Creek	

Application Distribution

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

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

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

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

San Antonio Region					
County:	**Bexar**	**Comal**	**Kinney**	**Medina**	**Uvalde**
Original (1 req.)	___	___	___	___	___
Region (1 req.)	___	___	___	___	___
County(ies)	___	___	___	___	___
Groundwater Conservation District(s)	___ 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. Erik Haberman, P.E.
Print Name of Customer/Authorized Agent
 3/5/2025 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: Arroyo CAP III-2, LLC % Steger Bizzell, Erik Haberman, P.E.

Date: 03/05/2025

Signature of Customer/Agent:

Project Information

1. Regulated Entity Name: Sun City Berry Creek Amenity Center
2. County: Williamson
3. Stream Basin: Berry Creek
4. Groundwater Conservation District (If applicable): NA
5. Edwards Aquifer Zone:

   ☒ Recharge Zone
   ☐ Transition Zone

6. Plan Type:

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

7. Customer (Applicant):

   Contact Person: Jeffrey Bouelette
   Entity: Arroyo CAP III-2, LLC
   Mailing Address: 18575 Jamboree Road #STE 350
   City, State: Irvine, CA Zip: 92612-2551
   Telephone: (512) 532-3355 FAX: N/A
   Email Address: jbroulette@arroyocapital.com

8. Agent/Representative (If any):

   Contact Person: Erik Haberman, P.E.
   Entity: Steger Bizzell
   Mailing Address: 1978 S. Austin Ave
   City, State: Georgetown, TX Zip: 78626
   Telephone: (512) 930-9412 FAX: N/A
   Email Address: ehaberman@stegerbizzell.com

9. Project Location:

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

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

    FROM AUSTIN: HEADING NORTH ON I-35,TAKE EXIT 266 TOWARD TX-195 N. AFTER APPROXIMATELY 0.2 MILES, TURN LEFT ONTO TX-195 W. AFTER APPROXIMATELY 5.3 MILES, TURN LEFT ONTO RATTLESNAKE RD. AFTER APPROXIMATELY 0.6 MILES, TURN LEFT ONTO RONALD REAGAN BLVD. CONTINUE STRAIGHT FOR APPROXIMATELY 0.8 MILES TURN LEFT ONTO ABOVE AND BEYOND WAY, AND THE DESTINATION WILL BE ON THE RIGHT.

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: April 5, 2025

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:

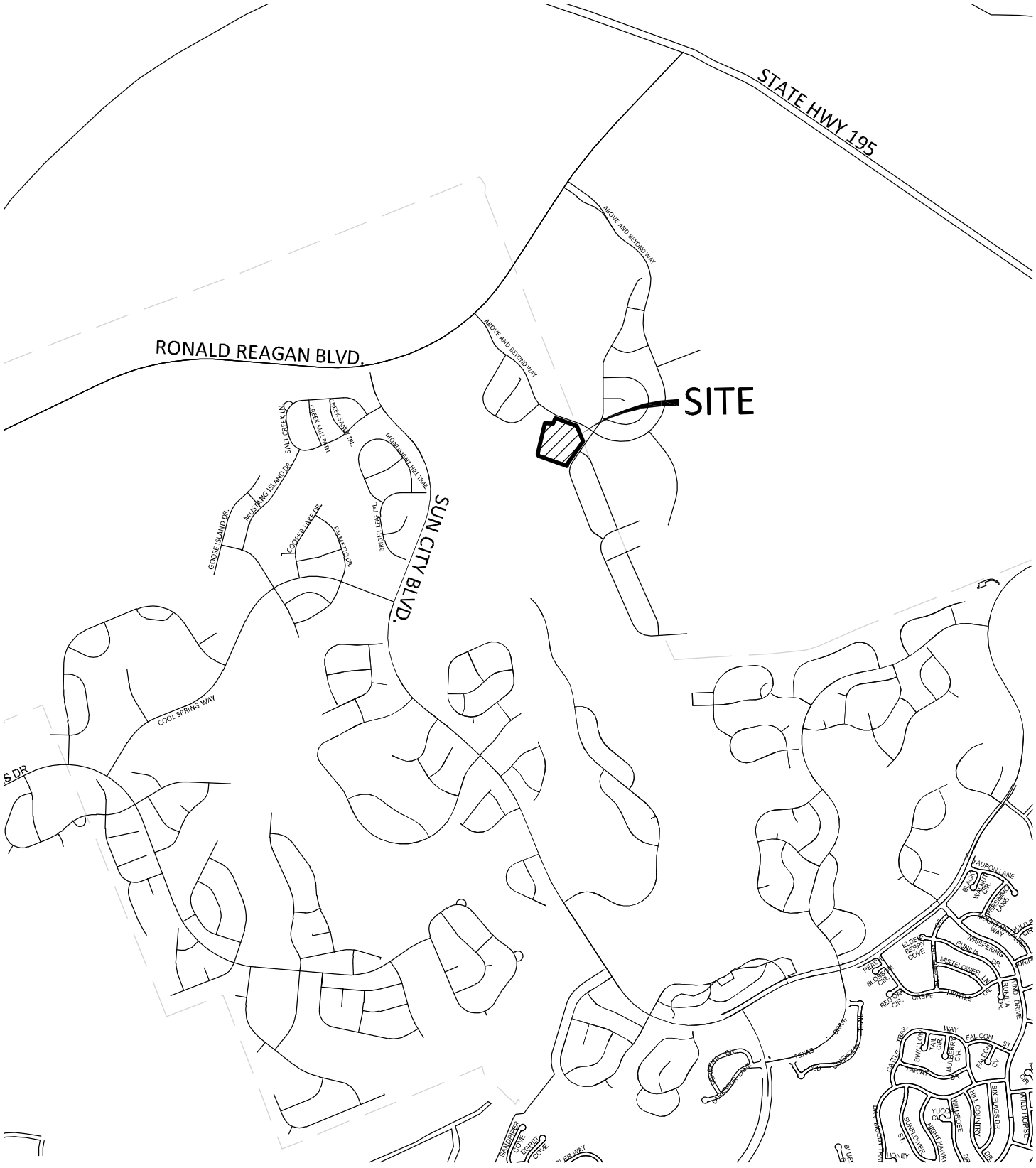
☒ For a Water Pollution Abatement Plan or Modification, the total acreage of the site where regulated activities will occur.
☐ For an Organized Sewage Collection System Plan or Modification, the total linear footage of all collection system lines.
☐ For a UST Facility Plan or Modification or an AST Facility 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.



STEGER BIZZELL

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SERVICES	>>ENGINEERS >>PLANNERS >>SURVEYORS	

ROAD MAP
ATTACHMENT A

SCALE: 1" = 2000'

JOB NO. 22226-41

2/28/2025

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

FLORENCE QUADRANGLE
TEXAS
7.5 MINUTE SERIES (TOPOGRAPHIC)

Recharge Zone

Recharge Zone

Contributing Zone

Recharge Zone

Mapped, edited, and published by the Geological Survey

Control by USGS and NOS/NOAA

Topography by photogrammetric methods from aerial photographs taken 1963. Field checked 1964

Polyconic projection. 1927 North American Datum
10,000-foot grid based on Texas coordinate system, central zone
1000-meter Universal Transverse Mercator grid ticks, zone 14, shown in blue. The difference between 1927 North American Datum and North American Datum of 1983 (NAD 83) for 7.5 minute intersections is given in USGS Bulletin 1875. The NAD 83 is shown by dashed corner ticks

Fine red dashed lines indicate selected fence lines

Map photoinspected 1976
No major culture or drainage changes observed

UTM GRID AND 1964 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24000

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

SUN CITY BERRY CREEK AMENITY CENTER
WILLIAMSON COUNTY, TEXAS

QUADRANGLE LOCATION

3097–331

ROAD CLASSIFICATION

Heavy-duty
Medium-duty
Light-duty
Unimproved dirt
State Route

FLORENCE, TEX.
30097-G7-TF-024

1964
PHOTOINSPECTED 1976
JOB No. 22226-41

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF TEXAS
TEXAS WATER DEVELOPMENT BOARD

LEANDER NE QUADRANGLE
TEXAS-WILLIAMSON CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

Contributing Zone

Recharge Zone

Recharge Zone

Mapped, edited, and published by the Geological Survey

Control by USGS and NOS/NOAA

Topography by photogrammetric methods from aerial photographs taken 1962. Field checked 1962

Polyconic projection. 1927 North American Datum
10,000-foot grid based on Texas coordinate system, central zone
1000-meter Universal Transverse Mercator grid ticks, zone 14, shown in blue
The difference between 1927 North American Datum and North American Datum of 1983 (NAD 83) for 7.5 minute intersections is given in USGS Bulletin 1875. The NAD 83 is shown by dashed corner ticks

Fine red dashed lines indicate selected fence lines

UTM GRID AND 1962 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

Map photoinspected 1976
No major culture or drainage changes observed

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

SUN CITY BERRY CREEK AMENITY CENTER
WILLIAMSON COUNTY, TEXAS

QUADRANGLE LOCATION

3097–324

ROAD CLASSIFICATION

Heavy-duty
Medium-duty
Light-duty
Unimproved dirt
U.S. Route
State Route

LEANDER NE, TEX.
30097-F7-TF-024

1962
PHOTOINSPECTED 1976
JOB No. 22226-41

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

GEORGETOWN QUADRANGLE
TEXAS–WILLIAMSON CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

SITE

Recharge Zone

Contributing Zone

Recharge Zone

Recharge Zone

Transition Zone

SUN CITY BERRY CREEK AMENITY CENTER
WILLIAMSON COUNTY, TEXAS

Produced by the United States Geological Survey

Control by USGS and NOS/NOAA

Compiled from aerial photographs taken 1974. Field checked 1975
Map edited 1982

North American Datum of 1927 (NAD 27). Projection and 10 000-foot ticks: Texas Coordinate System, central zone (Lambert Conformal Conic)
Blue 1000-meter Universal Transverse Mercator ticks, zone 14

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

Red tint indicates areas in which only landmark buildings are shown

Fine red dashed lines indicate selected fence lines

Areas covered by dashed light-blue pattern are subject to controlled inundation

UTM GRID AND 1982 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

ROAD CLASSIFICATION

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

QUADRANGLE LOCATION

3097-313

GEORGETOWN, TX
30097-F6-TF-024

1982

JOB No. 22226-41

ISBN 0-607-51004-6

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WEIR QUADRANGLE
TEXAS–WILLIAMSON CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
NE/4 ROUND ROCK 15′ QUADRANGLE

8445 I SW (COBBS CAVERN)
6445 I SE (JARRELL)
6545 IV SW (BARTLETT)
8445 II NW (GEORGETOWN)
6545 III NW (GRANGER)
(ROUND ROCK) 8445 I SW
(TAYLOR) 6545 II SW

97°37′30″ 30°45′ 97°30′ 30°45′
2 880 000 FEET
400 000 FEET
360 000 FEET
42′30″ 40′
30°37′30″ 97°37′30″ 32′30″

SCHWERTNER 8 MI.
8 MI. TO TEX. 95
1.2 MI. TO INTERSTATE 35
3.1 MI. TO TEX. 418
GEORGETOWN 3.3 MI.
GRANGER 4.5 MI.
TAYLOR IVIA TEX. 95) 9 MI.
HUTTO 6 MI.

Recharge Zone
Transition Zone

Little Oppossum Creek
Oppossum Creek
Yankee Branch
East Fork Rowden Branch
Berry Creek
Pecan Branch
Weir
Queen Hill
Pecan Branch
Milehan Branch
Big House Branch
San Gabriel River
Mankins Crossing
Magee Cem
Queen Cem
Salyer Cem
Whitley Cem
Jonah Cem
Gravel Pit
Athletic Field
Zion Cem
St. Peter Ch
Water Tank
Radio Tower
Zion Sch
Walburg
Keelersville
Mozo
Jonah
Weir (BM 685)
TEXAS
KANSAS
MISSOURI
PIPELINE

Mapped, edited, and published by the Geological Survey

Control by USGS and NOS/NOAA

Topography by photogrammetric methods from aerial photographs taken 1974. Field checked 1975. Map edited 1982

Projection and 10,000-foot grid ticks: Texas coordinate system, central zone (Lambert conformal conic)
1000-meter Universal Transverse Mercator grid, zone 14
1927 North American datum
To place on the predicted North American Datum 1983 move the projection lines 17 meters south and 28 meters east as shown by dashed corner ticks

Fine red dashed lines indicate selected fence lines

UTM GRID AND 1982 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET
MN GN 0°44′ 13 MILS 7½° 133 MILS

SCALE 1:24 000
1 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETER

CONTOUR INTERVAL 10 FEET
DOTTED LINES REPRESENT 5-FOOT CONTOURS
NATIONAL GEODETIC VERTICAL DATUM OF 1929

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

INTERIOR—GEOLOGICAL SURVEY, RESTON, VIRGINIA—1982

TEXAS
QUADRANGLE LOCATION
3097-314

SUN CITY BERRY CREEK AMENITY CENTER
WILLIAMSON COUNTY, TEXAS

WEIR, TEX.
NE/4 ROUND ROCK 15′ QUADRANGLE
N3037.5–W9730/7.5
1982
JOB No. 22226-41

Attachment C - Project Description

The Berry Creek Amenity Center site will be developed on a 7.019-acre lot in the Frederick Foy Survey, Abstract No. 229. The site is located south of Ronald Reagan Boulevard and east of CR 245. The site will ultimately be bounded by Sun City NH88 to the Northwest, Above and Beyond Way and Woodside to the North, NH89 to the South, and Berry Creek to the West.

The project site is a portion of previously undeveloped agricultural ranch land, and no demolition activities will be required as a part of the project. There is no existing impervious cover on-site. The project includes a sales center, amenity building, outdoor pool and spa, hardscape, pool deck, Bocce ball court, parking and associated drive aisles, water and wastewater, drainage and water quality improvements associated with the amenity and sales center.

Sewage collection for the site consists of an 8- inch SDR-26 PVC sewer lateral that will tie into the existing 21-inch wastewater interceptor along the west boundary of the property that was installed with the Woodside Offsite Improvements, which was submitted to TCEQ (RN111600748). This system will ultimately flow to the existing Sun City Lift Station along Berry Creek. The wastewater will then be conveyed to the City of Georgetown Pecan Branch Wastewater Treatment Plant.

All offsite drainage associated with this site is captured within roadways and routed away from this site. The site generally drains from northeast to southwest and into Berry Creek.

Eighty-five percent removal of suspended solids and pollutants for the proposed 1.61 acres of impervious cover created with this development will be performed by a permanent batch Detention Pond for 1.46 acres and vegetative filter strips for the 0.15 acres of impervious cover that do not drain to the pond.

There is one sensitive feature located within the overall 7.019 acre project boundary as shown within the attached geologic assessment. The sensitive feature is not disturbed by the improvements proposed with this application.

Geologic Assessment

Texas Commission on Environmental Quality

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

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

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

Signature

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

Print Name of Geologist: Stan Reece

Telephone: (512) 852-3872

Date: 1/30/2025

Fax: (512) 306-0974

Representing: aci environmental consulting LLC TBPG License No. 50713 (Name of Company and TBPG or TBPE registration number)

Signature of Geologist:

Regulated Entity Name: Sun City Berry Creek Amenity Center

Project Information

1. Date(s) Geologic Assessment was performed: 1/15/2025
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)
	See Section 4.0	

** 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" = 100'
   Site Geologic Map Scale: 1" = 100'
   Site Soils Map Scale (if more than 1 soil type): 1" = 100'

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 6 (#) 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.

TABLE OF CONTENTS

LIST OF ATTACHMENTS

January 2025

Geologic Assessment for the Sun City Berry Creek Amenity Center Tract located in Williamson County, Texas

1.0 INTRODUCTION

The Texas Commission on the Environmental Quality (TCEQ) regulates activities that have the potential to pollute the Edwards Aquifer through the Edwards Aquifer Protection Program. Projects meeting a certain criterion over the Edwards Aquifer Recharge Zone must submit an Edwards Aquifer Protection Plan (EAPP).

The purpose of this report is to identify all potential pathways for contaminant movement to the Edwards Aquifer and provide sufficient geologic information so that the appropriate Best Management Practices (BMPs) can be proposed in the Edwards Aquifer Protection Plan (EAPP). This report complies with the requirements of Title 30, Texas Administrative Code (TAC) Chapter 213 relating to the protection of the Edwards Aquifer Recharge Zone. Per the Rules, the Geologic Assessment must be completed by a Geologist licensed according to the Texas Geoscience Practice Act.

2.0 PROJECT INFORMATION

The Sun City Berry Creek Amenity Center tract, hereafter referred to as the subject area or site, is located approximately 0.37 mile southeast of the intersection of Ronald Reagan Boulevard (Blvd) and Above and Beyond Way in the City of Georgetown, Williamson County, Texas (**Attachment A, Figure 1**). Pedestrian investigations of the subject area were performed on January 15, 2025 by Andrew McGlothlin and Anna Ozelius, under the supervision of Stan Reece, P.G. with **aci environmental consulting**.

This report is intended to satisfy the requirements for a Geologic Assessment, which shall be included as a component of a Sewage Collection System Plan (SCS). The site area is approximately 7 acres in total. The proposed site use is for an amenity center for the Sun City residential development. The scope of the report consists of a site reconnaissance, field survey, and review of existing data and reports. Features identified during the field survey were ranked utilizing the Texas Commission on Environmental Quality (TCEQ)

matrix for Edwards Aquifer Recharge Zone features. The ranking of the features will determine their viability as "sensitive" features.

3.0 INVESTIGATION METHODS

The following investigation methods and activities were used to develop this report:

- Review of existing files and literature to determine the regional geology and any known caves associated with the project area;
- Review of past geological field reports, cave studies, and correspondence regarding the existing geologic features on the project area, if available;
- Site reconnaissance by a registered professional geologist to identify and examine caves, recharge features, and other significant geological structures;
- Evaluation of collected field data and a ranking of features using the TCEQ Ranking Table 0585 for the Edwards Aquifer Recharge Zone; and
- Review of historic aerial photographs to determine if there are any structural features present, and to determine any past disturbances on the subject area.

4.0 SOILS AND GEOLOGY

The following includes a site-specific description of the soils, geologic stratigraphy, geologic structure, and karstic characteristics as they relate to the Edwards aquifer. Also included in this section is a review of historic aerials for presence of geologic changes or changes to manmade features in bedrock.

Soils

According to the United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) Web Soil Survey (2025), three soil units occur within the subject area (**Attachment A, Figure 2**):

- EeB – Eckrant stony clay, 0 to 3 percent slopes, stony

The Eckrant, stony component makes up 85 percent of the map unit. Slopes are 0 to 3 percent. This component is on ridges on dissected plateaus. The parent material consists of residuum weathered from limestone. Depth to a root restrictive layer, bedrock, lithic, is 4 to 20 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is moderate. This soil is not flooded. It is not

ponded. There is no zone of water saturation within a depth of 72 inches. This soil does not meet the criteria for hydric soils. Hydrologic Soil Group: D.

Georgetown (8%) and Doss (7%) are minor components that make up the remaining 15% of the map unit. These do not meet the criteria for hydric soils.

- ErE – Eckrant-Rock outcrop association, 1 to 10 percent slopes

The Eckrant component makes up 58 percent of the map unit. Slopes are 1 to 10 percent. This component is on ridges on dissected plateaus. The parent material consists of residuum weathered from limestone. Depth to a root restrictive layer, bedrock, lithic, is 4 to 20 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. This soil does not meet the criteria for hydric soils. Hydrologic Soil Group: D.

Rock outcrop (16%), Tarpley (11%), Real (6%) Brackett (5%), and Pratley (4%) are minor components that make up the remaining 42% of the map unit. These do not meet the criteria for hydric soils.

- GsB – Georgetown stony clay loam, 1 to 3 percent slopes

The Georgetown component makes up 90 percent of the map unit. Slopes are 1 to 3 percent. This component is on broad ridges on dissected plateaus. The parent material consists of clayey residuum weathered from limestone. Depth to a root restrictive layer, bedrock, lithic, is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. This soil does not meet the criteria for hydric soils. Hydrologic Soil Group: D.

Tarpley (5%), Eckrant (3%), and Fairlie (2%) are minor components that make up the remaining 10% of the map unit. These do not meet the criteria for hydric soils.

Geologic Stratigraphy

According to the Geologic Map of the Georgetown Quadrangle, Texas, one geologic unit occurs within the subject area (**Attachment A, Figure 3**). This unit and a description by Collins (1997) are as follows:

- Edwards Limestone (Ked)

"Limestone, dolomitic limestone and marl. Massive to thin beds, chert, and fossiliferous; fossils include rudistids. Shallow subtidal to tidal-flat cycles. Honeycomb textures, voids in collapsed breccias, and cavern systems. Accounts for most of the Edwards aquifer strata. Thickness is between 100ft to 300ft; thins northward."

Site-Specific Stratigraphic Column

Formation	Members	Thickness (Collins, 1997)
Edwards Limestone	Edwards Limestone	100-300 feet

Geologic Structure

The subject area is underlain by Ked (Collins et al., 1997 and 1998). Locally, the dominant structural trend of faults within the area is 30°, as evidenced by the mapped fault patterns (**Attachment A, Figure 4**). Thus, all features that have a trend ranging from 15° to 45° are considered "on trend" and were awarded the additional 10 points in the Geologic Assessment Table. The geologic strata associated with the Edwards Aquifer include the Georgetown Formations overlying the Edwards Limestone Group, interfingering with the Comanche Peak Formation. These rocks are underlain by the Walnut formation, which has members including the Whitestone Members, Keys Valley Marl Member, the Cedar Park Member, the Bee Cave Member, and the Bull Creek Member. The Glen Rose Formation, another marine limestone stratum, is located below the Walnut Formation. The geology on-site is the Edwards Limestone Group.

The subject area is underlain entirely by Ked (Collins 1997). No disconformities or outcrops other than Edwards Limestone were observed on the subject area.

Karstic Characteristics

In limestone landscapes, karst is expressed by erratically developed cavernous porosity from dissolution of bedrock as water combined with weak acids moves through the subsurface. Karst terrains are typical of the Edwards Limestone, occurring across a vast region of Central Texas, including the Balcones Fault Escarpment. The features produced by karst processes include, but are not limited to, sinkholes, solution cavities, solution enlarged fractures, and caves. These features can eventually provide conduits for fluid movement such as surface water runoff, as "point recharge" to the Edwards Aquifer. Faults and manmade features within bedrock can also provide conduits for point recharge in many cases.

According to Edwards aquifer zone map produced by the TCEQ (2005), the entire subject area is within the northern segment of the Edwards aquifer Recharge Zone. Thus, all karst features identified as sensitive within the project limits have the potential to be point recharge features into the Edwards aquifer.

Review of Historic Aerials

Aerial photographs were reviewed for 1941, 1953, 1964, 1974, 1981, 1990, 1995, 2004, 2010, 2016, and 2020. It was determined that ranching and agricultural activities occurred on the site since the first aerial image dated 1941. Vegetation clearing first appears within the subject area in the 1953 aerial. No major changes occur to the subject area between the 1953 and 1995 aerials. Unpaved roads first appear on-site and to the west and south of the site in the 2004 aerial. The expansion of Sun City to the west and south of the subject area first appears in the 2004 aerial and continues through to the 2020 aerial; however, no changes occur within the subject area between these years except for vegetation re-growth. Aerial photographs can be found in **Attachment C**.

5.0 GEORGETOWN WATER QUALITY ORDINANCE

On February 24, 2015, the City of Georgetown (CoGt) passed a finalized ordinance regarding water quality regulations over the Edwards Aquifer Recharge Zone (EARZ), which established setbacks or buffers around springs and streams in the EARZ as well as for occupied salamander sites. **aci environmental consulting** scientists surveyed the subject area as part of the Geologic Assessment (GA) and included obtained pertinent information on springs, streams, and Georgetown Salamander Critical Habitat Units (CHUs) as part of the assessment.

aci environmental consulting verified that the entire site is contained within the Edwards Aquifer Recharge Zone (EARZ), based on the mapped boundaries. There were no springs or mapped salamander sites or known surface or subsurface CHUs within the subject area. One mapped flowline, an unnamed drainage into Berry Creek, is located within the site, according to the National Hydrography Dataset (NHD), and one mapped wetland is located within the site, according to the National Wetland Inventory (NWI), corresponding to the same drainage. The nearest CHU for the Georgetown Salamander occurs approximately 5.1 miles south of the project area, along the North Fork San Gabriel River.

According to the City of Georgetown Edwards Aquifer Recharge Zone Water Quality Ordinance, the boundaries of the "Stream Buffer" are to coincide with the boundaries of the FEMA 1% floodplain or a calculated 1% floodplain, whichever is smaller. Based on project information, the FEMA 1% floodplain will serve as the stream buffer.

6.0 SUMMARY OF FINDINGS

This report documents the findings of a geologic assessment conducted by **aci environmental consulting** personnel on January 15, 2025. Four features (manmade features in bedrock and a karst feature) were noted on the site. Comprehensive descriptions and recommendations for each feature can be found in **Attachment B**. Based on assessment of each feature, it was determined that there is one sensitive feature on the subject area, the remaining three features are manmade features in bedrock and should be brought to the attention of the engineer.

7.0 REFERENCES

Collins, E.W., 1997. *Geologic Map of the Georgetown Quadrangle, Texas.* Bureau of Economic Geology. Austin, Texas.

(SCS) Soil Conservation Survey. 1983. Soil Survey of Williamson County, Texas. United States Department of Agriculture. Texas Agriculture Experiment Station.

(TCEQ) Texas Commission on Environmental Quality. 2004. Instructions to Geologists for Geologic Assessments on the Edwards Aquifer Recharge/Transition Zones. October 1, 2004. Austin, Texas.

(TCEQ) Texas Commission on Environmental Quality. 2005. "Edwards Aquifer Protection Program, Chapter 213 Rules - Recharge Zone, Transition Zone, Contributing Zone, and Contributing Zone within the Transition Zone." Map. Digital data. September 1, 2005. Austin, Texas.

(TWDB) Texas Water Development Board. 2025. Water Data Interactive Groundwater Data Viewer. Accessed on January 20, 2025. Available at: http://www2.twdb.texas.gov/apps/waterdatainteractive/groundwaterdataviewer

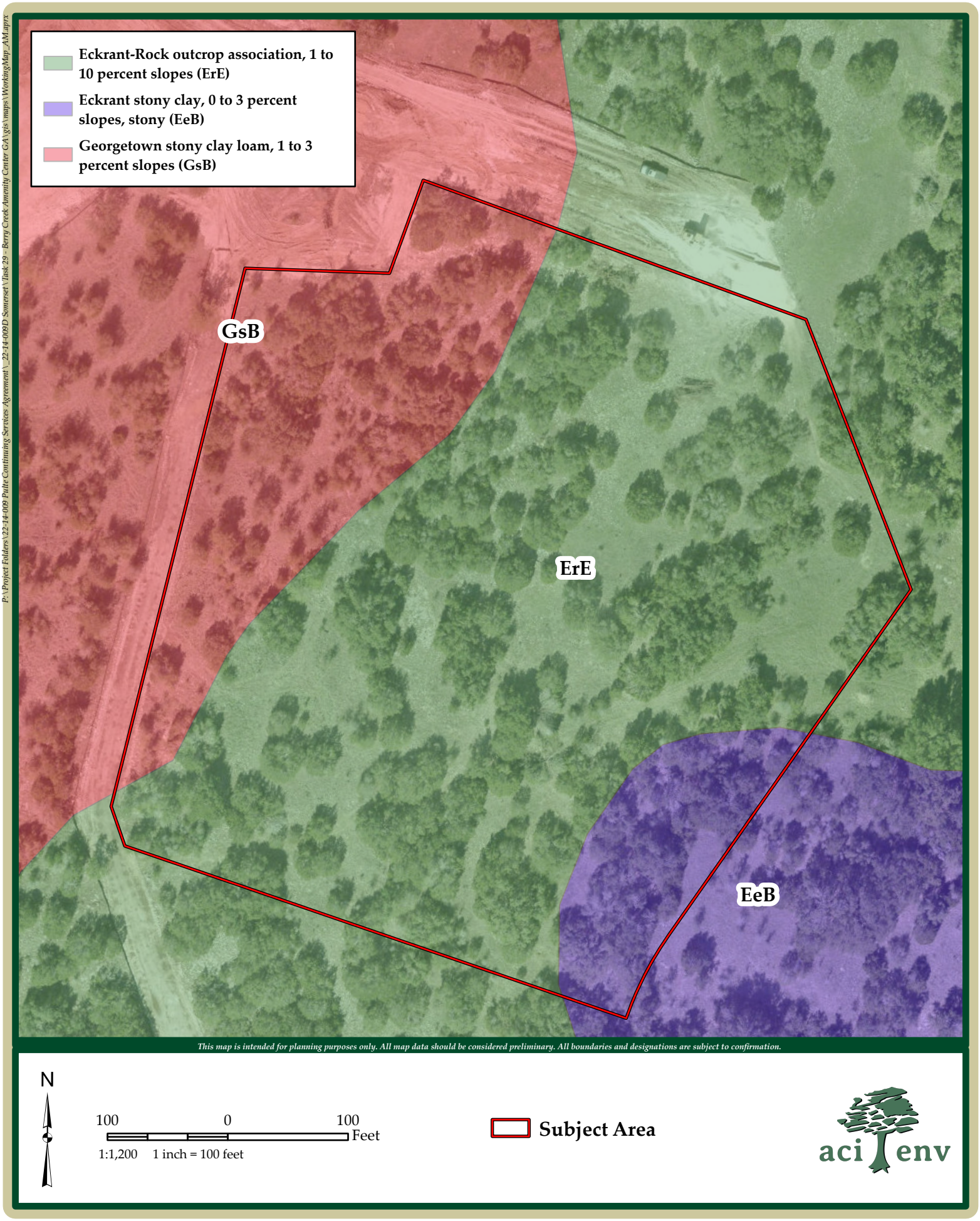
(USDA NRCS) U.S. Department of Agriculture Natural Resources Conservation Service. 2025. WebSoilSurvey.com. Soil Survey Area: Williamson County, Texas. Date accessed: January 20, 2025.

ATTACHMENT A

Site Maps

Sun City Berry Creek Amenity Center **aci Project No.: 22-14-009D**

Figure 1: Site Location Map **January 2025**

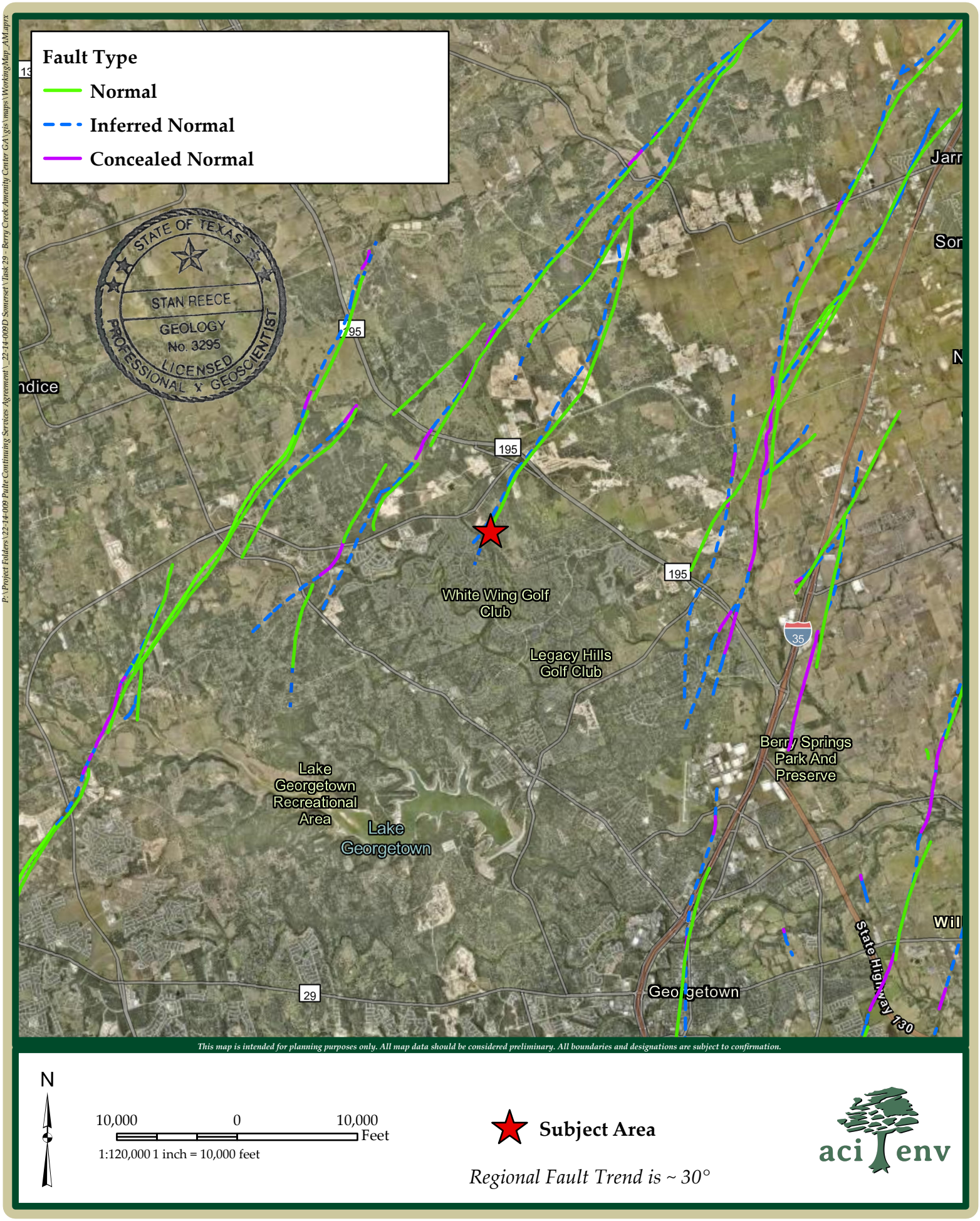


Sun City Berry Creek Amenity Center | **aci Project No.: 22-14-009D**

Figure 2: Site Soils Map | **January 2025**

Sun City Berry Creek Amenity Center **aci Project No.: 22-14-009D**

Figure 3: Geologic Units Map **January 2025**



Sun City Berry Creek Amenity Center **aci Project No.: 22-14-009D**

Figure 4: Regional Trend Map **January 2025**

ATTACHMENT B

Geologic Table
Geologic and Manmade Feature Map (Figure 5)
Feature Descriptions and Recommendations

GEOLOGIC ASSESSMENT TABLE

PROJECT NAME: Sun City Berry Creek Amenity Center

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)	DIP	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						<40	>40	<1.6	>1.6	
S679	30.739198	-97.728327	C	30	Ked	13	8	6	-	-	-	-	O, C, V	20	50		X	X		Hillside
MB-01	30.7398656	-97.728175	MB	30	Ked	1	1	?	-	-	-	-	?	10	40		X	X		Hillside
MB-02	30.738728	-97.728207	MB	30	Ked	0.5	0.5	?	-	-	-	-	?	10	40		X	X		Hillside
MB-03	30.739919	-97.728649	MB	30	Ked	?	?	?	-	-	-	-	?	10	40		X	X		Hillside

* DATUM: NAD 1983 State Plane 4203

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

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

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

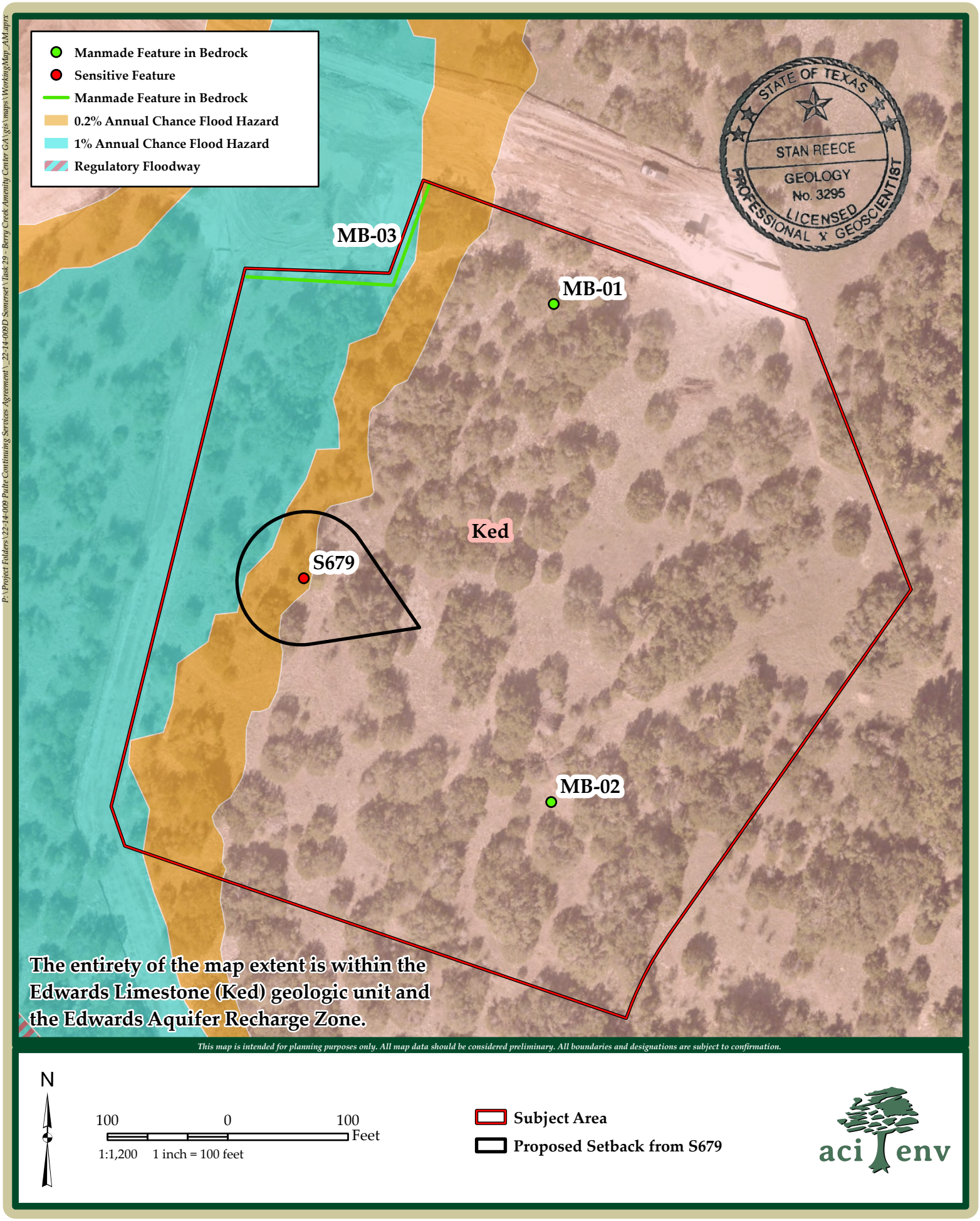
I have read, I understood, and I have followed the Texas Commission on Environmental Quality's Instructions to Geologists. The information presented here complies with that document and is a true representation of the conditions observed in the field. My signature certifies that I am qualified as a geologist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

Date 1/30/2025

Sheet __1___ of __1____

STATE OF TEXAS
STAN REECE
GEOLOGY
No. 3295
LICENSED
PROFESSIONAL GEOSCIENTIST

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



Sun City Berry Creek Amenity Center

aci Project No.: 22-14-009D

Figure 5: Geologic Features Map

January 2025

S679

GPS: 30.739198 -97.728327

S679 is a cave feature. The collapse zone into the cave is approximately 13 feet long, 8 feet wide, and 6 feet deep. The entrance to the cave is on the east side of the collapse zone and continues for an unknown length and depth. The feature is located in the Edwards Limestone and is positioned on a gently sloping hillside. Infill material consists of loose soils, cobbles, organic material, and vegetation including saw greenbrier and hackberry. The feature was previously identified in the Sun City Georgetown – Area 4 Geologic Assessment submitted in 1996. The catchment area for the feature was determined to be less than 1.6 acres. The infiltration rate was determined to be intermediate and a point value of 20 was assigned. This feature is sensitive in terms of groundwater recharge.

Recommendation: 100-foot setback upslope, and a 50-foot setback downslope and across from the collapse zone of the feature should be maintained.

Photo of S679

MB-01

GPS: 30.7398656 -97.728175

MB-01 is a manmade feature in bedrock. This feature is located in the Edwards Limestone and is positioned on a gently sloping hillside. The pipe is approximately 1 foot in diameter. Other dimensions and infill material of the feature are unknown. The catchment area for MB-01 was determined to be less than 1.6 acres. The infiltration rate was determined to be low and a point value of 10 was assigned. This feature is non-sensitive in terms of recharge potential; however, it is being called out to bring to the attention of the project engineer.

Recommendation: This feature should be brought to the attention of the engineer.

Photo of MB-01

MB-02

GPS: 30.738728 -97.728207

MB-02 is a manmade feature in bedrock. This feature is located in the Edwards Limestone and is positioned on a gently sloping hillside. The feature is approximately 6 inches in diameter. Other dimensions and infill material of the feature are unknown. The catchment area for MB-02 was determined to be less than 1.6 acres. The infiltration rate was determined to be low and a point value of 10 was assigned. This feature is non-sensitive in terms of recharge potential; however, it is being called out to bring to the attention of the project engineer.

Recommendation: This feature should be brought to the attention of the engineer.

Photo of MB-02

MB-03

GPS: 30.739919 -97.728649

MB-03 is a manmade feature in bedrock, a gas pipeline. This feature is located in the Edwards Limestone and is positioned on a gently sloping hillside. Dimensions and infill material of the feature are unknown. The catchment area for MB-03 was determined to be less than 1.6 acres. The infiltration rate was determined to be low and a point value of 10 was assigned. This feature is non-sensitive in terms of recharge potential; however, it is being called out to bring to the attention of the project engineer.

Recommendation: This feature should be brought to the attention of the engineer.

Photo of MB-03

ATTACHMENT C

Historic Aerial Photographs

Prepared for:

ACI CONSULTING
1001 Mopac Circle
Austin, TX 78746

BANKS ENVIRONMENTAL DATA
A DIVISION OF THE BANKS GROUP

Historical Aerial Photographs

Sun City Neighborhoods 88 & 89

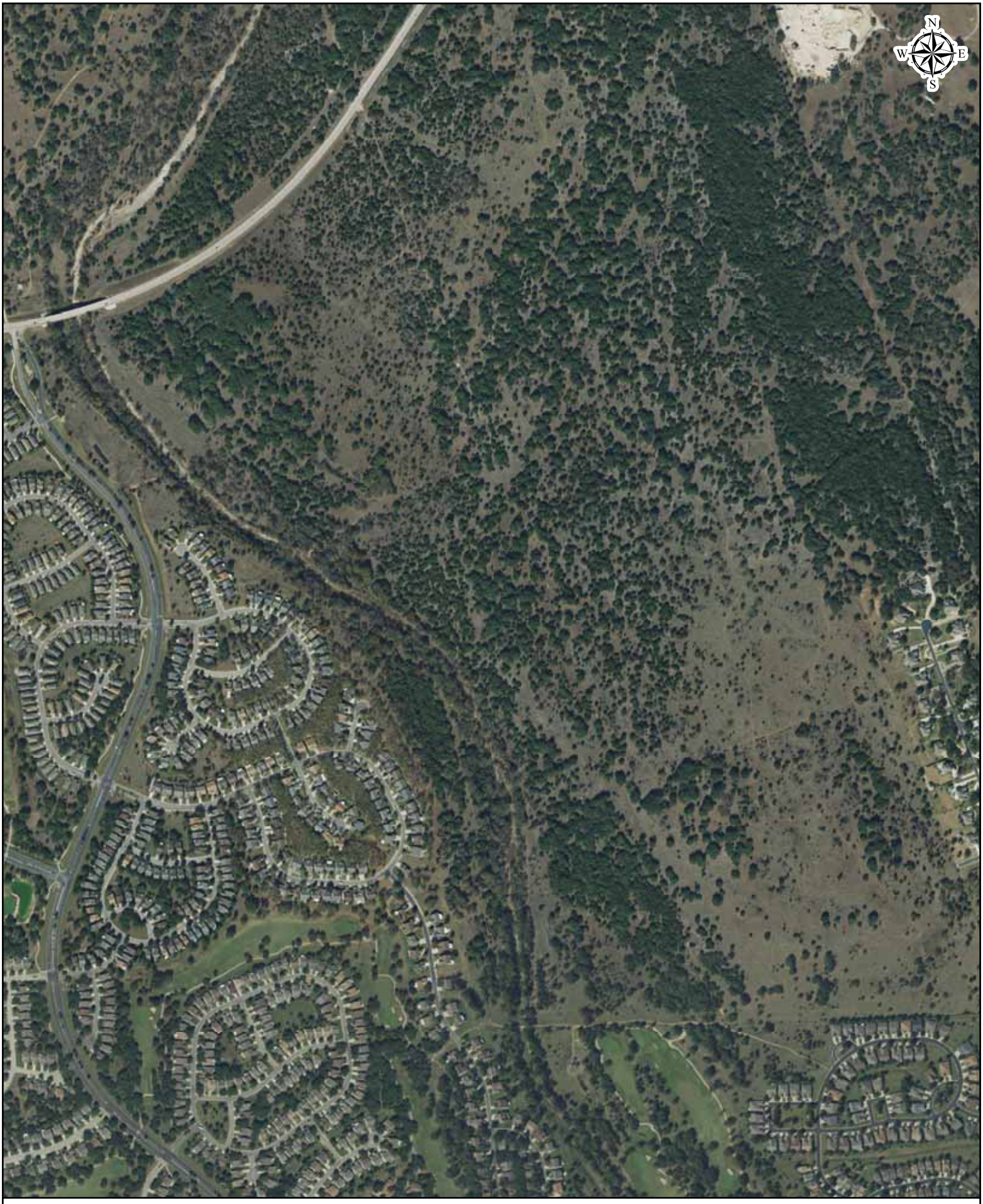
TX

Williamson County

PO #: 22-14-009ZZZH

ES-140532

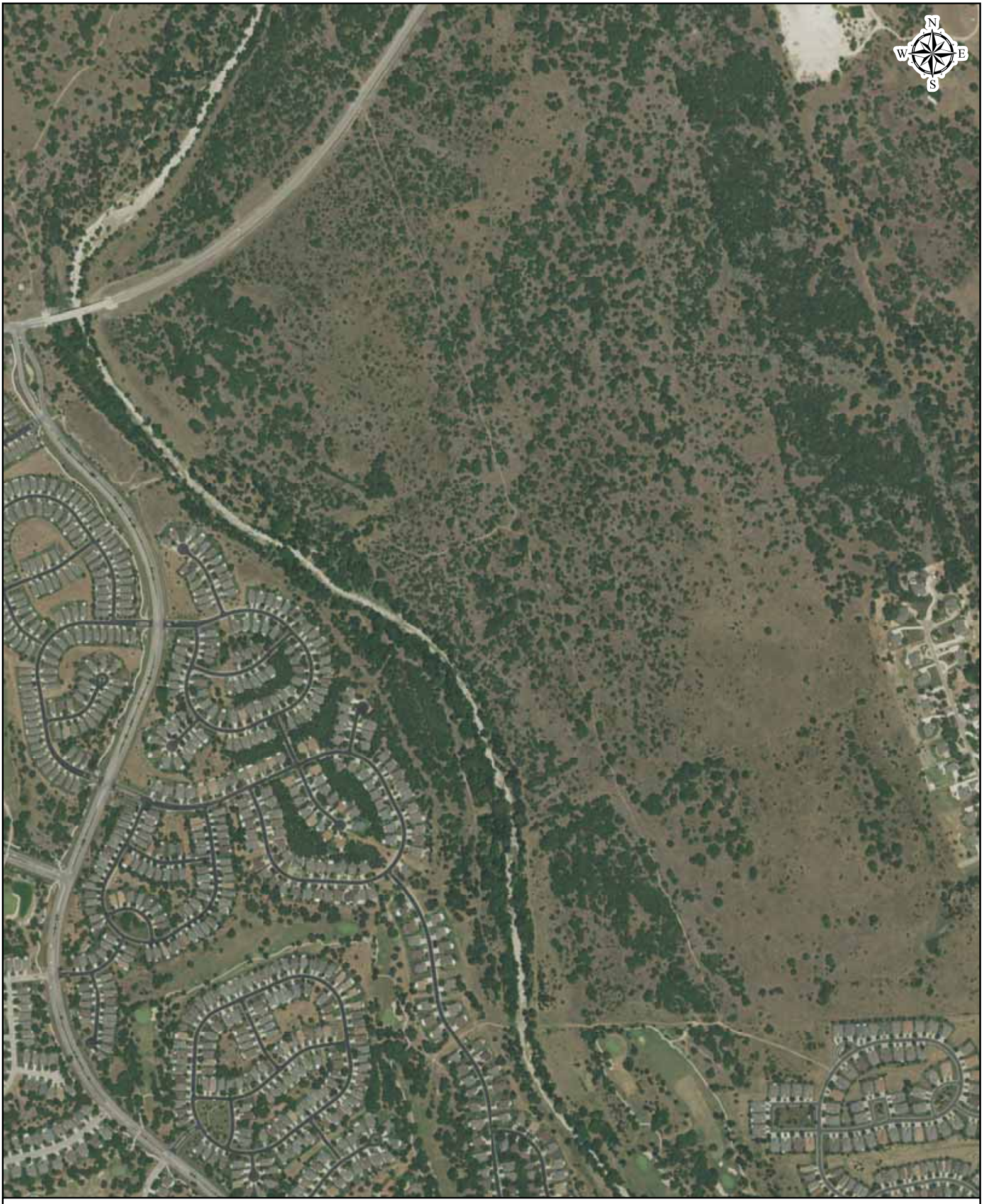
Friday, August 12, 2022



Date: 2020
Source: USDA

0 375 750 1,500 Feet

BANKS
ENVIRONMENTAL DATA
A DIVISION OF THE BANKS GROUP



Date: 2016
Source: USDA

0 375 750 1,500 Feet

BANKS ENVIRONMENTAL DATA
A DIVISION OF THE BANKS GROUP

Date: 2010
Source: USDA

Feet
0 375 750 1,500

BANKS
ENVIRONMENTAL DATA
A DIVISION OF THE BANKS GROUP

Date: 2004
Source: USDA

Feet
0 375 750 1,500

BANKS
ENVIRONMENTAL DATA
A DIVISION OF THE BANKS GROUP

Date: 1995
Source: USGS

0 375 750 1,500 Feet

BANKS ENVIRONMENTAL DATA
A DIVISION OF THE BANKS GROUP

Date: 1990
Source: USGS

0 375 750 1,500 Feet

BANKS ENVIRONMENTAL DATA
A DIVISION OF THE BANKS GROUP

Date: 1981
Source: USGS

0 375 750 1,500 Feet

BANKS ENVIRONMENTAL DATA
A DIVISION OF THE BANKS GROUP

Date: 1974
Source: USGS

0 375 750 1,500 Feet

BANKS ENVIRONMENTAL DATA
A DIVISION OF THE BANKS GROUP

Date: 1964
Source: Fairchild

0 375 750 1,500 Feet

BANKS ENVIRONMENTAL DATA
A DIVISION OF THE BANKS GROUP

Date: 1953
Source: AMS

0 375 750 1,500 Feet

BANKS
ENVIRONMENTAL DATA
A DIVISION OF THE BANKS GROUP

Date: 1941
Source: ASCS

0 375 750 1,500 Feet

BANKS ENVIRONMENTAL DATA
A DIVISION OF THE BANKS GROUP

BANKS ENVIRONMENTAL DATA
A DIVISION OF THE BANKS GROUP

AERIAL SOURCE DEFINITIONS

Acronym	Agency
NASA	National Aeronautics & Space Administration
AMS	Army Mapping Service
ASCS	Agricultural Stabilization & Conservation Service
SCS	Soil Conservation Service
USBR	United States Bureau of Reclamation
Fairchild	Fairchild Aerial Surveys
TXDOT	Texas Department of Transportation
BLM	Bureau of Land Management
USAF	United States Air Force
USCOE	United States Corps of Engineers
USDA	United States Department of Agriculture
USGS	United States Geological Survey
WALLACE	Wallace-Zingery Aerial Surveys
TNRIS	Texas Natural Resources Information System

BANKS ENVIRONMENTAL DATA
A DIVISION OF THE BANKS GROUP

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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: Arroyo CAP III-2, LLC % Steger Bizzell, Erik Haberman, P.E.

Date: 03/05/2025

Signature of Customer/Agent:

Regulated Entity Name: Sun City Berry Creek Amenity Center

Regulated Entity Information

1. The type of project is:

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

2. Total site acreage (size of property):7.019

3. Estimated projected population:N/A

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	9,343	÷ 43,560 =	0.214
Parking	38,832	÷ 43,560 =	0.891
Other paved surfaces	21,957	÷ 43,560 =	0.504
Total Impervious Cover	70,132	÷ 43,560 =	1.610

Total Impervious Cover 1.610 **÷ Total Acreage** 7.019 **X 100 =** 22.9**% 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	33,666Gallons/day
_____% Industrial	_____Gallons/day
_____% Commingled	_____Gallons/day

TOTAL gallons/day 33,666

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 _____ (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): _____

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

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

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

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

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

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

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

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

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

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

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

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

26. ☐ Surface waters (including wetlands).

    ☒ N/A

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

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

28. ☒ Legal boundaries of the site are shown.

Administrative Information

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

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

Attachment A – Factors Affecting Surface Water Quality

The following factors are anticipated to adversely affect surface water and groundwater quality:

- Disturbance of vegetated areas.
- Leaking oil from parked vehicles.
- Malfunctioning wastewater collection system and spill on site.
- Loss of vegetative ground cover due to inadequate watering or mismanagement.
- Over fertilizing vegetative areas.
- The use of roads by automotive traffic and subsequent oil/grease pollutants from normal use.
- The accidental or improper discharge of the following:
    a) Concrete
    b) Cleaning solvents
    c) Detergents
    d) Petroleum based products
    e) Paints
    f) Paint solvents
    g) Acids
    h) Concrete additives

Attachment B – Volume and Character of Storm Water

Existing site conditions are undeveloped ranchland. The proposed amenity center is composed of a drainage area which discharges to Berry Creek southeast of the property, as shown in the Berry Creek drainage report. A summary of the drainage calculations is below and is also included in the Berry Creek Amenity Center Site Development Plans included with this submittal.

The proposed storm water capture will be typical of what is normally observed for a local commercial development. Runoff from the development will flow directly into a proposed batch detention pond and will be routed to pond inlets from storm drains on site. Pervious cover in the development state will be a combination of mowed pastureland and irrigated lawns in good condition. Impervious cover will consist of buildings, roadway, parking areas, and pavement. The existing and proposed drainage plans, contained within the construction plans for the project, contain detailed data regarding storm water runoff expected in the existing and proposed conditions.

The developed peak flows leaving Berry Creek Amenity Center for the 2, 10, 25, and 100-year storms will be less than or equal to those of the pre-developed existing conditions as shown in the attached Existing and Proposed Drainage Plans within the construction plans for the project.

Berry Creek Runoff Calculations – Existing Conditions

Berry Creek Runoff Calculations – Developed Site

Please see attached water quality plans within the plan set.

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: Arroyo CAP III-2, LLC % Steger Bizzell, Erik Haberman, P.E.

Date: 03/05/2025

Signature of Customer/Agent:

Regulated Entity Name: Sun City Berry Creek Amenity Center

Project Information

Potential Sources of Contamination

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

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

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

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

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

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

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

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

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

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

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

Sequence of Construction

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

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

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

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

Temporary Best Management Practices (TBMPs)

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

    ☐ N/A

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

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

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

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

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

Soil Stabilization Practices

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

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

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

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

Administrative Information

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

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

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

Attachment A – Spill Response Actions

Because fuels and hazardous substances will be provided by an off-site facility, no on-site containment procedures are provided for in this WPAP.

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

Education

1. Be aware that different materials pollute in different amounts. Make sure that each employee knows what a "significant spill" is for each material they use, and what is the appropriate response for "significant" and "insignificant" spills. Employees should also be aware of when spill must be reported to the TCEQ. Information available in 30 TAC 327.4 and 40 CFR 302.4.
2. Educate employees and subcontractors on potential dangers to humans and the environment from spills and leaks.
3. Hold regular meetings to discuss and reinforce appropriate disposal procedures (incorporate into regular safety meetings).
4. Establish a continuing education program to indoctrinate new employees.
5. Have contractor's superintendent or representative oversee and enforce proper spill prevention and control measures.

General Measures

1. To the extent that the work can be accomplished safely, spills of oil, petroleum products, and substances listed under 40 CFR parts 110,117, and 302, and sanitary and septic wastes should be contained and cleaned up immediately.
2. Store hazardous materials and wastes in covered containers and protect from vandalism.
3. Place a stockpile of spill cleanup materials where it will be readily accessible.
4. Train employees in spill prevention and cleanup.
5. Designate responsible individuals to oversee and enforce control measures.
6. Spills should be covered and protected from stormwater run-on during rainfall to the extent that it doesn't compromise clean-up activities.
7. Do not bury or wash spills with water.
8. Store and dispose of used clean up materials, contaminated materials, and recovered spill material that is no longer suitable for the intended purpose in conformance with the provisions in applicable BMPs.
9. Do not allow water used for cleaning and decontamination to enter storm drains or watercourses. Collect and dispose of contaminated water in accordance with applicable regulations.
10. Contain water overflow or minor water spillage and do not allow it to discharge into drainage facilities or watercourses.
11. Place Material Safety Data Sheets (MSDS), as well as proper storage, cleanup, and spill reporting instructions for hazardous materials stored or used on the project site in an open, conspicuous, and accessible location.

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

Cleanup

1. Clean up leaks and spills immediately.
2. Use a rag for small spills on paved surfaces, a damp mop for general cleanup, and absorbent material for larger spills. If the spilled material is hazardous, then the used cleanup materials are also hazardous and must be disposed of as hazardous waste.
3. Never hose down or bury dry material spills. Clean up as much of the material as possible and dispose of properly. See the waste management BMPs in this section for specific information.

Minor Spills

1. Minor spills typically involve small quantities of oil, gasoline, paint, etc. which can be controlled by the first responder at the discovery of the spill.
2. Use absorbent materials on small spills rather than hosing down or burying the spill.
3. Absorbent materials should be promptly removed and disposed of properly.
4. Follow the practice below for a minor spill:
5. Contain the spread of the spill.
6. Recover spilled materials.
7. Clean the contaminated area and properly dispose of contaminated materials.

Semi-Significant Spills

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

Spills should be cleaned up immediately:

1. Contain spread of the spill.
2. Notify the project foreman immediately.
3. If the spill occurs on paved or impermeable surfaces, clean up using "dry" methods (absorbent materials, cat litter and/or rags). Contain the spill by encircling with absorbent materials and do not let the spill spread widely.
4. If the spill occurs in dirt areas, immediately contain the spill by constructing an earthen dike. Dig up and properly dispose of contaminated soil.
5. If the spill occurs during rain, cover spill with tarps or other material to prevent contaminating runoff.

Significant/Hazardous Spills

For significant or hazardous spills that are in reportable quantities:

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

2. For spills of federal reportable quantities, in conformance with the requirements in 40 CFR parts 110, 119, and 302, the contractor should notify the National Response Center at (800) 424-8802.
3. Notification should first be made by telephone and followed up with a written report.
4. The services of a spills contractor or a Haz-Mat team should be obtained immediately. Construction personnel should not attempt to clean up until the appropriate and qualified staffs have arrived at the job site.
5. Other agencies which may need to be consulted include, but are not limited to, the City Police Department, County Sheriff Office, Fire Departments, etc.

More information on spill rules and appropriate responses is available on the TCEQ website at: http://www.tceq.texas.gov/response/

Vehicle and Equipment Maintenance

1. If maintenance must occur onsite, use a designated area and a secondary containment, located away from drainage courses, to prevent the run-on of stormwater and the runoff of spills.
2. Regularly inspect onsite vehicles and equipment for leaks and repair immediately.
3. Check incoming vehicles and equipment (including delivery trucks, and employee and subcontractor vehicles) for leaking oil and fluids. Do not allow leaking vehicles or equipment onsite.
4. Always use secondary containment, such as a drain pan or drop cloth, to catch spills or leaks when removing or changing fluids.
5. Place drip pans or absorbent materials under paving equipment when not in use.
6. Use absorbent materials on small spills rather than hosing down or burying the spill. Remove the absorbent materials promptly and dispose of properly.
7. Promptly transfer used fluids to the proper waste or recycling drums. Don't leave full drip pans or other open containers lying around.
8. Oil filters disposed of in trashcans or dumpsters can leak oil and pollute stormwater. Place the oil filter in a funnel over a waste oil-recycling drum to drain excess oil before disposal. Oil filters can also be recycled. Ask the oil supplier or recycler about recycling oil filters.
9. Store cracked batteries in a non-leaking secondary container. Do this with all cracked batteries even if you think all the acid has drained out. If you drop a battery, treat it as if it is cracked. Put it into the containment area until you are sure it is not leaking.

Vehicle and Equipment Fueling

1. If fueling must occur on site, use designated areas, located away from drainage courses, to prevent the run-on of stormwater and the runoff of spills.
2. Discourage "topping off" of fuel tanks.
3. Always use secondary containment, such as a drain pan, when fueling to catch spills/ leaks.

If a spill should occur, the person responsible for the spill should contact the TCEQ at (512) 339-2929 or call 911. Soil contaminated by spills that occur on-site will be removed and disposed of at an approved disposal site.

Attachment B – Potential Sources of Contamination

- Hydraulic and diesel
- Portable toilet systems (Sanitary Waste)
- Trash from construction workers
- Paints, Paint Solvents, glues, concrete and other building materials
- Plant fertilizers and Pesticides
- Inadequate maintenance of temporary water pollution abatement measures
- Stock piles or spoils of materials.

Attachment C - Project Description

The Berry Creek Amenity Center site will be developed on a 7.019-acre lot in the Frederick Foy Survey, Abstract No. 229. The site is located south of Ronald Reagan Boulevard and east of CR 245. The site will ultimately be bounded by Sun City NH88 to the Northwest, Above and Beyond Way and Woodside to the North, NH89 to the South, and Berry Creek to the West.

The project site is a portion of previously undeveloped agricultural ranch land, and no demolition activities will be required as a part of the project. There is no existing impervious cover on-site. The project includes a sales center, amenity building, outdoor pool and spa, hardscape, pool deck, Bocce ball court, parking and associated drive aisles, water and wastewater, drainage and water quality improvements associated with the amenity and sales center.

Sewage collection for the site consists of an 8- inch SDR-26 PVC private service lateral that will tie into the existing 21-inch wastewater interceptor along the west boundary of the property that was installed with the Woodside Offsite Improvements, which was submitted to TCEQ (RN111600748). This system will ultimately flow to the existing Sun City Lift Station along Berry Creek. The wastewater will then be conveyed to the City of Georgetown Pecan Branch Wastewater Treatment Plant.

All offsite drainage associated with this site is captured within roadways and routed away from this site. The site generally drains from northeast to southwest and into Berry Creek.

Eighty-five percent removal of suspended solids and pollutants for the proposed 1.61 acres of impervious cover created with this development will be performed by a permanent batch Detention Pond for 1.46 acres and vegetative filter strips for the 0.15 acres of impervious cover that do not drain to the pond.

There is one sensitive feature located within the overall 7.019 acre project boundary as shown within the attached geologic assessment. The sensitive feature is not disturbed by the improvements proposed with this application.

Attachment D – Temporary Best Management Practices and Measures

All on-site runoff will be contained within the proposed silt fence and inlet protection. In addition, a concrete washout area will be located on the site. There is no off-site runoff as the upgradient runoff is diverted by an existing road and associated storm sewer. The stabilized construction entrance will reduce the amount of sediment leaving the site. The water quality pond for the site will be rough graded and used as a temporary sediment trap during construction. These temporary BMPs will trap most pollutants and prevent them from entering off-site surface streams, sensitive features, or the aquifer.

Attachment E – Request to Temporarily Seal a Feature

There are no sensitive features that require sealing.

Attachment F – Structural Practices

Construction will be phased to minimize areas of unstabilized disturbance. Silt fences, construction entrances and inlet protection will be used to limit the runoff discharge of sediments from exposed areas on the site during construction. Drainage off the site is typically in a sheet flow or shallow concentrated flow condition. The Water Quality Pond will the excavated to provide a temporary sediment trap.

Attachment H – Temporary Sediment Pond(s) Plan and Calculations

The area of this project to be disturbed by construction is less than ten acres. The proposed water quality pond will be excavated to produce a temporary sediment trap during construction. The temporary sediment pond is sized to contain 9024 cubic feet of storage for the 2.95 acre contributing drainage area.

STAGE STORAGE TABLE				
ELEV	AREA (sq. ft.)	DEPTH (ft)	AVG ENDINC. VOL. (cu. ft.)	AVG END TOTAL VOL. (cu. ft.)
835	2,046.25	N/A	N/A	0
836	2,651.34	1	2348.79	2348.79
837	3,321.52	1	2986.43	5335.22
838	4,056.81	1	3689.17	9024.39

Attachment H – Temporary Sediment Pond(s) Plan and Calculations

The area of this project to be disturbed by construction is less than ten acres. The proposed water quality pond will be excavated to produce a temporary sediment trap during construction. The temporary sediment pond is sized to contain 9024 cubic feet of storage for the 2.95 acre contributing drainage area.

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836	2,651.34	1	2348.79	2348.79
837	3,321.52	1	2986.43	5335.22
838	4,056.81	1	3689.17	9024.39

Attachment I – Inspection and Maintenance for BMPs

Silt Fence

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

Concrete Washout

1. Inspection should be made weekly and after each rainfall by the responsible party.
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. The berm/temporary pit should be reshaped as needed during inspection.
4. The berm/temporary pit should be replaced when the structure ceases to function as intended due to silt accumulation among the rocks, washout, construction traffic damage, etc.
5. The washout should be left in place until construction has been completed.
6. 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 Concrete Washout should be revegetated.
7. The concrete from the washout should be removed from the site in an appropriate manner.

Rock Berm

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

Temporary Construction Entrance/Exit

1. The entrance should be maintained in a condition, which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment.

2. All sediment spilled, dropped, washed or tracked onto public rights-of-way should be removed immediately by contractor.
3. When necessary, wheels should be cleaned to remove sediment prior to entrance onto public right-of-way.
4. When washing is required, it should be done on an area stabilized with crushed stone that drains into an approved sediment trap or sediment basin.
5. All sediment should be prevented from entering any storm drain, ditch or water course by using approved methods.

Temporary Sediment Basin

1. Inspection should be made weekly and after each rainfall. Check the embankment, spillways, and outlet for erosion damage, and inspect the embankment for piping and settlement. Repair should be made promptly as needed by the contractor.
2. Trash and other debris should be removed after each rainfall to prevent clogging of the outlet structure.
3. Accumulated silt should be removed and the basin should be re-graded to its original dimensions at such point that the capacity of the impoundment has been reduced to 75% of its original storage capacity.
4. The removed sediment should be stockpiled or redistributed in areas that are protected from erosion.
5. When construction is complete, the sediment should be disposed of in a manner that will not cause additional siltation.

Inlet Protection

1. Inspection should be made weekly and after each rainfall. Check inlet protection for damage. Repair should be made promptly as needed by the contractor
2. Trash and other debris should be removed after each rainfall.
3. Accumulated silt should be removed.
4. The removed sediment should be stockpiled or redistributed in areas that are protected from erosion.
5. When construction is complete, the sediment should be disposed of in a manner that will not cause additional siltation.

The following sample forms should be utilized to document the inspection and maintenance of the proposed temporary BMPs as described above. This form shall be kept on site with the WPAP until the project is completed. A report documenting the Temporary BMPs maintenance activities, sediment removal and modifications to the sedimentation and erosion controls is required.

Temporary BMP Logs – Silt Fence

Date	Date of Last Inspection	Inspection Performed By	Title	Company	Status of BMP(s)	Corrective Action Required (if any)	Date Corrective Action Completed

Temporary BMP Logs – Concrete Washout

Date	Date of Last Inspection	Inspection Performed By	Title	Company	Status of BMP(s)	Corrective Action Required (if any)	Date Corrective Action Completed

Temporary BMP Logs – Rock Berm

Date	Date of Last Inspection	Inspection Performed By	Title	Company	Status of BMP(s)	Corrective Action Required (if any)	Date Corrective Action Completed

Temporary BMP Logs – Temporary Construction Entrance

Date	Date of Last Inspection	Inspection Performed By	Title	Company	Status of BMP(s)	Corrective Action Required (if any)	Date Corrective Action Completed

Temporary BMP Logs – Temporary Sediment Basin

Date	Date of Last Inspection	Inspection Performed By	Title	Company	Status of BMP(s)	Corrective Action Required (if any)	Date Corrective Action Completed

Temporary BMP Logs – Inlet Protection

Date	Date of Last Inspection	Inspection Performed By	Title	Company	Status of BMP(s)	Corrective Action Required (if any)	Date Corrective Action Completed

Attachment J – Schedule of Interim and Permanent Soil Stabilization Practices

Vehicular traffic should be limited to areas of the project site where construction will take place. The contractor should endeavor to preserve existing vegetation as much as practicable to reduce erosion and lower the cost associated with stabilization. **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.**

All disturbed areas shall be stabilized as described below.

Except as provided for below, stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased.

A. Where the initiation of stabilization measures by the 14th day after construction activity temporarily or permanently ceases is precluded by snow cover or frozen ground conditions, stabilization measures shall be initiated as soon as practicable.
B. Where construction activity on a portion of the site has temporarily ceased, and earth-disturbing activities will be resumed with 21 days, temporary stabilization measures do not have to be initiated on that portion of the site.
C. In areas experiencing drought, where the initiation of stabilization measures by the 14th day after construction activity has temporarily or permanently ceased is precluded by seasonal arid conditions, stabilization measures shall be initiated as soon as practicable.

Stabilization measures as described as follows:

All disturbed grass areas should be planted in drought resistant species normally grown as permanent lawns, such as Zoysia, Bermuda and Buffalo. Grass areas may be sodded, plugged, sprigged or seeded except that solid sod shall be used in swales or other areas subject to erosion. All planted areas shall be provided with a readily available water supply and watered as necessary to ensure continuous healthy growth and development. Maintenance shall include the replacement of all dead plant material if that material was used to meet the requirements of this section.

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: Arroyo CAP III-2, LLC % Steger Bizzell, Erik Haberman, P.E.

Date: 03/05/2025

Signature of Customer/Agent

Regulated Entity Name: Sun City Berry Creek Amenity Center

Permanent Best Management Practices (BMPs)

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

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

   ☐ N/A

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

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

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

☐ N/A

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

   ☐ N/A

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

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

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

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

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

☐ A description of the BMPs and measures that will be used to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site is attached.

☒ No surface water, groundwater or stormwater originates upgradient from the site and flows across the site, and an explanation is attached.

☐ Permanent BMPs or measures are not required to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site, and an explanation is attached.

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

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

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

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

☒ N/A

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

☒ The permanent sealing of or diversion of flow from a naturally-occurring sensitive feature that accepts recharge to the Edwards Aquifer as a permanent pollution abatement measure has not been proposed.

☐ **Attachment E - Request to Seal Features**. A request to seal a naturally-occurring sensitive feature, that includes, for each feature, a justification as to why no reasonable and practicable alternative exists, is attached.

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

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

☐ N/A

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

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

    ☐ N/A

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

    ☒ N/A

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

    ☒ N/A

Responsibility for Maintenance of Permanent BMP(s)

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

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

    ☐ N/A

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

    ☐ N/A

Attachment B – BMPs for Upgradient Stormwater

No upgradient stormwater enters this site. All upgradient stormwater is contained within Sun City NH88, NH89 and Woodside right of ways and routed around this site.

Attachment C – BMPs for On-site Stormwater

A batch detention basin, as described in the Addendum to TCEQ's "Complying with the Edwards Rules: Technical Guidance Manual on Best Management Practices" Section 3.2.17 (RG-348), will be used as the structural BMP for this development. The batch detention basin has been designed to meet the City of Georgetown's Water Quality Ordinance requirement 85% Total Suspended Solids (TSS) removal.

The batch detention basin will be used to remove the TSS load of the project site. A batch detention basin has a TSS removal efficiency of 91% according to the above referenced manual. For 85% TSS removal, 1490 pounds of solids must be removed from the site to treat the project site. The total capture volume is the required water quality volume increased by 20%. The total capture volume required for 85% TSS removal is 6258 cubic feet. A total capture volume of 6264 cubic feet is provided by the proposed batch detention basin. The capture volume collected by the batch detention basin will be held for the required 12- hour detention time, and a programmed controller will send a signal to the actuator to open the valve and release the treated runoff.

After the required capture volume is collected, a weir within the batch detention basin will divert additional runoff to Berry Creek.

Calculations to determine the pollutant load and sizing for each BMP are attached directly behind this sheet.

Attachment D – BMPs for Surface Streams

There are no additional BMPs for minimizing pollutants from entering surface streams. The Permanent BMPs have been designed to remove 85% of the anticipated pollutant loads. Temporary BMPs have been designed to reduce the potential pollutant load during construction activities.

Attachment E – Request to Seal Features

There are no sensitive features that require sealing.

Attachment F – Construction Plans

See Attached Sun City Berry Creek Amenity Center Construction Plans.

Attachment G – Inspection, Maintenance, Repair and Retrofit Plan

The following can be found in the TCEQ's "Complying with the Edwards Rules: Technical Guidance Manual on Best Management Practices."

Maintenance Guidelines for Batch Detention Basins

Batch detention basins may have somewhat higher maintenance requirements than an extended detention basin since they are active stormwater controls. The maintenance activities are identical to those of extended detention basins with the addition of maintenance and inspections of the automatic controller and the valve at the outlet.

- *Inspections*. Inspections should take place a minimum of twice a year. One inspection should take place during wet weather to determine if the basin is meeting the target detention time of 12 hours and a drawdown time of no more than 48 hours. The remaining inspections should occur between storm events so that manual operation of the valve and controller can be verified. The level sensor in the basin should be inspected and any debris or sediment in the area should be removed. The outlet structure and the trash screen should be inspected for signs of clogging. Debris and sediment should be removed from the orifice and outlet(s) as described in previous sections. Debris obstructing the valve should be removed. During each inspection, erosion areas inside and downstream of this BMP should be identified and repaired/revegetated immediately.

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

- *Litter and Debris Removal*. Litter and debris removal should take place at least twice a year, as part of the periodic mowing operations and inspections. Debris and litter should be removed from the surface of the basin. Particular attention should be paid to floatable debris around the outlet structure. The outlet should be checked for possible clogging or obstructions and any debris removed.

- *Erosion control*. The basin side slopes and embankment all may periodically suffer from slumping and erosion. To correct these problems, corrective action, such as regarding and revegetation, may be necessary. Correction of erosion control should take place whenever required based on the periodic inspections.

- *Nuisance Control*. Standing water or soggy conditions may occur in the basin. Some standing water may occur after a storm event since the valve may close with 2 to 3 inches of water in the basin. Some flow into the basin may also occur between storms due to spring flow and residential water use that enters the storm sewer system. Twice a year, the facility should be evaluated in terms of nuisance control (insects, weeds, odors, algae, etc.).

- *Structural Repairs and Replacement*. With each inspection, any damage to structural elements of the basin (pipes, concrete drainage structures, retaining walls, etc.) should be identified and repaired immediately. An example of this type of repair can include patching of cracked concrete, sealing of voids, removal of vegetation from cracks and joints. The various inlet/outlet structures in a basin will eventually deteriorate and must be replaced.

- *Sediment Removal*. A properly designed batch detention basin will accumulate quantities of sediment over time. The accumulated sediment can detract from the appearance of the facility and reduce the pollutant removal performance of the facility. The sediment also tends to accumulate near the outlet structure and can interfere with the level sensor operation. Sediment shall be removed from the basin at least every 5 years, when sediment depth exceeds 6 inches, when the sediment interferes with the level sensor or when the basin does not drain within 48 hours. Care should be taken not to compromise the basin lining during maintenance.

- *Logic Controller*. The Logic Controller should be inspected as part of the twice yearly investigations. Verify that the external indicators (active, cycle in progress) are operating properly by turning the controller off and on, and by initiating a cycle by triggering the level sensor in the basin. The valve should be manually opened and closed using the open/close switch to verify valve operation and to assist in inspecting the valve for debris. The solar panel should be inspected and any dust or debris on the panel should be carefully removed. The controller and all other circuitry and wiring should be inspected for signs of corrosion, damage from insects, water leaks, or other damage. At the end of the inspection, the controller should be reset.

NOTE: This Inspection, Maintenance, Repair and Retrofit Plan for the **Berry Creek Amenity Center – Commercial Batch Detention Pond** was created and designed by the engineer of this BMP. Maintenance is the responsibility of the Owner and should be followed in accordance with this plan to keep the BMPs operating correctly.

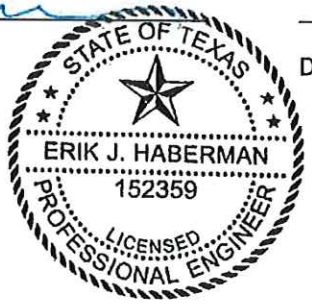
Arroyo CAP III-2, LLC

Leigh Austin
Executive Vice President

3/5/25
Date

Erik J. Haberman, P.E.
Steger Bizzell
F-181

3/5/2025
Date



SAMPLE)** PERMANENT BMP LOG **(SAMPLE)**

INSPECTOR: _____ DATE: _____

Inspectors Company: _____

Company Address: _____

_____

_____

Company Phone: _____ Fax: _____

Date of Last Inspection:_____ Recent Heavy Rainfall: YES NO
(CIRCLE ONE)

Status of BMP(s): _____

_____

_____

_____

_____

Corrective Action Required (if any): _____

_____

_____

_____

_____

Date Corrected (if applicable): _____

*If actions are required they must be completed within 7 working days of this INSPECTION.

Attachment H - Pilot-Scale Field Testing Plan, if BMPs not based on Complying with the Edwards Aquifer Rules: Technical Guidance for BMPs

Not applicable.

Attachment I - Measures for Minimizing Surface Stream Contamination

The proposed site will be used for commercial development with a maximum 70-percent impervious cover and a permanent BMP is included. There are no additional measures for minimizing pollutants from entering surface streams. The Permanent BMPs have been designed to remove 85% of the anticipated contamination. Temporary BMPs have been designed to reduce the potential contaminant load during construction activities.

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

I Leigh Austin,
Print Name

Executive Vice President,
Title - Owner/President/Other

of Arroyo CAP III-2 LLC,
Corporation/Partnership/Entity Name

have authorized Erik Haberman, P.E.
Print Name of Agent/Engineer

of Steger Bizzell
Print Name of Firm

to represent and act on the behalf of the above named Corporation, Partnership, or Entity for the purpose of preparing and submitting this plan application to the Texas Commission on Environmental Quality (TCEQ) for the review and approval consideration of regulated activities.

I also understand that:

1. The applicant is responsible for compliance with 30 Texas Administrative Code Chapter 213 and any condition of the TCEQ's approval letter. The TCEQ is authorized to assess administrative penalties of up to $10,000 per day per violation.

2. For those submitting an application who are not the property owner, but who have the right to control and possess the property, additional authorization is required from the owner.

3. Application fees are due and payable at the time the application is submitted. The application fee must be sent to the TCEQ cashier or to the appropriate regional office. The application will not be considered until the correct fee is received by the commission.

4. A notarized copy of the Agent Authorization Form must be provided for the person preparing the application, and this form must accompany the completed application.

5. No person shall commence any regulated activity on the Edwards Aquifer Recharge Zone, Contributing Zone or Transition Zone until the appropriate application for the activity has been filed with and approved by the Executive Director.

SIGNATURE PAGE:

Applicant's Signature

3/5/25
Date

Leigh Austin
Executive Vice President

STATE OF CALIFORNIA §
§
COUNTY OF ORANGE §

ON March 5, 2025, 2025 before me, A. Cote Magoolaghan

Personally appeared Leigh Austin,
ARROYO CAP III-2, LLC, a Delaware limited liability company, as Sole Member of ARROYO CAPITAL III, LLC, a Delaware limited liability company, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under penalty of perjury under the laws of the state of California that the foregoing paragraph is true and correct.

Witness my hand and official seal.

Signature _____ (SEAL)

A. COTE MAGOOLAGHAN
Notary Public - California
Orange County
Commission # 2510331
My Comm. Expires Jan 21, 2029

Application Fee Form

Texas Commission on Environmental Quality
Name of Proposed Regulated Entity: Sun City Berry Creek Amenity Center
Regulated Entity Location: _____
Name of Customer: Arroyo CAP III-2, LLC
Contact Person: Erik Haberman, P.E. Phone: (512) 930-9412
Customer Reference Number (if issued):CN 606180032
Regulated Entity Reference Number (if issued):RN _____

Austin Regional Office (3373)

☐ Hays ☐ Travis ☒ Williamson

San Antonio Regional Office (3362)

☐ Bexar ☐ Medina ☐ Uvalde
☐ Comal ☐ Kinney

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

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

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

Site Location (Check All That Apply):

☒ Recharge Zone ☐ Contributing Zone ☐ Transition Zone

Type of Plan	***Size***	***Fee Due***
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	7.019 Acres	$ 5,000
Sewage Collection System	L.F.	$
Lift Stations without sewer lines	Acres	$
Underground or Aboveground Storage Tank Facility	Tanks	$
Piping System(s)(only)	Each	$
Exception	Each	$
Extension of Time	Each	$

Signature: _____ Date: 03/04/2025

Application Fee Schedule

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

Water Pollution Abatement Plans and Modifications

Contributing Zone Plans and Modifications

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

Organized Sewage Collection Systems and Modifications

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

Underground and Aboveground Storage Tank System Facility Plans and Modifications

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

Exception Requests

Project	*Fee*
Exception Request	$500

Extension of Time Requests

Project	*Fee*
Extension of Time Request	$150

TCEQ Use Only

TCEQ Core Data Form

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

SECTION I: General Information

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

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

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

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	**3. Regulated Entity Reference Number** *(if issued)*
CN 606180032		**RN N/A**

SECTION II: Customer Information

4. General Customer Information	**5. Effective Date for Customer Information Updates** (mm/dd/yyyy)	3/5/2025

☐ 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:*
Arroyo CAP III-2, 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)*
0804937993	32088456507		

11. Type of Customer:	☐ Corporation	☐ Individual	Partnership: ☐ General ☒ Limited
Government: ☐ City ☐ County ☐ Federal ☐ Local ☐ 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 ☐ VCP/BSA Applicant ☐ Other:

15. Mailing Address:	18575 Jamboree Road STE 350						
	City	Irvine	**State**	CA	**ZIP**	92612	**ZIP + 4**	2551

16. Country Mailing Information *(if outside USA)*	**17. E-Mail Address** *(if applicable)*
	jbrouelette@arroyocapital.com

18. Telephone Number	**19. Extension or Code**	**20. Fax Number** *(if applicable)*

(512) 532-3355		( ) -

SECTION III: Regulated Entity Information

21. General Regulated Entity Information *(If 'New Regulated Entity" is selected, a new permit application is also required.)*

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

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

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

Sun City Berry Creek Amenity Center

23. Street Address of the Regulated Entity: ***(No PO Boxes)***	2801 Above and Beyond Way							
	City	Georgetown	**State**	TX	**ZIP**	78633	**ZIP + 4**	
24. County	Williamson							

If no Street Address is provided, fields 25-28 are required.

25. Description to Physical Location:	I-35 N, exit 266, left at TX-195W, left at Ronald Reagan Boulevard, left at Above and Beyond Way for 0.5 miles				
26. Nearest City			**State**	**Nearest ZIP Code**	
Georgetown			TX	78633	

Latitude/Longitude are required and may be added/updated to meet TCEQ Core Data Standards. (Geocoding of the Physical Address may be used to supply coordinates where none have been provided or to gain accuracy).

27. Latitude (N) In Decimal:	30.739529		**28. Longitude (W) In Decimal:**	-97.728463	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
30	44	22.3044	-97	43	42.4668

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)

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

Land Development

34. Mailing Address:	**18575 Jamboree Road #STE 350**							
	City	**Irvine**	**State**	**CA**	**ZIP**	**92612**	**ZIP + 4**	**2551**
35. E-Mail Address:	**jbrouelette@arroyocapital.com**							

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(512) 532-3355		( ) -

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	☐ Wastewater	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	Steger Bizzell - Erik J. Haberman, P.E.	41. Title:	Project Manager

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(512) 930-9412		( ) -	ehaberman@stegerbizzell.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:	Steger Bizzell	Job Title:	Project Manager	
Name *(In Print)*:	Erik J. Haberman		Phone:	(512) 930- 9412
Signature:			Date:	3/5/2025

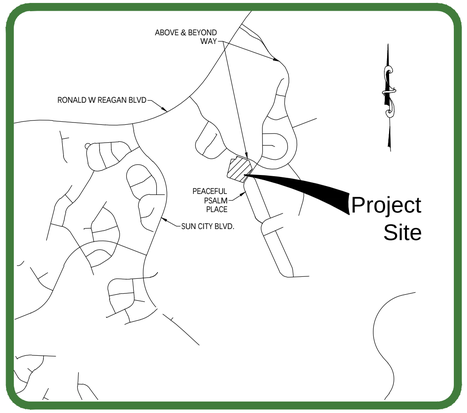
SITE DEVELOPMENT PLAN
FOR
SUN CITY BERRY CREEK AMENITY CENTER
CITY OF GEORGETOWN
WILLIAMSON COUNTY, TEXAS
2024-109-SDP

PROJECT INFORMATION

SITE ADDRESS:	2801 ABOVE AND BEYOND WAY, GEORGETOWN, TX 78633
OWNER:	Arroyo CAP III-2 LLC Jeffrey Brouelette 18575 Jamboree Road STE 350 Irvine, CA 92612 512-532-3355
ARCHITECT:	SEC PLANNING, LLC. 4201 W. Parmer Lane Building A, Suite 220 Austin, TX 78727 512-246-7003 www.secplanning.com email: info@secplanning.com
MEP:	N/A
CIVIL ENGINEER:	STEGER BIZZELL TBPLS FIRM NO. 10003700 1978 S. AUSTIN AVE GEORGETOWN, TEXAS 78626 OFFICE: 512-930-9412 CONTACT: ERIK HABERMAN, P.E. www.stegerbizzell.com email: ehaberman@stegerbizzell.com
SURVEYOR:	McKim & Creed 8868 Research Blvd., Suite 407 Austin, TX 78758 512-916-0224 TBPLS Firm Registration No. 101776-01 CONTACT: JORGE FERNANDEZ, R.P.L.S
LANDSCAPE ARCHITECT:	SEC Planning, LLC 4201 W. Parmer Lane Building A, Suite 220 Austin, TX 78727 512-246-7003
ORIGINAL DATE: REVISION DATE:	November 2, 2024
ACREAGE:	7.02 Acres
LIMITS OF CONSTRUCTION:	3.64 Acres
LEGAL DESCRIPTION:	Foy, F. Sur. A-229, 7.019 Acres
PROPOSED USE:	COMMUNITY AMENITY CENTER
UTILITY PROVIDERS:	Electric, Water & Wastewater City of Georgetown Utility Systems 300-1 Industrial Ave., Georgetown, Tx 78626 512-930-3640 https://gus.georgetown.org
ZONING INFORMATION:	Berry Creek Amenity Center, Somerset Hills PUD 2022-71

SITE PLAN NOTES:

1. It is the responsibility of the property owner, and successors to the current property owner, to ensure the subject property and any improvements are maintained in conformance with this Site Development Plan.
2. This development shall comply with all standards of the PUD Zoning Ordinance 2022-71, Unified Development Code (UDC), the City of Georgetown Construction Standards and Specifications Manual, the Development Manual and all other applicable City standards.
3. This Site Development Plan shall meet the UDC Stormwater requirements.
4. All signage requires a separate application and approval from the Inspection Services Department. No signage is approved with the Site Development Plan.
5. Sidewalks shall be provided in accordance with the PUD.
6. Driveways will require approval by the Development Engineer of the City of Georgetown.
7. Outdoor lighting shall comply with Section 7.04 of the UDC and PUD.
8. Screening of mechanical equipment, dumpsters and parking shall comply with the PUD. The screening is shown on the Landscape and Architectural Plans, as applicable.
9. The companion Landscape Plan has been designed and plant materials shall be installed to meet all requirements of the UDC and PUD.
10. All maintenance of required landscape shall comply with the maintenance standards of Chapter 8 of the UDC and PUD.
11. A separate Irrigation Plan shall be required at the time of building permit application.
12. Fire flow requirements of 1,500 gallons per minute are being met by this plan.
13. Any Heritage Tree noted on this Site Development Plan is subject, in perpetuity, to the maintenance, care, pruning and removal requirements of the Unified Development Code.
14. The construction portion of these plans were prepared, sealed, signed and dated by a Texas Licensed Professional Engineer. Therefore, based on the engineer's concurrence of compliance, the construction plans for construction of the proposed project are hereby approved subject to the Standard Construction Specifications and Details Manual and all other applicable City, State and Federal Requirements and Codes.
15. This project is subject to all City Standard Construction Specifications and Details in effect at the time of submittal of the project to the City.
16. Where no existing overhead infrastructure exists, underground electric utility lines shall be located along the street and within the site. Where existing overhead infrastructure is to be relocated, it shall be re-installed underground and the existing facilities shall be removed at the discretion of the Development Engineer.
17. All electric and communication infrastructure shall comply with UDC Section 13.06
18. A Geologic Assessment, in accordance with the City of Georgetown Water Quality Regulations, was completed on December 16, 2020, and submitted with this application. Any springs and streams as identified in the Geologic Assessment are shown herein.
19. Traffic Impact Analysis (TIA) requirements have been met as the project area has already been included in a previous study.
20. The property subject to this application is subject to the Water Quality by Regulations of the City of Georgetown.



Location Map
1" = 2000'

BEFORE YOU DIG Texas811.com

TEXAS ONE-CALL 800-344-8377

NOTE TO CONTRACTOR:

CONTRACTOR IS TO FURNISH A SET OF CONSTRUCTION PLANS BACK TO THE ENGINEER AT THE END OF THE PROJECT WITH ALL DEVIATIONS NOTED IN RED INK ON THE PLAN SHEETS. CONTRACTOR SHALL NOT RECEIVE FINAL PAYMENT UNTIL COMPLETE "AS-BUILT" SET IS RETURNED TO ENGINEER.

Warning!

There are existing water pipelines, underground telephone cables and other above and below ground utilities in the vicinity of this project. The Contractor shall contact all appropriate companies prior to any construction in the area and determine if any conflicts exist. If so, the Contractor shall immediately contact the Engineer who shall revise the design as necessary.

THESE CONSTRUCTION PLANS HAVE BEEN PREPARED TO FULFILL THE REQUIREMENTS OF THE TCEQ FOR WATER POLLUTION ABATEMENT OVER THE EDWARDS AQUIFER. CONTRACTOR SHALL CONTACT THE ENGINEER FOR ADDITIONAL DETAILED CONSTRUCTION PLANS PRIOR TO CONSTRUCTION.

STEGER BIZZELL

ADDRESS	1978 S. AUSTIN AVENUE	GEORGETOWN, TX 78626	
METRO	512.930.9412	TEXAS REGISTERED ENGINEERING FIRM F-181 TBPLS FIRM No.10003700	WEB STEGERBIZZELL.COM
SERVICES	>>ENGINEERS >>PLANNERS >>SURVEYORS		

Submitted By:

STATE OF TEXAS
ERIK J. HABERMAN
152359
LICENSED
PROFESSIONAL ENGINEER
9/5/2025

Erik J. Haberman, P.E. Date

Sheet List Table

Sheet Number	Sheet Title
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03	FINAL PLAT (2 OF 3)
04	FINAL PLAT (3 OF 3)
05	GENERAL NOTES (1 OF 2)
06	GENERAL NOTES (2 OF 2)
07	EXISTING DRAINAGE PLAN
08	DEVELOPED DRAINAGE PLAN
09	EROSION AND SEDIMENTATION PLAN
10	DIMENSIONAL SITE PLAN (1 of 2)
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32	WATER QUALITY PLAN
33	WATER QUALITY POND
34	WATER QUALITY DETAILS
35	STRIPING AND SIGNAGE PLAN
36	STRIPING AND SIGNAGE DETAILS

OWNER / DEVELOPER

ARROYO CAP III-2 LLC
18575 JAMBOREE ROAD STE 350
IRVINE, CA 92612
512-532-3355
CONTACT: JEFFREY BROUELETTE
JBrouelette@arroyocapital.com

SURVEYOR

McKIM & CREED
TBPELS FIRM NO. 10177601
8868 RESEARCH BLVD, STE. 407
AUSTIN, TEXAS 78758
512-916-0224
CONTACT: JORGE FERNANDEZ, R.P.L.S

ENGINEER/APPLICANT:

STEGER BIZZELL

STEGER BIZZELL
TBPLS FIRM NO. 10003700
1978 S. AUSTIN AVE
GEORGETOWN, TEXAS 78626
OFFICE: 512-930-9412
CONTACT: ERIK HABERMAN, P.E.
www.stegerbizzell.com
email: ehaberman@stegerbizzell.com

2023-15-PP
MINOR REVISION
P&Z APPROVED
XXXXXXXX XX, 20XX

Project Number:
22226-BC AM CNTR

HANDICAP ACCESSIBILITY NOTES:

1. TEXTURES SHALL CONSIST OF EXPOSED CRUSHED STONE AGGREGATE, ROUGHENED CONCRETE, RUBBER, RAISED ABRASIVE STRIPS, OR GROOVES EXTENDING THE FULL WIDTH AND DEPTH OF THE CURB RAMP. SURFACES THAT ARE RAISED, ETCHED, OR GROOVED IN A WAY THAT WOULD ALLOW WATER TO ACCUMULATE ARE PROHIBITED.

2. FOR PURPOSES OF WARNING, THE FULL WIDTH AND DEPTH OF CURB RAMPS SHALL HAVE A LIGHT REFLECTIVE VALUE AND TEXTURE THAT SIGNIFICANTLY CONTRASTS WITH THAT OF ADJOINING PEDESTRIAN ROUTES.

3. ACCESSIBLE PARKING SPACES SHALL BE AT LEAST 8 FEET WIDE.

4. PARKING SPACES AND AISLES SHALL BE LEVEL WITH SURFACE SLOPES NOT EXCEEDING 1:50 (2%) IN ALL DIRECTIONS.

5. ACCESSIBLE AISLES SHALL BE A MINIMUM OF 5 FEET WIDE. VAN ACCESSIBLE AISLES SHALL BE A MINIMUM OF 8 FEET WIDE.

6. ADDITIONAL INFORMATION ON CURB RAMPS, PARKING SPACES AND AISLES MAY BE FOUND IN THE CURRENT ADDITION OF TEXAS ACCESSIBILITY STANDARDS (TAS) PREPARED AND ADMINISTERED BY THE T.D.L.R.

7. ANY PART OF THE ACCESSIBLE ROUTE WITH A SLOPE GRATER THAN 1:20 (5%) SHALL BE CONSIDERED A RAMP. IF A RAMP HAS A RISE GREATER THAN 6 INCHES OR A HORIZONTAL PROJECTION GREATER THAN 72 INCHES, THEN IT SHALL HAVE HANDRAILS ON BOTH SIDES. THE ONLY EXCEPTION IS AT CURB RAMPS. HANDRAILS ARE NOT REQUIRED ON CURB RAMPS. CURB RAMPS SHALL BE PROVIDED WHERE EVER AN ACCESSIBLE ROUTE CROSSES (PENETRATES) A CURB. CURB RAMPS ARE GENERALLY INTERPRETED AS ONLY THE PORTION TYING DIRECTLY INTO THE ROADWAY.

8. ALL SIDEWALK CROSS-SLOPES SHALL NOT EXCEED 1:50, UNLESS A VARIANCE IS PROVIDED BY TDLR.

9. UNDER NO CIRCUMSTANCE, REGARDLESS OF WHAT IS SHOWN IN THESE PLANS, IS THE CONTRACTOR RELIEVED OF HIS SOLE RESPONSIBILITY FOR COMPLIANCE WITH ALL ACCESSIBILITY LAWS AND/OR RULES BY THE ADA, TDLR OR OTHER REGULATORY AGENCY. SEE GENERAL NOTES SHEET FOR ADDITIONAL INFO.

ACCESSIBILITY NOTES

1. Project shall be constructed in full compliance with the Texas Accessibility Standards (TAS) 2012.

2. Slopes in the direction of pedestrian travel shall not exceed 5% (1:20) or have a cross slope greater than 2% (1:48). This shall include routes that cross-vehicular ways including but not limited pedestrian/ vehicular ways such as street intersections.

   A. Exception: Per TAS 405.8 and 68.102 (1) grades at the new sidewalks parallel to the streets shall be equal to, or less than, the street grade. Should the new sidewalks exceed the street grade, and the new sidewalk grades exceed 5% in the direction of travel, ramps complying with TAS 405 are required at these conditions.

3. Curb Ramps:
   A. Curb ramps shall not exceed 8.3% (1:12) in the direction of pedestrian ravel.
   B. Curb ramps flares (wings) shall not exceed 1:10.
   C. Minimum width of a curb ramp is 36".
   D. Top of the curb ramp must be 2% in all directions for an area 36" wide and 48"deep.
   E. When truncated domes are used, the truncated dome system shall extend the full width of the curb ramp and for a minimum depth of 24" at the bottom of the curb ramp.
   F. Returned curb ramps shall only be used where the adjacent surface on one or both sides of the curb ramp do not allow pedestrian travel such as but not limited to stop lights, stop signs and permanently mounted waste receptacles.

4. There shall be no changes in level greater than ¼" on any accessible route or ½" with a 1:2 bevel.

5. Decomposed granite surfaces, or similar Engineer-approved surfaces shall be compacted tight and maintained by the Owner at all times.

6. Provide directional signage using the international symbol of accessibility when not all routes are accessible. Signage shall be placed at the beginning of the route to avoid a patron from proceeding on a non-accessible route.

7. Verify that no plantings or other site elements on circulation paths would be protruding objects based on TAS 307 (protrudes more 4" and is higher than 27" from the surface and less than 80" from the surface).

Contractor shall notify the Engineer before proceeding with any Work, which is in conflict with the Texas Accessibility Standards. Contractor is financially responsible for proceeding with any Work without written direction on any clarification from the Engineer.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
WATER DISTRIBUTION SYSTEM
GENERAL CONSTRUCTION NOTES

1. This water distribution system must be constructed in accordance with the current Texas Commission on Environmental Quality (TCEQ) Rules and Regulations for Public Water Systems 30 Texas Administrative Code (TAC) Chapter 290 Subchapter D. When conflicts are noted with local standards, the more stringent requirement shall be applied. Construction for public water systems must always, at a minimum, meet TCEQ's "Rules and Regulations for Public Water Systems.

2. An appointed engineer shall notify in writing the local TCEQ's Regional Office when construction will start. Please keep in mind that upon completion of the water works project, the engineer or owner shall notify the commission's Water Supply Division, in writing, as to its completion and attest to the fact that the work has been completed essentially according to the plans and change orders on file with the commission as required in 30 TAC §290.39(h)(3).

3. All newly installed pipes and related products must conform to American National Standards Institute/National Sanitation Foundation (ANSI/NSF) Standard 61-G and must be certified by an organization accredited by ANSI, as required by 30 TAC §290.44(a)(1).

4. Plastic pipe for use in public water systems must bear the National Sanitation Foundation Seal of Approval (NSF pw-G) and have an ASTM design pressure rating of at least 150 psi or a standard dimension ratio of 26 or less, as required by 30 TAC §290.44(a)(2).

5. No pipe which has been used for any purpose other than the conveyance of drinking water shall be accepted or relocated for use in any public drinking water supply, as required by 30 TAC §290.44(a)(3).

6. Water transmission and distribution lines shall be installed in accordance with the manufacturer's instructions. However, the top of the water line must be located below the frost line and in no case shall the top of the water line be less than 24 inches below ground surface, as required by 30 TAC §290.44(a)(4).

7. Pursuant to 30 TAC §290.44(a)(5), the hydrostatic leakage rate shall not exceed the amount allowed or recommended by the most current AWWA formulas for PVC pipe, cast iron and ductile iron pipe. Include the formulas in the notes on the plans.
   - The hydrostatic leakage rate for polyvinyl chloride (PVC) pipe and appurtenances shall not exceed the amount allowed or recommended by formulas in America Water Works Association (AWWA) C-605 as required in 30 TAC §290.44(a)(5). Please ensure that the formula for this calculation is correct and most current formula is in use;

     $$Q = \frac{LD\sqrt{P}}{148{,}000}$$

     Where:
     - Q = the quantity of makeup water in gallons per hour,
     - L = the length of the pipe section being tested, in feet,
     - D = the nominal diameter of the pipe in inches, and
     - P = the average test pressure during the hydrostatic test in pounds per square inch (psi).
   - The hydrostatic leakage rate for ductile iron (DI) pipe and appurtenances shall not exceed the amount allowed or recommended by formulas in America Water Works Association (AWWA) C-600 as required in 30 TAC §290.44(a)(5). Please ensure that the formula for this calculation is correct and most current formula is in use;

     $$L = \frac{SD\sqrt{P}}{148{,}000}$$

     Where:
     - L = the quantity of makeup water in gallons per hour,
     - S = the length of the pipe section being tested, in feet,
     - D = the nominal diameter of the pipe in inches, and
     - P = the average test pressure during the hydrostatic test in pounds per square inch (psi).

8. Projects constructed on or after January 4, 2014 must comply with changes to the Safe Drinking Water Act that reduce the maximum allowable lead content of pipes, pipe fittings, plumbing fittings, and fixtures to 0.25 percent.

9. The system must be designed to maintain a minimum pressure of 35 psi at all points within the distribution network at flow rates of at least 1.5 gallons per minute per connection. When the system is intended to provide firefighting capability, it must also be designed to maintain a minimum pressure of 20 psi under combined fire and drinking water flow conditions as required by 30 TAC §290.44(d).

10. The contractor shall install appropriate air release devices in the distribution system at all points where topography or other factors may create air locks in the lines. All vent openings to the atmosphere shall be covered with 16-mesh or finer, corrosion resistant screening material or an acceptable equivalent as required by 30 TAC §290.44(d)(1).

11. Pursuant to 30 TAC §290.44(d)(4), accurate water meters shall be provided. Service connections and meter locations should be shown on the plans.

12. Pursuant to 30 TAC §290.44(d)(5), sufficient valves and blowoffs to make repairs. The engineering report shall establish criteria for this design.

13. Pursuant to 30 TAC §290.44(d)(6), the system shall be designed to afford effective circulation of water with a minimum of dead ends. All dead-end mains shall be provided with acceptable flush valves and discharge piping. All dead-end lines less than two inches in diameter will not require flush valves if they end at a customer service. Where dead ends are necessary as a stage in the growth of the system, they shall be located and arranged to ultimately connect the ends to provide circulation.

14. The contractor shall maintain a minimum separation distance in all directions of nine feet between the proposed waterline and wastewater collection facilities including manholes and septic tank drainfields. If this distance cannot be maintained, the contractor must immediately notify the project engineer for further direction. Separation distances, installation methods, and materials utilized must meet 30 TAC §290.44(e)(1-4) of the current rules.

15. Pursuant to 30 TAC §290.44(e)(5), the separation distance from a potable waterline to a wastewater main or lateral manhole or cleanout shall be a minimum of nine feet. Where the nine-foot separation distance cannot be achieved, the potable waterline shall be encased in a joint of at least 150 psi pressure class pipe at least 18 feet long and two nominal sizes larger than the new conveyance. The space around the carrier pipe shall be supported at five-foot intervals with spacers or be filled to the springline with washed sand. The encasement pipe shall be centered on the crossing and both ends sealed with cement grout or manufactured sealant.

16. Pursuant to 30 TAC §290.44(e)(6), fire hydrants shall not be installed within nine feet vertically or horizontally of any wastewater line, wastewater lateral, or wastewater service line regardless of construction.

17. Pursuant to 30 TAC §290.44(e)(7), suction mains to pumping equipment shall not cross wastewater mains, wastewater laterals, or wastewater service lines. Raw water supply lines shall not be installed within five feet of any tile or concrete wastewater main, wastewater lateral, or wastewater service line.

18. Pursuant to 30 TAC §290.44(e)(8), waterlines shall not be installed closer than ten feet to septic tank drainfields.

19. Pursuant to 30 TAC §290.44(f)(1), the contractor shall not place the pipe in water or where it can be flooded with water or sewage during its storage or installation.

20. Pursuant to 30 TAC §290.44(f)(2), when waterlines are laid under any flowing or intermittent stream or semi-permanent body of water the water main shall be installed in a separate watertight pipe encasement. Valves must be provided on each side of the crossing with facilities to allow the underwater portion of the system to be isolated and tested.

21. The contractor shall disinfect the new water mains in accordance with AWWA Standard C-651 and then flush and sample the lines before being placed into service. Samples shall be collected for microbiological analysis to check the effectiveness of the disinfection procedure which shall be repeated if contamination persists. A minimum of one sample for each 1,000 feet of completed water line will be required or at the next available sampling point beyond 1,000 feet as designated by the design engineer, in accordance with 30 TAC §290.44(f)(3).

GENERAL CONSTRUCTION NOTES

1. All construction shall be in accordance with the latest City of Georgetown Technical Specifications and Details.

2. Prior to beginning construction, the Owner or his authorized representative shall convene a Pre-Construction Conference between the City of Georgetown, Engineer, Contractor, County Engineer (if applicable), Texas Commission on Environmental Quality Field Office, and any other affected parties. Notify all such parties at least 48 hours prior to the time of the conference and 48 hours prior to beginning construction. Written construction notification must be given to the appropriate TCEQ regional office no later than 48 hours prior to commencement of the regulated activity. Information must include the date on which the regulated activity will commence, the name of the approved plan for the regulated activity, the name of the prime contractor and the name and telephone number of the contact person.

3. The Contractor shall give the City a minimum of 48 hours notice before beginning each phase of construction, call 512-930-3555.

4. No blasting will be permitted on this project.

5. Any existing utilities, pavement, curbs, and/or sidewalks damaged or removed will be repaired by the Contractor at his expense before acceptance of the project.

6. The location of any existing water and/or wastewater lines shown on the plans must be verified by the Georgetown Utility Systems Department.

7. Manhole frames, covers, water valve covers, etc., shall be raised to finished pavement grade at the Contractor's expense by a qualified contractor with City inspection. All utility adjustments shall be completed prior to final paving construction.

8. The Contractor is responsible for any damages to any public improvements.

9. Replace all destructed CMP culverts with CMP of equal size.

SEQUENCE OF CONSTRUCTION

Note: Other contractors could be working on this site. Coordinate all activities with the activities of others.

1. Call all affected parties at least 48 hours prior to beginning any construction to schedule a pre-construction conference and secure all required permits.

2. Install temporary erosion controls prior to any clearing and grubbing. Notify the City of Georgetown when installed.

3. Install all utility mains & services.

4. Ensure that all underground utility installations are complete.

5. Complete construction of driveways, parking lots, and buildings.

6. Complete final site grading and revegetation.

7. Remove and dispose of temporary erosion controls.

8. Complete any necessary final dress-up.

PERMANENT EROSION CONTROL NOTES

1. All disturbed areas shall be restored as noted below:
   - 1.a. A minimum of six inches of imported sandy loam topsoil or approved equal shall be placed in all drainage channels (except rock) and on all cleared areas.
   - 1.b. The seeding for permanent erosion control shall be applied over areas disturbed by construction as follows, unless specified elsewhere:
     - 1.b.a. From September 15 to March 1, seeding shall be with a combination of 1 pound per 1,000 square feet of unhulled Bermuda and 7 pounds per 1,000 square feet of Winter Rye with a purity of 95% with 90% germination.
     - 1.b.b. From March 2 to September 14, seeding shall be with hulled Bermuda at a rate of 3 pounds per 1,000 square feet with a purity of 95% with 85% germination.
   - 1.c. Fertilizer shall be slow release granular or pelleted type and shall have an analysis of 15-15-15 and shall be applied at the rate of 23 pounds per acre once at the time of planting and again once during the time of establishment.
   - 1.d. The planted area shall be irrigated or sprinkled in a manner that will not erode the top soil, but will sufficiently soak the soil to a depth of six inches. The irrigation shall occur at ten-day intervals during the first two months. Rainfall occurrences of 1/2 inch or more shall postpone the watering schedule for one week.
   - 1.e. Mulch type used shall be Mulch, applied at a rate of 1,500 pounds per acre.

TEMPORARY EROSION CONTROL NOTES

1. The Contractor shall install erosion/sedimentation controls and tree protective fencing prior to any site preparation work (clearing, grubbing or excavation).

2. The placement of erosion/sedimentation controls shall be in accordance with the PLANS.

3. Any significant variation in materials or locations of controls or fences from those shown on the approved plans must be approved by the City Engineer.

4. The Contractor is required to inspect all controls and fences at weekly intervals and after significant rainfall events to insure that they are functioning properly. The person(s) responsible for maintenance of controls and fences shall immediately make any necessary repairs to damaged areas. Silt accumulation at controls must be removed when the depth reaches six (6) inches.

5. Prior to final acceptance, haul roads and waterway crossings constructed for temporary Contractor access must be removed, accumulated sediment removed from the waterway, and the area restored to the original grade and revegetated. All land clearing debris shall be disposed of in approved spoil disposal sites.

6. Field revisions to the EROSION & SEDIMENTATION CONTROL PLANS may be required by the Engineer or field inspector with the Texas Commission on Environmental Quality (TCEQ) during the course of construction to correct control inadequacies. Major revisions must be approved by the TCEQ.

CITY OF GEORGETOWN HERITAGE TREE PROTECTION DURING CONSTRUCTION

1. Prior to the commencement of any development, a tree protection fence constructed of approved materials shall encompass the Critical Root Zone (CRZ) of any Heritage Tree. Said tree protection fence must be maintained throughout the construction process, and must also comply with Chapter 11 of this Code .
2. During construction, no materials including but not limited to excess soil, vehicles, equipment, liquids, trash, or construction debris may be placed inside of the tree protection fence, nor shall the tree protection fence be altered in any way so as to increase the encroachment of the construction.
3. Excavation, grading, soil deposit, impervious covering, drainage and leveling within the CRZ of Heritage Trees is prohibited unless approved by the Urban Forester. Any impervious cover proposed within the CRZ of a Heritage Tree will be reviewed on a case by case basis by the Urban Forester upon field inspections and or plan reviews. In any case, generally no more than 50% of the CRZ of any Heritage Tree can be covered with impervious cover. Any protective fencing being used around Heritage Trees may only be reduced while impervious cover activity is being done. The remainder of the protective fencing must stay intact for the duration of the project.
4. Disposal or depositing of oil, gasoline, chemicals, paints, solvents or other materials is prohibited within the CRZ of Heritage Trees.
5. The attachment of wires, signs and ropes to any Heritage Tree is prohibited.
6. The location of utility service and irrigation lines inside the CRZ of Heritage Trees is only allowed when approved by the Urban Forester. If boring is used to provide underground utility access, the minimum length of the bore shall be the width of the tree's mature canopy. The minimum depth of the bore shall be specified by the Urban Forester, but in no event be less than 24" below the natural grade existing prior to any development activity within the CRZ.
7. Soil disturbance or other injurious and detrimental activity within the CRZ of Heritage Trees is prohibited.
8. At applicant's expense, an ISA Certified Arborist or their employee(s) shall be present whenever activities occur which will pose a potential threat to the health of the Heritage Tree such as pruning, or whenever any work needs to be done within the CRZ of such tree.
9. Should the area within the CRZ become compacted during excavation or grading, the affected area shall be aerated. The Urban Forester shall be notified whenever any Damage or injury occurs to a Heritage Tree during construction so that proper treatment may be administered.
10. The Urban Forester shall be notified whenever any Damage or injury occurs to a Heritage Tree during construction so that proper treatment may be administered.
11. Contact the City of Georgetown's Urban Forester (512-930-6113) when tree protection is installed and prior to any fencing being removed.

CITY OF GEORGETOWN GENERAL NOTES

1. These Construction plans were prepared, sealed, signed and dated by a Texas Licensed Professional Engineer. Therefore based on the engineer's concurrence of compliance, the construction plans for construction of the proposed project are hereby approved subject to the standard Construction Specifications and Details Manual and all other applicable City, State, and Federal Requirements and Codes.
2. This project is subject to all City Standard Specifications and Details in effect at the time of submittal of the project to the City.
3. The site construction plans shall meet all requirements of the approved site plan.
4. Wastewater mains and service lines shall be SDR-26 PVC.
5. Wastewater mains shall be installed without horizontal or vertical bends.
6. Maximum distance between wastewater manholes is 500 feet.
7. Wastewater mains shall be low pressure air tested and mandrel tested by the contractor according to City of Georgetown and TCEQ requirements.
8. Wastewater manholes shall be vacuum tested and coated by the contractor according to City of Georgetown and TCEQ requirements.
9. Wastewater mains shall be camera tested by the contractor and submitted to the City on DVD format prior to paving the streets.
10. Private water system fire lines shall be tested by the contractor to 200 psi for 2 hours.
11. Private water system fire lines shall be ductile iron piping from the water main to the building sprinkler system, and 200 psi C900 DR-18 PVC for all others.
12. Public water system mains shall be 150 psi C900 DR-18 PVC and tested by the contractor at 150 psi for 4 hours.
13. All bends and changes in direction on water mains shall be restrained and thrust blocked.
14. Fire hydrant leads shall be restrained.
15. All water lines are to be bacteria tested by the contractor according to the City standards and specifications.
16. Water and Sewer main crossings shall meet all requirements of the TCEQ and the City.
17. Flexible base material for public streets shall be TXDOT Type A Grade 1.
18. Hot mix asphaltic concrete pavement shall be Type D unless otherwise specified and shall be a minimum of 2 inches thick on public streets and roadways.
19. All sidewalk ramps are to be installed with the public infrastructure.
20. A maintenance bond is required to be submitted to the City prior to acceptance of the public improvements. This bond shall be established for 2 years in the amount of 10% of the cost of the public improvements and shall follow the City format.
21. Record drawings of the public improvements shall be submitted to the City by the design engineer prior to acceptance of the project. These drawings shall be submitted on a flash drive or emailed through a cloud source.
22. Prior to the start of construction, the City shall be provided with a WPAP approval letter, WPAP recordation receipt, NOI, approved SWPPP, and contact information of the compliance inspector.
23. During construction, all compliance inspections and resolutions shall be copied to the City inspector upon receipt.
24. At the completion of construction, Engineer's letter of concurrence and Notice of Termination shall be provided.
25. Prior to construction above the slab, Contractor to provide an all-weather drive surface of asphalt, concrete, or chip seal placed onto base material engineered to withstand 75,000 lbs. An acceptance inspection by Fire Inspections is required. 2012 IFC 503 and D102.1.

Texas Commission on Environmental Quality
Water Pollution Abatement Plan
General Construction Notes

Edwards Aquifer Protection Program Construction Notes – Legal Disclaimer

The following/listed "construction notes" are intended to be advisory in nature only and do not constitute an approval or conditional approval by the Executive Director (ED), nor do they constitute a comprehensive listing of rules or conditions to be followed during construction. Further actions may be required to achieve compliance with TCEQ regulations found in Title 30, Texas Administrative Code (TAC), Chapters 213 and 217, as well as local ordinances and regulations providing for the protection of water quality. Additionally, nothing contained in the following/listed "construction notes" restricts the powers of the ED, the commission or any other governmental entity to prevent, correct, or curtail activities that result or may result in pollution of the Edwards Aquifer or hydrologically connected surface waters. The holder of any Edwards Aquifer Protection Plan containing "construction notes" is still responsible for compliance with Title 30, TAC, Chapters 213 or any other applicable TCEQ regulation, as well as all conditions of an Edwards Aquifer Protection Plan through all phases of plan implementation. Failure to comply with any condition of the ED's approval, whether or not in contradiction of any "construction notes," is a violation of TCEQ regulations and any violation is subject to administrative rules, orders, and penalties as provided under Title 30, TAC § 213.10 (relating to Enforcement). Such violations may also be subject to civil penalties and injunction. The following/listed "construction notes" in no way represent an approved exception by the ED to any part of Title 30 TAC, Chapters 213 and 217, or any other TCEQ applicable regulation

1. A written notice of construction must be submitted to the TCEQ regional office at least 48 hours prior to the start of any regulated activities. This notice must include:
   - the name of the approved project;
   - the activity start date; and
   - the contact information of the prime contractor.
2. All contractors conducting regulated activities associated with this project must be provided with complete copies of the approved Water Pollution Abatement Plan (WPAP) and the TCEQ letter indicating the specific conditions of its approval. During the course of these regulated activities, the contractors are required to keep on-site copies of the approved plan and approval letter.
3. If any sensitive feature(s) (caves, solution cavity, sink hole, etc.) is discovered during construction, all regulated activities near the sensitive feature must be suspended immediately. The appropriate TCEQ regional office must be immediately notified of any sensitive features encountered during construction. Construction activities may not be resumed until the TCEQ has reviewed and approved the appropriate protective measures in order to protect any sensitive feature and the Edwards Aquifer from potentially adverse impacts to water quality.
4. No temporary or permanent hazardous substance storage tank shall be installed within 150 feet of a water supply source, distribution system, well, or sensitive feature.
5. Prior to beginning any construction activity, all temporary erosion and sedimentation (E&S) control measures must be properly installed and maintained in accordance with the approved plans and manufacturers specifications. If inspections indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations. These controls must remain in place until the disturbed areas have been permanently stabilized.
6. Any sediment that escapes the construction site must be collected and properly disposed of before the next rain event to ensure it is not washed into surface streams, sensitive features, etc.
7. Sediment must be removed from the sediment traps or sedimentation basins not later than when it occupies 50% of the basin's design capacity.
8. Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from being discharged offsite.
9. All spoils (excavated material) generated from the project site must be stored on-site with proper E&S controls. For storage or disposal of spoils at another site on the Edwards Aquifer Recharge Zone, the owner of the site must receive approval of a water pollution abatement plan for the placement of fill material or mass grading prior to the placement of spoils at the other site.
10. If portions of the site will have a temporary or permanent cease in construction activity lasting longer than 14 days, soil stabilization in those areas shall be initiated as soon as possible prior to the 14th day of inactivity. If activity will resume prior to the 21st day, stabilization measures are not required. If drought conditions or inclement weather prevent action by the 14th day, stabilization measures shall be initiated as soon as possible.
11. The following records shall be maintained and made available to the TCEQ upon request:
    - the dates when major grading activities occur;
    - the dates when construction activities temporarily or permanently cease on a portion of the site; and
    - the dates when stabilization measures are initiated.
12. The holder of any approved Edward Aquifer protection plan must notify the appropriate regional office in writing and obtain approval from the executive director prior to initiating any of the following:
    - A. any physical or operational modification of any water pollution abatement structure(s), including but not limited to ponds, dams, berms, sewage treatment plants, and diversionary structures;
    - B. any change in the nature or character of the regulated activity from that which was originally approved or a change which would significantly impact the ability of the plan to prevent pollution of the Edwards Aquifer;
    - C. any development of land previously identified as undeveloped in the original water pollution abatement plan.

Austin Regional Office 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.

TCEQ-0592 (Rev. July 15, 2015)

WARNING!
There are existing water pipelines, underground telephone cables and other above and below ground utilities in the vicinity of this project. The contractor shall contact all appropriate utility companies prior to any construction in the area and determine if any conflicts exist. If so, the Contractor shall immediately contact the Engineer, who shall revise the design as necessary.

NO.	REVISION	BY	DATE

DESIGNED BY: DATE
DRAWN BY: DATE
CHECKED BY: DATE
APPROVED BY: DATE

STATE OF TEXAS
ERIK J. HABERMAN
152359
LICENSED
PROFESSIONAL ENGINEER
9/5/2025

STEGER BIZZELL
ADDRESS 1978 S. AUSTIN AVENUE GEORGETOWN, TX 78626
METRO 512.930.9412 TEXAS REGISTERED ENGINEERING FIRM F-181 TBPELS FIRM No.10003700 WEB STEGERBIZZELL.COM
SERVICES >>ENGINEERS >>PLANNERS >>SURVEYORS

GENERAL NOTES (1 OF 2)

BERRY CREEK AMENITY CENTER
City of Georgetown
Williamson County, Texas

Project Number: 22226 - 41
SCALE: AS NOTED
Project Path: P\22000-22999
Project Name: 22226 - BC AM CNTR
Drawing Path: P\22000-22999 SUN CITY
Xref DWG FILE.
Sheet Number: 05 of 36 sheets

P:\22000-22999\22226 Sun City\41-Berry Creek Amenity Center\CAD\Plans\05 GENERAL NOTES (1 OF 2).dwg Mar 07, 2025 - 3:51pm

2024-109-SDP

Texas Commission on Environmental Quality
Organized Sewage Collection System
General Construction Notes

1. This Sewage Collection System must be designed and constructed in accordance with the Texas Commission on Environmental Quality's (TCEQ) 30 TAC Chapter 217, and the City of Georgetown Standard Specifications.

2. All contractors conducting regulated activities associated with this proposed regulated project must be provided with copies of the Sewage Collection System 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. No later than 48 hours prior to commencing any regulated activity, the applicant or his agent must notify the Austin Regional Office, in writing, of the date on which the regulated activity will begin.

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. All temporary erosion and sedimentation controls must be installed prior to construction, must be maintained during construction, and must be removed when sufficient vegetation is established to control the erosion and sedimentation and the construction area is stabilized.

6. The sewer line trench details showing the cross section with the dimensions, pipe placement, and backfill instructions are included on Plan Sheet 13 - SEWER DETAILS (CONT.) of these plans. All sewer pipes joints must meet the requirements in 30 TAC §217.53(c) an 217.65.

   Gravity lines must have a SDR-26 or less. Pressurized sewer systems must have pipe with a minimum working pressure rating of 150 psi.

   The ASTM, ANSI, or AWWA specification numbers for the pipe(s) and joints are: _____ ASTM D 3034, AWWAC900, CL150 .

   The pipe material, the pressure classes, and the SDR and/or DR designations are: _____ ASTM D 3034, SDR-26 .

7. 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 Texas Commission on Environmental Quality 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 within two working days. The applicant must submit a plan for ensuring the structural integrity of the sewer line or for modifying the proposed collection system alignment around the feature. The regulated activities near the sensitive feature may not proceed until the executive director has reviewed and approved the methods proposed to protect the sensitive feature and the Edwards Aquifer from any potentially adverse impacts to water quality while maintaining the structural integrity of the line.

8. 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 six (6) inches.

9. 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.

10. 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 12 - SEWER DETAILS .

    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.

11. 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).

12. 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: NOT APPLICABLE .

    If pipe flexure is proposed, the following method of preventing deflection of the joint must be used: NOT APPLICABLE .

    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.

13. 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 13 - SEWER DETAILS (CONT.). (For potential future laterals).

    The private service lateral stub-outs must be installed as shown on the plan and profile sheets on Plan Sheet 13 - SEWER DETAILS (CONT.) and marked after backfilling as shown in the detail on Plan Sheet 13 - SEWER DETAILS (CONT.) .

14. 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.

15. 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).

16. 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:

    16.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:

    16.a.1. Low Pressure Air Test.

    16.a.1.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.

    16.a.1.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.

    16.a.1.B.a. A pipe must be pressurized to 3.5 pounds per square inch (psi) greater than the pressure exerted by groundwater above the pipe.

    16.a.1.B.b. 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

    16.a.1.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

    16.a.1.D. An owner may stop a test if no pressure loss has occurred during the first 25% of the calculated testing time.

    16.a.1.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.

    16.a.1.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.

    16.a.1.G. A testing procedure for pipe with an inside diameter greater than 33 inches must be approved by the executive director.

    16.a.2. Infiltration/Exfiltration Test.

    16.a.2.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.

    16.a.2.B. An owner shall use an infiltration test in lieu of an exfiltration test when pipes are installed below the groundwater level.

    16.a.2.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.

    16.a.2.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 subpargraph (C) of this paragraph.

    16.a.2.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.

    16.b. If a gravity collection pipe is composed of flexible pipe, deflection testing is also required. The following procedures must be followed:

    16.b.1. For a collection pipe with inside diameter less than 27 inches, deflection measurement requires a rigid mandrel.

    16.b.1.A. Mandrel Sizing.

    16.b.1.A.a. 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.

    16.b.1.A.b. 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.

    16.b.1.A.c. All dimensions must meet the appropriate standard.

    16.b.1.B. Mandrel Design. See sheet 13.

    16.b.1.B.a. A rigid mandrel must be constructed of a metal or a rigid plastic material that can withstand 200 psi without being deformed.

    16.b.1.B.b. A mandrel must have nine or more odd number of runners or legs.

    16.b.1.B.c. A barrel section length must equal at least 75% of the inside diameter of a pipe.

    16.b.1.B.d. Each size mandrel must use a separate proving ring.

    16.b.1.C. Method Options.

    16.b.1.C.a. An adjustable or flexible mandrel is prohibited.

    16.b.1.C.b. A test may not use television inspection as a substitute for a deflection test.

    16.b.1.C.c. 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.

    16.b.1. For a gravity collection system pipe with an inside diameter 27 inches and greater, other test methods may be used to determine vertical deflection.

    16.b.2. A deflection test method must be accurate to within plus or minus 0.2% deflection.

    16.b.3. An owner shall not conduct a deflection test until at least 30 days after the final backfill.

    16.b.4. Gravity collection system pipe deflection must not exceed five percent (5%).

    16.b.5. 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.

17. All manholes must be tested to meet or exceed the requirements of 30 TAC §217.58.

18. 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.

THESE GENERAL CONSTRUCTION NOTES MUST BE INCLUDED ON THE CONSTRUCTION PLANS PROVIDED TO THE CONTRACTOR AND ALL SUBCONTRACTORS.

MANHOLE TESTING

All manholes must pass a leakage test. 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.

HYDROSTATIC TESTING

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. 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. A test for concrete manholes may use a 24 hour wetting period before testing to allow saturation of the concrete.

VACUUM TESTING

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. No grout must be placed in horizontal joints before testing. Stub outs, manhole boots and pipe plugs must be secured to prevent movement while a vacuum is drawn. 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. 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. There must be a vacuum of 10 inches of mercury inside a manhole to perform a valid test. A test does not begin until after the vacuum pump is off. A manhole passes the test if after 2.0 minutes and with all valves closed, the vacuum is a least 9.0 inches of mercury.

FIRE PROTECTION NOTES

1. Approval of this site plan does not imply approval to install underground fire lines. Prior to installation of underground fire lines, a separate permit shall be submitted, Under Ground Fire Line Supply.

2. Backflow protection will be provided in accordance with The City of Georgetown requirements when required. Backflow protection will be installed in accordance with the detail provided in the utility drawings.

3. All private fire lines and what they provide service to will be installed in accordance with NFPA 24 Instillation of Private Service Mains and Their Appurtenances.

4. All tees, plugs, caps, bends, reducers, valves shall be restrained against movement. Thrust blocking and joint restrained will be installed in accordance with NFPA 24.

5. All underground shall remain uncovered until a visual inspection is conducted by The Georgetown Fire Marshal's Office (FMO). All joint restraints and thrust blocking shall be uncovered for visual inspection.

6. All underground shall be flushed per the requirements of NFPA Standard 24 and witnessed by Georgetown FMO.

7. All underground shall pass a hydrostatic test witnessed by Georgetown FMO. All joints shall be uncovered for hydrostatic testing. All piping and attachments subjected to system working pressure shall be tested at 200 psi. or 50 psi more than the system working pressure, whichever is greater, and shall maintain that pressure + or - 5 psi for 2 hours.

8. Fences, landscaping, and other items will not be installed within 3 Ft, and where they will obstruct the visibility or access to hydrants, or remote FDCs.

   License requirements of either RME-U or G. When connecting by underground to the water purveyor's main from the point of connection or valve where the primary purpose of water is for fire protection sprinkler system.

ADDITIONAL WASTEWATER NOTES

1. If a conflict exists between the various documents, the documents will take precedence in the following order:
   1.a. Municipal Utility Specifications
   1.b. Change Orders
   1.c. Addenda Issue During Bidding
   1.d. Project Specifications
   1.e. Construction Plans

2. The following pipe diameters, pipe material and national standard specifications are proposed for this project:

National Standard	Pipe Diameter	Linear Feet of Pipe	Pipe Material	Joint National Standard
ASTM D 3034	6" Service	515	PVC SDR-26	ASTM D 3212
ASTM D 3034	8" Main	15	PVC SDR-26	ASTM D 3212

3. Watertight, size on size resilient connectors conforming to ASTM C 923 must be used for connecting pipe to manholes.

4. The bedding class for each diameter of flexible pipe and each flexible pipe material is as follows:
   Pipe diameter - 6" Pipe Material - SDR-26 Bedding Class - IB
   Pipe diameter - 8" Pipe Material - SDR-26 Bedding Class - IB

5. Brick manhole construction is not allowed. Use of brick for adjusting manhole covers to grade is also prohibited.

6. All manholes shall be of precast concrete construction.

7. The structural integrity of the collection line due to high soil P.I.'s will require the bedding around the pipe to be 6" minimum below the pipe, 6" minimum on each side of the pipe, and 12" minimum above the pipe.

8. If faults, caverns, or subsidence are discovered during construction, construction shall be halted to allow the features to be inspected by the design engineer or a geological or geotechnical engineer. Based on this inspection, revisions approval to the design may be required.

9. The trench walls shall be vertical to at least one foot above the pipe.

10. The trench backfill shall be free of stones greater than 6 inches in diameter and free of organic or any other unstable material.

11. Manholes shown on the plans with sealed and gasketed covers are provided as protection against inflow for those manholes which lie 1) within a 100 year flood plain, 2) lie with a drainageway, 3) lie within a street subject to carrying drainage flows, and 4) additional locations as determined necessary by the Engineer.

12. Drop connections are not proposed in these plans.

13. The minimum allowable tensile strength and cell class for each flexible pipe shall be as follows:
    Pipe Material: SDR-26 Tensile Strength: 7,000 Cell Class (PVC only): 12454-B

14. All gravity lines utilizing flexible pipe must be tested for deflection by pulling a rigid mandrel through the installed pipe. The test must be conducted at least 30 days after placement and compaction of final backfill. No pipe shall exceed a deflection of 5%. A rigid mandrel shall be used to measure deflection. The test must be performed without mechanical pulling devices. The mandrel's minimum outside diameter is 95% of the base inside diameter. The mandrel must have an odd number of runners, totaling nine or more. The barrel section of the mandrel must have a length at least 75% of the inside diameter. A TV test cannot substitute for the deflection test.

15. A leakage test is required for all gravity lines. For line that is not horizontally curved, a hydrostatic test and/or a low pressure air test must be performed on all proposed gravity sanitary sewer collection piping. These tests must comply with Section 217.57(a) of the TCEQ's rules. The contractor shall have the option of utilizing either a hydrostatic test or a low pressure air test.

16. Manholes must be tested for leakage. Manholes will be tested with a hydrostatic test, or with a vacuum test, Contractor's Option.

17. The hydrostatic manhole test shall comply with the test requirements detailed in Section 217.58(b)(1) of the TCEQ's rules.

18. Each manhole shall be tested immediately after assembly and prior to backfilling. Manholes which have been backfilled shall either be excavated to expose the entire exterior prior to vacuum testing or the manhole shall be tested for leakage by means of a hydrostatic test.

19. All lift holes and exterior joints shall be plugged with an approved non-shrink grout.

20. No grout shall be placed in horizontal joints before testing.

21. All pipes entering the manhole shall be plugged, taking care to securely brace the plugs from being drawn into the manhole.

22. Stubouts, manhole boots and pipe plugs shall be secured to prevent movement while the vacuum is drawn.

23. A minimum 60-inch/lb torque wrench shall be used to tighten the external clamps that secure the test cover to the top of the manhole.

24. The test head shall be placed at the inside of the top of the cone section and the seal inflated in accordance with the manufacturer's recommendation.

25. A vacuum of 10 inches of mercury shall be drawn and the vacuum pump shut off. With the valves closed, the time shall be measured for the vacuum to drop to 9 inches of mercury. The manhole shall pass if the time is greater than 2 minutes. If the manhole fails the initial test, necessary repairs shall be made with a non-shrink grout while the vacuum is still being drawn. If the manhole fails a second time, repairs should again be made and the manhole shall be tested by means of a hydrostatic test which complies with Section 217.58(b)(1) of the TCEQ's rules. If any manhole fails the hydrostatic test, after failing the vacuum test twice, the contractor should consider replacing that manhole. If the contractor chooses to attempt to repair that manhole, the manhole must be retested by means of the hydrostatic test outlined in Section 217.58(b)(1) of the TCEQ's rules, until it passes.

26. Inspection must be provided during critical phases of construction by a qualified inspector under the direction of a P.E. Critical phases of construction are deemed at a minimum to include testing of pipe and manholes for leakage, testing of flexible pipe for installed deflection, and any other as directed by the City. The City and design engineer shall provide inspection as appropriate.

27. TCEQ approval letters for plans and specifications review contain the requirement that once the project is completed, a P.E. registered in the state of Texas must certify that the construction was performed substantially in accordance with the approved plans and specifications. If flexible pipe was installed, a P.E. must also certify that all pipe was subjected to and passed the required deflection test. The design engineer, with concurrence of the City, will certify the installation.

28. The project plans and specifications must ensure that the pipe installation will adhere to the minimum separation distances allowed by 217.53 (d), TCEQ's rules.

    Separation Distances.

    The following rules apply to separation distances between potable water and wastewater treatment plants, and waterlines and sanitary sewers.

    (a) Water line/new sewer line separation. When new sanitary sewers are installed, they shall be installed no closer to waterlines than nine feet in all directions. Sewers that parallel waterlines must be installed in separate trenches. Where the nine foot separation distance cannot be achieved, the following guidelines will apply:

    (1) Where a sanitary sewer parallels a waterline, the sewer shall be constructed of cast iron, ductile iron or PVC meeting ASTM specifications with a pressure rating for both the pipe and joints of 150 psi. The vertical separation shall be a minimum of two feet between outside diameters and the horizontal separation shall be a minimum of four feet between outside diameters. The sewer shall be located below the waterline.

    (2) Where a sanitary sewer crosses a waterline and the sewer is constructed of cast iron, ductile iron or PVC with a minimum pressure rating of 150 psi, an absolute minimum distance of 6 inches between outside diameters shall be maintained. In addition the sewer shall be located below the waterline where possible and one length of the sewer pipe must be centered on the waterline.

    (3) Where a sewer crosses under a waterline and the sewer is constructed of ABS truss pipe, similar semi-rigid plastic composite pipe, clay pipe or concrete pipe with gasketed joints, a minimum two foot separation distance shall be maintained. The initial backfill shall be cement stabilized sand (two or more bags of cement per cubic yard of sand) for all sections of sewer within nine feet of the waterline. This initial backfill shall be from one quarter diameter below the centerline of the pipe to one pipe diameter (but not less than 12 inches) above the top of the pipe.

    (4) Where a sewer crosses over a waterline all portions of the sewer within nine feet of the waterline shall be constructed of cast iron, ductile iron, or PVC pipe with a pressure rating of at least 150 psi using appropriate adapters. In lieu of this procedure the new conveyance may be encased in a joint of 150 psi pressure class pipe at least 18 feet long and two nominal sizes larger than the new conveyance. The space around the carrier pipe shall be supported at 5 feet intervals with spacers or be filled to the springline with washed sand. The encasement pipe should be centered on the crossing and both ends sealed with cement grout or manufactured seal.

    (b) Water line/manhole separation. Unless sanitary sewer manholes and the connecting sewer can be made watertight and tested for no leakage, they must be installed so as to provide a minimum of nine feet of horizontal clearance from an existing or proposed waterline. Where the nine foot separation distance cannot be achieved, a carrier pipe as described in subsection (a)(4) of this section may be used where appropriate.

    The separation distance between any unknown water lines which are discovered during the installation phase of the project, and, the gravity sanitary sewer pipe which will be installed, shall be sufficient to comply with the minimum separation distances allowed by 217.53(d) of the TCEQ's rules as stated above.

29. EROSION AND SEDIMENTATION CONTROL is included with these plans. These provisions are intended to control erosion and sedimentation due to runoff during construction. These provisions must be installed prior to any other construction activities.

30. It is the intent of this project that portable ladders be used to access manholes during construction by the Contractor as well as for maintenance purposes after construction is complete by the City.

31. It is the intent of this project that personal gas detectors are required for wear by all personnel whose jobs require entering enclosed spaces (such as manholes and lift stations) capable of accumulations of hydrogen sulfide or other harmful gases. It shall be the responsibility of the Contractor to ensure these detectors are provided to the appropriate personnel during the construction of this project. It shall be the responsibility of the City to ensure these detectors are provided to the appropriate personnel during the maintenance of this project after construction.

WARNING!
There are existing water pipelines, underground telephone cables and other above and below ground utilities in the vicinity of this project. The contractor shall contact all appropriate utility companies prior to any construction in the area and determine if any conflicts exist. If so, the Contractor shall immediately contact the Engineer, who shall revise the design as necessary.

NO.	REVISION	BY	DATE

DESIGNED BY: DATE
DRAWN BY: DATE
CHECKED BY: DATE
APPROVED BY: DATE

STATE OF TEXAS
ERIK J. HABERMAN
152359
LICENSED
PROFESSIONAL ENGINEER
9/5/2025

STEGER BIZZELL
ADDRESS 1978 S. AUSTIN AVENUE GEORGETOWN, TX 78626
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GENERAL NOTES (2 OF 2)

BERRY CREEK AMENITY CENTER
City of Georgetown
Williamson County, Texas

Project Number: 22226 - 41
SCALE: AS NOTED
Project Path: P\22000-22999
Project Name: 22226 - BC AM CNTR
Drawing Path: P\22000-22999 SUN CITY
Xref DWG FILE.
Sheet Number: 06 of 36 sheets

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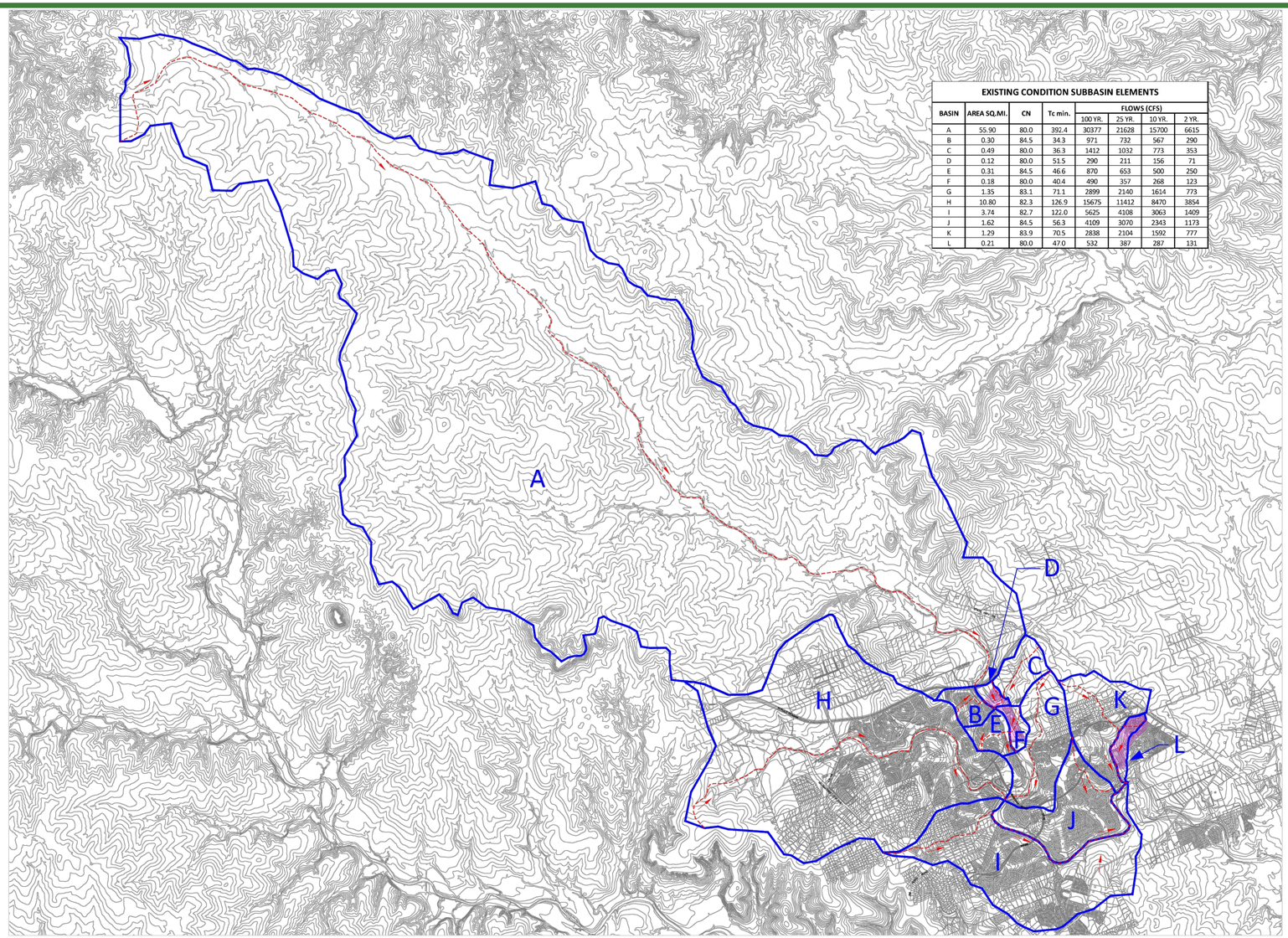
2024-109-SDP



0 4000 8000 Feet

Legend

Tc Route

Basin Boundary

NOTE:
SHADED AREA REPRESENTS DEVELOPMENT WITHIN THIS STUDY.

EXISTING CONDITION SUBBASIN ELEMENTS

BASIN	AREA SQ.MI.	CN	Tc min.	FLOWS (CFS)			
				100 YR.	25 YR.	10 YR.	2 YR.
A	55.90	80.0	392.4	30377	21628	15700	6615
B	0.30	84.5	34.3	971	732	567	290
C	0.49	80.0	36.3	1412	1032	773	353
D	0.12	80.0	51.5	290	211	156	71
E	0.31	84.5	46.6	870	653	500	250
F	0.18	80.0	40.4	490	357	268	123
G	1.35	83.1	71.1	2899	2140	1614	773
H	10.80	82.3	126.9	15675	11412	8470	3854
I	3.74	82.7	122.0	5625	4108	3063	1409
J	1.62	84.5	56.3	4109	3070	2343	1173
K	1.29	83.9	70.5	2838	2104	1592	777
L	0.21	80.0	47.0	532	387	287	131

NOTES:

1. THE EXISTING DRAINAGE MAP SHOWN ON THIS SHEET IS FROM THE MASTER DRAINAGE REPORT "SUN CITY, TEXAS SOMERSET HILLS AND QUEEN PLANNED UNIT DEVELOPMENT BERRY CREEK" DATED AUGUST 20, 2015, PREPARED BY STEGER BIZZELL AND SUBMITTED TO THE CITY OF GEORGETOWN WITH THE PRELIMINARY PLATS.
2. THIS PORTION OF THE PROJECT IS WITHIN BASIN F AND IS CONSISTENT WITH THE APPROVED DRAINAGE REPORT.

FOR REVIEW.

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF CURTIS R. STEGER, P.E. REG. #87905 ON 7/31/2015. IT IS NOT TO BE USED FOR BIDDING, PERMIT OR CONSTRUCTION.

NO.	REVISION	BY	DATE

EJM 7/30/2015
DESIGNED BY: DATE

EJM 7/30/2015
DRAWN BY: DATE

CHECKED BY: DATE

APPROVED BY: DATE

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ATTACHMENT "A" - EXISTING CONDITION DRAINAGE MAP
for
BERRY CREEK
Sun City
Williamson County, Texas

Project No: 22226

WARNING!
There are existing water pipelines, underground telephone cables and other above and below ground utilities in the vicinity of this project. The contractor shall contact all appropriate utility companies prior to any construction in the area and determine if any conflicts exist. If so, the Contractor shall immediately contact the Engineer, who shall revise the design as necessary.

NO.	REVISION	BY	DATE

DESIGNED BY: DATE

DRAWN BY: DATE

CHECKED BY: DATE

APPROVED BY: DATE

STATE OF TEXAS
ERIK J. HABERMAN
152359
LICENSED
PROFESSIONAL ENGINEER
7/31/2015

STEGER BIZZELL
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EXISTING DRAINAGE PLAN

BERRY CREEK AMENITY CENTER
City of Georgetown
Williamson County, Texas

Project Number: 22226 - 41
SCALE: AS NOTED
Project Path: P\22000-22999
Project Name: 22226 - BC AM CNTR
Drawing Path: P\22000-22999 SUN CITY
Xref DWG FILE:
Sheet Number: 07 of 36 sheets

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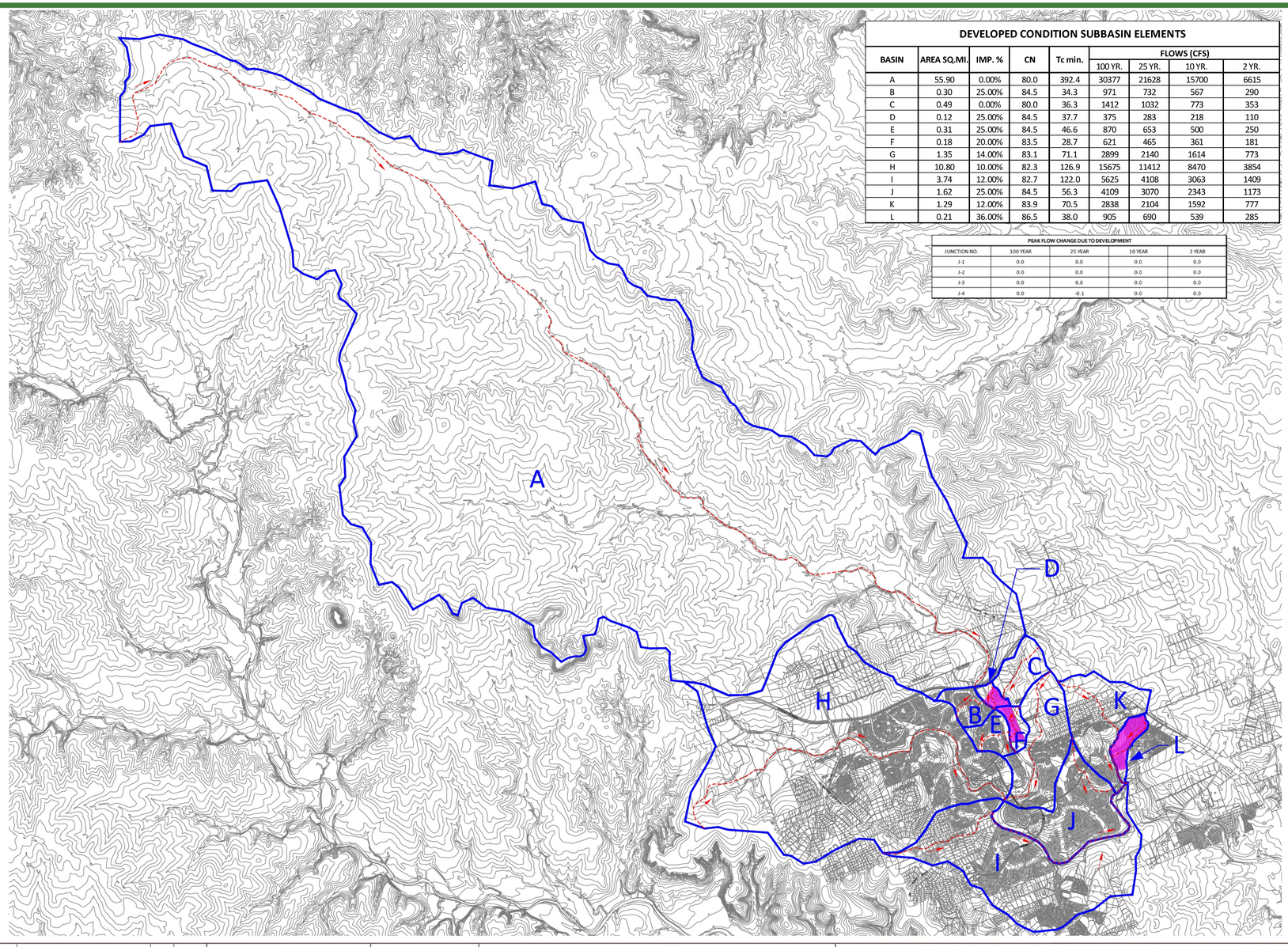
2024-109-SDP



0 4000 8000 Feet

Legend

Tc Route

Basin Boundary

NOTE:
SHADED AREA REPRESENTS DEVELOPMENT WITHIN THIS STUDY.

DEVELOPED CONDITION SUBBASIN ELEMENTS

BASIN	AREA SQ.MI.	IMP. %	CN	Tc min.	FLOWS (CFS)			
					100 YR.	25 YR.	10 YR.	2 YR.
A	55.90	0.00%	80.0	392.4	30377	21628	15700	6615
B	0.30	25.00%	84.5	34.3	971	732	567	290
C	0.49	0.00%	80.0	36.3	1412	1032	773	353
D	0.12	25.00%	84.5	37.7	375	283	218	110
E	0.31	25.00%	84.5	46.6	870	653	500	250
F	0.18	20.00%	83.5	28.7	621	465	361	181
G	1.35	14.00%	83.1	71.1	2899	2140	1614	773
H	10.80	10.00%	82.3	126.9	15675	11412	8470	3854
I	3.74	12.00%	82.7	122.0	5625	4108	3063	1409
J	1.62	25.00%	84.5	56.3	4109	3070	2343	1173
K	1.29	12.00%	83.9	70.5	2838	2104	1592	777
L	0.21	36.00%	86.5	38.0	905	690	539	285

PEAK FLOW CHANGE DUE TO DEVELOPMENT

JUNCTION NO.	100 YEAR	25 YEAR	10 YEAR	2 YEAR
J-1	0.0	0.0	0.0	0.0
J-2	0.0	0.0	0.0	0.0
J-3	0.0	0.0	0.0	0.0
J-4	0.0	-0.1	0.0	0.0

NOTES:

1. THE DEVELOPED DRAINAGE MAP SHOWN ON THIS SHEET IS FROM THE MASTER DRAINAGE REPORT "SUN CITY, TEXAS SOMERSET HILLS AND QUEEN PLANNED UNIT DEVELOPMENT BERRY CREEK" DATED AUGUST 20, 2015, PREPARED BY STEGER BIZZELL AND SUBMITTED TO THE CITY OF GEORGETOWN WITH THE PRELIMINARY PLATS.
2. THIS PORTION OF THE PROJECT IS WITHIN BASIN F AND IS CONSISTENT WITH THE APPROVED DRAINAGE REPORT.

FOR REVIEW.

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF CURTIS R. STEGER, P.E. REG. #87905 ON 7/31/2015. IT IS NOT TO BE USED FOR BIDDING, PERMIT OR CONSTRUCTION.

NO.	REVISION	BY	DATE

EJM 7/30/2015
DESIGNED BY: DATE
EJM 7/30/2015
DRAWN BY: DATE
CHECKED BY: DATE
APPROVED BY: DATE

STEGER BIZZELL
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ATTACHMENT "B" - DEVELOPED CONDITION DRAINAGE MAP
for
BERRY CREEK
Sun City
Williamson County, Texas

Project No: 22226

WARNING!
There are existing water pipelines, underground telephone cables and other above and below ground utilities in the vicinity of this project. The contractor shall contact all appropriate utility companies prior to any construction in the area and determine if any conflicts exist. If so, the Contractor shall immediately contact the Engineer, who shall revise the design as necessary.

NO.	REVISION	BY	DATE

DESIGNED BY: DATE
DRAWN BY: DATE
CHECKED BY: DATE
APPROVED BY: DATE

STATE OF TEXAS
ERIK J. HABERMAN
152359
LICENSED PROFESSIONAL ENGINEER
7/31/2015

STEGER BIZZELL
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DEVELOPED DRAINAGE PLAN

BERRY CREEK AMENITY CENTER

City of Georgetown
Williamson County, Texas

Project Number: 22226 - 41
SCALE: AS NOTED
Project Path: P\22000-22999
Project Name: 22226 - BC AM CNTR
Drawing Path: P\22000-22999 SUN CITY
Xref DWG FILE:
Sheet Number: 08 of 36 sheets

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2024-109-SDP

0 40 80 Feet

LEGEND

- ##### TREE TO BE REMOVED
- ##### TREE TO BE PRESERVED
- x TREE PROTECTION FENCING
- INLET PROTECTION
- SF SILT FENCE
- ROCK BERM
- LIMIT OF CONSTRUCTION
- 840 EXISTING CONTOURS (MAJOR)
- EXISTING CONTOURS (MINOR)
- 840 PROPOSED CONTOURS (MAJOR)
- PROPOSED CONTOURS (MINOR)

TREE PROTECTION NOTES:

1. Existing trees to remain shall be flagged by contractor prior to beginning any work on site.
2. Contractor shall place a minimum 4' height protective fencing 5' outside the edge of canopy of all trees to remain and as shown on the tree protection and removal plans.
3. All understory trees, undergrowth, shrubs, cacti and native grasses shall remain in areas protected by tree protection fence unless noted otherwise on the landscape plans.
4. Contractor shall maintain flagging and protective fencing around existing trees to remain at least until substantial completion.
5. Contractor shall ensure that no dumping of backfill, soil excavation, staking or storage of materials or dumping of any kind shall occur within the fenced area of the trees to remain.
6. Contractor shall ensure that no parking of any type of vehicle, equipment or construction trailer shall occur within the fenced area of trees to remain.
7. Contractor shall ensure that no driving of vehicles shall occur within the fenced area of trees to remain.
8. Contractor shall ensure that no grade changes shall occur within the canopy of the existing trees to remain.
9. Contractor shall keep fenced areas of trees to remain free of trash, debris or excessive runoff.
10. No trenching for utilities or irrigation shall occur within the dripline (canopy) of existing trees to remain.
11. For irrigation, any lateral line or mainline trenches which encroach in the dripline of existing trees shall be hand dug.
12. For utilities, any lines which cannot be altered to fall outside the canopy of existing trees shall be installed by boring a minimum of 24" below grade.

NOTES:

1. Topography based upon LIDAR aerial mapping, date August 20, 2014 by Mckim & Creed.
2. All proposed development of this site conforms to the City of Georgetown's subdivision regulations and/or the development agreement.
3. Limits of construction line has been offset for clarity.
4. All temporary erosion and sedimentation controls shall be inspected every 7 days and following every rainfall event.
5. Contractor shall maintain all temporary erosion and sediment controls in accordance with local, state and federal regulations.
6. Contractor shall place rock filter dams at the locations where concentrated flow enters and exits the limits of construction.
7. Contractor shall place construction entrance at the location determined by the owner in the field.
8. Curb inlet protection is required at inlets installed with this project. Protection to remain in place until the project is accepted.
9. Rock berm and temporary pond shall be used during initial grading activities. Straw erosion control logs shall be installed once the site has been brought to grade.

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NO.	REVISION	BY	DATE

DESIGNED BY: DATE
DRAWN BY: DATE
CHECKED BY: DATE
APPROVED BY: DATE

STATE OF TEXAS
ERIK J. HABERMAN
152359
LICENSED
PROFESSIONAL ENGINEER
8/5/2025

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EROSION AND SEDIMENTATION PLAN

BERRY CREEK AMENITY CENTER

City of Georgetown
Williamson County, Texas

Project Number: 22226 - 41
SCALE: AS NOTED
Project Path: P\22000-22999
Project Name: 22226 - BC AM CNTR
Drawing Path: P\22000-22999 SUN CITY
Xref DWG FILE.
Sheet Number: 09 of 36 sheets

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2024-109-SDP

LEGEND

- PROPERTY BOUNDARY
- EASEMENT
- EXISTING WATER LINE
- WATERLINE
- FIRE LINE
- STORM SEWER LINE
- EXISTING STORM SEWER LINE
- EXISTING WASTEWATER LINE
- WASTEWATER LINE
- FIRE HYDRANT
- EXISTING CONTOURS (MAJOR)
- EXISTING CONTOURS (MINOR)
- PROPOSED CONTOURS (MAJOR)
- EXISTING CONTOURS (MINOR)
- ACCESSIBLE ROUTE

0 40 80 Feet

- #### = HERITAGE TREE TO REMAIN
- #### = PROTECTED TREE TO REMAIN (18" TO 26" HERITAGE CREDIT)
- #### = HERITAGE TREE TO BE REMOVED
- #### = PROTECTED TREE TO BE REMOVED
- #### = NON-HERITAGE AND NON-PROTECTED TREE
- #### = NON-HERITAGE AND NON-PROTECTED TREE TO BE REMOVED
- = TREE PROTECTION FENCING

SITE DATA

SITE AREA (FT²):	305745.74
SITE AREA (ACRES):	7.0190
BUILDINGS GFA (FT²):	8,534
IMPERVIOUS COVERAGE AREA (ACRES):	1.4323
MAXIMUM ALLOWABLE IMPERVIOUS COVERAGE (%):	25%
MAXIMUM ALLOWABLE IMPERVIOUS COVERAGE (AC):	1.76
IMPERVIOUS COVERAGE (%):	22.9%

PARKING DATA

AMENITY BUILDING AND POOL GFA

- AMENITY CENTER: 8,359 FT²
- POOL: 2,956 FT²
- SPA: 192 FT²
- BOCCE COURT: 671 FT²
- TOTAL GFA = 12,178 FT²

REQUIREMENT

- 1 SPACE/ 275 FT² GFA = 45 SPACES / FT²

SOCIAL PAVILION GFA

- PAVILION: 1,513 FT²
- YOGA LAWN / PAVILION STORAGE: 856 FT²
- FOOD TRUCK / PICNIC AREA: 3,532 FT²
- TOTAL GFA = 5,901 FT²

REQUIREMENT

- 1 SPACE / 500 FT² GFA = 12 SPACES / FT²

PARKING SPACES REQUIRED: 57 SPACES
PARKING SPACES PROPOSED: 62 PARKING SPACES

PARKING RATIO

62 SPACES PROPOSED / 57 SPACES REQUIRED = 1.09

NOTES:

1. All lighting fixtures shall be designed to completely conceal and fully shield, within an opaque housing, the light source from visibility from any street right-of-way. The cone of light shall not cross any adjacent property line. The illumination shall not exceed 2 foot candles at a height of three feet at the property line. Only incandescent, fluorescent, color-corrected high-pressure sodium or metal halide may be used. All vehicle or pedestrian access shall be sufficiently lighted to ensure security of property and persons.
2. All roof, wall and ground mounted mechanical equipment must be screened in accordance with Chapter 8 of the UDC. If roof and wall mounted equipment of any type including duct work and large vents is proposed it shall be shown on the Site Plan and screening identified. Screening of mechanical equipment shall result in the mechanical equipment blending in with the primary building and not appearing separate from the building and shall be screened from view of any rights-of-way or adjoining properties.
3. Per Chapter 8, the dumpster enclosures must be one (1) foot above the height of the waste container. Use protective poles in corners and at impact areas. Fence posts shall be of of rust protected metal or concrete. A minimum 6" slab is required and must be sloped to drain; the enclosure must have steel framed gates with spring loaded hinges and fasteners to keep closed. Screening must be on all four sides by masonry wall or approved fence or screening with opaque gates.

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NO.	REVISION	BY	DATE

DESIGNED BY: DATE
DRAWN BY: DATE
CHECKED BY: DATE
APPROVED BY: DATE

STATE OF TEXAS
ERIK J. HABERMAN
152359
LICENSED PROFESSIONAL ENGINEER
9/5/2025

STEGER BIZZELL

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DIMENSIONAL SITE PLAN (1 OF 2)

BERRY CREEK AMENITY CENTER

City of Georgetown
Williamson County, Texas

Project Number: 22226 - 41
SCALE: AS NOTED
Project Path: P\22000-22999
Project Name: 22226 - BC AM CNTR
Drawing Path: P\22000-22999 SUN CITY
Xref DWG FILE.
Sheet Number: 10 of 36 sheets

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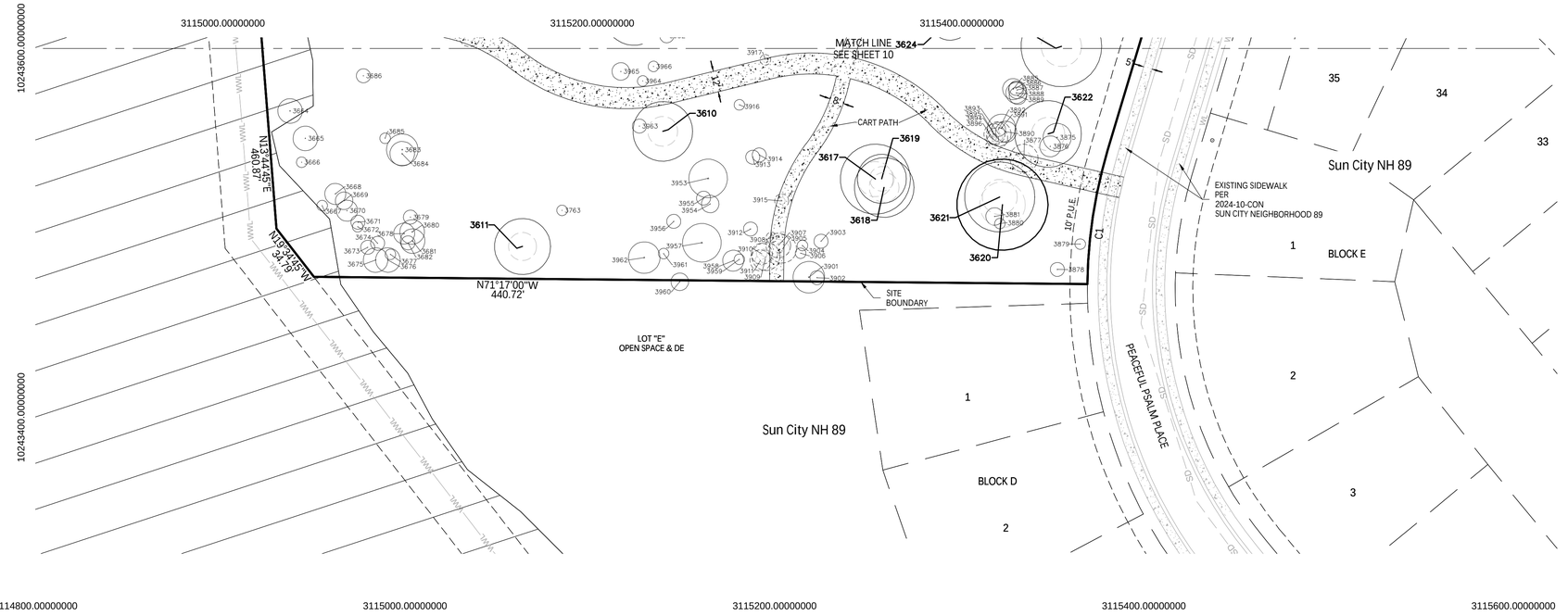
2024-109-SDP



0 40 80 Feet

LEGEND

- PEDESTRIAN ACCESS ROUTE
- PROPERTY BOUNDARY
- EASEMENT
- WL — EXISTING WATER LINE
- WL — WATERLINE
- WL/F — FIRE LINE
- SD — STORM SEWER LINE
- SD — EXISTING STORM SEWER LINE
- WWL — WASTEWATER LINE
- WWL — EXISTING WASTEWATER LINE
- FIRE HYDRANT
- 100 — EXISTING CONTOURS (MAJOR)
- 101 — EXISTING CONTOURS (MINOR)
- 100 — PROPOSED CONTOURS (MAJOR)
- 101 — EXISTING CONTOURS (MINOR)

- #### = HERITAGE TREE TO REMAIN
- #### = PROTECTED TREE TO REMAIN (18" TO 26" HERITAGE CREDIT)
- #### = HERITAGE TREE TO BE REMOVED
- #### = PROTECTED TREE TO BE REMOVED
- #### NON-HERITAGE AND NON-PROTECTED TREE
- #### NON-HERITAGE AND NON-PROTECTED TREE TO BE REMOVED
- TREE PROTECTION FENCING

Curve Table				
Curve #	Radius	Arc Length	Chord Length	Chord Direction
C1	275.00	77.28	77.03	S26° 46' 04"W

WARNING!
There are existing water pipelines, underground telephone cables and other above and below ground utilities in the vicinity of this project. The contractor shall contact all appropriate utility companies prior to any construction in the area and determine if any conflicts exist. If so, the Contractor shall immediately contact the Engineer, who shall revise the design as necessary.

NO.	REVISION	BY	DATE

DESIGNED BY: DATE
DRAWN BY: DATE
CHECKED BY: DATE
APPROVED BY: DATE

STATE OF TEXAS
ERIK J. HABERMAN
152359
LICENSED
PROFESSIONAL ENGINEER
9/5/25

STEGER BIZZELL
ADDRESS 1978 S. AUSTIN AVENUE GEORGETOWN, TX 78626
METRO 512.930.9412 TEXAS REGISTERED ENGINEERING FIRM F-181 TBPELS FIRM No.10003700 WEB STEGERBIZZELL.COM
SERVICES >>ENGINEERS >>PLANNERS >>SURVEYORS

DIMENSIONAL SITE PLAN (2 OF 2)

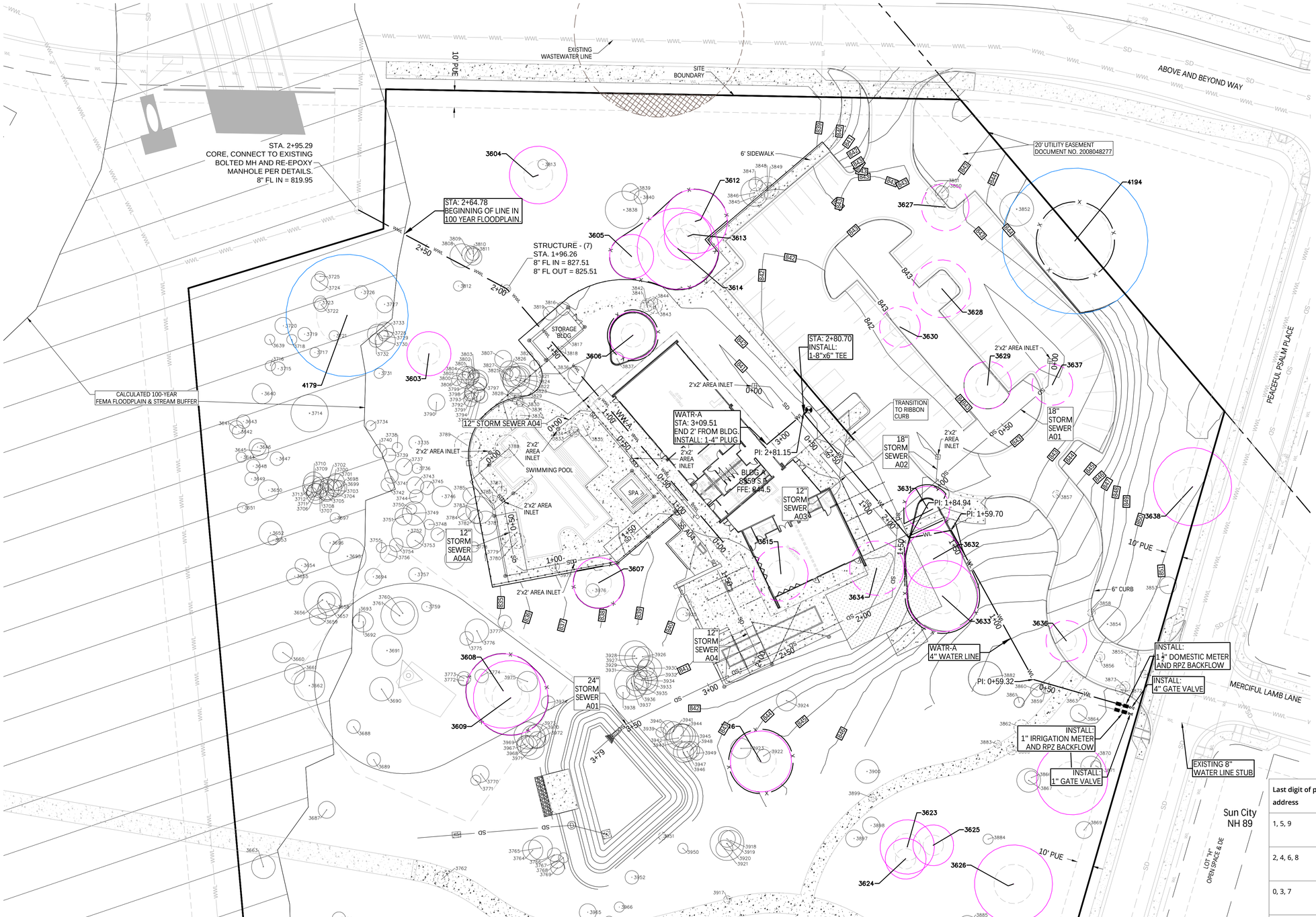
BERRY CREEK AMENITY CENTER

City of Georgetown
Williamson County, Texas

Project Number: 22226 - 41
SCALE: AS NOTED
Project Path: P\22000-22999
Project Name: 22226 - BC AM CNTR
Drawing Path: P\22000-22999 SUN CITY
Xref DWG FILE.
Sheet Number: 11 of 36 sheets

P:\22000-22999\22226 Sun City\41-Berry Creek Amenity Center\CAD\Plans\11 DIMENSIONAL SITE PLAN (2 of 2).dwg Mar 07, 2025 - 3:59pm

2024-109-SDP



0 30 60 Feet

SCALE"1"=30'

LEGEND

- PROPERTY BOUNDARY
- EASEMENT
- EXISTING WATER LINE
- WATERLINE
- FIRE LINE
- STORM SEWER LINE
- EXISTING STORM SEWER LINE
- EXISTING WASTEWATER LINE
- WASTEWATER LINE
- FIRE HYDRANT
- EXISTING CONTOURS (MAJOR)
- EXISTING CONTOURS (MINOR)
- PROPOSED CONTOURS (MAJOR)
- EXISTING CONTOURS (MINOR)

- #### = HERITAGE TREE TO REMAIN
- #### = PROTECTED TREE TO REMAIN (18" TO 26" HERITAGE CREDIT)
- #### = HERITAGE TREE TO BE REMOVED
- #### = PROTECTED TREE TO BE REMOVED
- #### = NON-HERITAGE AND NON-PROTECTED TREE
- #### = NON-HERITAGE AND NON-PROTECTED TREE TO BE REMOVED
- TREE PROTECTION FENCING

NOTES:

1. INDIVIDUAL PRESSURE REDUCING VALVES (PRV) REQUIRED ON ALL LOTS WHERE STATIC PRESSURE IS GREATER THAN 80 PSI.
2. AT THE CONCLUSION OF CONSTRUCTION, FIRE HYDRANTS SHALL BE FLOW TESTED AND COLOR CODED IN ACCORDANCE TO CITY'S STANDARDS, AND RESULTS SHALL BE EMAILED TO THE FIRE DEPARTMENT. IFC 507.5 FIRE HYDRANTS SYSTEMS.
3. CAUTION, IF PRESSURE REDUCING VALVES WERE INSTALLED IN THIS PHASING THEY MUST BE SET PRIOR TO FIRE HYDRANT FLOW TESTING.
4. WATER PRESSURE CALCULATED USING THE 1065 PRESSURE PLANE.
5. SEE SHEET 002 FOR CITY OF GEORGETOWN GENERAL NOTES.
6. CONTRACTOR SHALL PROVIDE FULL CLA-VAL SUBMITTAL TO DAVID MUNK/CITY OF GEORGETOWN DEVELOPMENT ENGINEER FOR REVIEW AND APPROVAL.

PIPE MATERIAL INSTALLATION NOTES:

1. ALL WATER LINE SHALL BE 8" C900 (150 PSI) PVC UNLESS OTHERWISE NOTED.
2. WATER VALVES SHALL NOT BE INSTALLED IN SIDEWALKS, RAMPS OR CURBS.
3. ALL JOINTS WHERE REQUIRED SHALL BE RESTRAINED.

WATERING NOTES:

1. A MASTER METERED PROJECT SHOULD HAVE A SEPARATE IRRIGATION METER FORM THE DOMESTIC METER.
   (DATES AND TIMES ARE SUBJECT TO CHANGE BASED ON DROUGHT CONTINGENCY PLAN AND/OR AS MAY BE AMENDED FROM TIME TO TIME) PLEASE NOTE THE IRRIGATION TIMES THAT ARE PROVIDED WITHIN THE TABLE BELOW..
2. PORTABLE WATER SHOULD NOT BE USED AS MAKE UP WATER IN WET PONDS.

Last digit of property street address	Allowed watering day(s)	Allowed watering hours
1, 5, 9	Tuesday and Friday	Midnight to 10:00 AM and 7:00 PM - Midnight
2, 4, 6, 8	Wednesday and Saturday	Midnight to 10:00 AM and 7:00 PM - Midnight
0, 3, 7	Thursday and Sunday	Midnight to 10:00 AM and 7:00 PM - Midnight
	Monday	None

WARNING!
There are existing water pipelines, underground telephone cables and other above and below ground utilities in the vicinity of this project. The contractor shall contact all appropriate utility companies prior to any construction in the area and determine if any conflicts exist. If so, the Contractor shall immediately contact the Engineer, who shall revise the design as necessary.

NO.	REVISION	BY	DATE

DESIGNED BY: DATE
DRAWN BY: DATE
CHECKED BY: DATE
APPROVED BY: DATE

STATE OF TEXAS
ERIK J. HABERMAN
152359
LICENSED PROFESSIONAL ENGINEER
9/5/2025

STEGER BIZZELL
ADDRESS 1978 S. AUSTIN AVENUE GEORGETOWN, TX 78626
METRO 512.930.9412 TEXAS REGISTERED ENGINEERING FIRM F-181 TBPELS FIRM No.10003700 WEB STEGERBIZZELL.COM
SERVICES >>ENGINEERS >>PLANNERS >>SURVEYORS

OVERALL UTILITY PLAN

BERRY CREEK AMENITY CENTER

City of Georgetown
Williamson County, Texas

Project Number: 22226 - 41
SCALE: AS NOTED
Project Path: P\22000-22999
Project Name: 22226 - BC AM CNTR
Drawing Path: P\22000-22999 SUN CITY
Xref DWG FILE:
Sheet Number: 23 of 36 sheets

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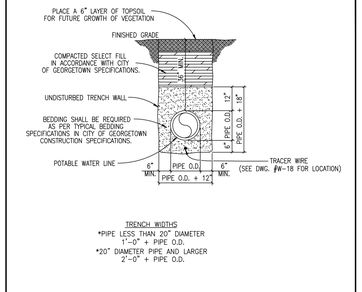
2024-109-SDP

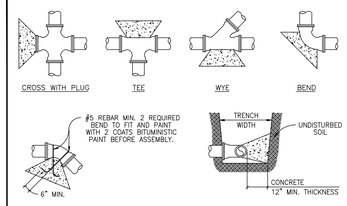


TRENCH WIDTHS
*PIPE LESS THAN 20" DIAMETER
1'-0" + PIPE O.D.
*20" DIAMETER PIPE AND LARGER
2'-0" + PIPE O.D.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
TRENCH AND EMBEDMENT DETAIL UNDER NON-PAVED AREAS

ADOPTED 6/21/2006 | W02 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB



*DEADMAN

TYPICAL SECTION

ALL THRUST BLOCKS SHALL BE FORMED. LAID FORMS SHALL BE INSPECTED BY THE CITY OF GEORGETOWN PRIOR TO THE POURING OF CONCRETE AND SHALL ALSO BE INSPECTED BY THE CITY OF GEORGETOWN PRIOR TO COVERING. TYPICAL LOCATIONS WHICH REQUIRE CONCRETE REACTION (THRUST) BLOCKS, FOR PRESSURE MAINS FOUR INCHES (4") AND GREATER, CONCRETE SHALL HAVE 2,500 P.S.I. MINIMUM STRENGTH AT TWENTY EIGHT (28) DAYS AND BEAR AGAINST UNDISTURBED STABLE SOILS, AREA OF CONTACT SHALL BE GOVERNED BY PIPE SIZE, MAXIMUM PRESSURE IN PIPE, AND BEARING CAPACITY OF SOIL. PROTECT FITTINGS, BOLTS, ETC. BY COVERING WITH VISQUEEN OR OTHER ACCEPTABLE MATERIAL. CONCRETE SHALL BE A MINIMUM OF TWELVE INCHES (12") THICK.

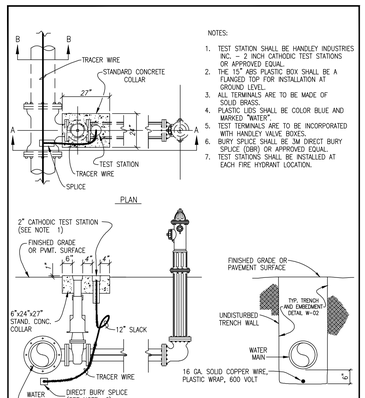
PIPE SIZE	THRUST BLOCK AREA REQUIRED	PIPE SIZE	THRUST BLOCK AREA REQUIRED	REMARKS
4"	2.0 SQ. FT.	18"	30.0 SQ. FT.	
6"	4.0 SQ. FT.	20"	37.0 SQ. FT.	VALUES ARE FOR 90° BENDS, BASED ON 2000 P.S.F. SAFE BEARING LOAD AND PIPE PRESSURE OF 150 P.S.I. PLUS 33% SAFETY FACTOR FOR OTHER SOILS AND PRESSURES, THE AREA REQUIRED IS IN DIRECT PROPORTION.
8"	6.6 SQ. FT.	24"	53.0 SQ. FT.	
10"	10.0 SQ. FT.	27"	80.0 SQ. FT.	
12"	14.0 SQ. FT.	30"	98.0 SQ. FT.	
14"	18.0 SQ. FT.	36"	127.0 SQ. FT.	
16"	24.0 SQ. FT.			

* THE ENGINEER OF RECORD SHALL CALCULATE THE SIZE OF THE DEADMAN REQUIRED AS WELL AS ANY INSTALLATION WHICH IS NOT COVERED BY THE ABOVE.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
TYPICAL THRUST BLOCKS FOR WATER AND FORCE MAIN

ADOPTED 6/21/2006 | W11 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB

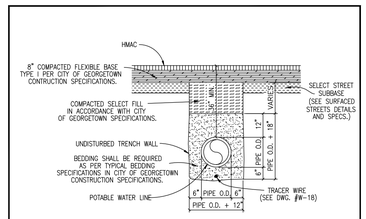


NOTES:
1. TEST STATION SHALL BE HANDLEY INDUSTRIES INC. – 2 INCH CATHODIC TEST STATIONS OR APPROVED EQUAL.
2. THE 15" ABS PLASTIC BOX SHALL BE A FLANGED TOP FOR INSTALLATION AT GROUND LEVEL.
3. ALL TERMINALS ARE TO BE MADE OF SOLID BRASS.
4. PLASTIC LIDS SHALL BE COLOR BLUE AND MARKED "WATER".
5. TEST TERMINALS ARE TO BE INCORPORATED WITH HANDLEY VALVE BOXES.
6. BURY SPLICE SHALL BE 3M DIRECT BURY SPLICE (DBR) OR APPROVED EQUAL.
7. TEST STATIONS SHALL BE INSTALLED AT EACH FIRE HYDRANT LOCATION.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
TRACER WIRE INSTALLATION AND TEST STATION LOCATION

ADOPTED 6/21/2006 | W18 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB



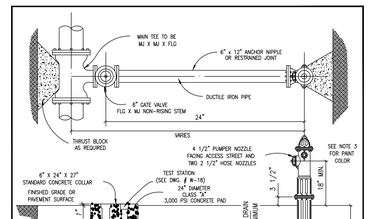
TRENCH WIDTHS
*PIPE LESS THAN 20" DIAMETER
1'-0" + PIPE O.D.
*20" DIAMETER PIPE AND LARGER
2'-0" + PIPE O.D.

NOTES:
1. DENSITY TESTS SHALL BE TAKEN IN ACCORDANCE WITH THE CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS AND STANDARDS.
2. CONTRACTOR OR ENGINEER MAY USE FLOWABLE BACKFILL AS AN ALTERNATE BACKFILL MATERIAL (SEE C9 FLOWABLE BACKFILL FOR THE SPECIFICATION).

The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
TRENCH AND EMBEDMENT DETAIL UNDER PROPOSED ROADWAY

ADOPTED 6/21/2006 | W22 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB

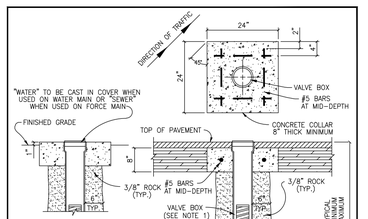


NOTES:
1. FIRE HYDRANT SHALL BE INSTALLED ON SAME SIDE OF ROAD AS WATER MAIN.
2. FIRE HYDRANT SHALL BE INSTALLED PLUMB AND TRUE.
3. ALL FIRE HYDRANT EXTENDERS SHALL BE FACTORY PRIMED AND PAINTED SILVER USING A HIGH GRADE ENAMEL.
4. HEEL AND THRUST BLOCKS TO REST IN UNDISTURBED SOIL.
5. THE ONLY FIRE HYDRANTS ACCEPTABLE ARE:
   A. KENNEDY – K81
   B. AMERICAN DARLING – B-84-B
   C. CLOW MEDALION
6. DOUBLE BLUE REFLECTOR "SHE-LITES" BRAND, MANUFACTURED BY PAVEMENT MARKERS INC. TO BE INSTALLED AT CENTERLINE OF STREET PERPENDICULAR TO HYDRANT.
7. ALL METALLIC PIPES AND FITTINGS SHALL BE WRAPPED WITH 8 MIL. POLYETHELENE FILM.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
TYPICAL FIRE HYDRANT INSTALLATION

ADOPTED 6/21/2006 | W10 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB

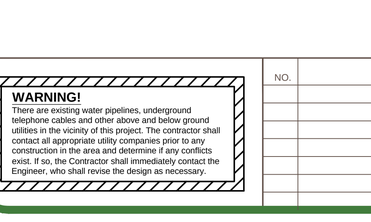


NOTES:
1. VALVE BOX SHALL BE 5 1/4" CAST IRON ADJUSTABLE HAVING AN ADJUSTABLE RANGE OF + OR – 6 INCHES FROM INSTALLED FINISH GRADE.
2. ACCEPTABLE GATE VALVES ARE:
   A. AMERICAN FLOW CONTROL – SERIES 2500
   B. MUELLER – 2360 SERIES
   C. CLOW

The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
TYPICAL VALVE SETTING

ADOPTED 6/21/2006 | W07 | SCALE: NTS | DATE: 1/2002 | DRAWN BY: MRS | APPROVED BY: TRB



CLASSIFICATION	ROW	B-B	PVMT.
LOCAL STREET	50'	28'	24'
RESIDENTIAL STREET	65'	37'	33'
MAJOR COLLECTOR	73'	45'	41'

MINIMUM COVER BELOW FINISH-GRADE ALL UTILITIES UNDER ROADWAY – 36"	
ELECTRIC PRIMARY	36"
ELECTRIC SECONDARY	24"
WATER	36"
WASTEWATER	48"
STORM SEWER	36"
GAS	36"
TELECOMMUNICATIONS	36"

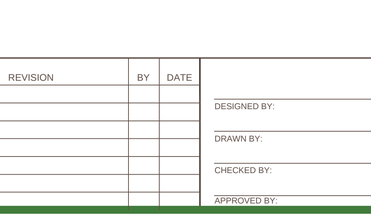
NOTE: WHEN CROSSING A WATER MAIN, THE ELECTRIC CONDUIT MUST BE ENCASED IN CLASS "A" 3,000 PSI RED CONCRETE FOR FIVE (5) FEET BOTH SIDES FROM THE CROSSING POINT.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

MODIFIED 09/15/2015 FOR SUN CITY ONLY
ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
UTILITY ASSIGNMENTS FOR LOCAL STREETS

W01A-MODIFIED 01 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB



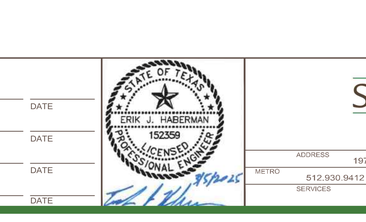
NOTES:
1. SUCCESSIVE TAPS INTO THE WATER MAIN SHALL BE SPACED A MINIMUM OF 18" OFFSET AND AT THE CENTERLINE AS SHOWN ON DETAIL "A".
2. WHERE NO SIDEWALK EXISTS, METER BOXES SHALL BE SET TO CONFORM TO FINISHED GRADE.
3. AUTHORIZED SERVICE LINE MATERIAL: POLYETHYLENE TUBING SHALL BE SDR-9, CLASS 200, SDR TUBING SHALL HAVE STAINLESS STEEL STIFFENERS.
4. ROTATE THE CORPORATION STOP SO THAT THE OPERATING NUT IS ACTUATED FROM THE VERTICAL POSITION RATHER THAN THE HORIZONTAL. SEE STD. RISER FOR CORP. STOP DETAIL, (DWG # W08).
5. SERVICE LINES SHALL BE CONTINUOUS FROM CORPORATION STOP TO CORPORATION STOP WITH NO FITTINGS IN BETWEEN.
6. SERVICE CASING SHALL NOT BE INSTALLED BY WATER JETTING UNDER ROADWAY.
7. CASING REQUIRED FOR ALL PAVEMENT CROSSINGS. 4" SDR-26 REQUIRED FOR OPEN-CUT. STEEL CASING PIPE REQUIRED FOR JACK AND BORE. LIMITS OF CASING SHOULD EXTEND SIX FEET BEYOND THE EDGE OF PAVEMENT OR BACK-OF-CURB.
8. BEDDING MATERIAL AS PER CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS.
9. ANY VARIATIONS ON FITTINGS MUST BE APPROVED BY THE CITY ENGINEER.
10. METER BOX TO BE CAPABLE OF HOUSING ITRON AUTOMATIC METER READING DEVICE. USE DFW–PLASTICS, INC. PART NO. 1200.SBAMR OR APPROVED EQUAL.
11. ALL SERVICE LINES SHALL BE PLACED 90° PERPENDICULAR TO THE ROADWAY. SEE DETAIL W23.
12. CASING SHALL EXTEND OUT TO WITHIN 4' INSIDE OF THE R.O.W. LINE, ON BOTH SIDES.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

MODIFIED 11/16/2016 FOR SUN CITY ONLY
ADOPTED 01/23/2013

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
TYPICAL WATER SERVICE–ELEVATION

W03-MODIFIED | SCALE: NTS | DATE: 1/2013 | DRAWN BY: MRS | APPROVED BY: TRB



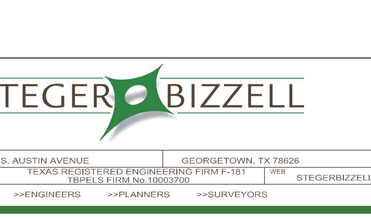
NOTES:
1. AUTHORIZED SERVICE LINE MATERIAL: POLYETHYLENE TUBING SHALL BE SDR–9, CLASS 200, SDR TUBING SHALL HAVE STAINLESS STEEL STIFFENERS.
2. ANGLE STOP SHALL BE 1" MINIMUM.
3. 1" ANGLE STOPS WITH 3/4" VALVES SHALL NOT BE PERMITTED.
4. MULTIPLE SERVICE/METER INSTALLATIONS OF MORE THAN 4 METERS PER SERVICE AND SERVICE LINES LARGER THAN 2" IN DIAMETER SHALL BE HANDLED ON AN INDIVIDUAL BASIS.
5. ANGLE STOPS 1 1/2" AND 2" IN SIZE SHALL BE PROVIDED WITH BOTH A LOCKING CAP AND METER FLANGE.
6. ANGLE STOPS SHALL BE INSTALLED 8" BELOW FINISHED GRADE AND MARKED WITH A 2" X 2" X 48" TREATED WOOD STAKE, PAINTED BLUE.
7. BEDDING MATERIAL AS PER CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS.
8. CASING REQUIREMENTS FOR SERVICE LINES CROSSING ROADWAYS SEE DETAIL W–03 NOTE #7.
9. ANY VARIATIONS ON FITTINGS MUST BE APPROVED BY THE CITY ENGINEER.
10. ALL SERVICE LINES SHALL BE PLACED 90° PERPENDICULAR TO THE ROADWAY.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

MODIFIED 09/15/2015 FOR SUN CITY ONLY
ADOPTED 01/23/2013

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
SINGLE WATER SERVICE PLAN

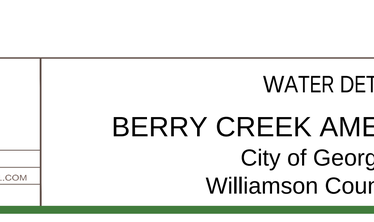
W04-MODIFIED | SCALE: NTS | DATE: 1/2013 | DRAWN BY: MRS | APPROVED BY: TRB



The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
METER BOX (NON–TRAFFIC AREAS)

ADOPTED 6/21/2006 | W23 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB



NOTES:
1. AUTHORIZED SERVICE LINE MATERIAL: POLYETHYLENE TUBING SHALL BE SDR–9. CLASS 200, SDR TUBING SHALL HAVE STAINLESS STEEL STIFFENERS.
2. ANGLE STOP SHALL BE 1" MINIMUM.
3. 1" ANGLE STOPS WITH 3/4" VALVES SHALL NOT BE PERMITTED.
4. MULTIPLE SERVICE/METER INSTALLATIONS OF MORE THAN 4 METERS PER SERVICE AND SERVICE LINES LARGER THAN 2" IN DIAMETER SHALL BE HANDLED ON AN INDIVIDUAL BASIS.
5. ANGLE STOPS 1 1/2" AND 2" IN SIZE SHALL BE PROVIDED WITH BOTH A LOCKING CAP AND METER FLANGE.
6. ANGLE STOPS SHALL BE INSTALLED 8" BELOW FINISHED GRADE AND MARKED WITH A 2" X 2" X 48" TREATED WOOD STAKE, PAINTED BLUE.
7. BEDDING MATERIAL AS PER CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS.
8. CASING REQUIREMENTS FOR SERVICE LINES CROSSING ROADWAYS SEE DETAIL W–03 NOTE #7.
9. ANY VARIATIONS ON FITTINGS MUST BE APPROVED BY THE CITY ENGINEER.
10. ALL SERVICE LINES SHALL BE PLACED 90° PERPENDICULAR TO THE ROADWAY.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

MODIFIED 09/15/2015 FOR SUN CITY ONLY

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
MODIFIED DOUBLE WATER SERVICE PLAN

W05–MODIFIED | SCALE: NTS | DATE: 10–14 | DRAWN BY: JSM | APPROVED BY:

WARNING!
There are existing water pipelines, underground telephone cables and other above and below ground utilities in the vicinity of this project. The contractor shall contact all appropriate utility companies prior to any construction in the area and determine if any conflicts exist. If so, the Contractor shall immediately contact the Engineer, who shall revise the design as necessary.

NO.	REVISION	BY	DATE

DESIGNED BY: DATE
DRAWN BY: DATE
CHECKED BY: DATE
APPROVED BY: DATE

STATE OF TEXAS
ERIK J. HABERMAN
152359
PROFESSIONAL ENGINEER
LICENSED
8/5/2025

STEGER BIZZELL

ADDRESS: 1978 S. AUSTIN AVENUE | GEORGETOWN, TX 78626
METRO: 512.930.9412 | TEXAS REGISTERED ENGINEERING FIRM F–181 TBPELS FIRM No.10003700 | WEB: STEGERBIZZELL.COM
SERVICES: >>ENGINEERS >>PLANNERS >>SURVEYORS

WATER DETAILS

BERRY CREEK AMENITY CENTER

City of Georgetown
Williamson County, Texas

Project Number: 22226 - 41
SCALE: AS NOTED
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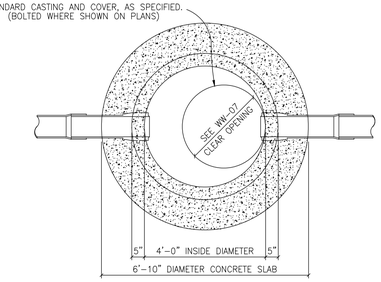
P:\22000-22999\22226 Sun City\41-Berry Creek Amenity Center\CAD\Plans\24 WATER DETAILS.dwg Mar 07, 2025 - 4:01pm

2024-109-SDP



MANHOLE PLAN

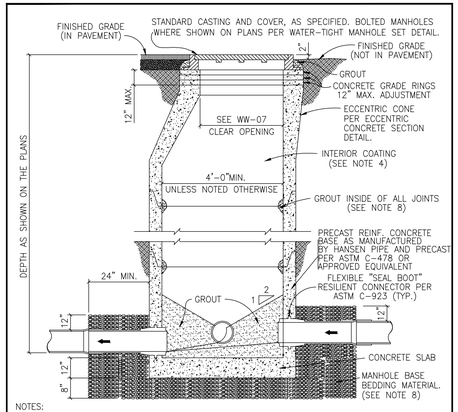
CITY OF GEORGETOWN NOTES:

MANHOLE DETAILS SHALL REFLECT THE CITY'S MINIMUM SPECIFICATIONS, AS STATED BELOW:

A. ALL MANHOLES SHALL BE 48" I.D., R.C.P., CLASS III, WITH RUBBER PROFILE GASKET – SINGLE OFF-SET JOINT CONFORMING TO ASTM C478, C433 AND C76.
B. ALL MANHOLES SHALL HAVE FRAME AND COVER, AS MANUFACTURED BY EAST JORDAN IRON WORKS (AS PER DETAIL # WW-07) OR APPROVED EQUIVALENT.
C. ALL MANHOLES SHALL BE CONCRETE WITH CAST IRON FRAME AND COVER.
D. ALL MANHOLES SHALL HAVE AN ECCENTRIC CONE.
E. MANHOLES MAY HAVE A FLAT LID, IF APPROVED BY CITY OF GEORGETOWN, BEING 12" THICK WITH A MINIMUM 30" OPENING, AS MANUFACTURED BY HANSEN PIPE AND PRECAST OR APPROVED EQUAL M.F.G. CONFORMING TO ASTM C478, 5000 P.S.I. CONCRETE, TRAFFIC BEARING AND WITH PROFILE GASKET – SINGLE OFF-SET JOINT CONFORMING TO ASTM C443.
F. INVERTS AND FLEXIBLE SEAL BOOTS, PER ASTM C-923, SHALL BE CAST INTO BASE SECTION.
G. MINIMUM DROP BETWEEN INVERTS SHALL BE ONE-TENTH OF A FOOT (0.1').
H. GRADE RINGS WITH AN I.D. TO MATCH FRAMES CLEAR OPENING WITH A MAXIMUM ADJUSTMENT OF 12" ARE ALLOWED.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: ADOPTED 6/21/2006
DRAWING NAME: WW02
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
STANDARD MANHOLE – PLAN
SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | CHECKED BY: TRB

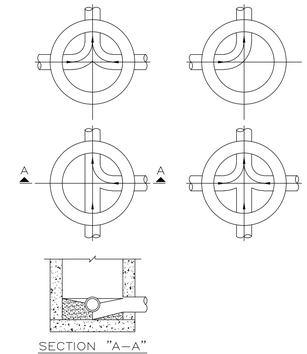


NOTES:
1. MANHOLES SHALL BE PRECAST ASTM C-478 BELL AND SPIGOT WITH PROFILE GASKET – SINGLE OFF-SET JOINTS.
2. SEE PLANS AND MANHOLE SCHEDULE, FOR MANHOLE SIZE, LOCATION, CONFIGURATION, TYPE OF TOP SECTION, VENTING REQUIREMENTS, PIPE SIZE AND TYPES.
3. SEE SPECIFICATIONS ON MATERIALS AND CONSTRUCTION.
4. AN 80 MIL. COAT OF RAVEN LINING SYSTEMS, RAVEN 405 ULTRA HIGH BUILD EPOXY COATING, OR SPRAY WALL EPOXY COATING, OR APPROVED EQUAL, TO BE APPLIED TO ENTIRE INTERIOR OF EACH WASTEWATER MANHOLE AND UNDERSIDE OF FLAT TOPS.
5. ALL MANHOLE COVERS SHALL BE BOLTED AND GASKETTED WHEN MANHOLES ARE LOCATED OUT FROM PAVEMENT.
6. MANHOLES TO BE VENTED ARE IDENTIFIED ON MANHOLE SCHEDULE. REFERENCE MANHOLE VENT DETAIL.
7. MANHOLES ARE TO BE DESIGNED TO RESIST LATERAL AND VERTICAL SOIL FORCES RESULTING FROM MANHOLE DEPTH. ADDITIONALLY, MANHOLES LOCATED IN PAVEMENT TO BE DESIGNED FOR HS-20 TRAFFIC LOADS.
8. GROUT SHALL MEET THE REQUIREMENTS AS STATED BY THE COATING MANUFACTURER.
9. MANHOLE BASE BEDDING MATERIAL SPECS. FOR 3/4" WASHED GRAVEL:
   SIEVE SIZE 2", PERCENT (%) RETAINED 0
   SIEVE SIZE 1 1/2", % RETAINED 0-10
   SIEVE SIZE 1", % RETAINED 45-80
   SIEVE SIZE 3/4", % RETAINED 85-100
   SIEVE SIZE 3/8", % RETAINED 95-100

The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: ADOPTED 6/21/2006
DRAWING NAME: WW03
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
STANDARD MANHOLE – SECTION
SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | CHECKED BY: TRB

FLOW PATTERNS FOR INVERT CHANNELS

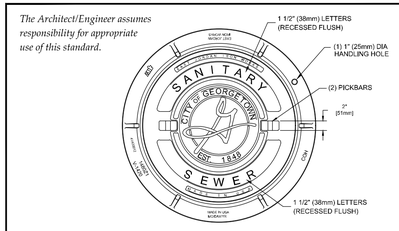


NOTES:
1. INVERT CHANNELS TO BE CONSTRUCTED FOR SMOOTH FLOW WITH NO OBSTRUCTIONS.
2. SPILLWAYS SHALL BE CONSTRUCTED BETWEEN PIPES WITH DIFFERENT INVERT ELEVATIONS PROVIDING FOR SMOOTH FLOW.
3. CHANNELS FOR FUTURE CONSTRUCTIONS (STUBS) SHALL BE CONSTRUCTED, FILLED WITH SAND, AND COVERED WITH 1" OF MORTAR.
4. SLOPE MANHOLE ITSELF WITH A 1:2 SLOPE FROM MANHOLE WALL TO CHANNEL.
5. INVERT SHALL BE A MINIMUM OF 1/2 THE DIAMETER OF THE LARGEST PIPE OR 4" DEEP.

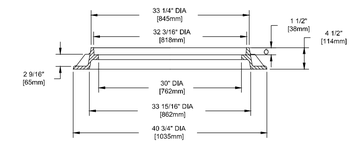
The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: ADOPTED 6/21/2006
DRAWING NAME: WW06
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
FLOW PATTERNS FOR INVERT CHANNELS
SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | CHECKED BY: TRB

The Architect/Engineer assumes responsibility for appropriate use of this standard.



COVER SECTION

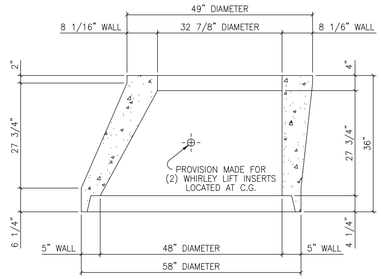


FRAME SECTION

NOTES:
1. STANDARD WASTEWATER MANHOLE SET TO BE EAST JORDAN IRON WORKS, INC. CATALOG NO. 1480A V-1420/1480Z1; COVER TO BE STAMPED WITH "SANITARY SEWER".
2. STANDARD WASTEWATER MANHOLE SET TO BE HEAVY DUTY LOAD RATED.
3. FOR MORE DETAILED SPECIFICATIONS REFER TO EAST JORDAN IRON WORKS, INC. REFERENCE PRODUCT DRAWING 41420012 00148390.
4. FOR BOLTED WASTEWATER MANHOLE SET REFER TO DETAIL WW07A.

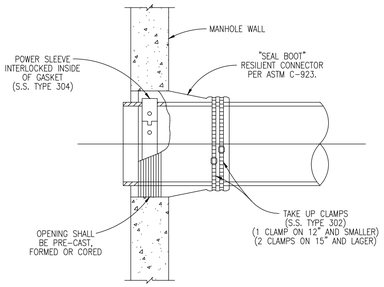
The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: ADOPTED 6/21/2006
DRAWING NAME: WW07
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
STANDARD WASTEWATER MANHOLE SET
SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | CHECKED BY: TRB



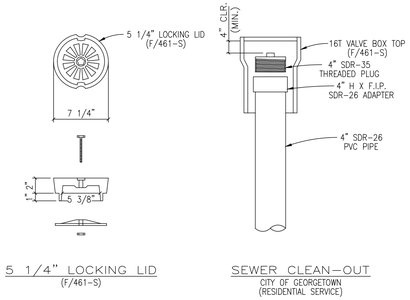
The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: ADOPTED 6/21/2006
DRAWING NAME: WW08
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
48"X5" TO 33"X8"X36" TALL ECCENTRIC CONCRETE SECTION
SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | CHECKED BY: TRB



The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: ADOPTED 6/21/2006
DRAWING NAME: WW10
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
FLEXIBLE "SEAL BOOT" CONNECTOR
SCALE: NTS | DATE: 1/2003 | DRAWN BY: MAS | CHECKED BY: TRB

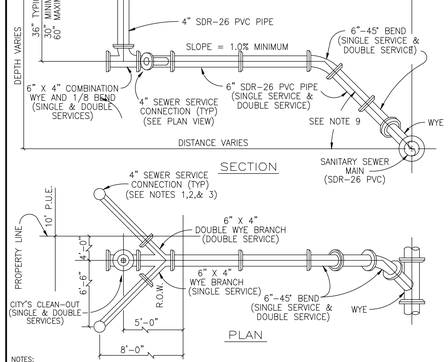


5 1/4" LOCKING LID (F/461-S)

SEWER CLEAN-OUT
CITY OF GEORGETOWN (RESIDENTIAL SERVICE)

The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: ADOPTED 6/21/2006
DRAWING NAME: WW12
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
SEWER CLEAN-OUT DETAIL
SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | CHECKED BY: TRB



SECTION

PLAN

NOTES:
1. SERVICE CONNECTION RISERS SHALL TERMINATE 8' IN-SIDE THE PROPERTY LINE.
2. THE END OF EACH SERVICE CONNECTION RISER SHALL BE EXTENDED 12" ABOVE FINISH GRADE.
3. EACH SERVICE CONNECTION SHALL BE PLUGGED WATER-TIGHT WITH AN APPROVED CAP OR PLUG.
4. FOR P.V.C. INSTALLATIONS, CONNECT TO EXISTING "BELL END" AND CONNECT OPPSITE END WITH P.V.C. TO P.V.C. KNOCK ON SLEEVE.
5. SOLIDLY TAMP BACKFILL AT LEAST ONE FOOT (1'-0") ABOVE TOP OF PIPE. SERVICES UNDER PAVED AREAS SHALL BE BACKFILLED TO THE SAME SPECIFICATIONS AS SHOWN ON PAVEMENT REPLACEMENT DETAIL.
6. CONTRACTOR SHALL MARK ON A CLEAN SET OF PLANS THE FINAL STATIONING OR DISTANCE AND DIRECTION FROM MANHOLE TO EACH SERVICE LATERAL AND GIVE TO ENGINEER FOR RECORD DRAWING PURPOSES.
7. ANY DEVIATION FROM THESE METHODS MUST BE APPROVED BY THE CITY OF GEORGETOWN ENGINEERING DEPARTMENT.
8. SERVICE LINE MATERIAL SHALL BE P.V.C., SDR-26.
9. SEWER SERVICE SLOPE TO BE 45° OFF CENTERLINE OF MAIN.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: ADOPTED 6/21/2006
DRAWING NAME: WW13
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
SEWER SERVICE CONNECTIONS
SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | CHECKED BY: TRB

WARNING!
There are existing water pipelines, underground telephone cables and other above and below ground utilities in the vicinity of this project. The contractor shall contact all appropriate utility companies prior to any construction in the area and determine if any conflicts exist. If so, the Contractor shall immediately contact the Engineer, who shall revise the design as necessary.

NO.	REVISION	BY	DATE

DESIGNED BY: DATE
DRAWN BY: DATE
CHECKED BY: DATE
APPROVED BY: DATE

STATE OF TEXAS ERIK J. HABERMAN 152359 LICENSED PROFESSIONAL ENGINEER 9/5/2025

STEGER BIZZELL
ADDRESS 1978 S. AUSTIN AVENUE | GEORGETOWN, TX 78626
METRO 512.930.9412 | TEXAS REGISTERED ENGINEERING FIRM F-181 TBPELS FIRM No.10003700 | WEB STEGERBIZZELL.COM
SERVICES >>ENGINEERS >>PLANNERS >>SURVEYORS

WASTEWATER DETAILS (1 OF 2)

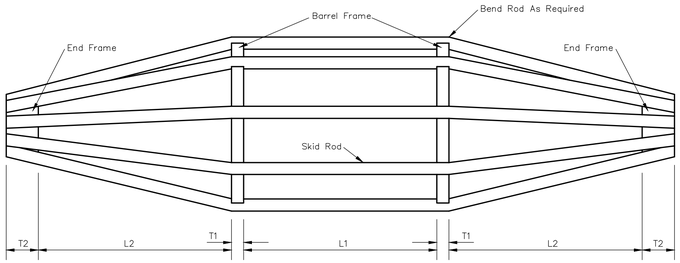
BERRY CREEK AMENITY CENTER

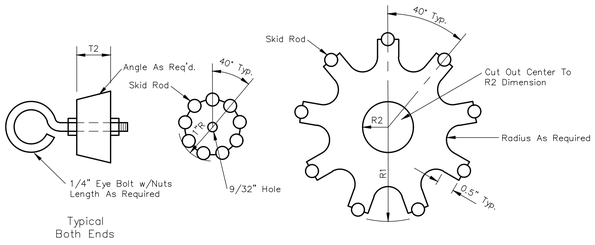
City of Georgetown
Williamson County, Texas

Project Number: 22226 - 41
SCALE: AS NOTED
Project Path: P\22000-22999
Project Name: 22226 - BC AM CNTR
Drawing Path: P\22000-22999 SUN CITY
Xref DWG FILE:
Sheet Number: 25 of 36 sheets

2024-109-SDP

P:\22000-22999\22226 Sun City\41-Berry Creek Amenity Center\CAD\Plans\25 WASTEWATER DETAILS (1 OF 2).dwg Mar 07, 2025 - 4:01pm





End Frame Barrel Frame

Note: Weld All Rods To Frame

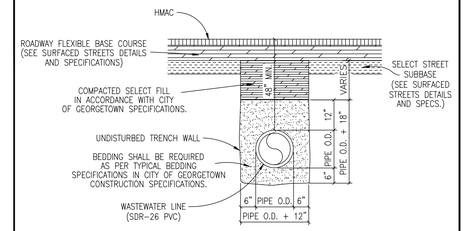
Mandrel Shall Be Constructed From Metal
That Can Withstand 200 PSI Without Being Deformed.

Mandrel Dimensions
5% Deflection
For O.D. Controlled PVC Pipe
(All Dimensions In Inches)

Size	Type	O.D. Average	Min. Wall Thickness	L1	L2	R1	R2	T1	T2	Rod Diameter	MANDREL O.D.
6"	D3034 SDR35	6.275	0.180	4.50	6	2.81	0.75	0.375	1.0	0.375	5.62
6"	D3034 SDR26	6.275	0.241	4.50	6	2.75	0.75	0.375	1.0	0.375	5.50
6"	D3034 DR26	6.275	0.241	4.50	6	2.75	0.75	0.375	1.0	0.375	5.50
8"	D3034 SDR35	8.400	0.240	6.00	6	3.96	1.25	0.375	1.0	0.375	7.52
8"	D3034 SDR26	8.400	0.323	6.00	6	3.68	1.25	0.375	1.0	0.375	7.37
8"	D3034 DR26	8.625	0.323	6.00	6	3.76	1.25	0.375	1.0	0.375	7.525
10"	D3034 SDR35	10.500	0.300	7.50	6	4.70	1.50	0.375	1.0	0.375	9.40
10"	D3034 SDR26	10.500	0.404	7.50	6	4.60	1.50	0.375	1.0	0.375	9.21
12"	D3034 SDR35	12.500	0.360	9.00	6	5.60	1.75	0.375	1.0	0.375	11.20
12"	D3034 SDR26	12.500	0.481	9.00	6	5.48	1.75	0.375	1.0	0.375	10.96
15"	D3034 SDR35	15.300	0.437	11.25	6	6.85	2.00	0.375	1.0	0.375	13.70
18"	F679 T-1	18.701	0.536	13.50	9	8.37	2.50	0.50	1.5	0.50	16.74
21"	F679 T-1	22.047	0.632	15.75	9	9.87	3.00	0.50	1.5	0.50	19.74
24"	F679 T-1	24.803	0.711	18.00	9	11.11	3.50	0.50	1.5	0.50	22.22
27"	F679 T-1	27.953	0.801	20.25	9	12.52	4.00	0.50	1.5	0.50	25.04
6"	CL350 D.I.	6.9	0.25	4.50	6	3.04	0.75	0.375	1.0	0.375	6.08
8"	CL350 D.I.	9.05	0.25	6.00	6	4.06	1.25	0.375	1.0	0.375	8.12

Typical Mandrel Details

Not to Scale



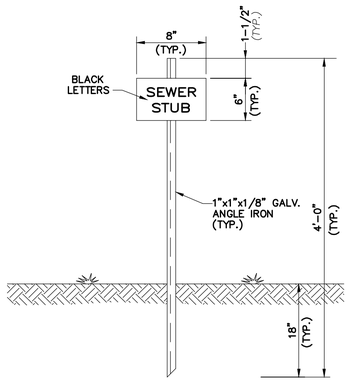
TRENCH WIDTHS
*PIPE LESS THAN 20" DIAMETER
1'-0" + PIPE O.D.
*20" DIAMETER PIPE AND LARGER
2'-0" + PIPE O.D.

NOTES:
1. DENSITY TESTS SHALL BE TAKEN IN ACCORDANCE WITH THE CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS AND STANDARDS.
2. CONTRACTOR OR ENGINEER MAY USE FLOWABLE BACKFILL AS AN ALTERNATE BACKFILL MATERIAL (SEE C9 FLOWABLE BACKFILL FOR THE SPECIFICATION).

The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: ADOPTED 6/21/2006	
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS TRENCH AND EMBEDMENT DETAIL UNDER PROPOSED ROADWAY	DRAWING NAME: WW18
SCALE: NTS	DATE: 1/2003
DESIGNED: MRS	APPROVED: TRB

SEE NOTE #2 BELOW FOR BACKGROUND COLOR



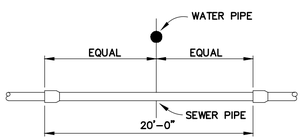
SEWER STUB MARKERS

(INSTALL AT ALL SEWER STUB-OUT ENDS AND SERVICE ENDS)

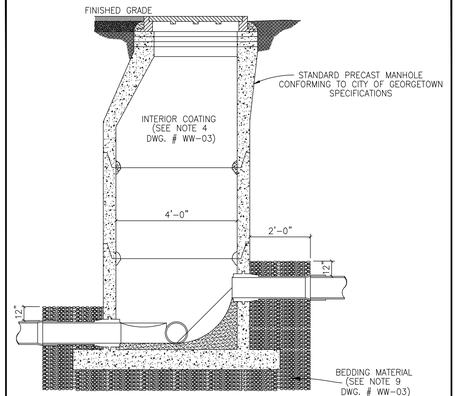
NOTES:
1) SIGNS SHALL BE CONSTRUCTED OF 20 GAUGE STEEL w/BAKED ENAMEL FINISH.
2) THE BACKGROUND COLOR FOR THE SIGNS SHALL BE WHITE
3) THERE SHALL BE NO SEPARATE BID ITEM FOR MARKERS.

Marker Details

NOTE:
WHERE WATER & SEWER LINES CROSS, A FULL JOINT OF PRESSURE RATED DR26 PVC PIPE (150 PSI MIN.) MUST BE USED & IT IS TO BE CENTERED UNDER THE WATER PIPE



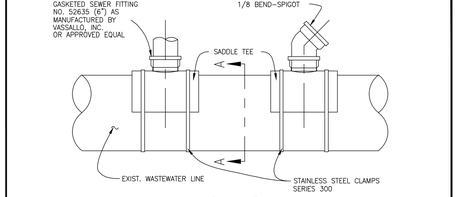
WATER-SEWER CROSSING



NOTES:
1. TO BE USED WHERE DROP IS SIX INCHES (6") TO TWO FEET (2'-0").
2. A FLOW CHANNEL SHALL BE CONSTRUCTED INSIDE MANHOLE TO DIRECT INFLUENT INTO FLOW STREAM.
3. CONSTRUCTION OF DROP SHALL PROVIDE AN OVERSIZED SLAB TO EXTEND UNDER THE DROP CONNECTION.
4. MINIMUM PIPE SIZE FOR DROP IS EIGHT INCHES (8").
5. SEE STANDARD MANHOLE DETAIL (DWG. # WW-03) FOR ADDITIONAL REQUIREMENTS.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

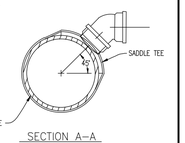
REVISION NOTE: ADOPTED 6/21/2006	
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS DROP CONNECTION-PRECAST MANHOLE TYPE "B"	DRAWING NAME: WW05
SCALE: NTS	DATE: 1/2003
DESIGNED: MRS	APPROVED: TKD



PLAN VIEW

SADDLE TEE					
PART NO.	SIZE	L1	H	ϕ	
52635	8"X6"	5.625	5.859	1.448	

PLASTIC TRENDS INC. - 1/8 BEND - SPIGOT					
PART NO.	SIZE	A	B	C	D
G 406	6	11.270	6.146	1.870	6.090



SECTION A-A

NOTES:
1. FLEXIBLE SADDLE TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.
2. SADDLE TEE SHALL BE ORIENTATED 45° TO MAIN. (SEE SEWER SERVICE CONNECTIONS DETAIL - DWG # WW-13)
3. EXCAVATE AROUND EXISTING 8-INCH PIPE, EXPOSING SUFFICIENT ROOM FOR S.S. CLAMPS.
4. THOROUGHLY CLEAN AND DRY THE MATING SURFACE WITH RAG OR PAPER TOWEL. MAKE SURE THEY ARE FREE OF DUST AND MOISTURE.
5. MARK THE SIZE OF THE HOLE TO BE CUT USING THE GASKET SKIRT OR THE SADDLE ITSELF AS THE TEMPLATE.
6. SAW OUT THE SECTION OF THE PIPE WHERE THE SADDLE WILL BE LOCATED, WITH A SABER OR KEY HOLE SAW.
7. TEST TO MAKE SURE SADDLE FITS HOLE PROPERLY.
8. SERVICE PIPE SHALL NOT EXTEND MORE THAN ONE-HALF INCH INTO THE MAIN.
9. PLACE GASKET SKIRT AND SADDLE OVER OPENING AND TIGHTEN BAND CLAMPS EVENLY UNTIL SADDLE IS FIRMLY ATTACHED TO THE PIPE. APPLY PRESSURE ON THE SADDLE AGAINST THE PIPE WHILE TIGHTENING THE CLAMPS AS INDICATED ABOVE. DO NOT OVER TIGHTEN, DO NOT STRIP THREAD.
10. REPLACE THE BEDDING AND BACKFILL IN ACCORDANCE WITH THE TRENCH EMBEDMENT DETAIL.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: ADOPTED 6/21/2006	
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS GASKETED SEWER FITTING FOR SEWER SERVICE CONNECTIONS TO EXISTING MAINS	DRAWING NAME: WW13A
SCALE: NTS	DATE: 1/2003
DESIGNED: MRS	APPROVED: TRB

WARNING!
There are existing water pipelines, underground telephone cables and other above and below ground utilities in the vicinity of this project. The contractor shall contact all appropriate utility companies prior to any construction in the area and determine if any conflicts exist. If so, the Contractor shall immediately contact the Engineer, who shall revise the design as necessary.

NO.	REVISION	BY	DATE

DESIGNED BY: DATE
DRAWN BY: DATE
CHECKED BY: DATE
APPROVED BY: DATE

STATE OF TEXAS
ERIK J. HABERMAN
152359
LICENSED
PROFESSIONAL ENGINEER
4/9/2025

STEGER BIZZELL
ADDRESS 1978 S. AUSTIN AVENUE GEORGETOWN, TX 78626
METRO 512.930.9412 TEXAS REGISTERED ENGINEERING FIRM F-181 TBPELS FIRM No.10003700 WEB STEGERBIZZELL.COM
SERVICES >>ENGINEERS >>PLANNERS >>SURVEYORS

WASTEWATER DETAILS (2 OF 2)

BERRY CREEK AMENITY CENTER

City of Georgetown
Williamson County, Texas

Project Number:	22226 - 41
SCALE:	AS NOTED
Project Path:	P\22000-22999
Project Name:	22226 - BC AM CNTR
Drawing Path:	P\22000-22999 SUN CITY
Xref DWG FILE.	
Sheet Number:	26 of 36 sheets

2024-109-SDP

P:\22000-22999\22226 Sun City\41-Berry Creek Amenity Center\CAD\Plans\26 WASTEWATER DETAILS (2 OF 2).dwg Mar 07, 2025 - 4:01pm

0 30 60 Feet

SCALE"1"=30'

LEGEND

- PROPERTY BOUNDARY
- EASEMENT
- WL — EXISTING WATER LINE
- WL — WATERLINE
- WL/F — FIRE LINE
- STORM SEWER LINE
- EXISTING STORM SEWER LINE
- WWL — EXISTING WASTEWATER LINE
- WWL — WASTEWATER LINE
- FIRE HYDRANT
- 100 — EXISTING CONTOURS (MAJOR)
- 101 — EXISTING CONTOURS (MINOR)
- 100 — PROPOSED CONTOURS (MAJOR)
- 101 — EXISTING CONTOURS (MINOR)

- ##### = HERITAGE TREE TO REMAIN
- ##### = PROTECTED TREE TO REMAIN (18" TO 26" HERITAGE CREDIT)
- ##### = HERITAGE TREE TO BE REMOVED
- ##### = PROTECTED TREE TO BE REMOVED
- ##### NON-HERITAGE AND NON-PROTECTED TREE
- ##### NON-HERITAGE AND NON-PROTECTED TREE TO BE REMOVED
- TREE PROTECTION FENCING

WARNING!
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NO.	REVISION	BY	DATE

DESIGNED BY: DATE
DRAWN BY: DATE
CHECKED BY: DATE
APPROVED BY: DATE

STATE OF TEXAS
ERIK J. HABERMAN
152359
LICENSED
PROFESSIONAL ENGINEER
7/5/2025

STEGER BIZZELL
ADDRESS 1978 S. AUSTIN AVENUE GEORGETOWN, TX 78626
METRO 512.930.9412 TEXAS REGISTERED ENGINEERING FIRM F-181 TBPELS FIRM No.10003700 WEB STEGERBIZZELL.COM
SERVICES >>ENGINEERS >>PLANNERS >>SURVEYORS

OVERALL STORM SEWER PLAN

BERRY CREEK AMENITY CENTER

City of Georgetown
Williamson County, Texas

Project Number:	22226 - 41
SCALE:	AS NOTED
Project Path:	P\22000-22999
Project Name:	22226 - BC AM CNTR
Drawing Path:	P\22000-22999 SUN CITY
Xref DWG FILE:	
Sheet Number:	28 of 36 sheets

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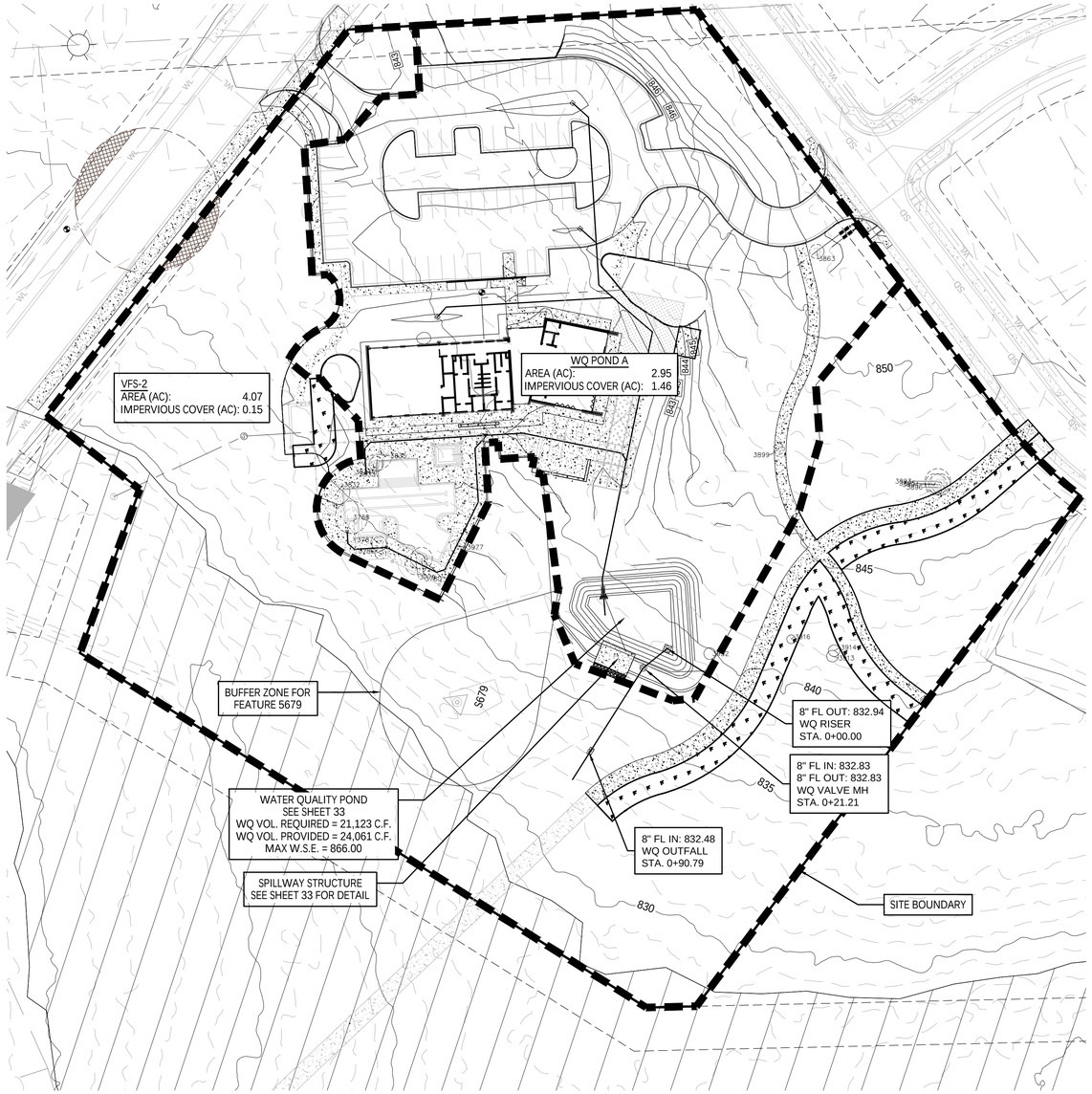
2024-109-SDP



0 50 100 Feet

LEGEND

- STORM MANHOLE
- STORM JUNCTION BOX
- WASTEWATER MANHOLE
- CURB INLET
- RIGHT-OF-WAY
- PROPOSED CENTERLINE
- EDGE OF PAVEMENT
- BACK OF CURB
- PROPERTY BOUNDARY LINE
- EDGE OF SIDEWALK
- 100 EXISTING CONTOURS (MAJOR)
- 100 EXISTING CONTOURS (MINOR)
- 100 PROPOSED CONTOURS (MAJOR)
- 100 EXISTING CONTOURS (MINOR)
- PROPOSED GRADE AT CENTERLINE
- EX. GROUND AT PROPOSED CENTERLINE

STAGE STORAGE TABLE

ELEV	AREA (sq. ft.)	DEPTH (ft)	AVG END INC. VOL. (cu. ft.)	AVG END TOTAL VOL. (cu. ft.)
834.10	22.23	N/A	N/A	0.00
835.00	2,045.96	0.90	930.68	930.68
836.00	2,650.79	1.00	2348.38	3279.06
WQ - 837.00	3,320.65	1.00	2985.72	6264.78
838.00	2,681.20	1.00	3000.93	9265.71
838.50	413.85	0.50	773.76	10039.48

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Berry Creek Amenity Center
Date Prepared: 1/21/2025

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.
Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.
Characters shown in red are data entry fields.
Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.

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

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

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

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

County =	Williamson	
Total project area included in plan * =	7.02	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	1.61	acres
Total post-development impervious cover fraction * =	0.23	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	1401	lbs.

1490 **AT 85% REMOVAL**

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

Drainage Basin/Outfall Area No. =	**VFS**	
Total drainage basin/outfall area =	4.07	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.15	acres
Post-development impervious fraction within drainage basin/outfall area =	0.04	
$L_{M\ THIS\ BASIN}$ =	131	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	**Vegetated Filter Strips**	
Removal efficiency =	85	percent

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

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

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

A_C =	4.07	acres
A_I =	0.15	acres
A_P =	3.92	acres
L_R =	199	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	199	lbs.
F =	1.00	

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

Drainage Basin/Outfall Area No. =	**POND A**	
Total drainage basin/outfall area =	2.95	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	1.46	acres
Post-development impervious fraction within drainage basin/outfall area =	0.49	
$L_{M\ THIS\ BASIN}$ =	1271	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: $L_R = (\text{BMP efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.$

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

A_C =	2.95	acres
A_I =	1.45	acres
A_P =	1.50	acres
L_R =	1485	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	1271	lbs.
F =	0.86	

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

Rainfall Depth =	1.38	inches
Post Development Runoff Coefficient =	0.35	
On-site Water Quality Volume =	5215	cubic feet
	0	
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 =	1043	
Total Capture Volume (required water quality volume(s) x 1.20) =	6258	cubic feet

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FOR REVIEW

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF BRYAN ERIC MOORE, P.E. REG. #98920 ON 3/7/25. IT IS NOT TO BE USED FOR BIDDING, PERMIT OR CONSTRUCTION.

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SERVICES >>ENGINEERS >>PLANNERS >>SURVEYORS

WATER QUALITY PLAN

BERRY CREEK AMENITY CENTER

City of Georgetown
Williamson County, Texas

Project Number: 22226 - 41
SCALE: AS NOTED
Project Path: P\22000-22999
Project Name: 22226 - BC AM CNTR
Drawing Path: P\22000-22999 SUN CITY
Xref DWG FILE.
Sheet Number: 32 of 36 sheets

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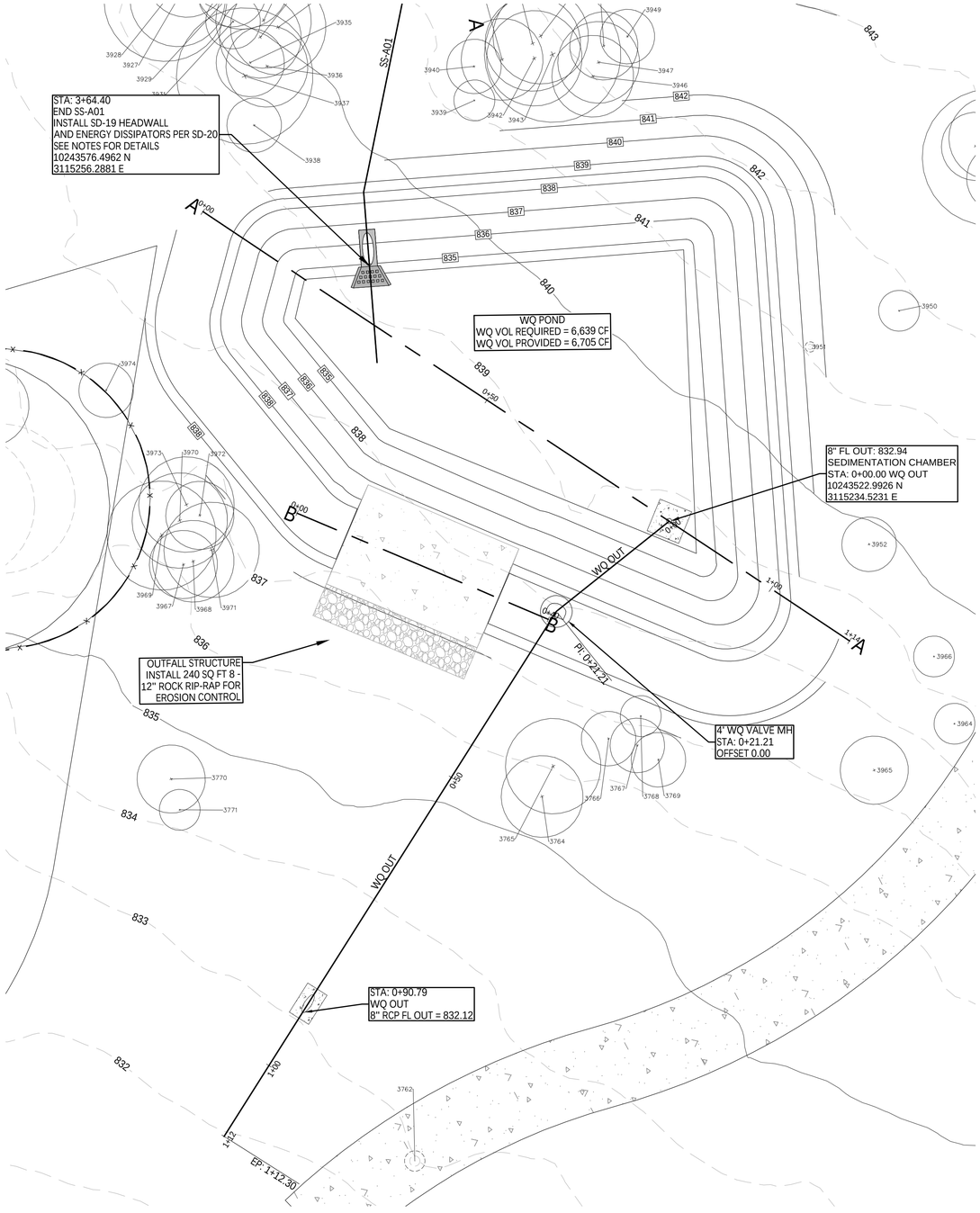
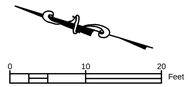
2024-109-SDP





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838.00	2,681.20	1.00	3000.93	9265.71
838.50	413.85	0.50	773.76	10039.48

Weir Report

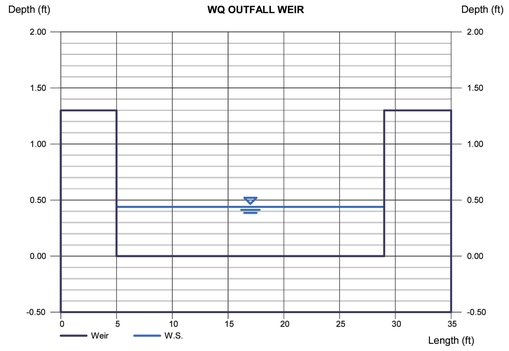
Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Monday, Feb 10 2025

WQ OUTFALL WEIR

Rectangular Weir
Crest = Sharp
Bottom Length (ft) = 24.00
Total Depth (ft) = 1.30

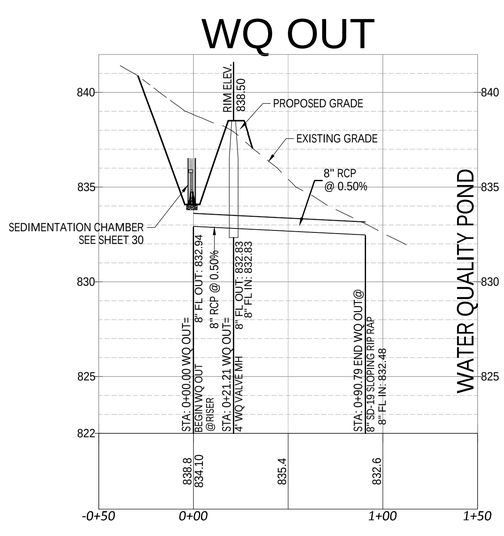
Calculations
Weir Coeff. Cw = 3.33
Compute by: Known Q
Known Q (cfs) = 23.29

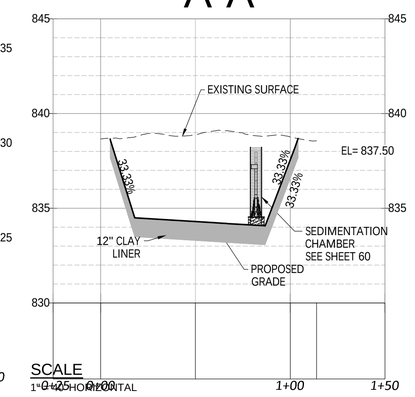
Highlighted
Depth (ft) = 0.44
Q (cfs) = 23.29
Area (sqft) = 10.54
Velocity (ft/s) = 2.21
Top Width (ft) = 24.00

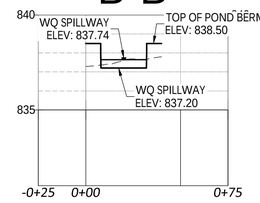


CONTROLLER CIRCUIT BOX DIAGRAM

NTS







SCALE
1" = 4' HORIZONTAL
1" = 4' VERTICAL

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BERRY CREEK AMENITY CENTER
City of Georgetown
Williamson County, Texas

Project Number: 22226 - 41
SCALE: AS NOTED
Project Path: P\22000-22999
Project Name: 22226 - BC AM CNTR
Drawing Path: P\22000-22999 SUN CITY
Xref DWG FILE:
Sheet Number: 33 of 36 sheets

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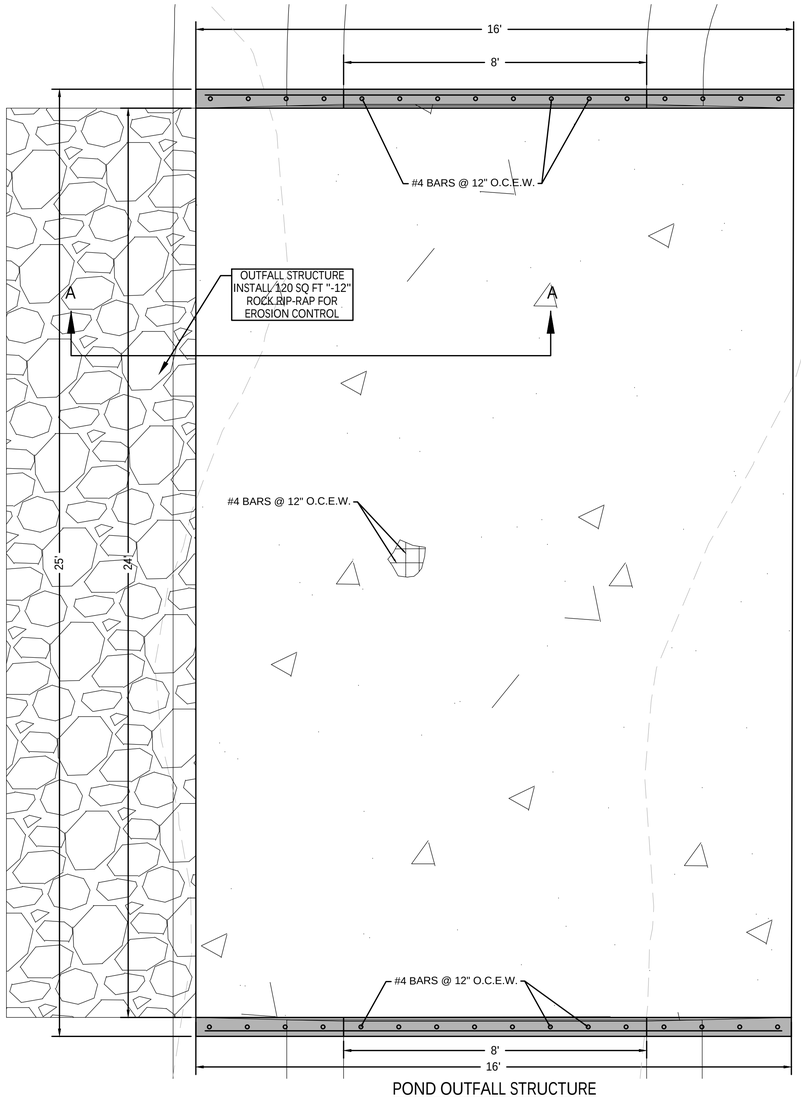
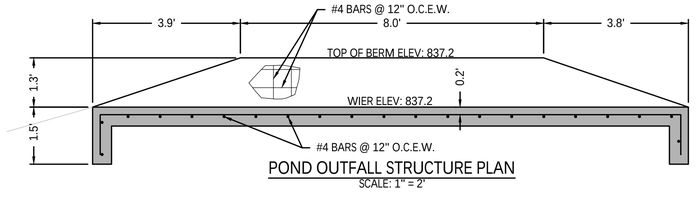
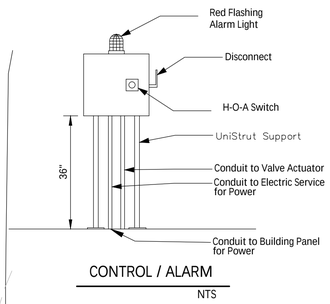


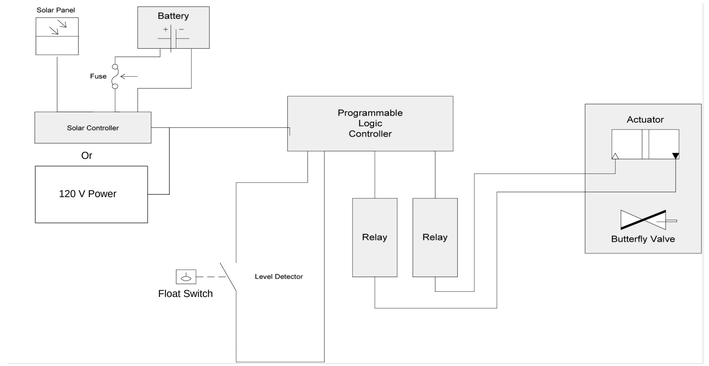
POND OUTFALL STRUCTURE
SECTION A-A
SCALE: 1" = 2'



POND OUTFALL STRUCTURE PLAN
SCALE: 1" = 2'



CONTROL / ALARM
NTS



CONTROLLER CIRCUIT BOX DIAGRAM

NTS

BATCH POND CONTROLLER NOTES:

1. Submittals - The contractor shall provide the engineer with batch pond controller submittals for review and approval prior to construction. Submittals shall include: power source, battery backup, logic controller, lockable parts enclosure, float, valve, actuator, relay, alarm system, signage, etc. Total wattage of power consumption and w-hours of actuator, controller and relay shall be provided. A copy of the approved submittals shall be provided to TCEQ with the engineers certification of project completion for inclusion in the TCEQ project file .
2. Controller - The controller consists of a level sensor in the detention basin, a valve (with a default closed position), an actuator, and the associated control. The controller detects water filling the basin from the level sensor and initiates a 12-hour detention time. At the end of the required detention time, the controller opens the valve and drains into the second basin. Subsequent rainfall events that occur prior to the basin draining should cause the valve to remain open and allow the additional stormwater runoff to pass through the basin. Once the basin is drained the controller closes the valve. The drawdown time of the basin should not exceed 48 hours for a single storm event after the 12 hour required detention time. All cables should be protected by conduit and buried to prevent damage during maintenance activities. Information on the design and configuration of an existing system, including the system schematic, can be viewed at the Austin or San Antonio Regional Offices.
3. Logic Controller – The controller should be programmed to begin draining stormwater runoff from the basin 12 hours after the first stormwater runoff is sensed. The system should be programmed to have the valve remain open for two hours after the level sensor indicates the basin is empty to allow any remaining shallow water to be discharged. The system should provide the following: a test sequence, be able to deal with low battery/power outages, an on/off/reset switch, manual open/close switches (maintenance/spill), clearly visible external indicator to indicate a cycle is in progress without opening the box, and ability to exercise the valve to prevent seizing
4. Power – The pond control system controller and actuator shall be 120 volt powered or 120 volt solar powered with backup battery power to respond to a loss of power in the middle of a cycle.
5. Parts Enclosure & Alarm System - The parts enclosure shall be lockable. An alarm system clearly visible to indicate system malfunction, with phone numbers of the owner and TCEQ Region 11 office shall be provided.
6. Temperature/Weather - The system shall be be capable of operation from 0 to 130 degrees Fahrenheit and from 10 to 90% humidity.
7. Reliability - The system shall have a minimum reliability of 40,000 hours (4.6 years).

LINER DATA

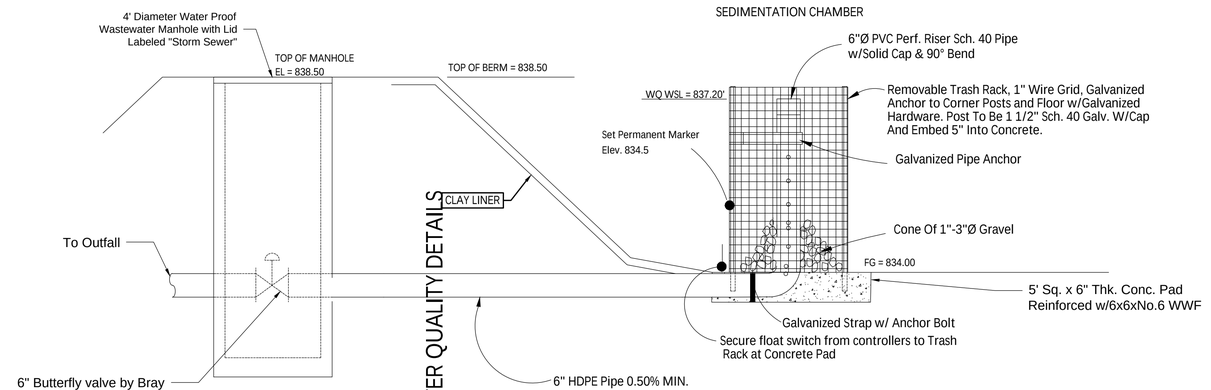
IMPERMEABLE LINERS MAY BE CLAY, CONCRETE OR GEOMEMBRANE.

CLAY LINERS SHOULD MEET THE SPECIFICATIONS AS SHOWN BELOW AND HAVE A MINIMUM THICKNESS OF 12 INCHES.

CLAY LINER SPECIFICATIONS (MIN. THICKNESS = 12")			
PROPERTY	TEST METHOD	UNIT	SPECIFICATION
PERMEABILITY	ASTM D-2434	Cm/Sec	$1X10^{(-6)}$
PLASTICITY INDEX OF CLAY	ASTM D-423 & D-424	%	NOT LESS THAN 15
LIQUID LIMIT OF CLAY	ASTM D-2216	%	NOT LESS THAN 30
CLAY PARTICLES PASSING	ASTM D-422	%	NOT LESS THAN 30
CLAY COMPACTION	ASTM D-2216	%	95% OF STANDARD PROCTOR DENSITY AT OR ABOVE OPTIMUM MOISTURE CONTENT

GEOSYNTHETIC CLAY LINERS (GCLS) ARE FACTORY MANUFACTURED HYDRAULIC BARRIERS TYPICALLY CONSISTING OF BENTONITE CLAY OR OTHER VERY LOW PERMEABILITY MATERIAL, SUPPORTED BY GEOTEXTILES AND/OR GEOMEMBRANES WHICH ARE HELD TOGETHER BY NEEDLING, STITCHING, OR CHEMICAL ADHESIVES. THESE LINERS MUST HAVE A HYDRAULIC CONDUCTIVITY OF LESS THAN 5 X 10-9 CM/SEC, WHEN TESTED BY ASTM D5887. A MINIMUM OF 12 INCHES OF SOIL COVER IS RECOMMENDED. IF A GEOMEMBRANE LINER IS USED IT SHOULD HAVE A MINIMUM THICKNESS OF 30 MILS AND BE ULTRAVIOLET RESISTANT. SUITABLE GEOTEXTILE FABRIC SHOULD BE PLACED ON THE TOP AND BOTTOM OF THE MEMBRANE FOR PUNCTURE PROTECTION AND THE LINERS COVERED WITH A MINIMUM OF 6 INCHES OF COMPACTED TOPSOIL. THE GEOTEXTILE FABRIC (FOR PROTECTION OF GEOMEMBRANE) SHOULD BE NONWOVEN GEOTEXTILE FABRIC AND MEET THE SPECIFICATIONS IN TABLE 3-7. THE TOPSOIL SHOULD BE STABILIZED WITH APPROPRIATE VEGETATION.

GEOTEXTILE FABRIC DATA			
PROPERTY	TEST METHOD	UNIT	SPECIFICATION
MATERIAL	NON-WOVEN GEOTEXTILE FABRIC		
UNIT WEIGHT		OZ./SQ. YD.	8 (MIN.)
FILTRATION RATE		IN./SEC.	0.20 (MIN)
PUNCTURE STRENGTH	ASTM D-751 (MODIFIED)	LB.	125 (MIN)
MULLEN BURST STRENGTH	ASTM D-751	P.S.I.	400 (MIN.)
TENSILE STRENGTH	ASTM D-1682	LB.	200 (MIN.)
EQUIV. OPENING SIZE	U.S. STANDARD SIEVE	NO.	80 (MIN.)



Perforated Riser Pipes

Riser Pipe Ø	Vert. Spacing Between Rows O.C.	No. Perforations Per Row	Diameter of Perforations
6"	2.5"	4	1"

SEDIMENTATION RISER PIPE

NTS

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