

CAROLINE AT SONTERRA

Water Pollution Abatement Plan Modification

April 2023



April 19, 2023

Ms. Lillian Butler
Texas Commission on Environmental Quality (TCEQ)
Region 13
14250 Judson Road
San Antonio, Texas 78233-4480

Re: Caroline at Sonterra
Water Pollution Abatement Plan Modification

Dear Ms. Butler:

Please find included herein the Caroline at Sonterra Water Pollution Abatement Plan Modification. This Water Pollution Abatement Plan Modification has been prepared in accordance with the regulations of the Texas Administrative Code (30 TAC 213) and current policies for development over the Edwards Aquifer Recharge Zone.

This Water Pollution Abatement Plan Modification applies to an approximate 8.31-acre site as identified by the project limits. Please review the plan information for the items it is intended to address. If acceptable, please provide a written approval of the plan in order that construction may begin at the earliest opportunity.

Appropriate review fees (\$5,000) and fee application are included. If you have questions or require additional information, please do not hesitate to contact me at your earliest convenience.

Sincerely,
Pape-Dawson Engineers, Inc.

4 / 20 / 23



Taylor G. Dawson, P.E.
Senior Vice President



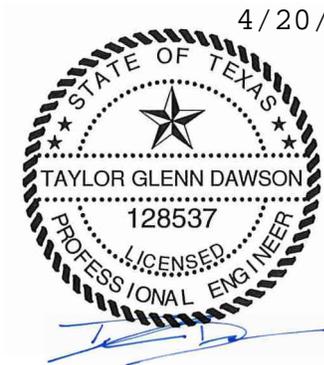
Attachments

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CAROLINE AT SONTERRA

Water Pollution Abatement Plan Modification

4/20/23



April 2023

**EDWARDS AQUIFER
APPLICATION COVER PAGE
(TCEQ-20705)**

Texas Commission on Environmental Quality

Edwards Aquifer Application Cover Page

Our Review of Your Application

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

Administrative Review

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

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

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

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

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

Technical Review

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

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

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

Mid-Review Modifications

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

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

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

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

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

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

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

1. Regulated Entity Name:				2. Regulated Entity No.:					
3. Customer Name:				4. Customer No.:					
5. Project Type: (Please circle/check one)	New	<u>Modification</u>		Extension	Exception				
6. Plan Type: (Please circle/check one)	<u>WPAP</u>	CZP	SCS	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures
7. Land Use: (Please circle/check one)	Residential	<u>Non-residential</u>			8. Site (acres):				
9. Application Fee:				10. Permanent BMP(s):					
11. SCS (Linear Ft.):				12. AST/UST (No. Tanks):					
13. County:				14. Watershed:					

Application Distribution

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

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

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

Austin Region			
County:	Hays	Travis	Williamson
Original (1 req.)	—	—	—
Region (1 req.)	—	—	—
County(ies)	—	—	—
Groundwater Conservation District(s)	<input type="checkbox"/> Edwards Aquifer Authority <input type="checkbox"/> Barton Springs/ Edwards Aquifer <input type="checkbox"/> Hays Trinity <input type="checkbox"/> Plum Creek	<input type="checkbox"/> Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	<input type="checkbox"/> Austin <input type="checkbox"/> Buda <input type="checkbox"/> Dripping Springs <input type="checkbox"/> Kyle <input type="checkbox"/> Mountain City <input type="checkbox"/> San Marcos <input type="checkbox"/> Wimberley <input type="checkbox"/> Woodcreek	<input type="checkbox"/> Austin <input type="checkbox"/> Bee Cave <input type="checkbox"/> Pflugerville <input type="checkbox"/> Rollingwood <input type="checkbox"/> Round Rock <input type="checkbox"/> Sunset Valley <input type="checkbox"/> West Lake Hills	<input type="checkbox"/> Austin <input type="checkbox"/> Cedar Park <input type="checkbox"/> Florence <input type="checkbox"/> Georgetown <input type="checkbox"/> Jerrell <input type="checkbox"/> Leander <input type="checkbox"/> Liberty Hill <input type="checkbox"/> Pflugerville <input type="checkbox"/> Round Rock

San Antonio Region					
County:	Bexar	Comal	Kinney	Medina	Uvalde
Original (1 req.)	—	—	—	—	—
Region (1 req.)	—	—	—	—	—
County(ies)	—	—	—	—	—
Groundwater Conservation District(s)	<input type="checkbox"/> Edwards Aquifer Authority <input type="checkbox"/> Trinity-Glen Rose	<input type="checkbox"/> Edwards Aquifer Authority	<input type="checkbox"/> Kinney	<input type="checkbox"/> EAA <input type="checkbox"/> Medina	<input type="checkbox"/> EAA <input type="checkbox"/> Uvalde
City(ies) Jurisdiction	<input type="checkbox"/> Castle Hills <input type="checkbox"/> Fair Oaks Ranch <input type="checkbox"/> Helotes <input type="checkbox"/> Hill Country Village <input type="checkbox"/> Hollywood Park <input type="checkbox"/> San Antonio (SAWS) <input type="checkbox"/> Shavano Park	<input type="checkbox"/> Bulverde <input type="checkbox"/> Fair Oaks Ranch <input type="checkbox"/> Garden Ridge <input type="checkbox"/> New Braunfels <input type="checkbox"/> Schertz	NA	<input type="checkbox"/> 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.

Print Name of Customer/Authorized Agent



4/20/23

Signature of Customer/Authorized Agent

Date

****FOR TCEQ INTERNAL USE ONLY****

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

**GENERAL INFORMATION
FORM (TCEQ-0587)**

General Information Form

Texas Commission on Environmental Quality

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

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

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

Signature

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

Print Name of Customer/Agent: Taylor G. Dawson, P.E.

Date: 4/20/23

Signature of Customer/Agent:



Project Information

1. Regulated Entity Name: Caroline at Sonterra
2. County: Bexar
3. Stream Basin: Mud Creek
4. Groundwater Conservation District (If applicable): Trinity Glen Rose; Edwards Aquifer
5. Edwards Aquifer Zone:
 Recharge Zone
 Transition Zone
6. Plan Type:
 WPAP
 SCS
 Modification
 AST
 UST
 Exception Request

7. Customer (Applicant):

Contact Person: Chad Nugent
Entity: CIRI Sonterra 281, LLC
Mailing Address: P.O. Box 93330
City, State: Anchorage, AK Zip: 95509
Telephone: (907) 263-5517 FAX: _____
Email Address: cnugent@ciri.com

8. Agent/Representative (If any):

Contact Person: Taylor G. Dawon, P.E.
Entity: Pape-Dawson Engineers, Inc.
Mailing Address: 2000 NW Loop 410
City, State: San Antonio, Texas Zip: 78213
Telephone: (210) 375-9000 FAX: (210) 375-9010
Email Address: taylordawson@pape-dawson.com

9. Project Location:

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

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

From TCEQ's Regional Office, head north on Judson Rd approximately 2.5 miles to Loop 1604. Go west approximately 5 miles to US 281. Proceed on US Hwy 281 N approximately 1,700 feet to East Sonterra Blvd. The site is located 0.5 miles from Hardy Oak Blvd and E Sonterra Blvd intersection.

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: when advised by TCEQ

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:

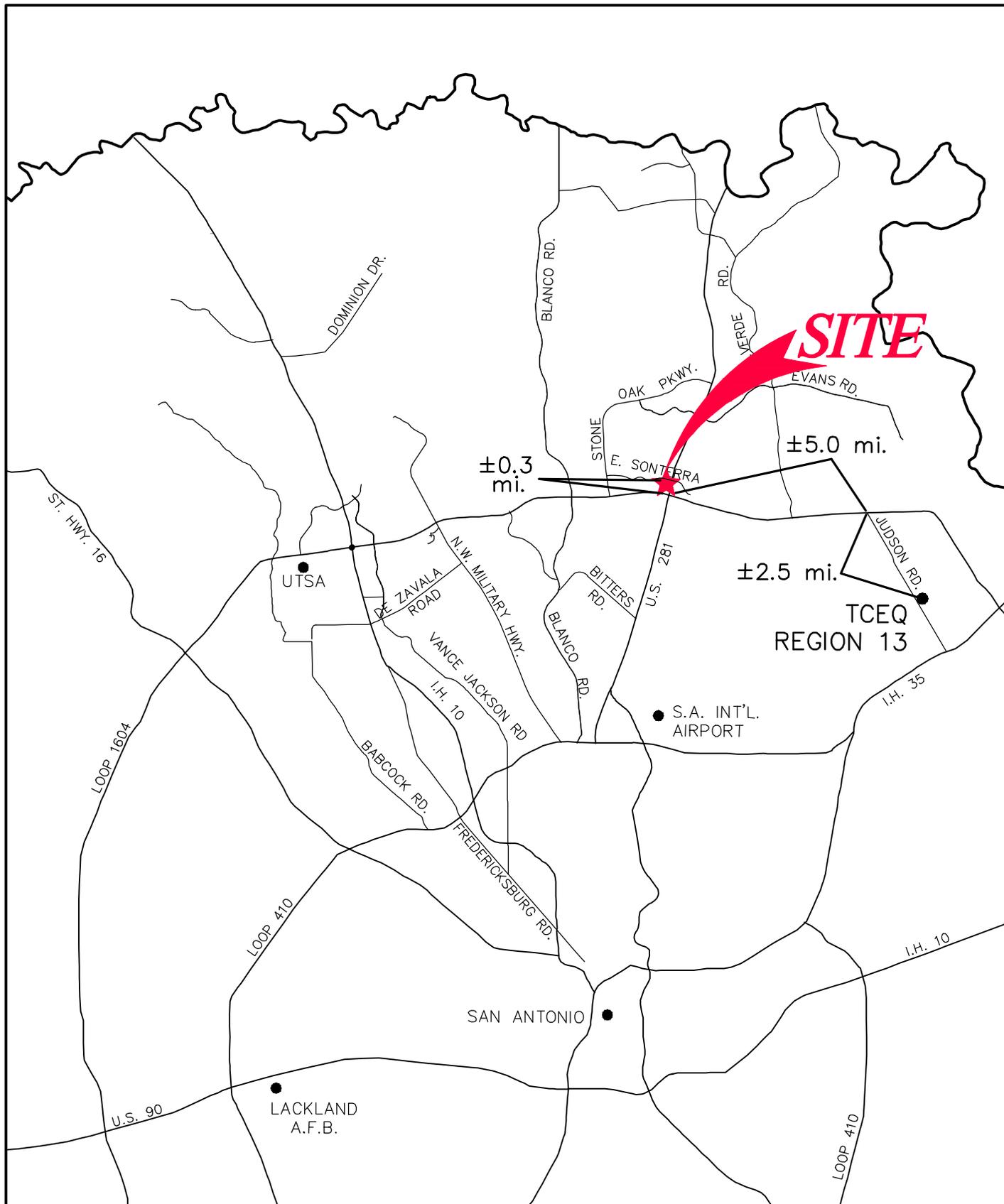
- TCEQ cashier
- Austin Regional Office (for projects in Hays, Travis, and Williamson Counties)
- San Antonio Regional Office (for projects in Bexar, Comal, Kinney, Medina, and Uvalde Counties)

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.

ATTACHMENT A

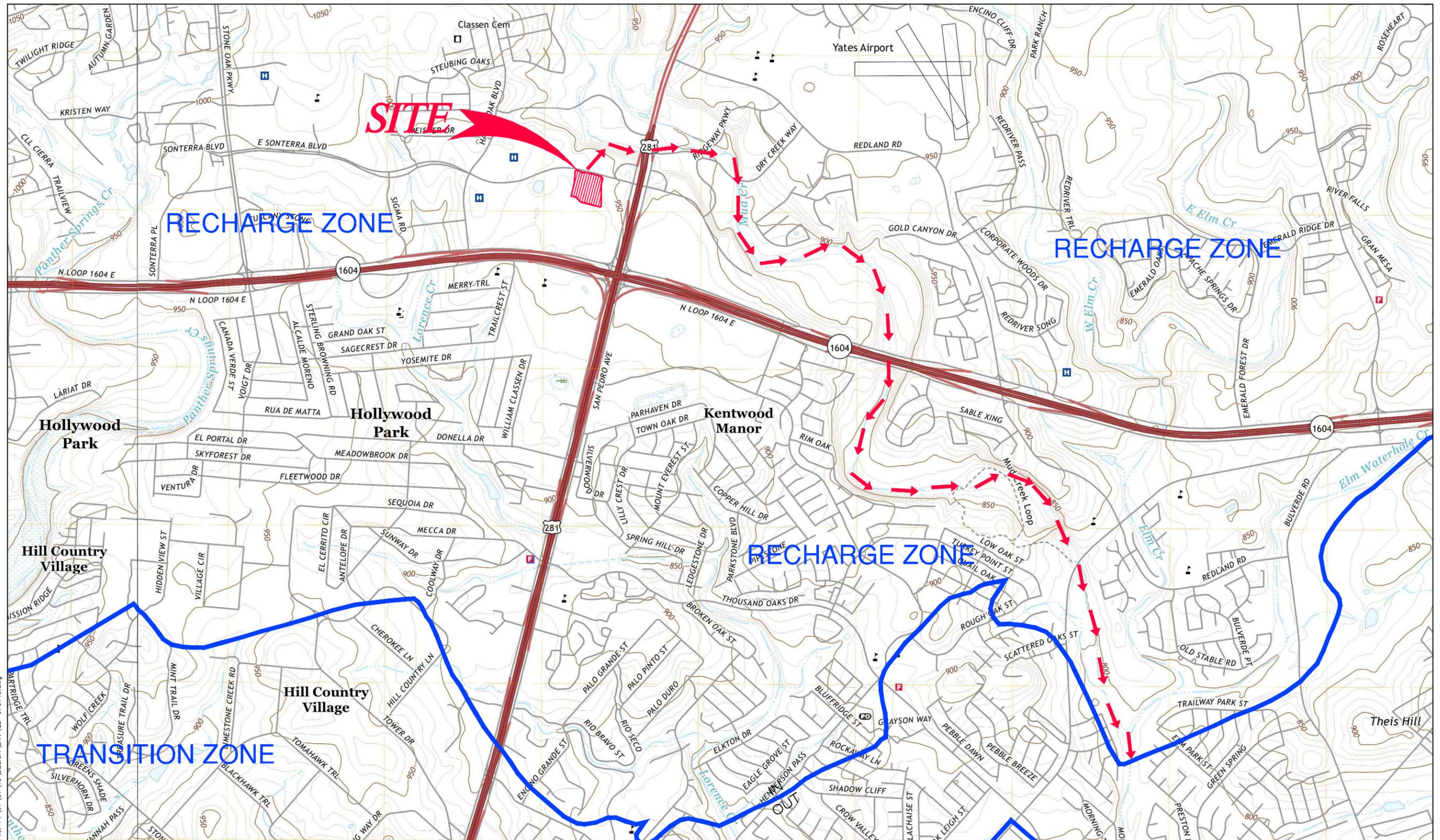
CAROLINE AT SONTERRA Water Pollution Abatement Plan



ATTACHMENT B

CAROLINE AT SONTERRA Water Pollution Abatement Plan Application


SCALE: 1" = 2000'



Date: Mar 27, 2023, 4:53pm User ID: mgregory
File: P:\6715715\DESIGN\ENV\GD-675715.dwg

GENERAL LOCATION MAP - LONGHORN, TX QUAD
DRAINAGE FLOW 
Pape-Dawson Engineers, Inc.

USGS/EDWARDS RECHARGE ZONE MAP
ATTACHMENT B

ATTACHMENT C

CAROLINE AT SONTERRA

Water Pollution Abatement Plan Modification

Attachment C – Project Description

The Caroline at Sonterra Water Pollution Abatement Plan Modification (WPAP MOD) is a modification of the previously approved Sonterra 281 Plaza Water Pollution Abatement Plan (WPAP). The Sonterra 281 Plaza WPAP was approved by TCEQ on June 20, 2008 (EAPP ID No. 2784.00), for a 21.6-acre site to be developed for use as mid-rise office towers, hotels, parking garages, access drives, and restaurants. The overall project limits were 23.8 acres, which included construction of the driveway turn lanes within Sonterra Blvd right-of-way (ROW). The overall impervious cover in the approved WPAP was 14.41 acres (including the turn lanes within Sonterra Blvd) for a total project impervious cover of 61%. Two additional modifications of this plan have been approved by TCEQ. This modification is specific to the previously approved Watershed “A” which drains to an underground sand filter basin

This Caroline at Sonterra WPAP MOD proposes additional clearing, grading, excavation, installation of utilities and drainage improvements, and construction of a multifamily residential buildings with associated sidewalks, parking, and drives on approximately 8.31-acre project limits within the City of San Antonio, in Bexar County Texas. The site is located approximately 0.5 miles east of Hardy Oak Blvd and E Sonterra Blvd intersection. The site is mostly undeveloped, with the exception of existing paved drives within the lot limits, lies within the Salado Creek watershed, and does not contain the 100-year floodplain. There were no naturally occurring and two (2) manmade sensitive geological features identified in the Geologic Assessment.

Approximately 5.3 acres of additional impervious cover, or 63.8% of the 8.31-acre project limits, are proposed for construction in this WPAP. There is approximately 0.86 acres of existing access drive within the 9.04-ac legal limit of the lot. All 6.16 acres of impervious cover, 68.14% of the 9.04-ac lot within this site, are part of Watershed “A” which will be treated by the existing regional water quality basin.

The proposed Permanent Best Management Practices (PBMPs) for stormwater treatment is one (1) previously approved regional water quality Basin “A” (EAPP ID No. 2784.00), which has been designed in accordance with the TCEQ’s Technical Guidance Manual (TGM) RG-348 (2005) to remove 80% of the increase in Total Suspended Solids (TSS) from the site. This basin provides treatment for approximately 10.9 acres of impervious cover located onsite within the eastern 15.28-acre watershed A (71.3% IC). This approved, existing, sand filter basin includes overtreatment areas for uncaptured driveway and turn lane improvements constructed within Sonterra Blvd ROW. The uncaptured 1.84 acres includes 0.54 acres of impervious cover. Basin A was sized to include this drainage area at 71.3% impervious cover, so no modifications to Basin A or its bypass structure are required. No additional BMPs are required for treatment of stormwater runoff from this site as the 68.14% of impervious cover within the 9.04-ac lot are within the allowable for treatment in the existing basin. Please refer to current approved treatment summary table for the overall Sonterra 281 Plaza development.

Potable water service is to be provided by the San Antonio Water System (SAWS). The proposed development will generate approximately 30,300 gallons per day (average flow) of domestic wastewater based on the assumption of 301 Units and 1 Clubhouse (301 Units * 0.5 EDU/Unit + 1 Clubhouse * 1 EDU * 200 GPD/EDU = 30,300 GPD). Wastewater will be disposed of by conveyance to the existing Steven M. Clouse Water Recycling Center operated by SAWS.

GEOLOGIC ASSESSMENT FORM
(TCEQ-0585)

Geologic Assessment

Texas Commission on Environmental Quality

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

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

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

Signature

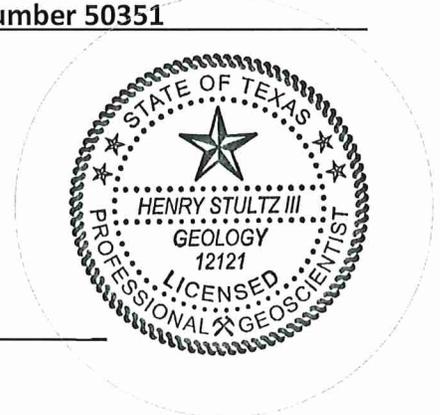
To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Print Name of Geologist: Henry E. Stultz III, P.G. Telephone: 210-375-9000

Date: April 13, 2023 Fax: 210-375-9090

Representing: Pape-Dawson Engineers, Inc., TBPGE registration number 50351

Signature of Geologist:



Regulated Entity Name: CAROLINE AT SONTERRA

Project Information

1. Date(s) Geologic Assessment was performed: April 11, 2023

2. Type of Project:

WPAP

AST

SCS

UST

3. Location of Project:

Recharge Zone

Transition Zone

Contributing Zone within the Transition Zone

4. **Attachment A - Geologic Assessment Table.** Completed Geologic Assessment Table (Form TCEQ-0585-Table) is attached.
5. Soil cover on the project site is summarized in the table below and uses the SCS Hydrologic Soil Groups* (Urban Hydrology for Small Watersheds, Technical Release No. 55, Appendix A, Soil Conservation Service, 1986). If there is more than one soil type on the project site, show each soil type on the site Geologic Map or a separate soils map.

Table 1 - Soil Units, Infiltration Characteristics and Thickness

Soil Name	Group*	Thickness(feet)
Crawford, stony and Bexar soils, 0-5% slopes (Cb)	D	1-2

** Soil Group Definitions (Abbreviated)*

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

6. **Attachment B – Stratigraphic Column.** A stratigraphic column showing formations, members, and thicknesses is attached. The outcropping unit, if present, should be at the top of the stratigraphic column. Otherwise, the uppermost unit should be at the top of the stratigraphic column.
7. **Attachment C – Site Geology.** A narrative description of the site specific geology including any features identified in the Geologic Assessment Table, a discussion of the potential for fluid movement to the Edwards Aquifer, stratigraphy, structure(s), and karst characteristics is attached.
8. **Attachment D – Site Geologic Map(s).** The Site Geologic Map must be the same scale as the applicant's Site Plan. The minimum scale is 1": 400'
 Applicant's Site Plan Scale: 1" = 40'
 Site Geologic Map Scale: 1" = 40'
 Site Soils Map Scale (if more than 1 soil type): N/A
9. Method of collecting positional data:
 - Global Positioning System (GPS) technology.
 - Other method(s). Please describe method of data collection: _____
10. The project site and boundaries are clearly shown and labeled on the Site Geologic Map.
11. Surface geologic units are shown and labeled on the Site Geologic Map.

12. Geologic or manmade features were discovered on the project site during the field investigation. They are shown and labeled on the Site Geologic Map and are described in the attached Geologic Assessment Table.
- Geologic or manmade features were not discovered on the project site during the field investigation.
13. The Recharge Zone boundary is shown and labeled, if appropriate.
14. All known wells (test holes, water, oil, unplugged, capped and/or abandoned, etc.): If applicable, the information must agree with Item No. 20 of the WPAP Application Section.
- There are ___ (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply.)
- The wells are not in use and have been properly abandoned.
- The wells are not in use and will be properly abandoned.
- The wells are in use and comply with 16 TAC Chapter 76.
- There are no wells or test holes of any kind known to exist on the project site.

Administrative Information

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

ATTACHMENT A
Geologic Assessment Table

ATTACHMENT B
Stratigraphic Column

CAROLINE AT SONTERRA
Geologic Assessment (TCEQ-0585)

Attachment B – Stratigraphic Column

Period	Epoch	Group	Formation	Member	Thickness	Lithology	Hydro-logic Unit	Hydro-stratigraphic Unit	Hydrologic Function	Porosity	Cavern Development
Cretaceous	Early Cretaceous	Edwards	Person	Cyclic and marine, undivided	80-90	Pelletal limestone; ranges from chalk to mudstone and milloloid grainstone; thin to massive beds; some crossbedding evident; a packstone containing large caprinitids is present near contact with the overlying Georgetown Formations; chert is common as beds and large nodules	Edwards Aquifer	II	Aquifer	MO, BU, VUG, BP, FR, CV	Many subsurface; might be associated with earlier karst development
				Leached and collapsed, undivided	70-90	Hard, dense, recrystallized limestone; mudstone, wackestone, packstone, and grainstone; contains chert as beds and large nodules; heavily bioturbated with iron-stained beds; often stromatolitic; <i>Toucasia</i> sp. Often found above contact with the underlying regional dense member; <i>Montastrea roemeriana</i> and oysters rare		III	Aquifer	BU, VUG, FR, BP, BR, CV	Extensive lateral development; large rooms
				Regional dense	20-24	Dense, shaly limestone; oyster shell mudstone and iron wackestone; wispy iron staining; chert nodules rarer than in the rest of the chert-bearing Edwards Group		IV	Confining	FR, CV	Very few; only vertical fracture enlargement
			Kainer	Grainstone	40-50	Hard, dense limestone that consists mostly of a tightly cemented milloloid skeletal fragment grainstone; contains interspersed chalky mudstone and wackestone; chert as beds and nodules; crossbedding and ripple marks are common primarily at the contact with the overlying regional dense bed		V	Aquifer	IP, IG, BU, FR, BP, CV	Few
				Kirsch-berg Evaporite	40-50	Highly altered crystalline limestone and chalky mudstone with occasional grainstone associated with tidal channels; chert as beds and nodules, boxwork molds are common, matrix recrystallized to a coarse grain spar; intervals of collapse breccia and travertine deposits		VI	Aquifer	IG, MO, VUG, FR, BR, CV	Probably extensive cave development
				Dolomitic	90-120	Hard, dense to granular, dolomitic limestone; chert as beds and nodules (absent in lower 20 ft); <i>Toucasia</i> sp. abundant; lower three-fourths composed of sucrosic dolomites and grainstones with hard, dense limestones interspersed; upper one-fourth composed mostly of hard, dense mudstone, wackestone, packstone, grainstone, and recrystallized dolomites with bioturbated beds		VII	Aquifer	IP, IC, IG, MO, BU, VUG, FR, BP, CV	Cave development as shafts with minor horizontal extent
				Basal nodular	40-50	Moderately hard, shaly, nodular, burrowed mudstone to milloloid grainstone that also contains dolomite; contains dark, spherical textural features known as black rotund bodies; <i>Ceratostreon texana</i> , <i>Caprina</i> sp., milliolids, and gastropods		VIII	Aquifer, confining unit in areas without caves	IP, MO, BU, BP, FR, CV	Large lateral caves at surface

Source: Clark, Golab, and Morris (2016); Cavern development modified from Stein and Ozuna (1995). Porosity types - Fabric selective: IP, Interparticle porosity; IG, Intergranular porosity; IC, Intercrystalline porosity; SH, shelter porosity; MO, moldic porosity; BU, burrowed porosity; FE, fenestral; BP, bedding plane porosity. Not fabric selective: FR, fracture porosity; CH, channel porosity; BR, breccia; VUG, vug porosity; CV, cave porosity.

ATTACHMENT C
Site Geology

CAROLINE AT SONTERRA

Geologic Assessment

Attachment C – Site Geology

SUMMARY

The Caroline at Sonterra site is located approximately 500 feet west of the intersection of Sonterra Boulevard and State Highway 281 in Bexar County, Texas.

Based on the results of the field survey conducted in accordance with *Instructions for Geologists for Geologic Assessments in the Edwards Aquifer Recharge/Transition Zones (TCEQ-0585 Instructions)*, no naturally occurring sensitive features were identified on site. The overall potential for fluid migration to the Edwards Aquifer for the site is low.

SITE GEOLOGY

As observed through field evidence, the geologic formation which outcrops at the surface within the subject site is the leached and collapsed (Keplc) member of the Person formation. The Keplc is characterized by interbedded, iron-stained, massive and bioturbated limestone with abundant chert. Karst development within the Keplc is generally characterized by large sinkholes. Caves often develop as large horizontal rooms.

The predominant trend of faults in the vicinity of the site is approximately N60°E, based on faults identified during the previous mapping of the area.

FEATURE DESCRIPTIONS:

A description of the features observed onsite is provided below:

Feature S-1

Feature S-1 is a series of existing sewer lines that are partially located beneath pavement. The sewer lines have been trenched through bedrock and backfilled with a mix of fine and coarse fill material that may be more permeable than surrounding undisturbed areas. Therefore, the probability of rapid infiltration is intermediate.

CAROLINE AT SONTERRA

Geologic Assessment

Feature S-2

Feature S-2 is a series of existing storm drain lines that are partially located beneath pavement. The storm drain lines have been trenched through bedrock and backfilled with a mix of fine and course fill material that may be more permeable than surrounding undisturbed areas. Therefore, the probability of rapid infiltration is intermediate.

Feature S-3

Feature S-3 is a zone of non-karst closed depressions created by clearing activities that occurred some time prior to 1998. Due to the non-karst origin, the probability of rapid infiltration is low.

REFERENCES

Clark, A.K., Golab, J.A., and Morris, R.R., 2016, Geologic Framework and Hydrostratigraphy of the Edwards and Trinity Aquifers Within Northern Bexar and Comal Counties, Texas: U.S. Geological Survey Scientific Investigations Map 3366, scale 1:24,000, 20 p. pamphlet.

Nationwide Environmental Title Research, LLC. Historical Aerials, HistoricAerials.com. <https://www.historicaerials.com/viewer>, May 10, 2021.

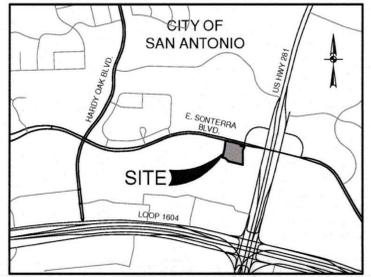
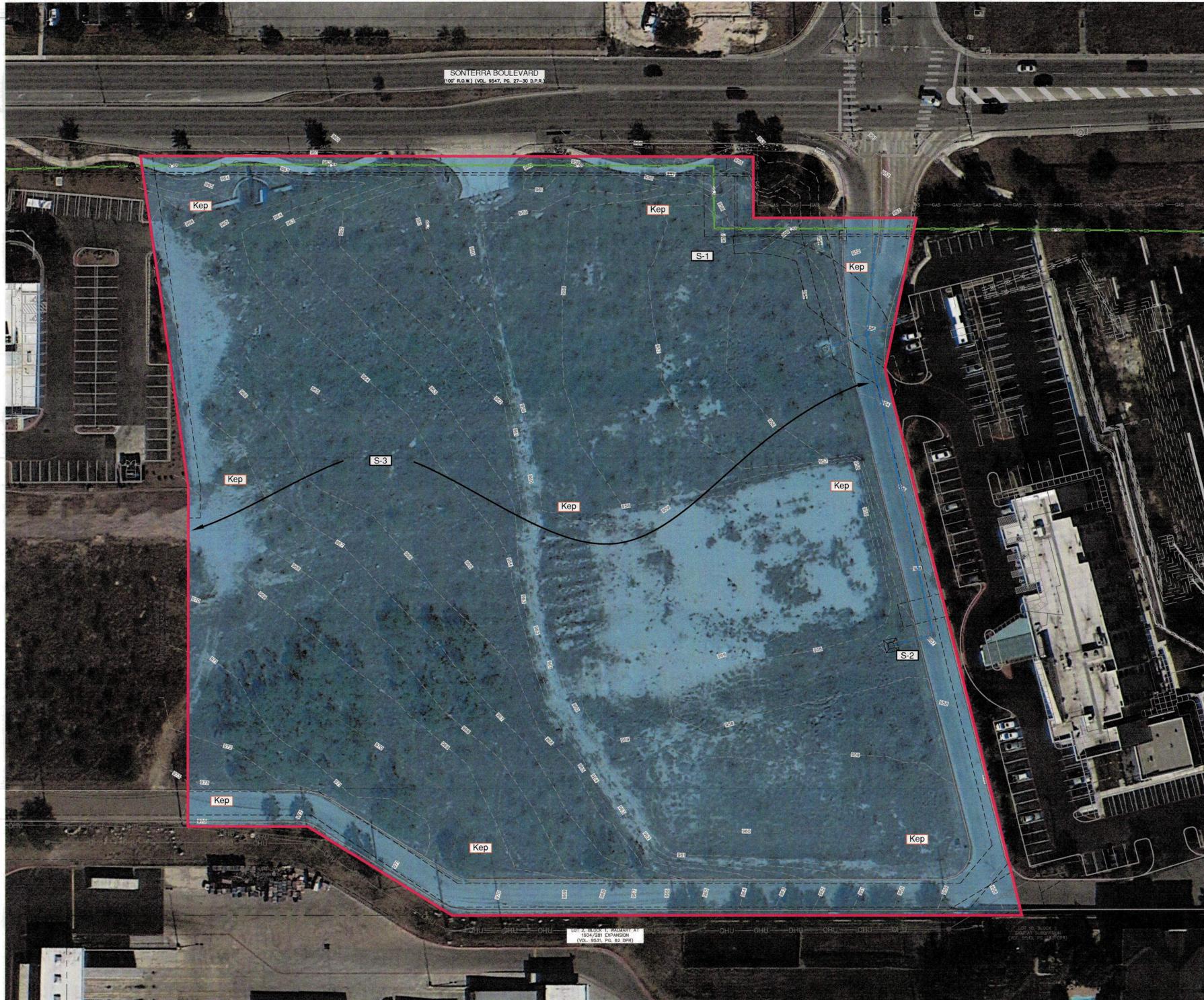
Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. <http://websoilsurvey.sc.egov.usda.gov/>, April 13, 2023.

Stein, W.G., and Ozuna, G.B., 1995, Geologic framework and hydrogeologic characteristics of the Edwards Aquifer recharge zone, Bexar County, Texas: U.S. Geological Survey Water-Resources Investigations Report 95-4030, 8 p.

Texas Water Development Board, Wells in TWDB Groundwater Database Viewer, <https://www3.twdb.texas.gov/apps/waterdatainteractive/groundwaterdataviewer>, April 13, 2023.

U.S. Geological Survey, National Water Information System: Mapper, <https://maps.waterdata.usgs.gov/mapper/index.html>, April 13, 2023.

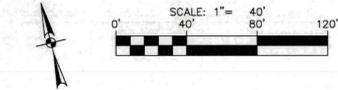
ATTACHMENT D
Site Geologic Map(s)



LOCATION MAP
NOT-TO-SCALE

LEGAL DESCRIPTION: ALL OF LOT 5 AND LOT 6 AND A PORTION OF LOT 3 AND LOT 4, BLOCK 9, N.C.B. 17255 VOL. 9612, POS 111-113 DPH (0.041 ACRES)

ADDRESS: 1510 E SONTERRA BLVD SAN ANTONIO, TX 78258



LEGEND			
PROJECT LIMITS			
EXISTING CONTOUR LINE	---760---		
100 YEAR FLOODPLAIN	---		
STREAM	---		
GEOLOGIC FORMATIONS			
Qal	ALLURUM	Kgt	GEORGETOWN
Kef	EAGLE FORD	Kep	PERSON
Kbu	BUDA	Kek	KAINER
Kdr	DEL RIO	Kgr	GLEN ROSE
SYMBOLS AND LINES			
S-1	POTENTIAL RECHARGE FEATURE		
---	CONTACT, LOCATED APPROXIMATELY		
---	CONTACT, INFERRED		
---	FAULT, LOCATED APPROXIMATELY (ON DOWNTHROW SIDE & UPTHROW SIDE)		
---	FAULT, EXTRAPOLATED		
---	FAULT, INFERRED		
---	STRIKE AND DIP OF BEDDING		
---	STRIKE AND DIP OF JOINTS		
---	STRIKE OF VERTICAL JOINTS		
---	CAVE		
---	SOLUTION CAVITY		
---	SOLUTION ENLARGED FRACTURE		
---	SMALLOW HOLE		
---	SINKHOLE		
---	NON-KARST CLOSED DEPRESSION		
---	ZONE		
---	OTHER NATURAL BEDROCK FEATURES		
---	SPRING/SEEP		
---	MAN-MADE FEATURE IN BEDROCK		
---	WATER WELL		
---	SANITARY SEWER LINE		
---	STORM DRAIN LINE		

NOTE: THE GEOSCIENTIST SEAL HAS BEEN AFFIXED TO THIS SHEET ONLY FOR PURPOSES OF GEOLOGIC INFORMATION. ALL OTHER INFORMATION SHOULD BE ACQUIRED FROM THE APPROPRIATE SIGNED AND SEALED CIVIL ENGINEERING DRAWINGS.

W PARTNERSHIP
 Wallace · Wilson
 Architects

5120 Woodway Dr., Suite 8000 - Houston, Texas - 77056 - 713.993.0439
 www.wpartnership.com

No.	Date	Revision Description
1	4/26/23	Scale changed to 1:40

CAROLINE AT SONTERRA
 1510 E SONTERRA BLVD.
 SAN ANTONIO, TEXAS 78258
 THE MORGAN GROUP, INC.



PROJECT NO: 6757-15
 SHEET CONTENTS:
SITE GEOLOGIC MAP
 SHEET NO. **ATT D**

PAPE-DAWSON ENGINEERS
 SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
 TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

**MODIFICATION OF A
PREVIOUSLY APPROVED
WATER POLLUTION
ABATEMENT PLAN (TCEQ-
0590)**

Modification of a Previously Approved Plan

Texas Commission on Environmental Quality

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

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

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

Signature

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

Print Name of Customer/Agent: Taylor G. Dawson, P.E.

Date: 4/20/23

Signature of Customer/Agent:



Project Information

1. Current Regulated Entity Name: Caroline at Sonterra
Original Regulated Entity Name: Sonterra 281 Plaza
Regulated Entity Number(s) (RN): 105486187
Edwards Aquifer Protection Program ID Number(s): 2784.00
 The applicant has not changed and the Customer Number (CN) is: 603338344
 The applicant or Regulated Entity has changed. A new Core Data Form has been provided.
2. **Attachment A: Original Approval Letter and Approved Modification Letters.** A copy of the original approval letter and copies of any modification approval letters are attached.

3. A modification of a previously approved plan is requested for (check all that apply):
- Physical or operational modification of any water pollution abatement structure(s) including but not limited to ponds, dams, berms, sewage treatment plants, and diversionary structures;
 - Change in the nature or character of the regulated activity from that which was originally approved or a change which would significantly impact the ability of the plan to prevent pollution of the Edwards Aquifer;
 - Development of land previously identified as undeveloped in the original water pollution abatement plan;
 - Physical modification of the approved organized sewage collection system;
 - Physical modification of the approved underground storage tank system;
 - Physical modification of the approved aboveground storage tank system.
4. Summary of Proposed Modifications (select plan type being modified). If the approved plan has been modified more than once, copy the appropriate table below, as necessary, and complete the information for each additional modification.

<i>WPAP Modification</i>	<i>Approved Project</i>	<i>Proposed Modification</i>
<i>Summary</i>		
Acres	<u>23.8</u>	<u>8.31</u>
Type of Development	<u>Commercial</u>	<u>Multifamily Residential</u>
Number of Residential Lots	<u>N/A</u>	<u>N/A</u>
Impervious Cover (acres)	<u>14.41</u>	<u>5.3</u>
Impervious Cover (%)	<u>61</u>	<u>63.8</u>
Permanent BMPs	<u>Regional WQ Basin</u>	<u>Regional WQ Basin</u>
Other	<u>Aqualogic Basin</u>	<u>6.16 ac (68.14%) IC total</u>

<i>SCS Modification</i>	<i>Approved Project</i>	<i>Proposed Modification</i>
<i>Summary</i>		
Linear Feet	_____	_____
Pipe Diameter	_____	_____
Other	_____	_____

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

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

5. **Attachment B: Narrative of Proposed Modification.** A detailed narrative description of the nature of the proposed modification is attached. It discusses what was approved, including any previous modifications, and how this proposed modification will change the approved plan.

6. **Attachment C: Current Site Plan of the Approved Project.** A current site plan showing the existing site development (i.e., current site layout) at the time this application for modification is attached. A site plan detailing the changes proposed in the submitted modification is required elsewhere.
 - The approved construction has not commenced. The original approval letter and any subsequent modification approval letters are included as Attachment A to document that the approval has not expired.
 - The approved construction has commenced and has been completed. Attachment C illustrates that the site was constructed as approved.
 - The approved construction has commenced and has been completed. Attachment C illustrates that the site was **not** constructed as approved.
 - The approved construction has commenced and has **not** been completed. Attachment C illustrates that, thus far, the site was constructed as approved.
 - The approved construction has commenced and has **not** been completed. Attachment C illustrates that, thus far, the site was **not** constructed as approved.

7. The acreage of the approved plan has increased. A Geologic Assessment has been provided for the new acreage.
 - Acreage has not been added to or removed from the approved plan.

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

ATTACHMENT A

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

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

June 20, 2008

Mr. Greg Jones
CIRI Sonterra 281, LLC
P.O. Box 93330
Anchorage, Alaska 99609-3330

Re: Edwards Aquifer, Bexar County
NAME OF PROJECT: Sonterra 281 Plaza; Located at the south west corner of U.S. Hwy. 281 and Sonterra Blyd.; San Antonio, Texas
TYPE OF PLAN: Request for Approval of a Water Pollution Abatement Plan (WPAP); 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer
Edwards Aquifer Protection Program ID No. 2784.00; Investigation No. 640737; Regulated Entity No. RN105486187

Dear Mr. Jones:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAP application for the above-referenced project submitted to the San Antonio Regional Office by Pape-Dawson Engineers, Inc. on behalf of CIRI Sonterra 281, LLC on March 27, 2008. Final review of the WPAP was completed after additional material was received on June 3, 2008, June 18, 2008, June 19, 2008 and June 20, 2008. As presented to the TCEQ, the Temporary and Permanent Best Management Practices (BMPs) and construction plans were prepared by a Texas Licensed Professional Engineer to be in general compliance with the requirements of 30 TAC Chapter 213. These planning materials were sealed, signed and dated by a Texas Licensed Professional Engineer. Therefore, based on the engineer's concurrence of compliance, the planning materials for construction of the proposed project and pollution abatement measures are hereby approved subject to applicable state rules and the conditions in this letter. The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Edwards Aquifer Protection Plan. A motion for reconsideration must be filed no later than 23 days after the date of this approval letter. *This approval expires two (2) years from the date of this letter unless, prior to the expiration date, more than 10 percent of the construction has commenced on the project or an extension of time has been requested.*

BACKGROUND

A regional water quality basin was approved with The Villages on Sonterra Phase II WPAP (EAPP # 2266.00) on March 2, 2005. Refer to EAPP # 2266.00 for what the computer-controlled, AquaLogic™, filtration system was originally designed to treat.

A modification to the previously approved EAPP # 2266.00 was approved on January 26, 2007 (EAPP # 2266.02). In the modification, a 4.34 acre portion of the above referenced 21.60 acre Sonterra 281 Plaza site, formerly know as CIRI Apartments, Ltd. (CIRI) Site, was left undeveloped but was to be treated by the existing regional water quality basin. The basin had been sized under the assumption that the CIRI site would contain 95% impervious cover (4.12 acres). Refer to EAPP # 2266.02 for all other modifications to the originally approved WPAP. A summary of the approved basin and an updated drainage area table, both provided in the EAPP # 2266.02 approval letter, can be seen below.

REPLY TO: REGION 13 • 14250 JUDSON RD. • SAN ANTONIO, TEXAS 78233-4480 • 210-490-3096 • FAX 210-545-4329

P.O. Box 13087 • Austin, Texas 78711-3087 • 512-239-1000 • Internet address: www.tceq.state.tx.us

Aqualogic™ Basin		
	Current Modification	Ultimate Development
Impervious Cover (acres)	14.24	26.72
TSS Generated (pounds)	11,619.84	21,803.52
Req. Water Capture Volume (ft ³)	44,896.30	82,020.98
Req. Capture Volume (ft ³)*	55,603.99	100,281.63
Designed Basin Volume (ft ³)	58,332.00	124,360.00
Number of Canisters Required.	104	189

*The capture volume sizing includes the 20% required for sedimentation build up and the up gradient treated water (18.37 acres; refer to the "Ultimate Development" table below).

Ultimate Development		
Name	Acreage	Imp. Cover
Wal-Mart*	10.46	Treated
Villages I*	5.00	Treated
SASH*	2.91	Treated
	18.37	NA
CIRI	4.34	¹ 2.65
Methodist H.	15.77	8.36
Villages II	5.55	² 4.37
Villages III	7.47	5.98
Sonterra Blvd W	1.68	1.68
Sonterra Blvd E	1.67	1.67
Hardy Oak	0.86	0.86
	37.34	³ 25.57
Total	55.71	³ 25.57

*Upgradient water runoff already treated by a BMP

¹Was changed from 4.12 acres

²Was changed from 4.05 acres

³Was changed from 26.72 acres

PROJECT DESCRIPTION

The proposed commercial project will have a site area of approximately 21.60 acres within a project area of 23.80 acres. It will include two hotels, two restaurants, three mid-rise office towers all with associated utilities and parking, including two parking garages. The impervious cover will be 13.58 acres (63 percent) within the site boundaries and 14.41 acres for the project area (61 percent). Project wastewater will be disposed of by conveyance to the existing Salado Creek Water Recycling Center owned by the San Antonio Water System.

PERMANENT POLLUTION ABATEMENT MEASURES

To prevent the pollution of stormwater runoff originating on-site or upgradient of the site and potentially flowing across and off the site after construction, an existing computer-controlled filtration system will treat stormwater runoff from 4.34 acres of the site (CIRI site) and an underground, single chamber, sand filter basin, designed using the TCEQ technical guidance document, Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices (2005), will be constructed to treat stormwater runoff from the remainder of the site. The required total suspended solids (TSS) treatment for this project is 11,759 pounds of TSS generated from the 14.41 acres of impervious cover. The approved measures meet the required 80 percent removal of the increased load in TSS caused by the project.

The individual treatment measures are described below.

Table 1: BMP Summary								
Drainage Area	Total Area (ac)	Impervious Cover (ac)	Req. WQV (ft ³)	Design WQV (ft ³)	Req. SFA (ft ²)	Design SFA (ft ²)	Calc. TSS Removal	Design TSS Removal
¹ Basin A (underground, sand filter basin)								
² Basin A	15.28	10.90	69,131	72,900	5,761	9,000	8,894.40	10,132.79
Uncaptured A2 (on site)	0.02	0.02	---	---	---	---	16.32	---
Uncaptured A3 (on site)	0.01	0.01	---	---	---	---	8.16	---
Uncaptured A5 (on site)	0.06	0.04	---	---	---	---	32.64	---
Uncaptured A1 (off site)	1.75	0.47	---	---	---	---	383.52	---
Sub Total	17.12	11.44	---	---	---	---	9,335.04	10,132.79
³ Basin B (Existing Aqualogic™ Basin)								
Basin B	4.34	2.65	---	---	---	---	2,162.4	⁴ 3,362
Captured B1 (off site)	0.48	0.32	---	---	---	---	261.12	---
Sub Total	4.82	2.97	---	---	---	---	2,423.52	3,362
⁵ DP	1.92	0	---	---	---	---	---	---
Total	23.86	14.41	---	---	---	---	11,758.56	13,494.79
WQV - Water Quality Volume SFA - Sand Filter Area DP - Detention Ponds	¹ The filtration system for the sand filter basin will consist of: <ul style="list-style-type: none"> ▪ Washed concrete sand (ASTM C-33), which is 18 inches thick, ▪ underdrain piping covered with geotextile membrane, and ▪ a concrete impervious liner. ² Includes 0.03 ac of offsite area with 0.026 ac of impervious cover. ³ A summary of the approved basin, taken from the EAPP # 2266.02 approval letter, can be seen above. ⁴ Basin was designed to treat 95% (4.12 ac) impervious cover from CIRI site. ⁵ Area to be used for a series of detention ponds to satisfy municipal stormwater requirements.							

GEOLOGY

According to the geologic assessment (GA) included with the application, the site is located in the leached and collapsed (Keplc) member of the Person Formation. Three features were identified in the

Mr. Greg Jones
June 20, 2008
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GA, two (a closed depression and a portion of a large sinkhole) were assessed as not sensitive and one man-made feature (an existing sewer line, feature S-1) was assessed as sensitive. The overall potential of recharge to the Edwards Aquifer at the site was reported to be low. The San Antonio Regional Office did not conduct a site assessment.

SPECIAL CONDITIONS

- I. All permanent pollution abatement measures shall be operational prior to occupancy of the facility.
- II. All sediment and/or media removed from the water quality basin during maintenance activities shall be properly disposed of according to 30 TAC 330 or 30 TAC.335, as applicable.
- III. The entire underground basin, and all its components, must be able to be visually inspected by local or state regulatory personnel without having to go into the confines of the basin. A Texas Licensed Professional Engineer must certify in writing that the underground basin has been constructed to meet this condition. The certification letter must be submitted to the San Antonio Regional Office within 30 days of site completion.
- IV. The confined space created by the design and construction of the underground basin and the resultant Confined Space Entry Plan will create a difficult situation for routine inspections by the owner as well as any local or state regulatory personnel. This approved plan requires that qualified, trained personnel will be available to perform the regular maintenance inspections. Additionally, upon reasonable notice by TCEQ, the owner will be required to have personnel on site who are trained in confined space entry to participate in any compliance inspections conducted by TCEQ staff. The owner will also have available all required safety equipment necessary to allow entry into a confined space.
- V. The 4.34 acre portion (CIRI site) of the above referenced site being treated by the existing Aqualogic™ basin is subject to all Special and Standard Conditions listed in the WPAP approval letter of January 26, 2007.
- VI. Any future modifications shall require an update to all tables contained in this approval letter.

STANDARD CONDITIONS

1. Pursuant to Chapter 7 Subchapter C of the Texas Water Code, any violations of the requirements in 30 TAC Chapter 213 may result in administrative penalties.
2. The holder of the approved Edwards Aquifer protection plan must comply with all provisions of 30 TAC Chapter 213 and all best management practices and measures contained in the application.
3. In addition to the rules of the Commission, the applicant may also be required to comply with state and local ordinances and regulations providing for the protection of water quality.

Prior to Commencement of Construction:

4. Within 60 days of receiving written approval of an Edwards Aquifer Protection Plan, the applicant must submit to the San Antonio Regional Office, proof of recordation of notice in the county deed records, with the volume and page number(s) of the county deed records of the county in which the property is located. A description of the property boundaries shall be

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Page 5

included in the deed recordation in the county deed records. A suggested form (Deed Recordation Affidavit, TCEQ-0625) that you may use to deed record the approved WPAP is enclosed.

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

During Construction:

10. During the course of regulated activities related to this project, the applicant or agent shall comply with all applicable provisions of 30 TAC Chapter 213, Edwards Aquifer. The applicant shall remain responsible for the provisions and conditions of this approval until such responsibility is legally transferred to another person or entity.
11. This approval does not authorize the installation of temporary aboveground storage tanks on this project. If the contractor desires to install a temporary aboveground storage tank for use during construction, an application to modify this approval must be submitted and approved prior to installation. The application must include information related to tank location and spill containment. Refer to Standard Condition No. 6, above.
12. If any sensitive feature (caves, solution cavities, sink holes, etc.) is discovered during construction, all regulated activities near the feature must be suspended immediately. The

Mr. Greg Jones

June 20, 2008

Page 6

applicant or his agent must immediately notify the San Antonio Regional Office of the discovery of the feature. Regulated activities near the feature may not proceed until the executive director has reviewed and approved the methods proposed to protect the feature and the aquifer from potentially adverse impacts to water quality. The plan must be sealed, signed, and dated by a Texas Licensed Professional Engineer.

13. Zero wells exist on site. All water wells, including injection, dewatering, and monitoring wells must be in compliance with the requirements of the Texas Department of Licensing and Regulation under Title 16 TAC Chapter 76 (relating to Water Well Drillers and Pump Installers) and all other locally applicable rules, as appropriate.
14. If sediment escapes the construction site, the sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain). Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50 percent. Litter, construction debris, and construction chemicals shall be prevented from becoming stormwater discharge pollutants.
15. Intentional discharges of sediment laden storm water are not allowed. If dewatering becomes necessary, the discharge will be filtered through appropriately selected best management practices. These may include vegetated filter strips, sediment traps, rock berms, silt fence rings, etc.
16. The following records shall be maintained and made available to the executive director upon request: the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.
17. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, and construction activities will not resume within 21 days. When the initiation of stabilization measures by the 14th day is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable.

After Completion of Construction:

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

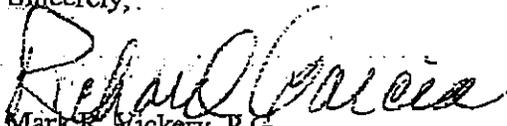
Mr. Greg Jones
June 20, 2008
Page 7

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

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

If you have any questions or require additional information, please contact Javier Anguiano of the Edwards Aquifer Protection Program of the San Antonio Regional Office at (210) 403-4019.

Sincerely,



Mark R. Vickery, P.G.

Executive Director

Texas Commission on Environmental Quality

GS/JA/eg

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

cc: Ms. Cara Tackett, P.E., Pape-Dawson Engineers, Inc.
Mr. Scott Halty, San Antonio Water System
Ms. Renee Green, P.E., Bexar County Public Works
Ms. Velma Danielson, Edwards Aquifer Authority
TCEQ Central Records, Building F, MC212

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



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

July 26, 2016

Mr. Ken D. Haynes
Christus Santa Rosa Health Care Corporation
100 NE Loop 410, Suite 800
San Antonio, Texas 78216

Re: Edwards Aquifer, Bexar County

NAME OF PROJECT: Christus Stone Oak Medical Plaza; Located approximately 0.3 miles west of the intersection of Sonterra Bulverde and US Highway 281; San Antonio, Texas

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

Regulated Entity No. RN105486187; Additional ID No. 13000164

Dear Mr. Haynes:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAP modification for the above-referenced project submitted to the San Antonio Regional Office by Pape-Dawson Engineers, Inc. on behalf of Christus Santa Rosa Health Care Corporation on May 24, 2016. As presented to the TCEQ, the Temporary and Permanent Best Management Practices (BMPs) were selected and construction plans were prepared by a Texas Licensed Professional Engineer to be in general compliance with the requirements of 30 TAC Chapter 213. These planning materials were sealed, signed and dated by a Texas Licensed Professional Engineer. Therefore, based on the engineer's concurrence of compliance, the planning materials for construction of the proposed project and pollution abatement measures are hereby approved subject to applicable state rules and the conditions in this letter. The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Edwards Aquifer Protection Plan. A motion for reconsideration must be filed no later than 23 days after the date of this approval letter. *This approval expires two (2) years from the date of this letter unless, prior to the expiration date, more than 10 percent of the construction has commenced on the project or an extension of time has been requested.*

BACKGROUND

A regional water quality basin was approved with The Village on Sonterra Phase II WPAP (Additional ID No. 13-04121001B) on March 2, 2005. It included medical offices and associated drives and parking. The impervious cover was approved to be 10.54 acres (80 percent) with permanent treatment being provided by a computer-controlled filtration system.

A modification to the previously approved WPAP was approved on January 26, 2007. In the modification, a 4.34 acre portion of the 21.60 acre Village on Sonterra Phase II WPAP site,

formerly known as CIRI Apartments, Ltd., was left undeveloped but was to be treated by the existing regional water quality basin. The basin had been sized under the assumption that the CIRI site would contain 95% impervious cover (4.12 acres).

A modification was approved on June 20, 2008 with an area of approximately 21.60 acres within a project area of 23.80 acres. It included two hotels, two restaurants, three mid-rise office towers all with associated utilities and parking, including two parking garages. The impervious cover was approved to be 13.58 acres (63 percent) within the site boundaries and 14.41 acres for the project area (61 percent).

An additional modification was approved on September 17, 2015 with an area of approximately 4.383 acres. It included a 105 bed transitional care facility with associated sidewalks, parking and drives. The impervious cover was approved to be 2.98 acres (67.7 percent).

PROJECT DESCRIPTION

The proposed commercial project will have an area of approximately 3.843 acres. It will include one commercial office building, associated sidewalks, parking, and drives. The impervious cover will be 2.907 acres (75.6 percent). Project wastewater will be disposed of by conveyance to the existing Dos Rios Water Recycling Center owned by San Antonio Water System.

AquaLogic™ Basin		
	Current Modification	Ultimate Development
Impervious Cover (acres)	26.40	26.72
TSS Generated (pounds)	21,538.32	21,803.52
Req. Water Capture Volume (ft ²)	82,020.98	82,020.98
Req. Capture Volume (ft ²)*	100,281.63	100,281.63
Designed Basin Volume (ft ³)	124,360.00	124,360.00
Number of Canisters Req.	189	189
*The capture volume sizing includes the 20% required for sedimentation build up and the up gradient treated water (18.37 acres; refer to the "Ultimate Development" table below).		

Ultimate Development		
Name	Acreage	Imp. Cover
Wal-Mart*	10.46	Treated
Villages I*	5.00	Treated
SASH*	2.91	Treated
	18.37	NA
CIRI	4.34	¹ 3.475
Methodist H.	15.77	8.36
Villages II	5.55	4.37
Villages III	7.47	5.98
Sonterra Blvd W	1.68	1.68
Sonterra Blvd E	1.67	1.67
Hardy Oaks	0.86	0.86
	37.34	² 26.395
Total	55.71	² 26.395

*Upgradient water runoff already treated by a BMP
¹Based on 95% IC, changed from 1.84 acres
²Was changed from 24.76 acres

PERMANENT POLLUTION ABATEMENT MEASURES

To prevent the pollution of stormwater runoff originating on-site or upgradient of the site and potentially flowing across and off the site after construction, an existing computer-controlled filtration system will treat stormwater runoff from 4.34 acres of the site (CIRI site) and an existing underground single chamber sand filter basin, designed using the TCEQ technical guidance document, Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices (2005), will be utilized to treat stormwater runoff. The required total suspended solids (TSS) treatment for this project is 2,090 pounds of TSS generated from the 2.907 acres of impervious cover. The approved measures meet the required 80 percent removal of the increased load in TSS caused by the project.

The individual treatment measures are described below.

Table 1: BMP Summary								
Drainage Area	Total Area (ac)	Impervious Cover (ac)	Req. WQV (ft ³)	Design WQV (ft ³)	Req. SFA (ft ²)	Design SFA (ft ²)	Calc. TSS Removal	Design TSS Removal
¹ Basin A (Existing underground, sand filter basin)								
² Basin A	15.28	10.90	69,131	72,900	5,761	9,000	9,335	10,133
Uncaptured A2 (on site)	0.02	0.02	-	-	-	-	16	-
Uncaptured A3 (on site)	0.01	0.01	-	-	-	-	8	-
Uncaptured A5 (on site)	0.06	0.04	-	-	-	-	33	-
Uncaptured A1 (on site)	1.75	0.47	-	-	-	-	384	-
WS A w/in Lot 9	2.17	1.46	-	-	-	-	1,191	-
WS A w/in Lot 8	1.723	1.271	-	-	-	-	1,037	-
WS A-Remainder of Development	11.387	8.169					6,666	
Sub Total	17.12	11.44	-	-	-	-	9,335	10,133
³ Basin B (Existing Computer Controlled Filtration System)								
⁴ Basin B	4.34	4.12	-	-	-	-	3,362	4,066
⁶ Captured B1 (off site)	0.48	0.32	-	-	-	-	261	-
WS B w/in Lot 8	2.12	1.64	-	-	-	-	1,053	-
WS B w/in Lot 9	2.22	1.52	-	-	-	-	1,240	-
Sub Total	4.82	1.84	-	-	-	-	2,554	4,066
⁵ DP	1.92	0	-	-	-	-	-	-
Total	23.86	14.92	-	-	-	-	11,889	14,199
WQV- Water Quality Volume SFA-Sand Filter Area DP-Detention Ponds	¹ The filtration system for the sand filter basin will consist of <ul style="list-style-type: none"> ▪ Washed concrete sand (ASTM C-33), which is 18 inches thick, ▪ Underdrain piping covered with geotextile membrane, and ▪ A concrete impervious liner. 							

WS-Watershed	<p>² Includes 0.03 ac of offsite area with 0.026 ac of impervious cover.</p> <p>³ A summary of the approved basin, taken from the EAPP#2266.02 approval letter, can be seen above.</p> <p>⁴ Basin was designed to treat 95% (4.12 ac) impervious cover from CIRI site.</p> <p>⁵ Area to be used for a series of detention ponds to satisfy municipal stormwater requirements.</p> <p>⁶ Captured Area B1 (off-site) was included in the Villages III ultimate watershed of 7.47 acres.</p>
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GEOLOGY

According to the geologic assessment included with the application, the site is located within the leached and collapsed member of the Person Formation. One sensitive man-made feature (S-1, existing sewer line) and three non-sensitive geologic features were noted in the assessment. The San Antonio Regional Office site assessment conducted on July 8, 2016 revealed that the site was generally as described in the application.

SPECIAL CONDITIONS

- I. This modification is subject to all Special and Standard Conditions listed in the WPAP approval letter dated March 2, 2005, January 26, 2007, June 20, 2008, and September 17, 2015.
- II. All permanent pollution abatement measures shall be inspected and be fully functional prior to occupancy of the newly constructed facilities.
- III. All sediment and/or media removed from the water quality basins during maintenance activities shall be properly disposed of according to 30 TAC 330 or 30 TAC 335, as applicable.
- IV. The confined space created by the construction of the underground basin and the resultant Confined Space Entry Plan creates a complex situation for routine inspections by the owner as well as any local or state regulatory personnel. This approved plan requires the qualified, trained personnel will be available to perform the regular maintenance inspections. Additionally, upon notice by TCEQ, the owner is required to have personnel on site who are trained in confined space entry to participate in any compliance inspections conducted by TCEQ staff. The owner will also have available all required safety equipment necessary to allow entry into a confined space.
- V. The 4.34 acre portion (CIRI site) of the above referenced site being treated by the existing computer controlled filtration system basin is subject to all Special and Standard Conditions specific to the WPAP approval letter of January 26, 2007.
- VI. Any future modification application(s) shall include an update of all tables contained in this approval letter.

STANDARD CONDITIONS

1. Pursuant to Chapter 7 Subchapter C of the Texas Water Code, any violations of the requirements in 30 TAC Chapter 213 may result in administrative penalties.
2. The holder of the approved Edwards Aquifer protection plan must comply with all provisions of 30 TAC Chapter 213 and all best management practices and measures contained in the approved plan. Additional and separate approvals, permits, registrations and/or

authorizations from other TCEQ Programs (i.e., Stormwater, Water Rights, UIC) can be required depending on the specifics of the plan.

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

Prior to Commencement of Construction:

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

During Construction:

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

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

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

After Completion of Construction:

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

ATTACHMENT B

CAROLINE AT SONTERRA

Water Pollution Abatement Plan Modification

Attachment B – Narrative of Proposed Modification

The Caroline at Sonterra Water Pollution Abatement Plan Modification (WPAP MOD) is a modification of the previously approved Sonterra 281 Plaza Water Pollution Abatement Plan (WPAP). The Sonterra 281 Plaza WPAP was approved by TCEQ on June 20, 2008 (EAPP ID No. 2784.00), for a 21.6-acre site to be developed for use as mid-rise office towers, hotels, parking garages, access drives, and restaurants. The overall project limits were 23.8 acres, which included construction of the driveway turn lanes within Sonterra Blvd right-of-way (ROW). The overall impervious cover in the approved WPAP was 14.41 acres (including the turn lanes within Sonterra Blvd) for a total project impervious cover of 61%. Two additional modifications of this plan have been approved by TCEQ. This modification is specific to the previously approved Watershed “A” which drains to an underground sand filter basin

This Caroline at Sonterra WPAP MOD proposes additional clearing, grading, excavation, installation of utilities and drainage improvements, and construction of a multifamily residential buildings with associated sidewalks, parking, and drives on approximately 8.31-acre project limits within the City of San Antonio, in Bexar County Texas. The site is located approximately 0.5 miles east of Hardy Oak Blvd and E Sonterra Blvd intersection. The site is mostly undeveloped, with the exception of existing paved drives within the lot limits, lies within the Salado Creek watershed, and does not contain the 100-year floodplain. There were no naturally occurring and two (2) manmade sensitive geological features identified in the Geologic Assessment.

Approximately 5.3 acres of additional impervious cover, or 63.8% of the 8.31-acre project limits, are proposed for construction in this WPAP. There is approximately 0.86 acres of existing access drive within the 9.04-ac legal limit of the lot. All 6.16 acres of impervious cover, 68.14% of the 9.04-ac lot within this site, are part of Watershed “A” which will be treated by the existing regional water quality basin.

The proposed Permanent Best Management Practices (PBMPs) for stormwater treatment is one (1) previously approved regional water quality Basin “A” (EAPP ID No. 2784.00), which has been designed in accordance with the TCEQ’s Technical Guidance Manual (TGM) RG-348 (2005) to remove 80% of the increase in Total Suspended Solids (TSS) from the site. This basin provides treatment for approximately 10.9 acres of impervious cover located onsite within the eastern 15.28-acre watershed A (71.3% IC). This approved, existing, sand filter basin includes overtreatment areas for uncaptured driveway and turn lane improvements constructed within Sonterra Blvd ROW. The uncaptured 1.84 acres includes 0.54 acres of impervious cover. Basin A was sized to include this drainage area at 71.3% impervious cover, so no modifications to Basin A or its bypass structure are required. No additional BMPs are required for treatment of stormwater runoff from this site as the 68.14% of impervious cover within the 9.04-ac lot are within the allowable for treatment in the existing basin. Please refer to current approved treatment summary table for the overall Sonterra 281 Plaza development.

Potable water service is to be provided by the San Antonio Water System (SAWS). The proposed development will generate approximately 30,300 gallons per day (average flow) of domestic wastewater based on the assumption of 301 Units and 1 Clubhouse (301 Units * 0.5 EDU/Unit + 1 Clubhouse * 1 EDU * 200 GPD/EDU = 30,300 GPD). Wastewater will be disposed of by conveyance to the existing Steven M. Clouse Water Recycling Center operated by SAWS.

ATTACHMENT C

SUMMARY OF PERMANENT POLLUTION ABATEMENT MEASURES:

- 1.) TEMPORARY BMP'S WILL BE MAINTAINED UNTIL THE RESPECTIVE WATERSHED HAS BEEN STABILIZED.
- 2.) DURING CONSTRUCTION, TO THE EXTENT PRACTICAL, CONTRACTOR SHALL MINIMIZE THE AREA OF SOIL DISTURBANCE. AREAS OF DISTURBED SOIL SHALL BE REVEGETATED TO STABILIZE SOIL USING SOLID SOD IN A STAGGERED PATTERN. SEE DETAIL ON EXHIBIT 2 AND REFER TO SECTION 1.3.11 IN TCEQ'S TECHNICAL GUIDANCE MANUAL RG-348 (2005). SOD SHOULD BE USED IN CHANNELS AND ON SLOPES 15%. THE CONTRACTOR MAY SUBSTITUTE THE USE OF SOD WITH THE PLACEMENT OF TOP SOIL AND A FRIABLE SEED BED WITH A PROTECTIVE MATTING OR HYDRAULIC MULCH ALONG WITH WATERING UNTIL VEGETATION IS ESTABLISHED. APPLICATIONS AND PRODUCTS SHALL BE THOSE APPROVED BY TXDOT AS OF FEBRUARY 2001 AND IN COMPLIANCE WITH THE TGM RG-348 (2005). SEED MIXTURE AND/OR GRASS TYPE TO BE DETERMINED BY OWNER AND SHOULD BE IN COMPLIANCE WITH TGM RG-348 (2005) GUIDELINES. IRRIGATION MAY BE REQUIRED IN ORDER TO ESTABLISH SUFFICIENT VEGETATION.
- 3.) PERMANENT BMP'S FOR THIS SITE INCLUDE TWO BASINS. RUNOFF FROM THE WESTERN WATERSHED WILL BE DIRECTED TO AN EXISTING AQUALOGIC® BASIN LOCATED OFFSITE. THE EASTERN WATERSHED WILL DIRECT RUNOFF TO AN UNDERGROUND SAND FILTER BASIN. THE PERMANENT BMP'S HAVE BEEN DESIGNED TO REMOVE AT LEAST 80% OF THE INCREASED TOTAL SUSPENDED SOLIDS (TSS) FOR THE 21.6 ACRES IN ACCORDANCE WITH THE TCEQ'S TECHNICAL GUIDANCE MANUAL RG 348 (2005).

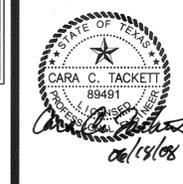
SITE PLAN NOTES:

1. AREAS OF SOIL DISTURBANCE MAY INCLUDE THE ENTIRE PROJECT LIMITS.
2. TYPICAL SLOPE ONSITE WILL RANGE FROM 1% TO 10% WITH EMBANKMENT AREAS UP TO 3:1.
3. FINAL GRADING SHALL NOT DIFFER SIGNIFICANTLY FROM THE EXISTING CONTOURS WHICH ARE SHOWN.

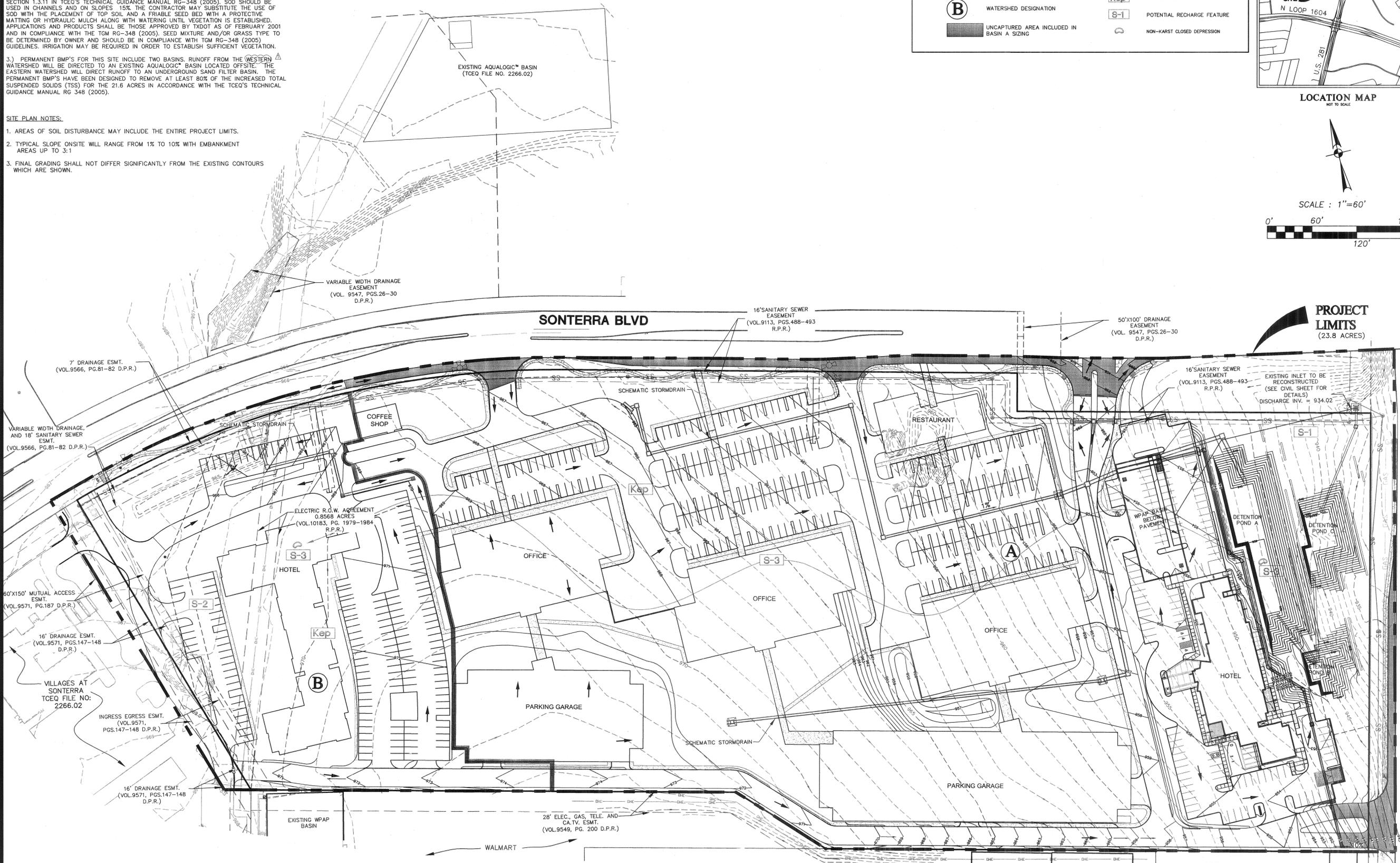
LEGEND	
	PROJECT LIMITS
	WATERSHED LINE
	PROPERTY LINE
	WATERSHED DESIGNATION
	UNCAPTURED AREA INCLUDED IN BASIN A SIZING
	DRAINAGE FLOW ARROW (EXISTING)
	EXISTING CONTOURS
	PROPOSED CONTOURS
	PERSON FORMATION
	POTENTIAL RECHARGE FEATURE
	NON-KARST CLOSED DEPRESSION



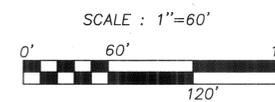
REVISIONS:
 08-03-08 PER MAY 20 TCEQ COMMENTS
 08-06-08 UPDATED SITE PLAN AND PROPOSED CONTOURS PER TCEQ COMMENTS



PAPE-DAWSON ENGINEERS
 555 EAST RAMSEY | SAN ANTONIO TEXAS 78216 | PHONE: 210.375.9000 | FAX: 210.375.9010



PROJECT LIMITS
(23.8 ACRES)



**SONTERRA 281 PLAZA
 PERMANENT POLLUTION
 ABATEMENT PLAN**

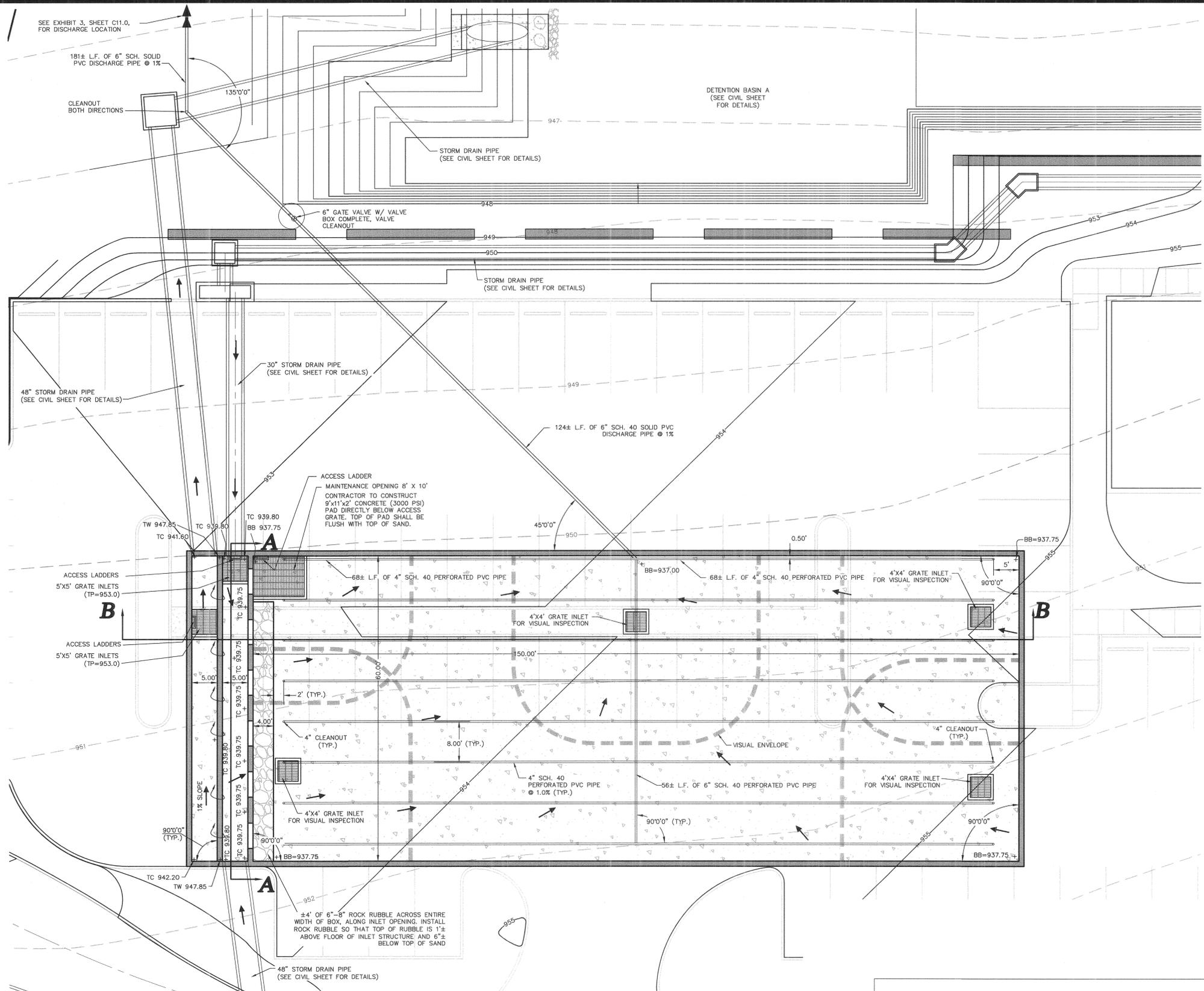
JOB NO. 6757-03
 DATE MARCH 2008
 DESIGNER GFS
 CHECKED JM DRAWN SJ
 SHEET 1 OF 1

THE ENGINEERING SEAL HAS BEEN AFFIXED TO THIS SHEET ONLY FOR THE PURPOSE OF DEMONSTRATING COMPLIANCE WITH THE POLLUTION ABATEMENT SIZING AND TREATMENT REQUIREMENTS OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY'S EDWARDS AQUIFER TECHNICAL GUIDANCE MANUAL. (RG 348, 2005)
 THIS SHEET HAS BEEN PREPARED FOR PURPOSES OF POLLUTION ABATEMENT ONLY. ALL OTHER CIVIL ENGINEERING RELATED INFORMATION SHOULD BE ACQUIRED FROM THE APPROPRIATE SHEET IN THE CIVIL IMPROVEMENT PLANS.

EXHIBIT 3

Date: Jun 18, 2008, 9:35am User: ID: Mkhight
 File: P:\6757\5\A\03\Design\Environmental\PI\675703.dwg

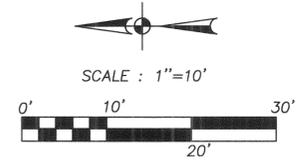
THIS DOCUMENT HAS BEEN PRODUCED FROM MATERIAL THAT WAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED. RELY ONLY ON FINAL HARD COPY MATERIALS BEARING THE CONSULTANT'S ORIGINAL SIGNATURE AND SEAL.



PLAN VIEW
SCALE: 1" = 10'

LEGEND FOR SPOT ELEVATIONS

- TC TOP OF CONCRETE
- BB BOTTOM OF BASIN
- TB TOP OF BASIN
- TP TOP OF PAVEMENT
- TW TOP OF WALL



OVERFLOW WEIR CALCULATION

$$H = (Q/3)^{2/3} / (2/3)$$

$$= (111.34 / (3.087 * 60))^{2/3} / (2/3)$$

$$= 0.71 \text{ FT.}$$

USE
HEIGHT OF WEIR = 0.71 FT.
LENGTH OF WEIR = 60 FT.

BASIN A DESIGN DATA

WATERSHED AREA	685,587 SF (15.28 AC)
RUN OFF DEPTH	2.00 INCH
REQUIRED CAPTURE VOLUME	69,131 CF
REQUIRED SAND AREA	5,781 SF
BASIN DEPTH	8.1 FT
BASIN CAPTURE VOLUME (DESIGN)	72,900 CF*
BASIN SAND AREA (DESIGN)	9,000 SF
OVERFLOW WEIR HEIGHT	0.71 FT X 60.0 FT
Q100	111.34 CFS

BASIN DRAWDOWN IS 25.97 HOURS AND IS CONTROLLED BY THE CARRYING CAPACITY OF THE 6" PVC PIPE SLOPED AT 1%.

* BASIN "A" INCLUDES CAPACITY FOR PROVIDING EQUIVALENT TREATMENT FOR 0.54 ACRES OF IMPERVIOUS COVER THAT IS NOT ABLE TO BE CAPTURED.

- NOTES:**
- SEE CIVIL DRAWINGS FOR DIMENSIONAL CONTROL.
 - REFER TO STRUCTURAL PLANS FOR CONCRETE STRUCTURE DETAILS.
 - VEHICULAR CIRCULATION IN PARKING AREAS SHALL REMAIN UNIMPEDED DURING BASIN MAINTENANCE.
 - MAINTENANCE ACCESS STAGING AREA REQUIREMENT (800 SQ. FT.) IS SATISFIED BY UTILIZING THE PARKING AREA ADJACENT TO THE BASIN.
 - OWNER SHALL ENGAGE A LICENSED STRUCTURAL ENGINEER SPECIFIED BY THE OWNER TO PROVIDE A SIGNED AND SEALED SET OF PLANS, DETAILS AND SPECIFICATIONS FOR THE STRUCTURAL COMPONENTS OF THE POLLUTION ABATEMENT BASIN. CONTRACTOR SHALL PROVIDE FOR STRUCTURAL ENGINEER'S INSPECTION DURING BASIN CONSTRUCTION AND STRUCTURAL ENGINEER'S CONSTRUCTION CERTIFICATION FOR STRUCTURAL COMPONENTS UPON COMPLETION OF THE BASIN.

THE ENGINEERING SEAL HAS BEEN AFFIXED TO THIS SHEET ONLY FOR THE PURPOSE OF DEMONSTRATING COMPLIANCE WITH THE POLLUTION ABATEMENT SIZING AND TREATMENT REQUIREMENTS OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY'S EDWARDS AQUIFER TECHNICAL GUIDANCE MANUAL. (RG 348, 2005)

THIS SHEET HAS BEEN PREPARED FOR PURPOSES OF POLLUTION ABATEMENT ONLY. ALL OTHER CIVIL ENGINEERING RELATED INFORMATION SHOULD BE ACQUIRED FROM THE APPROPRIATE SHEET IN THE CIVIL IMPROVEMENT PLANS.

EXHIBIT 4

REVISIONS:

- 06-17-08 PER 06-06-08 TCEQ COMMENTS
- 06-18-08 PER 06-18-08 TCEQ COMMENTS
- 06-19-08 PER 06-18-08 TCEQ COMMENTS
- 06-19-08 FOR DRAIN AND GRATES



PAPE-DAWSON ENGINEERS
565 EAST RAMSEY | SAN ANTONIO TEXAS 78216 | PHONE: 210.375.9000 FAX: 210.375.9010

**SONTERRA 281 PLAZA
PERMANENT POLLUTION ABATEMENT PLAN
BASIN A PLAN**

JOB NO. 6757-03
DATE MARCH 2008
DESIGNER GFS
CHECKED JM, DRAWN SJ
SHEET 1 OF 3

**WATER POLLUTION
ABATEMENT PLAN
APPLICATION FORM (TCEQ-
0584)**

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: Taylor G. Dawson, P.E.

Date: 4/20/23

Signature of Customer/Agent:



Regulated Entity Name: Caroline at Sonterra

Regulated Entity Information

1. The type of project is:

- Residential: Number of Lots: _____
- Residential: Number of Living Unit Equivalents: 150
- Commercial
- Industrial
- Other: _____

2. Total site acreage (size of property): 8.31

3. Estimated projected population: 600 (300 Units * 2 persons)

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	221,423	÷ 43,560 =	5.08
Parking		÷ 43,560 =	
Other paved surfaces	9,538	÷ 43,560 =	0.22
Total Impervious Cover	230,961	÷ 43,560 =	5.3

Total Impervious Cover 5.3 ÷ Total Acreage 8.31 X 100 = 63.8% 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 = _____ Ft² ÷ 43,560 Ft²/Acre = _____ acres.

10. Length of pavement area: _____ feet.

Width of pavement area: _____ feet.

L x W = _____ Ft² ÷ 43,560 Ft²/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:

<u>100%</u> Domestic	<u>30,300</u> Gallons/day
<u> </u> % Industrial	<u> </u> Gallons/day
<u> </u> % Commingled	<u> </u> Gallons/day
TOTAL gallons/day <u>30,300 (151.5 EDU * 200 GPD)</u>	

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 Steven M Clouse (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" = 30'.

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): DFIRM (Digital Flood Insurance Rate Map for Bexar County, Texas and Incorporated Areas) Panel No. 48029C0255G, Dated 09/29/2010

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

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

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

There are _____ (#) 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

CAROLINE AT SONTERRA

Water Pollution Abatement Plan Modification

Attachment A – Factors Affecting Water Quality

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

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

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

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

ATTACHMENT B

CAROLINE AT SONTERRA

Water Pollution Abatement Plan Modification

Attachment B – Volume and Character of Stormwater

Stormwater runoff will increase as a result of this development. For a 25-year storm event, the overall project will generate approximately 71.28 cfs. The runoff coefficient for the site changes from approximately 0.47 before development to 0.74 after development. Values are based on the Rational Method using runoff coefficients per the City of San Antonio Unified Development Code.

**TEMPORARY STORMWATER
SECTION (TCEQ-0602)**

Temporary Stormwater Section

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(b)(4)(A), (B), (D)(I) and (G); Effective June 1, 1999

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

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

Signature

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

Print Name of Customer/Agent: Taylor G. Dawson, P.E.

Date: 4/20/23

Signature of Customer/Agent:



Regulated Entity Name: Caroline at Sonterra

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: construction staging area

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: Mud 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

CAROLINE AT SONTERRA

Water Pollution Abatement Plan Modification

Attachment A – Spill Response Actions

In the event of an accidental leak or spill:

- Spill must be contained and cleaned up immediately.
- Spills will not be merely buried or washed with water.
- Contractor shall take action to contain spill. Contractor may use sand or other absorbent material stockpiled on site to absorb spill. Absorbent material should be spread over the spill area to absorb the spilled product.
- In the event of an uncontained discharge the contractor shall utilize onsite equipment to construct berms downgradient of the spill with sand or other absorbent material to contain and absorb the spilled product.
- Spill containment/absorbent materials along with impacted media must be collected and stored in such a way so as not to continue to affect additional media (soil/water). Once the spill has been contained, collected material should be placed on poly or plastic sheeting until removed from the site. The impacted media and cleanup materials should be covered with plastic sheeting and the edges weighed down with paving bricks or other similarly dense objects as the material is being accumulated. This will prevent the impacted media and cleanup materials from becoming airborne in windy conditions or impacting runoff during a rain event. The stockpiled materials should not be located within an area of concentrated runoff such as along a curb line or within a swale.
- Contaminated soils and cleanup materials will be sampled for waste characterization. When the analysis results are known the contaminated soils and cleanup materials will be removed from the site and disposed in a permitted landfill in accordance with applicable regulations.
- The contractor will be required to notify the owner, who will in turn contact TCEQ to notify them in the event of a significant hazardous/reportable quantity spill. Additional notifications as required by the type and amount of spill will be conducted by owner or owner's representative.

In the event of an accidental significant or hazardous spill:

The contractor will be required to report significant or hazardous spills in reportable quantities to:

- 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. https://www.tceq.texas.gov/response/spills/spill_rq.html
- 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.

CAROLINE AT SONTERRA

Water Pollution Abatement Plan Modification

- Notification should first be made by telephone and followed up with a written report.
- The services of a spills contractor or a Haz-Mat team should be obtained immediately. Construction personnel should not attempt to clean up until the appropriate and qualified staffs have arrived at the job site.
- Other agencies which may need to be consulted include, but are not limited to, the City Police Department, County Sheriff Office, Fire Departments, etc.
- Contaminated soils will be sampled for waste characterization. When the analysis results are known the contaminated soils will be removed from the site and disposed in a permitted landfill in accordance with applicable regulations.

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

ATTACHMENT B

CAROLINE AT SONTERRA

Water Pollution Abatement Plan

Attachment B – Potential Sources of Contamination

Other potential sources of contamination during construction include:

- | | | |
|----------------------|---|--|
| Potential Source | ● | Asphalt products used on this project. |
| Preventative Measure | ■ | After placement of asphalt, emulsion or coatings, the contractor will be responsible for immediate cleanup should an unexpected rain occur. For the duration of the asphalt product curing time, the contractor will maintain standby personnel and equipment to contain any asphalt wash-off should an unexpected rain occur. The contractor will be instructed not to place asphalt products on the ground within 48 hours of a forecasted rain. |
| Potential Source | ● | Oil, grease, fuel and hydraulic fluid contamination from construction equipment and vehicle dripping. |
| Preventative Measure | ■ | Vehicle maintenance when possible will be performed within the construction staging area. |
| | ■ | Construction vehicles and equipment shall be checked regularly for leaks and repaired immediately. |
| Potential Source | ● | Accidental leaks or spills of oil, petroleum products and substances listed under 40 CFR parts 110, 117, and 302 used or stored temporarily on site. |
| Preventative Measure | ■ | Contractor to incorporate into regular safety meetings, a discussion of spill prevention and appropriate disposal procedures. |
| | ■ | Contractor's superintendent or representative overseer shall enforce proper spill prevention and control measures. |
| | ■ | Hazardous materials and wastes shall be stored in covered containers and protected from vandalism. |
| | ■ | A stockpile of spill cleanup materials shall be stored on site where it will be readily accessible. |
| Potential Source | ● | Miscellaneous trash and litter from construction workers and material wrappings. |
| Preventive Measure | ■ | Trash containers will be placed throughout the site to encourage proper trash disposal. |
| Potential Source | ● | Construction debris. |
| Preventive Measure | ■ | Construction debris will be monitored daily by contractor. Debris will be collected weekly and placed in disposal bins. Situations requiring immediate attention will be addressed on a case by case basis. |

CAROLINE AT SONTERRA

Water Pollution Abatement Plan

- | | | |
|----------------------|---|---|
| Potential Source | ● | Spills/Overflow of waste from portable toilets |
| Preventative Measure | ■ | Portable toilets will be placed away from high traffic vehicular areas and storm drain inlets. |
| | ■ | Portable toilets will be placed on a level ground surface. |
| | ■ | Portable toilets will be inspected regularly for leaks and will be serviced and sanitized at time intervals that will maintain sanitary conditions. |

ATTACHMENT C

CAROLINE AT SONTERRA

Water Pollution Abatement Plan Modification

Attachment C – Sequence of Major Activities

The sequence of major activities which disturb soil during construction on this site will be divided into two stages. The first is site preparation that will include installation of TBMPs, clearing and grubbing of vegetation where applicable. This will disturb approximately 8.31 acres. The second is construction that will include construction of the multifamily residential development, construction of new pavement area, landscaping and site cleanup. This will disturb approximately 8.31 acres.

ATTACHMENT D

CAROLINE AT SONTERRA

Water Pollution Abatement Plan Modification

Attachment D – Temporary Best Management Practices and Measures

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.

No upgradient water will cross the site. Upgradient water will be intercepted through storm drains and routed around the site. All TBMPs are adequate for the drainage areas they serve.

b. 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.

Site preparation, which is the initiation of all activity on the project, will disturb the largest amount of soil. Therefore, before any of this work can begin, the clearing and grading contractor will be responsible for the installation of all on-site control measures. The methodology for pollution prevention of on-site stormwater will include: (1) erection of silt fences along the downgradient boundary of construction activities for temporary erosion and sedimentation controls, (2) installation of rock berms with silt fencing downgradient from areas of concentrated stormwater flow for temporary erosion control, (3) Installation of gravel bags and drain inlet protection at inlets and downgradient areas of construction activities for sediment control (4) installation of stabilized construction entrance/exit(s) to reduce the dispersion of sediment from the site, and (5) installation of construction staging area(s).

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

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

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

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

CAROLINE AT SONTERRA

Water Pollution Abatement Plan Modification

- d. 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.

BMP measures utilized in this plan are intended to allow stormwater to continue downstream after passing through the BMPs. This will allow stormwater runoff to continue downgradient to streams or features that may exist downstream of the site.

ATTACHMENT F

CAROLINE AT SONTERRA

Water Pollution Abatement Plan Modification

Attachment F – Structural Practices

The following structural measures will be installed prior to the initiation of site preparation activities:

- Erection of silt fences along the downgradient boundary of construction activities and rock berms with silt fence for secondary protection, as located on Exhibit 1 and illustrated in Exhibit 2.
- Installation of gravel bags and drain inlet protection at inlets and downgradient areas of construction activities, as located on Exhibit 1 and illustrated in Exhibit 2.
- Installation of stabilized construction entrance/exit(s) and construction staging area(s), as located on Exhibit 1, and illustrated on Exhibit 2.

The following structural measures will be installed at the initiation of construction activities or as appropriate based on the construction sequencing:

- Installation of concrete truck washout pit(s), as required and located on Exhibit 1 and illustrated on Exhibit 2.

ATTACHMENT G

CAROLINE AT SONTERRA
Water Pollution Abatement Plan

Attachment G – Drainage Area Map

No more than ten (10) acres will be disturbed. All TBMPs utilized are adequate for the drainage areas served.

ATTACHMENT I

CAROLINE AT SONTERRA

Water Pollution Abatement Plan Modification

INSPECTIONS

Designated and qualified person(s) shall inspect Pollution Control Measures weekly and within 24 hours after a storm event. An inspection report that summarizes the scope of the inspection, names and qualifications of personnel conducting the inspection, date of the inspection, major observations, and actions taken as a result of the inspection shall be recorded and maintained as part of Storm Water TPDES data for a period of three years after the Notice of Termination (NOT) has been filed. A copy of the Inspection Report Form is provided in this Storm Water Pollution Prevention Plan.

As a minimum, the inspector shall observe: (1) significant disturbed areas for evidence of erosion, (2) storage areas for evidence of leakage from the exposed stored materials, (3) structural controls (rock berm outlets, silt fences, drainage swales, etc.) for evidence of failure or excess siltation (over 6 inches deep), (4) vehicle exit point for evidence of off-site sediment tracking, (5) vehicle storage areas for signs of leaking equipment or spills, (6) concrete truck rinse-out pit for signs of potential failure, (7) embankment, spillways, and outlet of sediment basin (where applicable) for erosion damage, and (8) sediment basins (where applicable) for evidence that basin has accumulated 50% of its volume in silt. Deficiencies noted during the inspection will be corrected and documented within seven calendar days following the inspection or before the next anticipated storm event if practicable.

Contractor shall review Sections 1.3 and 1.4 of TCEQ's Technical Guidance Manual for additional BMP inspection and maintenance requirements.

CAROLINE AT SONTERRA

Water Pollution Abatement Plan Modification

Pollution Prevention Measure	Inspected in Compliance	Corrective Action Required	
		Description (use additional sheet if necessary)	Date Completed
Best Management Practices			
Natural vegetation buffer strips			
Temporary vegetation			
Permanent vegetation			
Sediment control basin			
Silt fences			
Rock berms			
Gravel filter bags			
Drain inlet protection			
Other structural controls			
Vehicle exits (off-site tracking)			
Material storage areas (leakage)			
Equipment areas (leaks, spills)			
Concrete washout pit (leaks, failure)			
General site cleanliness			
Trash receptacles			
Evidence of Erosion			
Site preparation			
Roadway or parking lot construction			
Utility construction			
Drainage construction			
Building construction			
Major Observations			
Sediment discharges from site			
BMPs requiring maintenance			
BMPs requiring modification			
Additional BMPs required			

_____ A brief statement describing the qualifications of the inspector is included in this SWP3.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

"I further certify I am an authorized signatory in accordance with the provisions of 30 TAC §305.128."

Inspector's Name

Inspector's Signature

Date

CAROLINE AT SONTERRA

Water Pollution Abatement Plan Modification

PROJECT MILESTONE DATES

Date when major site grading activities begin:

<u>Construction Activity</u>	<u>Date</u>
Installation of BMPs	
_____	_____
_____	_____
_____	_____
_____	_____

Dates when construction activities temporarily or permanently cease on all or a portion of the project:

<u>Construction Activity</u>	<u>Date</u>
_____	_____
_____	_____
_____	_____
_____	_____

Dates when stabilization measures are initiated:

<u>Stabilization Activity</u>	<u>Date</u>
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
Removal of BMPs	
_____	_____

ATTACHMENT J

CAROLINE AT SONTERRA

Water Pollution Abatement Plan

Attachment J - Schedule of Interim and Permanent Soil Stabilization Practices

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

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

**PERMANENT STORMWATER
SECTION (TCEQ-0600)**

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)(li), (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: Taylor G. Dawson, P.E.

Date: 4/20/23

Signature of Customer/Agent



Regulated Entity Name: Caroline at Sonterra

Permanent Best Management Practices (BMPs)

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

- Permanent BMPs and measures must be implemented to control the discharge of pollution from regulated activities after the completion of construction.
 N/A
- 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

CAROLINE AT SONTERRA

Water Pollution Abatement Plan Modification

Attachment B – BMPs for Upgradient Stormwater

Upgradient flows will be routed around the site and will not flow across the project limits.

The proposed Permanent Best Management Practices (PBMPs) for stormwater treatment is one (1) previously approved regional water quality basin (EAPP ID No. 2784.00), which has been designed and constructed in accordance with the TCEQ's Technical Guidance Manual (TGM) RG-348 (2005) to remove 80% of the increase in Total Suspended Solids (TSS) from the site.

ATTACHMENT C

CAROLINE AT SONTERRA

Water Pollution Abatement Plan Modification

Attachment C – BMPs for On-Site Stormwater

The proposed Permanent Best Management Practices (PBMPs) for stormwater treatment is one (1) previously approved regional water quality basin (EAPP ID No. 2784.00), which has been designed and constructed in accordance with the TCEQ's Technical Guidance Manual (TGM) RG-348 (2005) to remove 80% of the increase in Total Suspended Solids (TSS) from the site.

ATTACHMENT D

CAROLINE AT SONTERRA

Water Pollution Abatement Plan Modification

Attachment D – BMPs for Surface Streams

The proposed Permanent Best Management Practices (PBMPs) for stormwater treatment is one (1) previously approved regional water quality basin (EAPP ID No. 2784.00), which has been designed and constructed in accordance with the TCEQ's Technical Guidance Manual (TGM) RG-348 (2005) to remove 80% of the increase in Total Suspended Solids (TSS) from the site.

ATTACHMENT F

CAROLINE AT SONTERRA
Water Pollution Abatement Plan Modification

Attachment F – Construction Plans

Please refer to the Exhibits Section of this application for the Water Pollution Abatement Site Plans.

ATTACHMENT G

**SONTERRA 281 PLAZA
Permanent Pollution Abatement Measures**

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

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

It should also be noted that the timing and procedures presented herein are general guidelines, adjustment to the timing and procedures may have to be made depending on project specific characteristics as well as weather related conditions.

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

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

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



Signature

3/5/08
Date

Gregory Jones
Vice President, Business Development

CIRI Sonterra 281, LLC

SONTERRA 281 PLAZA
Permanent Pollution Abatement Measures

**INSPECTION AND MAINTENANCE SCHEDULE
 FOR
 PERMANENT POLLUTION ABATEMENT MEASURES**

Recommended Frequency	Task to be Performed													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
After Rainfall	√							√	√	√	√		√	
Biannually*	√	√	√	√	√	√	√	√	√		√	√	√	√

**At least one biannual inspection must occur during or immediately after a rainfall event.
 √Indicates maintenance procedure that applies to this specific site.*

See description of maintenance task to be performed on the following pages. Frequency of maintenance tasks may vary depending on amount of rainfall and other weather related conditions.

A written record should be kept of inspection results and maintenance performed.

<u>Task No. & Description</u>	<u>Included in this project</u>	
1. Check Depth of Vegetation	Yes	No
2. Check Depth of Silt Deposit in Basin	Yes	No
3. Removal of Debris and Trash	Yes	No
4. Cut-off Valve	Yes	No
5. Inlet Splash Pad	Yes	No
6. Underdrain System	Yes	No
7. Structural Integrity	Yes	No
8. Discharge Pipe	Yes	No
9. Drawdown Time	Yes	No
10. Vegetated Filter Strips	Yes	No
11. For Pump Stations	Yes	No
12. For Pump Stations	Yes	No
13. For Pump Stations	Yes	No
14. Visually Inspect Security Fencing for Damage or Breach	Yes	No

SONTERRA 281 PLAZA
Permanent Pollution Abatement Measures

**MAINTENANCE PROCEDURES FOR PERMANENT POLLUTION ABATEMENT
MEASURES**

Note: Additional guidance can be obtained from TCEQ's Technical Guidance Manual (TGM) RG-348 (2005) Section 3.5.

1. Check Depth of Vegetation. Vegetation in the basin shall not exceed 18-inches in depth. When vegetation needs to be cut, it shall be cut to an approximately 4-inch height. *A written record should be kept of inspection results and maintenance performed.*

2. Check Depth of Silt Deposit in Basin. Top of cleanouts shall be set 4-inches above sand layer. When silt has accumulated to top of cleanouts, the silt shall be removed the top 2 inches of the sand media shall also be removed and replaced with clean silica based sand. Written record should be kept of inspection results and maintenance performed.

3. Removal of Debris and Trash. The basin and inlet structure shall be checked for the accumulation of debris and trash such as brush, limbs, leaves, paper cups, aluminum cans, plastic bottles etc. Accumulated trash and debris shall be raked or collected from the basin and inlet structure and disposed of properly. *Written record should be kept of inspection results and maintenance performed.*

4. Cut-off Valve. The cut-off valve shall be turned to confirm full opening and full closure. Prior to operating the valve, the valve setting shall be checked to determine the position to which the valve is to be returned (which should limit drawdown time of the basin between 24-hours and 48-hours). Count should be kept of number of turns to open and close the valve so that the valve can be reset to the starting position. Defects in the operation of the cut-off valve shall be corrected within 7 working days. *A written record should be kept of inspection results and maintenance performed.*

SONTERRA 281 PLAZA

Permanent Pollution Abatement Measures

5. Inlet Splash Pad. The filter area around the inlet splash pad shall be checked for erosion and for the condition of the rock rubble. Erosion or disturbance of the rock rubble should be corrected by removing the rock rubble, restoring missing sand media to appropriate depth and replacement of the rock rubble. If the condition persists in subsequent inspections, the size of the rock rubble should be increased. Rubble should be placed to a density that minimizes the amount of exposed sand between the rock rubble. Deficiencies should be corrected within seven working days. *A written record should be kept of inspection results and maintenance performed.*

6. Underdrain System. The underdrain system shall be visually inspected for the accumulation of silt in the pipe system. The pipe clean-outs shall have the caps removed and visually inspected for accumulation of silt deposits. If silt deposits appear to have accumulated so as to significantly reduce the drain capacity of the pipes then maintenance shall be performed. When silt deposits have accumulated to the stage described above, the clean-outs and drainpipes can be flushed with a high-pressure water flushing process. Clean-out caps must be replaced onto the clean-outs after maintenance so as to avoid the possibility of short circuiting the filtering process. Sediment accumulation at outlet pipe or in wet well due to flushing shall be removed and disposed of properly. *A written record should be kept of inspection results and the maintenance performed.*

7. Structural Integrity. In addition to Items 1 through 6 the following are measures which should be reviewed during a check of structural integrity:
 - Observe the height of the confining berm for visible signs of erosion or potential breach. Signs of erosion should be corrected within 2 weeks or immediately in case of emergency conditions. Corrective measures include but are not limited to addition of topsoil or appropriate soil material so as to restore the original berm height of the sand filter basin. Restored areas shall be protected through placement of block sod in a checkerboard pattern.

SONTERRA 281 PLAZA

Permanent Pollution Abatement Measures

- Bypass of filter process. This condition can manifest itself in several ways. One way is by visually inspecting the clean-outs for accumulation of silt as described in Item 6. Significant accumulations of silt could be a sign of a torn filter fabric. Observations should be made over several inspection cycles to determine whether the condition persists. A second non-intrusive way of making observations for structural condition would be to visually look for collapsed or depressed areas along the edge of the filter media interface with basin side slope. If condition exists, corrective action should be performed within 15 working days. Removal of sand and replacement of filter fabric and/or pipe and gravel may be necessary. *A written record should be kept of inspection results and corrective measures taken.*
8. Discharge Pipe. The basin discharge pipe shall be checked for accumulation of silt, debris or other obstructions which could block flow. Soil accumulations, vegetative overgrowth and other blockages should be cleared from the pipe discharge point. Erosion at the point of discharge shall be monitored. If erosion occurs, the addition of rock rubble to disperse the flow should be accomplished. *A written record should be kept of inspection results and corrective measures taken*
9. Drawdown Time. This characteristic can be a sign of the need for maintenance. The minimum drawdown time is 24 hours. If drawdown time is less than 24 hours, the gate valve shall be checked and partially closed to limit the drawdown time. Extensive drawdown time greater than 48 hours may indicated blockage of the sand media, the underdrain system and/or the discharge pipe. Corrective actions should be performed and completed within 15 working days. *A written record of the inspection findings and corrective actions performed should be made.*
10. Vegetated Filter Strips. Vegetation height for native grasses shall be limited to no more than 18-inches. When vegetation exceeds that height, the filter strip shall be cut to a height of

SONTERRA 281 PLAZA

Permanent Pollution Abatement Measures

approximately 4 inches. Turf grass shall be limited to a height of 4-inches with regular maintenance that utilizes a mulching mower. Trash and debris shall be removed from filter strip prior to cutting. Check filter strip for signs of concentrated flow and erosion. Areas of filter strip showing signs of erosion shall be repaired by scarifying the eroded area, reshaping, regrading and placement of block sod in a checkerboard pattern over the affected area. *A written record of the inspection findings and corrective actions performed should be made*

11. For Pump Stations. Check wet well discharge pipe to confirm flow through the pump system. If flow is not present, allow sufficient time for pump to cycle on and off. If flow does not occur, the wet well should be checked for the level of water. The wet well should be opened and the on/off float switches should be moved up and down to activate the pump. If the pump does not start, a repair technician shall be called in to repair the malfunction within 5 working days. *A written record of the inspection findings and corrective actions performed should be made*

12. For Pump Stations. Check the wet well for accumulation for trash, debris and silt. Trash and debris shall be removed and disposed of properly. Silt depth can be checked by probing the bottom of the wet well with a stick or PVC pipe. Silt accumulations should be removed when silt collects to a depth of 6 inches over the entire wet well bottom. Silt can be removed by vacuum pump method. If silt buildup continues, underdrain system shall be inspected. *Written record should be kept of inspection results and maintenance performed.*

13. For Pump Stations. Visually check aboveground pump wiring and connections for damage. Damaged or loose connections should be repaired within 5 working days. *A written record should be kept of inspection results and the maintenance performed.*

SONTERRA 281 PLAZA
Permanent Pollution Abatement Measures

14. Visually Inspect Security Fencing for Damage or Breach. Check maintenance access gates for proper operation. Damage to fencing or gates shall be repaired within 5 working days. *A written record should be kept of inspection results and maintenance performed.*

ATTACHMENT I

CAROLINE AT SONTERRA

Water Pollution Abatement Plan Modification

Attachment I – Measures for Minimizing Surface Stream Contamination

Any points where discharge from the site is concentrated and erosive velocities exist will include appropriately sized energy dissipators to reduce velocities to non-erosive levels.

AGENT AUTHORIZATION FORM
(TCEQ-0599)

SIGNATURE PAGE:

[Signature]
Applicant's Signature

4-13-2023
Date

THE STATE OF Alaska §

County of Third Judicial District §

BEFORE ME, the undersigned authority, on this day personally appeared Chad Nugent known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that (s)he executed same for the purpose and consideration therein expressed.

GIVEN under my hand and seal of office on this 13th day of April, 2023

[Signature]
NOTARY PUBLIC

Kiyam Irwin
Typed or Printed Name of Notary



MY COMMISSION EXPIRES: 8/21/25

**APPLICATION FEE FORM
(TCEQ-0574)**

Application Fee Form

Texas Commission on Environmental Quality

Name of Proposed Regulated Entity: Caroline at Sonterra

Regulated Entity Location: Approx. 0.5 mi E of Hardy Oak Blvd and E Sonterra Blvd intersection, San Antonio, TX 78258

Name of Customer: CIRI Sonterra 281, LLC

Contact Person: Chad Nugent

Phone: (907) 2263-5517

Customer Reference Number (if issued): CN 603338344

Regulated Entity Reference Number (if issued): RN 105486187

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

San Antonio Regional Office

Mailed to: TCEQ - Cashier

Overnight Delivery to: TCEQ - Cashier

Revenues Section

12100 Park 35 Circle

Mail Code 214

Building A, 3rd Floor

P.O. Box 13088

Austin, TX 78753

Austin, TX 78711-3088

(512)239-0357

Site Location (Check All That Apply):

Recharge Zone

Contributing Zone

Transition Zone

<i>Type of Plan</i>	<i>Size</i>	<i>Fee Due</i>
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	8.31 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	\$

Date: 4/20/23

Signature: 

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

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

Organized Sewage Collection Systems and Modifications

<i>Project</i>	<i>Cost per Linear Foot</i>	<i>Minimum Fee- Maximum Fee</i>
Sewage Collection Systems	\$0.50	\$650 - \$6,500

Underground and Aboveground Storage Tank System Facility Plans and Modifications

<i>Project</i>	<i>Cost per Tank or Piping System</i>	<i>Minimum Fee- Maximum Fee</i>
Underground and Aboveground Storage Tank Facility	\$650	\$650 - \$6,500

Exception Requests

<i>Project</i>	<i>Fee</i>
Exception Request	\$500

Extension of Time Requests

<i>Project</i>	<i>Fee</i>
----------------	------------

<i>Project</i>	<i>Fee</i>
Extension of Time Request	\$150

**CORE DATA FORM
(TCEQ-10400)**



TCEQ Use Only

TCEQ Core Data Form

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

SECTION I: General Information

1. Reason for Submission (If other is checked please describe in space provided.)		
<input checked="" type="checkbox"/> New Permit, Registration or Authorization (Core Data Form should be submitted with the program application.)		
<input type="checkbox"/> Renewal (Core Data Form should be submitted with the renewal form)	<input type="checkbox"/> 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 603338344		RN 105486187

SECTION II: Customer Information

4. General Customer Information		5. Effective Date for Customer Information Updates (mm/dd/yyyy)		
<input type="checkbox"/> New Customer		<input type="checkbox"/> Update to Customer Information		<input type="checkbox"/> Change in Regulated Entity Ownership
<input type="checkbox"/> 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:	
CIRI Sonterra 281, 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)	
0800914009	32034355555	26-1624562		
11. Type of Customer:	<input checked="" type="checkbox"/> Corporation	<input type="checkbox"/> Individual	Partnership: <input type="checkbox"/> General <input type="checkbox"/> Limited	
Government: <input type="checkbox"/> City <input type="checkbox"/> County <input type="checkbox"/> Federal <input type="checkbox"/> State <input type="checkbox"/> Other	<input type="checkbox"/> Sole Proprietorship	<input type="checkbox"/> Other:		
12. Number of Employees		13. Independently Owned and Operated?		
<input type="checkbox"/> 0-20 <input type="checkbox"/> 21-100 <input type="checkbox"/> 101-250 <input type="checkbox"/> 251-500 <input type="checkbox"/> 501 and higher		<input type="checkbox"/> Yes <input type="checkbox"/> No		
14. Customer Role (Proposed or Actual) – as it relates to the Regulated Entity listed on this form. Please check one of the following				
<input type="checkbox"/> Owner		<input type="checkbox"/> Operator		<input type="checkbox"/> Owner & Operator
<input type="checkbox"/> Occupational Licensee		<input type="checkbox"/> Responsible Party		<input type="checkbox"/> Voluntary Cleanup Applicant <input type="checkbox"/> Other:
15. Mailing Address:	P.O. Box 93330			
	City	Anchorage	State	AK
	ZIP	95509	ZIP + 4	3330
16. Country Mailing Information (if outside USA)			17. E-Mail Address (if applicable)	
			cnugent@ciri.com	
18. Telephone Number		19. Extension or Code		20. Fax Number (if applicable)
(907) 263-5517				() -

SECTION III: Regulated Entity Information

21. General Regulated Entity Information (If 'New Regulated Entity' is selected below this form should be accompanied by a permit application)	
<input type="checkbox"/> New Regulated Entity <input type="checkbox"/> Update to Regulated Entity Name <input checked="" type="checkbox"/> Update to Regulated Entity Information	
The Regulated Entity Name submitted may be updated in order to meet TCEQ Agency Data Standards (removal of organizational endings such as Inc, LP, or LLC).	
22. Regulated Entity Name (Enter name of the site where the regulated action is taking place.)	
Caroline at Sonterra	

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

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:	Approx. 0.5 mi east of Hardy Oak Blvd and E Sonterra Blvd intersection						
26. Nearest City					State	Nearest ZIP Code	
San Antonio					TX	78258	
27. Latitude (N) In Decimal:	29.614486			28. Longitude (W) In Decimal:	-98.470055		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds		
29	36	52.2	-98	28	12.2		
29. Primary SIC Code (4 digits)	30. Secondary SIC Code (4 digits)	31. Primary NAICS Code (5 or 6 digits)		32. Secondary NAICS Code (5 or 6 digits)			
1522	1623	236116		237110			
33. What is the Primary Business of this entity? <i>(Do not repeat the SIC or NAICS description.)</i>							
Multifamily residential							
34. Mailing Address:	P.O. Box 93330						
	City	Anchorage	State	AK	ZIP	95509	ZIP + 4 3330
35. E-Mail Address:	cnuigent@ciri.com						
36. Telephone Number	37. Extension or Code			38. Fax Number (if applicable)			
(907) 263-5517				() -			

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.

<input type="checkbox"/> Dam Safety	<input type="checkbox"/> Districts	<input checked="" type="checkbox"/> Edwards Aquifer	<input type="checkbox"/> Emissions Inventory Air	<input type="checkbox"/> Industrial Hazardous Waste
<input type="checkbox"/> Municipal Solid Waste	<input type="checkbox"/> New Source Review Air	<input type="checkbox"/> OSSF	<input type="checkbox"/> Petroleum Storage Tank	<input type="checkbox"/> PWS
<input type="checkbox"/> Sludge	<input type="checkbox"/> Storm Water	<input type="checkbox"/> Title V Air	<input type="checkbox"/> Tires	<input type="checkbox"/> Used Oil
<input type="checkbox"/> Voluntary Cleanup	<input type="checkbox"/> Waste Water	<input type="checkbox"/> Wastewater Agriculture	<input type="checkbox"/> Water Rights	<input type="checkbox"/> Other:

SECTION IV: Preparer Information

40. Name:	Jean Autrey, P.E., CESSWI	41. Title:	Senior Project Engineer
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(210) 375-9000		(210) 375-9010	jautrey@pape-dawson.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:	Pape-Dawson Engineers, Inc.	Job Title:	Senior Vice President
Name (In Print):	Taylor G. Dawson, P.E.	Phone:	(210) 375- 9000
Signature:		Date:	4 / 20 / 23

POLLUTANT LOAD AND REMOVAL CALCULATIONS

Table 1: BMP Summary								
Drainage Area	Total Area (ac)	Impervious Cover (ac)	Req. WQV (ft ³)	Design WQV (ft3)	Req. SFA (ft3)	Design SFA (ft3)	Calc. TSS Removal	Design TSS Removal
¹ Basin A (underground, sand filter basin, EAPP ID 2784.00)								
<u>Basin A Design Information</u>								
² Basin A	15.28	10.9	69,131	72,900	5,761	9,000	9,335	10,133
Uncaptured A2 (on site)	0.02	0.02	---	---	---	---	16	---
Uncaptured A3 (on site)	0.01	0.01	---	---	---	---	8	---
Uncaptured A5 (on site)	0.06	0.04	---	---	---	---	33	---
Uncaptured A1 (on site)	1.75	0.47	---	---	---	---	384	---
WS A w/in Lot 9	2.17	1.46	---	---	---	---	1,191	---
WS A w/in Lot 8	1.723	1.271	---	---	---	---	1,037	---
WS A - Remainder of Development	11.387	8.169	---	---	---	---	6,666	---
Sub Total	17.12	11.44	---	---	---	---	9,335	10,133
³ Basin B (Existing Aqualogic™ Basin)								
<u>Basin B Design Information</u>								
⁴ Basin B	4.34	4.12	---	---	---	---	3,362	4,066
⁶ Captured B1 (off site)	0.48	0.32	---	---	---	---	261	---
*WS B w/in Lot 8	2.12	1.64	---	---	---	---	1,053	---
*WS B w/in Lot 9	2.22	1.52	---	---	---	---	1,240	---
Sub Total	4.82	3.48	---	---	---	---	2,554	4,066
⁵ DP	1.92	0.00	---	---	---	---	---	---
Total	23.86	14.92	---	---	---	---	11,889	14,199

WQV - Water Quality
Volume SFA - Sand Filter
Area
DP - Detention Ponds

¹ The filtration system for the sand filter basin will consist of:
• Washed concrete sand (ASTM C-33), which is 18 inches thick,
• Underdrain piping covered with geotextile membrane, and
• Concrete impervious Liner

² Includes 0.03 ac of offsite area with 0.026 ac of impervious cover.

³ A summary of the approved basin, taken from the EAPP # 2266.02 approval letter, can be seen above.

⁴ Basin was designed to treat 95% (4.12 ac) impervious cover from CIRI site.

⁵ Area to be used for a series of detention ponds to satisfy municipal storm water requirements.

⁶ Captured Area B1 (off-site) was included in the Villages III ultimate watershed of 7.47-acres.

* Impervious Cover area is based on maximum allowable of 95% IC treatment capacity w/in Aqualogic Basin (Basin B). - Watershed B within Lot 9

EXHIBITS

