Administrative Package Cover Page

This file contains the following documents:

1. Summary of application (in plain language)
2. First Notice (NORI-Notice of Receipt of Application and Intent to Obtain a Permit)
3. Application Materials

SECTION 15. PLAIN LANGUAGE SUMMARY

White Rocks Entertainment LLC proposes to operate White Rocks Treatment Facility, an activated sludge treatment plant. The facility will be located near the intersection of Hwy 71 and Southwest Parkway in Travis County, Texas.

Applicant requests a TLAP permit for wastewater disposal. This permit will not authorize a discharge of pollutants into water in the state. Discharges from the facility are expected to contain organic and nutrient materials from domestic wastewater sources. The raw wastewater will be treated in an activated sludge-based treatment plant to provide an effluent quality suitable for drip irrigation.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

NOTICE OF RECEIPT OF APPLICATION AND INTENT TO OBTAIN WATER QUALITY PERMIT

PROPOSED PERMIT NO. WQ0016547001

APPLICATION. White Rocks Entertainment LLC, 3300 Bee Caves Road, Suite 650-1313, West Lake Hills, Texas 78746, has applied to the Texas Commission on Environmental Quality (TCEQ) for proposed Texas Land Application Permit (TLAP) No. WQ0016547001 to authorize the disposal of treated wastewater at a volume not to exceed a daily average flow of 120,000 gallons per day via subsurface area drip dispersal system on a minimum area of approximately 27.43 acres. The domestic wastewater treatment facility and disposal area will be located at 10549 West Highway 71, near the city of Bee Cave, in Travis County, Texas 78736. TCEQ received this application on May 20, 2024. The permit application will be available for viewing and copying at Bee Cave Public Library, 4000 Galleria Parkway, Bee Cave, in Travis County, Texas, prior to the date this notice is published in the newspaper. The application, including any updates, and associated notices are available electronically at the following webpage: https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tlap-applications.
This link to an electronic map of the site or facility's general location is provided as a public courtesy and not part of the application or notice. For the exact location, refer to the application.
https://gisweb.tceq.texas.gov/LocationMapper/?marker=-97.91562,30.276774&level=18

ADDITIONAL NOTICE. TCEQ's Executive Director has determined the application is administratively complete and will conduct a technical review of the application. After technical review of the application is complete, the Executive Director may prepare a draft permit and will issue a preliminary decision on the application. **Notice of the Application and Preliminary Decision will be published and mailed to those who are on the county-wide mailing list and to those who are on the mailing list for this application. That notice will contain the deadline for submitting public comments.**

PUBLIC COMMENT / PUBLIC MEETING. You may submit public comments or request a public meeting on this application. The purpose of a public meeting is to provide the opportunity to submit comments or to ask questions about the application. TCEQ will hold a public meeting if the Executive Director determines that there is a significant degree of public interest in the application or if requested by a local legislator. A public meeting is not a contested case hearing.

OPPORTUNITY FOR A CONTESTED CASE HEARING. After the deadline for submitting public comments, the Executive Director will consider all timely comments and prepare a response to all relevant and material, or significant public comments. **Unless the application**

is directly referred for a contested case hearing, the response to comments, and the Executive Director's decision on the application, will be mailed to everyone who submitted public comments and to those persons who are on the mailing list for this application. If comments are received, the mailing will also provide instructions for requesting reconsideration of the Executive Director's decision and for requesting a contested case hearing. A contested case hearing is a legal proceeding similar to a civil trial in state district court.

TO REQUEST A CONTESTED CASE HEARING, YOU MUST INCLUDE THE FOLLOWING ITEMS IN YOUR REQUEST: your name, address, phone number; applicant's name and proposed permit number; the location and distance of your property/activities relative to the proposed facility; a specific description of how you would be adversely affected by the facility in a way not common to the general public; a list of all disputed issues of fact that you submit during the comment period and, the statement "[I/we] request a contested case hearing." If the request for contested case hearing is filed on behalf of a group or association, the request must designate the group's representative for receiving future correspondence; identify by name and physical address an individual member of the group who would be adversely affected by the proposed facility or activity; provide the information discussed above regarding the affected member's location and distance from the facility or activity; explain how and why the member would be affected; and explain how the interests the group seeks to protect are relevant to the group's purpose.

Following the close of all applicable comment and request periods, the Executive Director will forward the application and any requests for reconsideration or for a contested case hearing to the TCEQ Commissioners for their consideration at a scheduled Commission meeting.

The Commission may only grant a request for a contested case hearing on issues the requestor submitted in their timely comments that were not subsequently withdrawn. **If a hearing is granted, the subject of a hearing will be limited to disputed issues of fact or mixed questions of fact and law relating to relevant and material water quality concerns submitted during the comment period.**

MAILING LIST. If you submit public comments, a request for a contested case hearing or a reconsideration of the Executive Director's decision, you will be added to the mailing list for this specific application to receive future public notices mailed by the Office of the Chief Clerk. In addition, you may request to be placed on: (1) the permanent mailing list for a specific applicant name and permit number; and/or (2) the mailing list for a specific county. If you wish to be placed on the permanent and/or the county mailing list, clearly specify which list(s) and send your request to TCEQ Office of the Chief Clerk at the address below.

INFORMATION AVAILABLE ONLINE. For details about the status of the application, visit the Commissioners' Integrated Database at www.tceq.texas.gov/goto/cid. Search the database using the permit number for this application, which is provided at the top of this notice.

AGENCY CONTACTS AND INFORMATION. All public comments and requests must be submitted either electronically at **https://www14.tceq.texas.gov/epic/eComment/**, or in writing to the Texas Commission on Environmental Quality, Office of the Chief Clerk, MC-105, P.O. Box 13087, Austin, Texas 78711-3087. Please be aware that any contact information you provide, including your name, phone number, email address and physical address will become part of the agency's public record. For more information about this permit

application or the permitting process, please call the TCEQ Public Education Program, Toll Free, at 1-800-687-4040 or visit their website at www.tceq.texas.gov/goto/pep. Si desea información en Español, puede llamar al 1-800-687-4040.

Further information may also be obtained from White Rocks Entertainment LLC at the address stated above or by calling Mr. Andy Barrett, Andy Barrett & Associates, PLLC, at 512-217-4956.

Issuance Date: June 12, 2024

JAMES MIERTSCHIN & ASSOCIATES, INC.
ENVIRONMENTAL ENGINEERING (TBPE F-2458)
P.O. BOX 162305 ° AUSTIN, TEXAS 78716-2305 ° (512) 327-2708

17 May 2024

Water Quality Applications Team
Texas Commission on Environmental Quality
Applications Review and Processing Team (MC148)
Building F, Room 2101
12100 Park 35 Circle
Austin, Texas 78753

RE: White Rocks Entertainment, LLC Wastewater Treatment Facility
TLAP Permit Application

Dear Sirs:

A permit application for a proposed White Rocks Entertainment, LLC Wastewater Treatment Facility located in Travis County, Texas is attached. One original and three copies of the complete application package are included and are being delivered via FedEx to the agency. The application fee has been paid electronically to the Revenues Section, and a photocopy of the voucher is included in the application.

Please do not hesitate to contact us if you have any questions or need additional information. You may contact me at (512) 327-2708 or via email at jm@jmaenv.com.

Yours truly,

JAMES MIERTSCHIN & ASSOCIATES, INC.

05/17/2024

James Miertschin, PE, PhD

cc: Chris Milam
Andy Barrett

JAMES MIERTSCHIN & ASSOCIATES, INC.
ENVIRONMENTAL ENGINEERING
P.O. BOX 162305 ° AUSTIN, TEXAS 78716-2305 ° (512) 327-2708

TLAP Permit Application

White Rocks Entertainment, LLC

Wastewater Treatment Facility

17 May 2024

TABLE OF CONTENTS

WHITE ROCKS ENTERTAINMENT, LLC PERMIT APPLICATION

LIST OF EXHIBITS TO APPLICATION

O	Well Map	Wkst 3.0, p.32, Section 6	Land application boundaries, wells within 1 and ½ mile
P	Groundwater Quality	Wkst 3.0, p.32, Section 7	
Q	Soils Report	Wkst. 3.0, p.33, Section 8	Soils on land application area, lab results
R	Recharge Features	Wkst. 3.3, p.41, Section 3.A	Recharge feature information
S	Site Preparation Plan	Wkst. 3.3, p.41, Section 3.C	Preparation guidance
T	FEMA Map	Wkst. 3.3, p.41, Section 4.B	Floodplain mapping

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17 May 2024

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Yours truly,

JAMES MIERTSCHIN & ASSOCIATES, INC.

05/17/2024

James Miertschin, PE, PhD

cc: Chris Milam
Andy Barrett

JAMES MIERTSCHIN & ASSOCIATES, INC.
ENVIRONMENTAL ENGINEERING
P.O. BOX 162305 ° AUSTIN, TEXAS 78716-2305 ° (512) 327-2708

TLAP Permit Application

White Rocks Entertainment, LLC

Wastewater Treatment Facility

17 May 2024

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TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

DOMESTIC WASTEWATER PERMIT APPLICATION CHECKLIST

Complete and submit this checklist with the application.

APPLICANT NAME: White Rocks Entertainment LLC

PERMIT NUMBER (If new, leave blank): WQ00 TBD

Indicate if each of the following items is included in your application.

	Y	N		Y	N
Administrative Report 1.0	☒	☐	Original USGS Map	☒	☐
Administrative Report 1.1	☒	☐	Affected Landowners Map	☒	☐
SPIF	☒	☐	Landowner Disk or Labels	☒	☐
Core Data Form	☒	☐	Buffer Zone Map	☒	☐
Public Involvement Plan Form	☒	☐	Flow Diagram	☒	☐
Technical Report 1.0	☒	☐	Site Drawing	☒	☐
Technical Report 1.1	☒	☐	Original Photographs	☒	☐
Worksheet 2.0	☐	☒	Design Calculations	☒	☐
Worksheet 2.1	☐	☐	Solids Management Plan	☒	☐
Worksheet 3.0	☐	☐	Water Balance	☐	☐
Worksheet 3.1	☐	☐			
Worksheet 3.2	☐	☐			
Worksheet 3.3	☐	☐			
Worksheet 4.0	☐	☐			
Worksheet 5.0	☐	☐			
Worksheet 6.0	☐	☐			
Worksheet 7.0	☐	☐			

For TCEQ Use Only

Segment Number _____County _____
Expiration Date _____Region_____
Permit Number _____

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

DOMESTIC WASTEWATER PERMIT APPLICATION ADMINISTRATIVE REPORT 1.0

For any questions about this form, please contact the Applications Review and Processing Team at 512-239-4671.

Section 1. Application Fees (Instructions Page 26)

Indicate the amount submitted for the application fee (check only one).

Flow	New/Major Amendment	Renewal
<0.05 MGD	$350.00 ☐	$315.00 ☐
≥0.05 but <0.10 MGD	$550.00 ☐	$515.00 ☐
≥0.10 but <0.25 MGD	$850.00 ☒	$815.00 ☐
≥0.25 but <0.50 MGD	$1,250.00 ☐	$1,215.00 ☐
≥0.50 but <1.0 MGD	$1,650.00 ☐	$1,615.00 ☐
≥1.0 MGD	$2,050.00 ☐	$2,015.00 ☐

Minor Amendment (for any flow) $150.00 ☐

Payment Information:

Mailed — Check/Money Order Number: Click to enter text.

Check/Money Order Amount: Click to enter text.

Name Printed on Check: NA

EPAY — Voucher Number: 705853

Copy of Payment Voucher enclosed? Yes ☒

Section 2. Type of Application (Instructions Page 26)

a. Check the box next to the appropriate authorization type.

☐ Publicly-Owned Domestic Wastewater

☒ Privately-Owned Domestic Wastewater

☐ Conventional Wastewater Treatment

b. Check the box next to the appropriate facility status.

☐ Active ☒ Inactive

c. Check the box next to the appropriate permit type.

☐ TPDES Permit

☒ TLAP

☐ TPDES Permit with TLAP component

☒ Subsurface Area Drip Dispersal System (SADDS)

d. Check the box next to the appropriate application type

☒ New

☐ Major Amendment *with* Renewal

☐ Major Amendment *without* Renewal

☐ Renewal without changes

☐ Minor Amendment *with* Renewal

☐ Minor Amendment *without* Renewal

☐ Minor Modification of permit

e. For amendments or modifications, describe the proposed changes: Click to enter text.

f. For existing permits:

Permit Number: WQ00 Click to enter text.

EPA I.D. (TPDES only): TX Click to enter text.

Expiration Date: Click to enter text.

Section 3. Facility Owner (Applicant) and Co-Applicant Information (Instructions Page 26)

A. The owner of the facility must apply for the permit.

What is the Legal Name of the entity (applicant) applying for this permit?

White Rocks Entertainment LLC

(The legal name must be spelled exactly as filed with the Texas Secretary of State, County, or in the legal documents forming the entity.)

If the applicant is currently a customer with the TCEQ, what is the Customer Number (CN)? You may search for your CN on the TCEQ website at http://www15.tceq.texas.gov/crpub/

CN: NA

What is the name and title of the person signing the application? The person must be an executive official meeting signatory requirements in *30 TAC § 305.44*.

Prefix: Mr. Last Name, First Name: Milam, Christopher

Title: President Credential: Click to enter text.

B. Co-applicant information. Complete this section only if another person or entity is required to apply as a co-permittee.

What is the Legal Name of the co-applicant applying for this permit?

Click to enter text.

(The legal name must be spelled exactly as filed with the TX SOS, with the County, or in the legal documents forming the entity.)

If the co-applicant is currently a customer with the TCEQ, what is the Customer Number (CN)? You may search for your CN on the TCEQ website at: http://www15.tceq.texas.gov/crpub/

CN: Click to enter text.

What is the name and title of the person signing the application? The person must be an executive official meeting signatory requirements in *30 TAC § 305.44*.

Prefix: Click to enter text. Last Name, First Name: Click to enter text.

Title: Click to enter text. Credential: Click to enter text.

Provide a brief description of the need for a co-permittee: Click to enter text.

C. Core Data Form

Complete the Core Data Form for each customer and include as an attachment. If the customer type selected on the Core Data Form is **Individual**, complete **Attachment 1** of Administrative Report 1.0. Attachment A

Section 4. Application Contact Information (Instructions Page 27)

This is the person(s) TCEQ will contact if additional information is needed about this application. Provide a contact for administrative questions and technical questions.

A. Prefix: Mr. Last Name, First Name: Barrett, Andy

Title: Attorney Credential: Click to enter text.

Organization Name: Andy Barrett & Associates, PLLC

Mailing Address: PO Box 12603 City, State, Zip Code: Dallas, TX, 75225

Phone No.: (512) 217-4956 E-mail Address: andy@thebarrettfirm.com

Check one or both: ☒ Administrative Contact ☐ Technical Contact

B. Prefix: Dr. Last Name, First Name: Miertschin, James

Title: Engineer Credential: PE, PhD

Organization Name: James Miertschin & Associates, Inc.

Mailing Address: PO Box 162305 City, State, Zip Code: Austin, TX 78716

Phone No.: (512) 327-2708 E-mail Address: jm@jmaenv.com

Check one or both: ☒ Administrative Contact ☒ Technical Contact

Section 5. Permit Contact Information (Instructions Page 27)

Provide the names and contact information for two individuals that can be contacted throughout the permit term.

A. Prefix: Mr. Last Name, First Name: Barrett, Andy

Title: Attorney Credential: Click to enter text.

Organization Name: Andy Barrett & Associates, PLLC

Mailing Address: PO Box 12603 City, State, Zip Code: Dallas, TX 75225

Phone No.: (512) 217-4956 E-mail Address: andy@thebarrettfirm.com

B. Prefix: Mr. Last Name, First Name: Milam, Christopher

Title: President Credential: Click to enter text.

Organization Name: White Rocks Entertainment LLC

Mailing Address: 3300 Bee Cave Road, Suite 650-1313 City, State, Zip Code: West Lake Hills, TX 78746-6600

Phone No.: (512) 923-9796 E-mail Address: cmilam@idmco.us

Section 6. Billing Contact Information (Instructions Page 27)

The permittee is responsible for paying the annual fee. The annual fee will be assessed to permits ***in effect on September 1 of each year***. The TCEQ will send a bill to the address provided in this section. The permittee is responsible for terminating the permit when it is no longer needed (using form TCEQ-20029).

Prefix: Mr. Last Name, First Name: Milam, Christopher

Title: President Credential: Click to enter text.

Organization Name: White Rocks Entertainment LLC

Mailing Address: 3300 Bee Cave Road, Suite 650-1313 City, State, Zip Code: West Lake Hills, TX 78746-6600

Phone No.: (512) 923-9796 E-mail Address: cmilam@idmco.us

Section 7. DMR/MER Contact Information (Instructions Page 27)

Provide the name and complete mailing address of the person delegated to receive and submit Discharge Monitoring Reports (DMR) (EPA 3320-1) or maintain Monthly Effluent Reports (MER).

Prefix: Mr. Last Name, First Name: Milam, Christopher

Title: President Credential: Click to enter text.

Organization Name: White Rocks Entertainment LLC

Mailing Address: 3300 Bee Cave Road, Suite 650-1313 City, State, Zip Code: West Lake Hills, TX 78746-6600

Phone No.: (512) 923-9796 E-mail Address: cmilam@idmco.us

Section 8. Public Notice Information (Instructions Page 27)

A. Individual Publishing the Notices

Prefix: Mr. Last Name, First Name: Milam, Christopher

Title: President Credential: Click to enter text.

Organization Name: White Rocks Entertainment LLC

Mailing Address: 3300 Bee Cave Road, Suite 650-1313 City, State, Zip Code: West Lake Hills, TX 78746-6600

Phone No.: (512) 923-9796 E-mail Address: cmilam@idmco.us

B. Method for Receiving Notice of Receipt and Intent to Obtain a Water Quality Permit Package

Indicate by a check mark the preferred method for receiving the first notice and instructions:

☒ E-mail Address

☐ Fax

☐ Regular Mail

C. Contact permit to be listed in the Notices

Prefix: Mr. Last Name, First Name: Barrett, Andy

Title: Attorney Credential: Click to enter text.

Organization Name: Andy Barrett & Associates PLLC

Mailing Address: PO Box 12603 City, State, Zip Code: Dallas, TX 75225

Phone No.: (512) 217-4956 E-mail Address: andy@thebarrettfirm.com

D. Public Viewing Information

If the facility or outfall is located in more than one county, a public viewing place for each county must be provided.

Public building name: Bee Cave Public Library

Location within the building: front desk

Physical Address of Building: 4000 Galleria Parkway

City: Bee Cave County: Travis

Contact (Last Name, First Name): Gretchen Hardin

Phone No.: (512) 767-6634 Ext.: Click to enter text.

E. Bilingual Notice Requirements

This information **is required** for **new, major amendment, minor amendment or minor modification, and renewal** applications.

This section of the application is only used to determine if alternative language notices will be needed. Complete instructions on publishing the alternative language notices will be in your public notice package.

Please call the bilingual/ESL coordinator at the nearest elementary and middle schools and obtain the following information to determine whether an alternative language notices are required.

1. Is a bilingual education program required by the Texas Education Code at the elementary or middle school nearest to the facility or proposed facility?

   ☐ Yes ☒ No

   If **no**, publication of an alternative language notice is not required; **skip to** Section 9 below.

2. Are the students who attend either the elementary school or the middle school enrolled in a bilingual education program at that school?

   ☐ Yes ☐ No

3. Do the students at these schools attend a bilingual education program at another location?

   ☐ Yes ☐ No

4. Would the school be required to provide a bilingual education program but the school has waived out of this requirement under 19 TAC §89.1205(g)?

   ☐ Yes ☐ No

5. If the answer is **yes** to **question 1, 2, 3, or 4**, public notices in an alternative language are required. Which language is required by the bilingual program? Click to enter text.

F. Plain Language Summary Template

Complete the Plain Language Summary (TCEQ Form 20972) and include as an attachment.

Attachment: Attachment B

G. Public Involvement Plan Form

Complete the Public Involvement Plan Form (TCEQ Form 20960) for each application for a **new permit or major amendment to a permit** and include as an attachment.

Attachment: Attachment C

Section 9. Regulated Entity and Permitted Site Information (Instructions Page 29)

A. If the site is currently regulated by TCEQ, provide the Regulated Entity Number (RN) issued to this site. **RN** NA

Search the TCEQ's Central Registry at http://www15.tceq.texas.gov/crpub/ to determine if the site is currently regulated by TCEQ.

B. Name of project or site (the name known by the community where located):

White Rocks Entertainment

C. Owner of treatment facility: White Rocks Entertainment LLC

Ownership of Facility: ☐ Public ☒ Private ☐ Both ☐ Federal

D. Owner of land where treatment facility is or will be:

Prefix: Mr. Last Name, First Name: Milam, Christopher

Title: President Credential: Click to enter text.

Organization Name: White Rocks Entertainment LLC

Mailing Address: 3300 Bee Cave Road, Suite 650-1313 City, State, Zip Code: West Lake Hills, TX 78746-6600

Phone No.: (512) 923-9796 E-mail Address: cmilam@idmco.us

If the landowner is not the same person as the facility owner or co-applicant, attach a lease agreement or deed recorded easement. See instructions.

Attachment: NA

E. Owner of effluent disposal site:

Prefix: Mr. Last Name, First Name: Milam, Christopher

Title: President Credential: Click to enter text.

Organization Name: White Rocks Entertainment LLC

Mailing Address: 3300 Bee Cave Road, Suite 650-1313 City, State, Zip Code: West Lake Hills, TX 78746-6600

Phone No.: (512) 923-9796 E-mail Address: cmilam@idmco.us

If the landowner is not the same person as the facility owner or co-applicant, attach a lease agreement or deed recorded easement. See instructions.

Attachment: NA

F. Owner sewage sludge disposal site (if authorization is requested for sludge disposal on

property owned or controlled by the applicant)::

Prefix: Click to enter text. Last Name, First Name: Click to enter text.

Title: Click to enter text. Credential: Click to enter text.

Organization Name: Click to enter text.

Mailing Address: Click to enter text. City, State, Zip Code: Click to enter text.

Phone No.: Click to enter text. E-mail Address: Click to enter text.

If the landowner is not the same person as the facility owner or co-applicant, attach a lease agreement or deed recorded easement. See instructions.

Attachment: NA

Section 10. TPDES Discharge Information (Instructions Page 31)

A. Is the wastewater treatment facility location in the existing permit accurate?

☐ Yes ☐ No

If **no**, **or a new permit application**, please give an accurate description:

New Permit Application. The WWTP will be located off SH71, approximately 1/2 mile NW of the intersection of SH71 and Southwest Parkway.

B. Are the point(s) of discharge and the discharge route(s) in the existing permit correct?

☐ Yes ☐ No

If **no**, **or a new or amendment permit application**, provide an accurate description of the point of discharge and the discharge route to the nearest classified segment as defined in 30 TAC Chapter 307:

New Permit Application. No discharge, drip irrigation.

City nearest the outfall(s): Click to enter text.

County in which the outfalls(s) is/are located: Click to enter text.

C. Is or will the treated wastewater discharge to a city, county, or state highway right-of-way, or a flood control district drainage ditch?

☐ Yes ☒ No

If **yes**, indicate by a check mark if:

☐ Authorization granted ☐ Authorization pending

For **new and amendment** applications, provide copies of letters that show proof of contact and the approval letter upon receipt.

Attachment: NA

D. For all applications involving an average daily discharge of 5 MGD or more, provide the names of all counties located within 100 statute miles downstream of the point(s) of discharge: NA

Section 11. TLAP Disposal Information (Instructions Page 32)

A. For TLAPs, is the location of the effluent disposal site in the existing permit accurate?

☐ Yes ☐ No

If **no, or a new or amendment permit application**, provide an accurate description of the disposal site location:

Disposal site will be distributed throughout the tract owned by While Rocks Entertainment LLC

B. City nearest the disposal site: Bee Cave

C. County in which the disposal site is located: Travis

D. For **TLAPs**, describe the routing of effluent from the treatment facility to the disposal site:

Treated effluent will be pumped from the treatment facility to the drip irrigation fields.

E. For **TLAPs**, please identify the nearest watercourse to the disposal site to which rainfall runoff might flow if not contained: unnamed tributaries of Barton Creek

Section 12. Miscellaneous Information (Instructions Page 32)

A. Is the facility located on or does the treated effluent cross American Indian Land?

☐ Yes ☒ No

B. If the existing permit contains an onsite sludge disposal authorization, is the location of the sewage sludge disposal site in the existing permit accurate?

☐ Yes ☐ No ☒ Not Applicable

If No, or if a new onsite sludge disposal authorization is being requested in this permit application, provide an accurate location description of the sewage sludge disposal site.

Click to enter text.

C. Did any person formerly employed by the TCEQ represent your company and get paid for service regarding this application?

☐ Yes ☒ No

If yes, list each person formerly employed by the TCEQ who represented your company and was paid for service regarding the application: Click to enter text.

D. Do you owe any fees to the TCEQ?

☐ Yes ☒ No

If **yes**, provide the following information:

Account number: Click to enter text.

Amount past due: Click to enter text.

E. Do you owe any penalties to the TCEQ?

☐ Yes ☒ No

If **yes**, please provide the following information:

Enforcement order number: Click to enter text.

Amount past due: Click to enter text.

Section 13. Attachments (Instructions Page 33)

Indicate which attachments are included with the Administrative Report. Check all that apply:

☐ Lease agreement or deed recorded easement, if the land where the treatment facility is located or the effluent disposal site are not owned by the applicant or co-applicant.

☒ Original full-size USGS Topographic Map with the following information:

- Applicant's property boundary **SEE ATTACHMENT D**
- Treatment facility boundary
- Labeled point of discharge for each discharge point (TPDES only)
- Highlighted discharge route for each discharge point (TPDES only)
- Onsite sewage sludge disposal site (if applicable)
- Effluent disposal site boundaries (TLAP only)
- New and future construction (if applicable)
- 1 mile radius information
- 3 miles downstream information (TPDES only)
- All ponds.

☐ Attachment 1 for Individuals as co-applicants

☐ Other Attachments. Please specify: Click to enter text.

Section 14. Signature Page (Instructions Page 34)

If co-applicants are necessary, each entity must submit an original, separate signature page.

Permit Number: TBD

Applicant: White Rocks Entertainment LLC

Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly 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 that I am authorized under 30 Texas Administrative Code § 305.44 to sign and submit this document, and can provide documentation in proof of such authorization upon request.

Signatory name (typed or printed): Christopher Milam

Signatory title: President

Signature: _____ Date: 5/15/24

(Use blue ink)

Subscribed and Sworn to before me by the said Christopher F Milam

on this 15 day of May, 20 24.

My commission expires on the 17 day of July, 20 24.

_____

Notary Public

CODY LANE GRIFFIN
Notary Public, State Of Texas
Expires July 17, 2024
Notary ID# 132583649

[SEAL]

Travis

County, Texas

DOMESTIC WASTEWATER PERMIT APPLICATION ADMINISTRATIVE REPORT 1.0

The following information is required for new and amendment applications.

Section 1. Affected Landowner Information (Instructions Page 36)

A. Indicate by a check mark that the landowners map or drawing, with scale, includes the following information, as applicable:**See Attachment E**

- ☒ The applicant's property boundaries
- ☒ The facility site boundaries within the applicant's property boundaries
- ☒ The distance the buffer zone falls into adjacent properties and the property boundaries of the landowners located within the buffer zone
- ☒ The property boundaries of all landowners surrounding the applicant's property (Note: if the application is a major amendment for a lignite mine, the map must include the property boundaries of all landowners adjacent to the new facility (ponds).)
- ☐ The point(s) of discharge and highlighted discharge route(s) clearly shown for one mile downstream
- ☐ The property boundaries of the landowners located on both sides of the discharge route for one full stream mile downstream of the point of discharge
- ☐ The property boundaries of the landowners along the watercourse for a one-half mile radius from the point of discharge if the point of discharge is into a lake, bay, estuary, or affected by tides
- ☒ The boundaries of the effluent disposal site (for example, irrigation area or subsurface drainfield site) and all evaporation/holding ponds within the applicant's property
- ☒ The property boundaries of all landowners surrounding the effluent disposal site
- ☐ The boundaries of the sludge land application site (for land application of sewage sludge for beneficial use) and the property boundaries of landowners surrounding the applicant's property boundaries where the sewage sludge land application site is located
- ☐ The property boundaries of landowners within one-half mile in all directions from the applicant's property boundaries where the sewage sludge disposal site (for example, sludge surface disposal site or sludge monofill) is located

B. ☒ Indicate by a check mark that a separate list with the landowners' names and mailing addresses cross-referenced to the landowner's map has been provided.

C. Indicate by a check mark in which format the landowners list is submitted:

☐ USB Drive ☒ Four sets of labels

D. Provide the source of the landowners' names and mailing addresses: Travis Co. Appraisal Dist.

E. As required by *Texas Water Code § 5.115*, is any permanent school fund land affected by this application?

☐ Yes ☒ No

If **yes**, provide the location and foreseeable impacts and effects this application has on the

land(s):

Click to enter text.

Section 2. Original Photographs (Instructions Page 38)

Provide original ground level photographs. Indicate with checkmarks that the following information is provided.**See Attachment F**

☒ At least one original photograph of the new or expanded treatment unit location

☐ At least two photographs of the existing/proposed point of discharge and as much area downstream (photo 1) and upstream (photo 2) as can be captured. If the discharge is to an open water body (e.g., lake, bay), the point of discharge should be in the right or left edge of each photograph showing the open water and with as much area on each respective side of the discharge as can be captured.

☒ At least one photograph of the existing/proposed effluent disposal site

☒ A plot plan or map showing the location and direction of each photograph

Section 3. Buffer Zone Map (Instructions Page 38)

A. Buffer zone map. Provide a buffer zone map on 8.5 x 11-inch paper with all of the following information. The applicant's property line and the buffer zone line may be distinguished by using dashes or symbols and appropriate labels.

- The applicant's property boundary; **See Attachment G**
- The required buffer zone; and
- Each treatment unit; and
- The distance from each treatment unit to the property boundaries.

B. Buffer zone compliance method. Indicate how the buffer zone requirements will be met. Check all that apply.

☒ Ownership

☐ Restrictive easement

☒ Nuisance odor control **Plant will be enclosed in a building**

☐ Variance

C. Unsuitable site characteristics. Does the facility comply with the requirements regarding unsuitable site characteristic found in 30 TAC § 309.13(a) through (d)?

☒ Yes ☐ No

DOMESTIC WASTEWATER PERMIT APPLICATION

SUPPLEMENTAL PERMIT INFORMATION FORM (SPIF)

This form applies to TPDES permit applications only. Complete and attach the Supplemental Permit information Form (SPIF) (TCEQ Form 20971).

Attachment: NA

WATER QUALITY PERMIT

PAYMENT SUBMITTAL FORM

Use this form to submit the Application Fee, if the mailing the payment.

- Complete items 1 through 5 below.
- Staple the check or money order in the space provided at the bottom of this document.
- **Do Not mail this form with the application form.**
- Do not mail this form to the same address as the application.
- Do not submit a copy of the application with this form as it could cause duplicate permit entries.

Mail this form and the check or money order to:

BY REGULAR U.S. MAIL

Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
P.O. Box 13088
Austin, Texas 78711-3088

BY OVERNIGHT/EXPRESS MAIL

Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
12100 Park 35 Circle
Austin, Texas 78753

Fee Code: WQP **Waste Permit No:** Click to enter text.

1. Check or Money Order Number: Click to enter text.
2. Check or Money Order Amount: Click to enter text.
3. Date of Check or Money Order: Click to enter text.
4. Name on Check or Money Order: Click to enter text.
5. APPLICATION INFORMATION

   Name of Project or Site: White Rocks Entertainment LLC

   Physical Address of Project or Site: Off SH71 1/2 mile NW of the intersection with Southwest Parkway.

   If the check is for more than one application, attach a list which includes the name of each Project or Site (RE) and Physical Address, exactly as provided on the application.

Staple Check or Money Order in This Space

ATTACHMENT 1

INDIVIDUAL INFORMATION

Section 1. Individual Information (Instructions Page 41)

Complete this attachment if the facility applicant or co-applicant is an individual. Make additional copies of this attachment if both are individuals.

Prefix (Mr., Ms., Miss): NA

Full legal name (Last Name, First Name, Middle Initial): Click to enter text.

Driver's License or State Identification Number: Click to enter text.

Date of Birth: Click to enter text.

Mailing Address: Click to enter text.

City, State, and Zip Code: Click to enter text.

Phone Number: Click to enter text. Fax Number: Click to enter text.

E-mail Address: Click to enter text.

CN: Click to enter text.

For Commission Use Only:
Customer Number:
Regulated Entity Number:
Permit Number:

DOMESTIC WASTEWATER PERMIT APPLICATION CHECKLIST OF COMMON DEFICIENCIES

Below is a list of common deficiencies found during the administrative review of domestic wastewater permit applications. To ensure the timely processing of this application, please review the items below and indicate by checking Yes that each item is complete and in accordance applicable rules at 30 TAC Chapters 21, 281, and 305. If an item is not required this application, indicate by checking N/A where appropriate. Please do not submit the application until the items below have been addressed.

Core Data Form (TCEQ Form No. 10400) ☒ Yes
(Required for all application types. Must be completed in its entirety and signed. Note: Form may be signed by applicant representative.)

Correct and Current Industrial Wastewater Permit Application Forms ☒ Yes
(TCEQ Form Nos. 10053 and 10054. Version dated 6/25/2018 or later.)

Water Quality Permit Payment Submittal Form (Page 19) ☒ Yes
(Original payment sent to TCEQ Revenue Section. See instructions for mailing address.)

7.5 Minute USGS Quadrangle Topographic Map Attached ☒ Yes
(Full-size map if seeking "New" permit. 8 ½ x 11 acceptable for Renewals and Amendments)

Current/Non-Expired, Executed Lease Agreement or Easement ☒ N/A ☐ Yes

Landowners Map ☐ N/A ☒ Yes
(See instructions for landowner requirements)

Things to Know:

- All the items shown on the map must be labeled.
- The applicant's complete property boundaries must be delineated which includes boundaries of contiguous property owned by the applicant.
- The applicant cannot be its own adjacent landowner. You must identify the landowners immediately adjacent to their property, regardless of how far they are from the actual facility.
- If the applicant's property is adjacent to a road, creek, or stream, the landowners on the opposite side must be identified. Although the properties are not adjacent to applicant's property boundary, they are considered potentially affected landowners. If the adjacent road is a divided highway as identified on the USGS topographic map, the applicant does not have to identify the landowners on the opposite side of the highway.

Landowners Cross Reference List ☐ N/A ☒ Yes
(See instructions for landowner requirements)

Landowners Labels or USB Drive attached ☐ N/A ☒ Yes
(See instructions for landowner requirements)

Original signature per 30 TAC § 305.44 – Blue Ink Preferred ☒ Yes
(If signature page is not signed by an elected official or principle executive officer, a copy of signature authority/delegation letter must be attached)

Plain Language Summary ☒ Yes

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

DOMESTIC WASTEWATER PERMIT APPLICATION TECHNICAL REPORT 1.0

For any questions about this form, please contact the Domestic Wastewater Permitting Team at 512-239-4671.

The following information is required for all renewal, new, and amendment applications.

Section 1. Permitted or Proposed Flows (Instructions Page 43)

A. Existing/Interim I Phase

Design Flow (MGD): NA

2-Hr Peak Flow (MGD): Click to enter text.

Estimated construction start date: Click to enter text.

Estimated waste disposal start date: Click to enter text.

B. Interim II Phase

Design Flow (MGD): NA

2-Hr Peak Flow (MGD): Click to enter text.

Estimated construction start date: Click to enter text.

Estimated waste disposal start date: Click to enter text.

C. Final Phase

Design Flow (MGD): 0.12

2-Hr Peak Flow (MGD): 0.24

Estimated construction start date: April 2025

Estimated waste disposal start date: October 2025

D. Current Operating Phase

Provide the startup date of the facility: NA

Section 2. Treatment Process (Instructions Page 43)

A. Current Operating Phase

Provide a detailed description of the treatment process. **Include the type of treatment plant, mode of operation, and all treatment units.** Start with the plant's head works and

finish with the point of discharge. Include all sludge processing and drying units. **If more than one phase exists or is proposed, a description of *each phase* must be provided**.

Activated sludge process (c0mplete mix, single stage nitrification), with bar screen, aeration basin, final clarifier, sludge holding tank, chlorine contact chamber, and filtration.

B. Treatment Units

In Table 1.0(1), provide the treatment unit type, the number of units, and dimensions (length, width, depth) **of each treatment unit, accounting for *all* phases of operation.**

Table 1.0(1) - Treatment Units

Treatment Unit Type	Number of Units	Dimensions (L x W x D)
See Attachment I		

C. Process Flow Diagram

Provide flow diagrams for the existing facilities and **each** proposed phase of construction.

Attachment: See Attachment I

Section 3. Site Information and Drawing (Instructions Page 44)

Provide the TPDES discharge outfall latitude and longitude. Enter N/A if not applicable.

- Latitude: NA
- Longitude: NA

Provide the TLAP disposal site latitude and longitude. Enter N/A if not applicable.

- Latitude: 30 deg 16' 45" N
- Longitude: 97 deg 54' 55" W

Provide a site drawing for the facility that shows the following:

- The boundaries of the treatment facility;
- The boundaries of the area served by the treatment facility;
- If land disposal of effluent, the boundaries of the disposal site and all storage/holding ponds; and
- If sludge disposal is authorized in the permit, the boundaries of the land application or disposal site.

Attachment: See Attachment J

Provide the name **and** a description of the area served by the treatment facility.

White Rocks Entertainment development, including residential condominiums and hotel.

Collection System Information **for wastewater TPDES permits only**: Provide information for each **uniquely owned** collection system, existing and new, served by this facility, including satellite collection systems. **Please see the instructions for a detailed explanation and examples.**

Collection System Information

Collection System Name	Owner Name	Owner Type	Population Served
NA		Choose an item.	
		Choose an item.	
		Choose an item.	
		Choose an item.	

Section 4. Unbuilt Phases (Instructions Page 45)

Is the application for a renewal of a permit that contains an unbuilt phase or phases?

☐ Yes ☒ No

If yes, does the existing permit contain a phase that has not been constructed **within five years** of being authorized by the TCEQ?

☐ Yes ☐ No

If yes, provide a detailed discussion regarding the continued need for the unbuilt phase. **Failure to provide sufficient justification may result in the Executive Director recommending denial of the unbuilt phase or phases**.

NA

Section 5. Closure Plans (Instructions Page 45)

Have any treatment units been taken out of service permanently, or will any units be taken out of service in the next five years?

☐ Yes ☒ No

If yes, was a closure plan submitted to the TCEQ?

☐ Yes ☐ No

If yes, provide a brief description of the closure and the date of plan approval.

NA

Section 6. Permit Specific Requirements (Instructions Page 45)

For applicants with an existing permit, check the Other Requirements or Special Provisions of the permit.

A. Summary transmittal

Have plans and specifications been approved for the existing facilities and each proposed phase?

☐ Yes ☒ No

If yes, provide the date(s) of approval for each phase: Click to enter text.

Provide information, including dates, on any actions taken to meet a *requirement or provision* pertaining to the submission of a summary transmittal letter. **Provide a copy of an approval letter from the TCEQ, if applicable**.

NA

B. Buffer zones

Have the buffer zone requirements been met?

☒ Yes ☐ No

Provide information below, including dates, on any actions taken to meet the conditions of the buffer zone. If available, provide any new documentation relevant to maintaining the buffer zones.

See buffer zone map in Attachment G. Wastewater treatment units will be enclosed in a building in order to avoid nuisance odors, to supplement the 150-ft buffer.

C. Other actions required by the current permit

Does the *Other Requirements* or *Special Provisions* section in the existing permit require submission of any other information or other required actions? Examples include Notification of Completion, progress reports, soil monitoring data, etc.

☐ Yes ☐ No

If yes, provide information below on the status of any actions taken to meet the conditions of an *Other Requirement* or *Special Provision*.

NA

D. Grit and grease treatment

1. Acceptance of grit and grease waste

Does the facility have a grit and/or grease processing facility onsite that treats and decants or accepts transported loads of grit and grease waste that are discharged directly to the wastewater treatment plant prior to any treatment?

☐ Yes ☒ No

If No, stop here and continue with Subsection E. Stormwater Management.

2. Grit and grease processing

Describe below how the grit and grease waste is treated at the facility. In your description, include how and where the grit and grease is introduced to the treatment works and how it is separated or processed. Provide a flow diagram showing how grit and grease is processed at the facility.

Click to enter text.

3. Grit disposal

Does the facility have a Municipal Solid Waste (MSW) registration or permit for grit disposal?

☐ Yes ☐ No

If No, contact the TCEQ Municipal Solid Waste team at 512-239-2335. Note: A registration or permit is required for grit disposal. Grit shall not be combined with treatment plant sludge. See the instruction booklet for additional information on grit disposal requirements and restrictions.

Describe the method of grit disposal.

Click to enter text.

4. *Grease and decanted liquid disposal*

Note: A registration or permit is required for grease disposal. Grease shall not be combined with treatment plant sludge. For more information, contact the TCEQ Municipal Solid Waste team at 512-239-2335.

Describe how the decant and grease are treated and disposed of after grit separation.

Click to enter text.

E. Stormwater management

1. *Applicability*

Does the facility have a design flow of 1.0 MGD or greater in any phase?

☐ Yes ☒ No

Does the facility have an approved pretreatment program, under 40 CFR Part 403?

☐ Yes ☒ No

If no to both of the above, then skip to Subsection F, Other Wastes Received.

2. *MSGP coverage*

Is the stormwater runoff from the WWTP and dedicated lands for sewage disposal currently permitted under the TPDES Multi-Sector General Permit (MSGP), TXR050000?

☐ Yes ☐ No

If yes, please provide MSGP Authorization Number and skip to Subsection F, Other Wastes Received:

TXR05 Click to enter text. or TXRNE Click to enter text.

If no, do you intend to seek coverage under TXR050000?

☐ Yes ☐ No

3. *Conditional exclusion*

Alternatively, do you intend to apply for a conditional exclusion from permitting based TXR050000 (Multi Sector General Permit) Part II B.2 or TXR050000 (Multi Sector General Permit) Part V, Sector T 3(b)?

☐ Yes ☐ No

If yes, please explain below then proceed to Subsection F, Other Wastes Received:

Click to enter text.

4. ***Existing coverage in individual permit***

Is your stormwater discharge currently permitted through this individual TPDES or TLAP permit?

☐ Yes ☐ No

If yes, provide a description of stormwater runoff management practices at the site that are authorized in the wastewater permit then skip to Subsection F, Other Wastes Received.

Click to enter text.

5. ***Zero stormwater discharge***

Do you intend to have no discharge of stormwater via use of evaporation or other means?

☐ Yes ☐ No

If yes, explain below then skip to Subsection F. Other Wastes Received.

Click to enter text.

Note: If there is a potential to discharge any stormwater to surface water in the state as the result of any storm event, then permit coverage is required under the MSGP or an individual discharge permit. This requirement applies to all areas of facilities with treatment plants or systems that treat, store, recycle, or reclaim domestic sewage, wastewater or sewage sludge (including dedicated lands for sewage sludge disposal located within the onsite property boundaries) that meet the applicability criteria of above. You have the option of obtaining coverage under the MSGP for direct discharges, (recommended), or obtaining coverage under this individual permit.

6. ***Request for coverage in individual permit***

Are you requesting coverage of stormwater discharges associated with your treatment plant under this individual permit?

☐ Yes ☐ No

If yes, provide a description of stormwater runoff management practices at the site for which you are requesting authorization in this individual wastewater permit and describe whether you intend to comingle this discharge with your treated effluent or discharge it via a separate dedicated stormwater outfall. Please also indicate if you intend to divert stormwater to the treatment plant headworks and indirectly discharge it to water in the state.

Click to enter text.

Note: Direct stormwater discharges to waters in the state authorized through this individual permit will require the development and implementation of a stormwater pollution prevention plan (SWPPP) and will be subject to additional monitoring and reporting requirements. Indirect discharges of stormwater via headworks recycling will require compliance with all individual permit requirements including 2-hour peak flow limitations. All stormwater discharge authorization requests will require additional information during the technical review of your application.

F. Discharges to the Lake Houston Watershed

Does the facility discharge in the Lake Houston watershed?

☐ Yes ☒ No

If yes, attach a Sewage Sludge Solids Management Plan. See Example 5 in the instructions.
Click to enter text.

G. Other wastes received including sludge from other WWTPs and septic waste

1. *Acceptance of sludge from other WWTPs*

Does or will the facility accept sludge from other treatment plants at the facility site?

☐ Yes ☒ No

If yes, attach sewage sludge solids management plan. See Example 5 of the instructions.

In addition, provide the date the plant started or is anticipated to start accepting sludge, an estimate of monthly sludge acceptance (gallons or millions of gallons), an estimate of the BOD_5 concentration of the sludge, and the design BOD_5 concentration of the influent from the collection system. Also note if this information has or has not changed since the last permit action.

Click to enter text.

Note: Permits that accept sludge from other wastewater treatment plants may be required to have influent flow and organic loading monitoring.

2. *Acceptance of septic waste*

Is the facility accepting or will it accept septic waste?

☐ Yes ☒ No

If yes, does the facility have a Type V processing unit?

☐ Yes ☐ No

If yes, does the unit have a Municipal Solid Waste permit?

☐ Yes ☐ No

If yes to any of the above, provide the date the plant started or is anticipated to start accepting septic waste, an estimate of monthly septic waste acceptance (gallons or millions of gallons), an estimate of the BOD_5 concentration of the septic waste, and the design BOD_5 concentration of the influent from the collection system. Also note if this information has or has not changed since the last permit action.

Click to enter text.

Note: Permits that accept sludge from other wastewater treatment plants may be required to have influent flow and organic loading monitoring.

3. ***Acceptance of other wastes (not including septic, grease, grit, or RCRA, CERCLA or as discharged by IUs listed in Worksheet 6)***

Is or will the facility accept wastes that are not domestic in nature excluding the categories listed above?

☐ Yes ☒ No

If yes, provide the date that the plant started accepting the waste, an estimate how much waste is accepted on a monthly basis (gallons or millions of gallons), a description of the entities generating the waste, and any distinguishing chemical or other physical characteristic of the waste. Also note if this information has or has not changed since the last permit action.

Click to enter text.

Section 7. Pollutant Analysis of Treated Effluent (Instructions Page 50)

Is the facility in operation?

☐ Yes ☒ No

If no, this section is not applicable. Proceed to Section 8.

If yes, provide effluent analysis data for the listed pollutants. ***Wastewater treatment facilities*** complete Table 1.0(2). ***Water treatment facilities*** discharging filter backwash water, complete Table 1.0(3). Provide copies of the laboratory results sheets. **These tables are not applicable for a minor amendment without renewal.** See the instructions for guidance.

Note: The sample date must be within 1 year of application submission.

Table1.0(2) – Pollutant Analysis for Wastewater Treatment Facilities

Pollutant	Average Conc.	Max Conc.	No. of Samples	Sample Type	Sample Date/Time
$CBOD_5$, mg/l					
Total Suspended Solids, mg/l					
Ammonia Nitrogen, mg/l					
Nitrate Nitrogen, mg/l					
Total Kjeldahl Nitrogen, mg/l					

Sulfate, mg/l					
Chloride, mg/l					
Total Phosphorus, mg/l					
pH, standard units					
Dissolved Oxygen*, mg/l					
Chlorine Residual, mg/l					
E.coli (CFU/100ml) freshwater					
Entercocci (CFU/100ml) saltwater					
Total Dissolved Solids, mg/l					
Electrical Conductivity, µmohs/cm, †					
Oil & Grease, mg/l					
Alkalinity ($CaCO_3$)*, mg/l					

*TPDES permits only
†TLAP permits only

Table1.0(3) – Pollutant Analysis for Water Treatment Facilities

Pollutant	**Average Conc.**	**Max Conc.**	**No. of Samples**	**Sample Type**	**Sample Date/Time**
Total Suspended Solids, mg/l					
Total Dissolved Solids, mg/l					
pH, standard units					
Fluoride, mg/l					
Aluminum, mg/l					
Alkalinity ($CaCO_3$), mg/l					

Section 8. Facility Operator (Instructions Page 50)

Facility Operator Name: Contract operator to be secured by permittee after permit issuance

Facility Operator's License Classification and Level: TBD

Facility Operator's License Number: TBD

Section 9. Sludge and Biosolids Management and Disposal (Instructions Page 51)

A. WWTP's Biosolids Management Facility Type

Check all that apply. See instructions for guidance

☐ Design flow>= 1 MGD

☐ Serves >= 10,000 people

☐ Class I Sludge Management Facility (per 40 CFR § 503.9)

☐ Biosolids generator

☐ Biosolids end user – land application (onsite)

☐ Biosolids end user – surface disposal (onsite)

☐ Biosolids end user – incinerator (onsite)

B. WWTP's Biosolids Treatment Process

Check all that apply. See instructions for guidance.

☒ Aerobic Digestion

☐ Air Drying (or sludge drying beds)

☐ Lower Temperature Composting

☐ Lime Stabilization

☐ Higher Temperature Composting

☐ Heat Drying

☐ Thermophilic Aerobic Digestion

☐ Beta Ray Irradiation

☐ Gamma Ray Irradiation

☐ Pasteurization

☐ Preliminary Operation (e.g. grinding, de-gritting, blending)

☐ Thickening (e.g. gravity thickening, centrifugation, filter press, vacuum filter)

☐ Sludge Lagoon

☒ Temporary Storage (< 2 years)

☐ Long Term Storage (>= 2 years)

☐ Methane or Biogas Recovery

☐ Other Treatment Process: Click to enter text.

C. Biosolids Management

Provide information on the *intended* biosolids management practice. Do not enter every management practice that you want authorized in the permit, as the permit will authorize all biosolids management practices listed in the instructions. Rather indicate the management practice the facility plans to use.

Biosolids Management

Management Practice	Handler or Preparer Type	Bulk or Bag Container	Amount (dry metric tons)	Pathogen Reduction Options	Vector Attraction Reduction Option
Other	Off-site Third-Party Handler or Preparer	Not Applicable		Choose an item.	Choose an item.

Management Practice	Handler or Preparer Type	Bulk or Bag Container	Amount (dry metric tons)	Pathogen Reduction Options	Vector Attraction Reduction Option
Choose an item.	Choose an item.	Choose an item.		Choose an item.	Choose an item.
Choose an item.	Choose an item.	Choose an item.		Choose an item.	Choose an item.

If "Other" is selected for Management Practice, please explain (e.g. monofill or transport to another WWTP): transport to another permitted WWTP

D. Disposal site

Disposal site name: TBD

TCEQ permit or registration number: TBD

County where disposal site is located: TBD

E. Transportation method

Method of transportation (truck, train, pipe, other): truck

Name of the hauler: TBD

Hauler registration number: TBD

Sludge is transported as a:

Liquid ☒ semi-liquid ☐ semi-solid ☐ solid ☐

Section 10. Permit Authorization for Sewage Sludge Disposal (Instructions Page 53)

A. Beneficial use authorization

Does the existing permit include authorization for land application of sewage sludge for beneficial use?

☐ Yes ☒ No

If yes, are you requesting to continue this authorization to land apply sewage sludge for beneficial use?

☐ Yes ☐ No

If yes, is the completed **Application for Permit for Beneficial Land Use of Sewage Sludge (TCEQ Form No. 10451)** attached to this permit application (see the instructions for details)?

☐ Yes ☐ No

B. Sludge processing authorization

Does the existing permit include authorization for any of the following sludge processing, storage or disposal options?

Sludge Composting ☐ Yes ☒ No

Marketing and Distribution of sludge ☐ Yes ☒ No

Sludge Surface Disposal or Sludge Monofill ☐ Yes ☒ No

Temporary storage in sludge lagoons ☐ Yes ☒ No

If yes to any of the above sludge options and the applicant is requesting to continue this authorization, is the completed **Domestic Wastewater Permit Application: Sewage Sludge Technical Report (TCEQ Form No. 10056)** attached to this permit application?

☐ Yes ☐ No

Section 11. Sewage Sludge Lagoons (Instructions Page 53)

Does this facility include sewage sludge lagoons?

☐ Yes ☒ No

If yes, complete the remainder of this section. If no, proceed to Section 12.

A. Location information

The following maps are required to be submitted as part of the application. For each map, provide the Attachment Number.

- Original General Highway (County) Map:

  Attachment: Click to enter text.
- USDA Natural Resources Conservation Service Soil Map:

  Attachment: Click to enter text.
- Federal Emergency Management Map:

  Attachment: Click to enter text.
- Site map:

  Attachment: Click to enter text.

Discuss in a description if any of the following exist within the lagoon area. Check all that apply.

☐ Overlap a designated 100-year frequency flood plain

☐ Soils with flooding classification

☐ Overlap an unstable area

☐ Wetlands

☐ Located less than 60 meters from a fault

☐ None of the above

Attachment: Click to enter text.

If a portion of the lagoon(s) is located within the 100-year frequency flood plain, provide the protective measures to be utilized including type and size of protective structures:

Click to enter text.

B. Temporary storage information

Provide the results for the pollutant screening of sludge lagoons. These results are in addition to pollutant results in *Section 7 of Technical Report 1.0.*

Nitrate Nitrogen, mg/kg: Click to enter text.

Total Kjeldahl Nitrogen, mg/kg: Click to enter text.

Total Nitrogen (=nitrate nitrogen + TKN), mg/kg: Click to enter text.

Phosphorus, mg/kg: Click to enter text.

Potassium, mg/kg: Click to enter text.

pH, standard units: Click to enter text.

Ammonia Nitrogen mg/kg: Click to enter text.

Arsenic: Click to enter text.

Cadmium: Click to enter text.

Chromium: Click to enter text.

Copper: Click to enter text.

Lead: Click to enter text.

Mercury: Click to enter text.

Molybdenum: Click to enter text.

Nickel: Click to enter text.

Selenium: Click to enter text.

Zinc: Click to enter text.

Total PCBs: Click to enter text.

Provide the following information:

Volume and frequency of sludge to the lagoon(s): Click to enter text.

Total dry tons stored in the lagoons(s) per 365-day period: Click to enter text.

Total dry tons stored in the lagoons(s) over the life of the unit: Click to enter text.

C. Liner information

Does the active/proposed sludge lagoon(s) have a liner with a maximum hydraulic conductivity of $1x10^{-7}$ cm/sec?

☐ Yes ☐ No

If yes, describe the liner below. Please note that a liner is required.

Click to enter text.

D. Site development plan

Provide a detailed description of the methods used to deposit sludge in the lagoon(s):

Click to enter text.

Attach the following documents to the application.

- Plan view and cross-section of the sludge lagoon(s)

  Attachment: Click to enter text.

- Copy of the closure plan

  Attachment: Click to enter text.

- Copy of deed recordation for the site

  Attachment: Click to enter text.

- Size of the sludge lagoon(s) in surface acres and capacity in cubic feet and gallons

  Attachment: Click to enter text.

- Description of the method of controlling infiltration of groundwater and surface water from entering the site

  Attachment: Click to enter text.

- Procedures to prevent the occurrence of nuisance conditions

  Attachment: Click to enter text.

E. Groundwater monitoring

Is groundwater monitoring currently conducted at this site, or are any wells available for groundwater monitoring, or are groundwater monitoring data otherwise available for the sludge lagoon(s)?

☐ Yes ☐ No

If groundwater monitoring data are available, provide a copy. Provide a profile of soil types encountered down to the groundwater table and the depth to the shallowest groundwater as a separate attachment.

Attachment: Click to enter text.

Section 12. Authorizations/Compliance/Enforcement (Instructions Page 55)

A. Additional authorizations

Does the permittee have additional authorizations for this facility, such as reuse authorization, sludge permit, etc?

☐ Yes ☒ No

If yes, provide the TCEQ authorization number and description of the authorization:

Click to enter text.

B. Permittee enforcement status

Is the permittee currently under enforcement for this facility?

☐ Yes ☒ No

Is the permittee required to meet an implementation schedule for compliance or enforcement?

☐ Yes ☒ No

If yes to either question, provide a brief summary of the enforcement, the implementation schedule, and the current status:

Click to enter text.

Section 13. RCRA/CERCLA Wastes (Instructions Page 55)

A. RCRA hazardous wastes

Has the facility received in the past three years, does it currently receive, or will it receive RCRA hazardous waste?

☐ Yes ☒ No

B. Remediation activity wastewater

Has the facility received in the past three years, does it currently receive, or will it receive CERCLA wastewater, RCRA remediation/corrective action wastewater or other remediation activity wastewater?

☐ Yes ☒ No

C. Details about wastes received

If yes to either Subsection A or B above, provide detailed information concerning these wastes with the application.

Attachment: Click to enter text.

Section 14. Laboratory Accreditation (Instructions Page 56)

All laboratory tests performed must meet the requirements of *30 TAC Chapter 25, Environmental Testing Laboratory Accreditation and Certification*, which includes the following general exemptions from National Environmental Laboratory Accreditation Program (NELAP) certification requirements:

- The laboratory is an in-house laboratory and is:
  - periodically inspected by the TCEQ; or
  - located in another state and is accredited or inspected by that state; or
  - performing work for another company with a unit located in the same site; or
  - performing pro bono work for a governmental agency or charitable organization.
- The laboratory is accredited under federal law.
- The data are needed for emergency-response activities, and a laboratory accredited under the Texas Laboratory Accreditation Program is not available.
- The laboratory supplies data for which the TCEQ does not offer accreditation.

The applicant should review 30 TAC Chapter 25 for specific requirements.

The following certification statement shall be signed and submitted with every application. See the Signature Page section in the Instructions, for a list of designated representatives who may sign the certification.

CERTIFICATION:

I certify that all laboratory tests submitted with this application meet the requirements of *30 TAC Chapter 25, Environmental Testing Laboratory Accreditation and Certification.*

Printed Name: NA, no lab tests are included

Title: NA

Signature: _____

Date: _____

DOMESTIC WASTEWATER PERMIT APPLICATION TECHNICAL REPORT 1.1

The following information is required for new and amendment major applications.

Section 1. Justification for Permit (Instructions Page 57)

A. Justification of permit need

Provide a detailed discussion regarding the need for any phase(s) not currently permitted. Failure to provide sufficient justification may result in the Executive Director recommending denial of the proposed phase(s) or permit.

See Attachment I – Supplemental Technical Report

B. Regionalization of facilities

For additional guidance, please review TCEQ's Regionalization Policy for Wastewater Treatment[1].

Provide the following information concerning the potential for regionalization of domestic wastewater treatment facilities:

1. *Municipally incorporated areas*

If the applicant is a city, then Item 1 is not applicable. Proceed to Item 2 Utility CCN areas.

Is any portion of the proposed service area located in an incorporated city?

☐ Yes ☒ No ☐ Not Applicable

If yes, within the city limits of: Click to enter text.

If yes, attach correspondence from the city.

Attachment: Click to enter text.

If consent to provide service is available from the city, attach a justification for the proposed facility and a cost analysis of expenditures that includes the cost of connecting to the city versus the cost of the proposed facility or expansion attached.

Attachment: Click to enter text.

2. *Utility CCN areas*

Is any portion of the proposed service area located inside another utility's CCN area?

☐ Yes ☒ No

[1] https://www.tceq.texas.gov/permitting/wastewater/tceq-regionalization-for-wastewater

If yes, attach a justification for the proposed facility and a cost analysis of expenditures that includes the cost of connecting to the CCN facilities versus the cost of the proposed facility or expansion.

Attachment: Click to enter text.

3. Nearby WWTPs or collection systems

Are there any domestic permitted wastewater treatment facilities or collection systems located within a three-mile radius of the proposed facility?

☒ Yes ☐ No

If yes, attach a list of these facilities and collection systems that includes each permittee's name and permit number, and an area map showing the location of these facilities and collection systems.

Attachment: See Attachment K

If yes, attach proof of mailing a request for service to each facility and collection system, the letters requesting service, and correspondence from each facility and collection system.

Attachment: See Attachment K

If the facility or collection system agrees to provide service, attach a justification for the proposed facility and a cost analysis of expenditures that includes the cost of connecting to the facility or collection system versus the cost of the proposed facility or expansion.

Attachment: Click to enter text.

Section 2. Proposed Organic Loading (Instructions Page 59)

Is this facility in operation?

☐ Yes ☒ No

If no, proceed to Item B, Proposed Organic Loading.

If yes, provide organic loading information in Item A, Current Organic Loading

A. Current organic loading

Facility Design Flow (flow being requested in application): Click to enter text.

Average Influent Organic Strength or BOD_5 Concentration in mg/l: Click to enter text.

Average Influent Loading (lbs/day = total average flow X average BOD_5 conc. X 8.34): Click to enter text.

Provide the source of the average organic strength or BOD_5 concentration.

Click to enter text.

B. Proposed organic loading

This table must be completed if this application is for a facility that is not in operation or if this application is to request an increased flow that will impact organic loading.

Table 1.1(1) – Design Organic Loading

Source	Total Average Flow (MGD)	Influent BOD5 Concentration (mg/l)
Municipality		
Subdivision	0.087	325
Trailer park – transient		
Mobile home park		
School with cafeteria and showers		
School with cafeteria, no showers		
Recreational park, overnight use		
Recreational park, day use		
Office building or factory		
Motel	0.033	325
Restaurant		
Hospital		
Nursing home		
Other		
TOTAL FLOW from all sources	0.12	
AVERAGE BOD_5 from all sources		325

Section 3. Proposed Effluent Quality and Disinfection (Instructions Page 59)

A. Existing/Interim I Phase Design Effluent Quality

Biochemical Oxygen Demand (5-day), mg/l: NA

Total Suspended Solids, mg/l: Click to enter text.

Ammonia Nitrogen, mg/l: Click to enter text.

Total Phosphorus, mg/l: Click to enter text.

Dissolved Oxygen, mg/l: Click to enter text.

Other: Click to enter text.

B. Interim II Phase Design Effluent Quality

Biochemical Oxygen Demand (5-day), mg/l: NA

Total Suspended Solids, mg/l: Click to enter text.

Ammonia Nitrogen, mg/l: Click to enter text.

Total Phosphorus, mg/l: Click to enter text.

Dissolved Oxygen, mg/l: Click to enter text.

Other: Click to enter text.

C. Final Phase Design Effluent Quality

Biochemical Oxygen Demand (5-day), mg/l: 10

Total Suspended Solids, mg/l: 15

Ammonia Nitrogen, mg/l: 3

Total Phosphorus, mg/l: 5

Dissolved Oxygen, mg/l: 4

Other: Click to enter text.

D. Disinfection Method

Identify the proposed method of disinfection.

☒ Chlorine: 1.0 mg/l after 20 minutes detention time at peak flow

Dechlorination process: Click to enter text.

☐ Ultraviolet Light: Click to enter text. seconds contact time at peak flow

☐ Other: Click to enter text.

Section 4. Design Calculations (Instructions Page 59)

Attach design calculations and plant features for each proposed phase. Example 4 of the instructions includes sample design calculations and plant features.

Attachment: See Attachment I – Supplemental Technical Report

Section 5. Facility Site (Instructions Page 60)

A. 100-year floodplain

Will the proposed facilities be located above the 100-year frequency flood level?

☒ Yes ☐ No

If no, describe measures used to protect the facility during a flood event. Include a site map showing the location of the treatment plant within the 100-year frequency flood level. If applicable, provide the size and types of protective structures.

Click to enter text.

Provide the source(s) used to determine 100-year frequency flood plain.

FEMA flood insurance map, topographic map, Travis Co. unincorporated areas, 48453C04201

For a new or expansion of a facility, will a wetland or part of a wetland be filled?

☐ Yes ☒ No

If yes, has the applicant applied for a US Corps of Engineers 404 Dredge and Fill Permit?

☐ Yes ☐ No

If yes, provide the permit number: Click to enter text.

If no, provide the approximate date you anticipate submitting your application to the Corps: Click to enter text.

B. Wind rose

Attach a wind rose: See Attachment L

Section 6. Permit Authorization for Sewage Sludge Disposal (Instructions Page 60)

A. Beneficial use authorization

Are you requesting to include authorization to land apply sewage sludge for beneficial use on property located adjacent to the wastewater treatment facility under the wastewater permit?

☐ Yes ☒ No

If yes, attach the completed **Application for Permit for Beneficial Land Use of Sewage Sludge (TCEQ Form No. 10451)**: Click to enter text.

B. Sludge processing authorization

Identify the sludge processing, storage or disposal options that will be conducted at the wastewater treatment facility:

☐ Sludge Composting

☐ Marketing and Distribution of sludge

☐ Sludge Surface Disposal or Sludge Monofill

If any of the above, sludge options are selected, attach the completed **Domestic Wastewater Permit Application: Sewage Sludge Technical Report (TCEQ Form No. 10056)**: NA

Section 7. Sewage Sludge Solids Management Plan (Instructions Page 61)

Attach a solids management plan to the application.

Attachment: See Attachment M

The sewage sludge solids management plan must contain the following information:

- Treatment units and processes dimensions and capacities
- Solids generated at 100, 75, 50, and 25 percent of design flow
- Mixed liquor suspended solids operating range at design and projected actual flow
- Quantity of solids to be removed and a schedule for solids removal
- Identification and ownership of the ultimate sludge disposal site
- For facultative lagoons, design life calculations, monitoring well locations and depths, and the ultimate disposal method for the sludge from the facultative lagoon

An example of a sewage sludge solids management plan has been included as Example 5 of the instructions.

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 2.0: RECEIVING WATERS

The following information is required for all TPDES permit applications.

Section 1. Domestic Drinking Water Supply (Instructions Page 64)

Is there a surface water intake for domestic drinking water supply located within 5 miles downstream from the point or proposed point of discharge?

☐ Yes ☐ No

If **no**, proceed it Section 2. **If yes**, provide the following:

Owner of the drinking water supply: Click to enter text.

Distance and direction to the intake: Click to enter text.

Attach a USGS map that identifies the location of the intake.

Attachment: Click to enter text.

Section 2. Discharge into Tidally Affected Waters (Instructions Page 64)

Does the facility discharge into tidally affected waters?

☐ Yes ☐ No

If **no**, proceed to Section 3. **If yes**, complete the remainder of this section. If no, proceed to Section 3.

A. Receiving water outfall

Width of the receiving water at the outfall, in feet: Click to enter text.

B. Oyster waters

Are there oyster waters in the vicinity of the discharge?

☐ Yes ☐ No

If yes, provide the distance and direction from outfall(s).

Click to enter text.

C. Sea grasses

Are there any sea grasses within the vicinity of the point of discharge?

☐ Yes ☐ No

If yes, provide the distance and direction from the outfall(s).

Click to enter text.

Section 3. Classified Segments (Instructions Page 64)

Is the discharge directly into (or within 300 feet of) a classified segment?

☐ Yes ☐ No

If yes, this Worksheet is complete.

If no, complete Sections 4 and 5 of this Worksheet.

Section 4. Description of Immediate Receiving Waters (Instructions Page 65)

Name of the immediate receiving waters: Click to enter text.

A. Receiving water type

Identify the appropriate description of the receiving waters.

☐ Stream

☐ Freshwater Swamp or Marsh

☐ Lake or Pond

Surface area, in acres: Click to enter text.

Average depth of the entire water body, in feet: Click to enter text.

Average depth of water body within a 500-foot radius of discharge point, in feet: Click to enter text.

☐ Man-made Channel or Ditch

☐ Open Bay

☐ Tidal Stream, Bayou, or Marsh

☐ Other, specify: Click to enter text.

B. Flow characteristics

If a stream, man-made channel or ditch was checked above, provide the following. For existing discharges, check one of the following that best characterizes the area *upstream* of the discharge. For new discharges, characterize the area *downstream* of the discharge (check one).

☐ Intermittent - dry for at least one week during most years

☐ Intermittent with Perennial Pools - enduring pools with sufficient habitat to maintain significant aquatic life uses

☐ Perennial - normally flowing

Check the method used to characterize the area upstream (or downstream for new dischargers).

☐ USGS flow records

☐ Historical observation by adjacent landowners

☐ Personal observation

☐ Other, specify: Click to enter text.

C. Downstream perennial confluences

List the names of all perennial streams that join the receiving water within three miles downstream of the discharge point.

Click to enter text.

D. Downstream characteristics

Do the receiving water characteristics change within three miles downstream of the discharge (e.g., natural or man-made dams, ponds, reservoirs, etc.)?

☐ Yes ☐ No

If yes, discuss how.

Click to enter text.

E. Normal dry weather characteristics

Provide general observations of the water body during normal dry weather conditions.

Click to enter text.

Date and time of observation: Click to enter text.

Was the water body influenced by stormwater runoff during observations?

☐ Yes ☐ No

Section 5. General Characteristics of the Waterbody (Instructions Page 66)

A. Upstream influences

Is the immediate receiving water upstream of the discharge or proposed discharge site influenced by any of the following? Check all that apply.

☐ Oil field activities
☐ Upstream discharges
☐ Septic tanks
☐ Urban runoff
☐ Agricultural runoff
☐ Other(s), specify: Click to enter text.

B. Waterbody uses

Observed or evidences of the following uses. Check all that apply.

- ☐ Livestock watering
- ☐ Irrigation withdrawal
- ☐ Fishing
- ☐ Domestic water supply
- ☐ Park activities
- ☐ Contact recreation
- ☐ Non-contact recreation
- ☐ Navigation
- ☐ Industrial water supply
- ☐ Other(s), specify: Click to enter text.

C. Waterbody aesthetics

Check one of the following that best describes the aesthetics of the receiving water and the surrounding area.

- ☐ Wilderness: outstanding natural beauty; usually wooded or unpastured area; water clarity exceptional
- ☐ Natural Area: trees and/or native vegetation; some development evident (from fields, pastures, dwellings); water clarity discolored
- ☐ Common Setting: not offensive; developed but uncluttered; water may be colored or turbid
- ☐ Offensive: stream does not enhance aesthetics; cluttered; highly developed; dumping areas; water discolored

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 2.1: STREAM PHYSICAL CHARACTERISTICS

Required for new applications, major facilities, and applications adding an outfall.

Worksheet 2.1 is not required for discharges to intermittent streams or discharges directly to (or within 300 feet of) a classified segment.

Section 1. General Information (Instructions Page 66)

Date of study: Click to enter text. Time of study: Click to enter text.

Stream name: Click to enter text.

Location: Click to enter text.

Type of stream upstream of existing discharge or downstream of proposed discharge (check one).

☐ Perennial ☐ Intermittent with perennial pools

Section 2. Data Collection (Instructions Page 66)

Number of stream bends that are well defined: Click to enter text.

Number of stream bends that are moderately defined: Click to enter text.

Number of stream bends that are poorly defined: Click to enter text.

Number of riffles: Click to enter text.

Evidence of flow fluctuations (check one):

☐ Minor ☐ moderate ☐ severe

Indicate the observed stream uses and if there is evidence of flow fluctuations or channel obstruction/modification.

Click to enter text.

Stream transects

In the table below, provide the following information for each transect downstream of the existing or proposed discharges. Use a separate row for each transect.

Table 2.1(1) - **Stream Transect Records**

Stream type at transect Select riffle, run, glide, or pool. See Instructions, Definitions section.	**Transect location**	**Water surface width (ft)**	**Stream depths (ft)** at 4 to 10 points along each transect from the channel bed to the water surface. Separate the measurements with commas.
Choose an item.			
Choose an item.			
Choose an item.			
Choose an item.			
Choose an item.			
Choose an item.			
Choose an item.			
Choose an item.			
Choose an item.			
Choose an item.			

Section 3. Summarize Measurements (Instructions Page 66)

Streambed slope of entire reach, from USGS map in feet/feet: Click to enter text.

Approximate drainage area above the most downstream transect (from USGS map or county highway map, in square miles): Click to enter text.

Length of stream evaluated, in feet: Click to enter text.

Number of lateral transects made: Click to enter text.

Average stream width, in feet: Click to enter text.

Average stream depth, in feet: Click to enter text.

Average stream velocity, in feet/second: Click to enter text.

Instantaneous stream flow, in cubic feet/second: Click to enter text.

Indicate flow measurement method (type of meter, floating chip timed over a fixed distance, etc.): Click to enter text.

Size of pools (large, small, moderate, none): Click to enter text.

Maximum pool depth, in feet: Click to enter text.

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 3.0: LAND DISPOSAL OF EFFLUENT

The following is required for renewal, new, and amendment permit applications.

Section 1. Type of Disposal System (Instructions Page 68)

Identify the method of land disposal:

- ☐ Surface application
- ☐ Irrigation
- ☒ Drip irrigation system
- ☐ Evaporation
- ☐ Other (describe in detail): Click to enter text.
- ☐ Subsurface application
- ☐ Subsurface soils absorption
- ☒ Subsurface area drip dispersal system
- ☐ Evapotranspiration beds

NOTE: All applicants without authorization or proposing new/amended subsurface disposal MUST complete and submit Worksheet 7.0.

For existing authorizations, provide Registration Number: Click to enter text.

Section 2. Land Application Site(s) (Instructions Page 68)

In table 3.0(1), provide the requested information for the land application sites. Include the agricultural or cover crop type (wheat, cotton, alfalfa, bermuda grass, native grasses, etc.), land use (golf course, hayland, pastureland, park, row crop, etc.), irrigation area, amount of effluent applied, and whether or not the public has access to the area. Specify the amount of land area and the amount of effluent that will be allotted to each agricultural or cover crop, if more than one crop will be used.

Table 3.0(1) – Land Application Site Crops

Crop Type & Land Use	Irrigation Area (acres)	Effluent Application (GPD)	Public Access? Y/N
Bermuda overseeded with winter rye	35.16 available	120,000	Y
	27.43 needed		

Section 3. Storage and Evaporation Lagoons/Ponds (Instructions Page 68)

Table 3.0(2) – Storage and Evaporation Ponds

Pond Number	Surface Area (acres)	Storage Volume (acre-feet)	Dimensions	Liner Type
N/A	N/A	1.1	TBD	Steel tank

Attach a copy of a liner certification that was prepared, signed, and sealed by a Texas licensed professional engineer for each pond.

Attachment: N/A

Section 4. Flood and Runoff Protection (Instructions Page 68)

Is the land application site within the 100-year frequency flood level?

☐ Yes ☒ No

If yes, describe how the site will be protected from inundation.

Click to enter text.

Provide the source used to determine the 100-year frequency flood level:

FEMA mapping

Provide a description of tailwater controls and rainfall run-on controls used for the land application site.

Rainwater from the impervious areas will be collected and diverted to rainwater structures to prevent run-on to dispersal areas. Application rate will be controlled to prevent effluent runoff.

Section 5. Annual Cropping Plan (Instructions Page 68)

Attach an Annual Cropping Plan which includes a discussion of each of the following items. If not applicable, provide a detailed explanation indicating why. **Attachment**: N

- Soils map with crops
- Cool and warm season plant species
- Crop yield goals
- Crop growing season
- Crop nutrient requirements
- Additional fertilizer requirements
- Minimum/maximum harvest height (for grass crops)
- Supplemental watering requirements
- Crop salt tolerances
- Harvesting method/number of harvests
- Justification for not removing existing vegetation to be irrigated

Section 6. Well and Map Information (Instructions Page 69)

Attach a USGS map with the following information shown and labeled. If not applicable, provide a detailed explanation indicating why. **Attachment**: O

- The boundaries of the land application site(s)
- Waste disposal or treatment facility site(s)
- On-site buildings
- Buffer zones
- Effluent storage and tailwater control facilities
- All water wells within 1-mile radius of the disposal site or property boundaries
- All springs and seeps onsite and within 500 feet of the property boundaries
- All surface waters in the state onsite and within 500 feet of the property boundaries
- All faults and sinkholes onsite and within 500 feet of the property

List and cross reference all water wells located within a half-mile radius of the disposal site or property boundaries shown on the USGS map in the following table. Attach additional pages as necessary to include all of the wells.

Table 3.0(3) – Water Well Data

Well ID	Well Use	Producing? Y/N	Open, cased, capped, or plugged?	Proposed Best Management Practice
5841807	Industrial	Y	Cased	
57848	Domestic	Y	Cased	
186599	Domestic	Y	Cased	
280041	Domestic	Y	Cased	
353820	Domestic	Y	Cased	

Well ID	Well Use	Producing? Y/N	Open, cased, capped, or plugged?	Proposed Best Management Practice
360566	Irrigation	N	Plugged	
394377	Domestic	Y	Cased	
576577	Monitor	Y	Capped	
576579	Monitor	Y	Capped	

If water quality data or well log information is available please include the information in an attachment listed by Well ID.

Attachment: NA

Section 7. Groundwater Quality (Instructions Page 69)

Attach a Groundwater Quality Technical Report which assesses the impact of the wastewater disposal system on groundwater. This report shall include an evaluation of the water wells (including the information in the well table provided in Item 6. above), the wastewater application rate, and pond liners. Indicate by a check mark that this report is provided.

Attachment: closest well is 500 ft from property line

Are groundwater monitoring wells available onsite? ☐ Yes ☒ No

Do you plan to install ground water monitoring wells or lysimeters around the land application site? ☐ Yes ☒ No

If yes, provide the proposed location of the monitoring wells or lysimeters on a site map.

Attachment: P

Section 8. Soil Map and Soil Analyses (Instructions Page 70)

A. Soil map

Attach a USDA Soil Survey map that shows the area to be used for effluent disposal.

Attachment: Q

B. Soil analyses

Attach the laboratory results sheets from the soil analyses. **Note**: for renewal applications, the current annual soil analyses required by the permit are acceptable as long as the test date is less than one year prior to the submission of the application.

Attachment: Q

List all USDA designated soil series on the proposed land application site. Attach additional pages as necessary.

Table 3.0(4) – Soil Data

Soil Series	Depth from Surface	Permeability	Available Water Capacity	Curve Number

Soil Series	Depth from Surface	Permeability	Available Water Capacity	Curve Number
Brackett - Rock	0-60 in	4.0-9.0-14.0	0.09-0.13-16	D
Volente	0-59 in	1.4-2.7-4.0	0.15-0.18-20	C

Section 9. Effluent Monitoring Data (Instructions Page 71)

Is the facility in operation?

☐ Yes ☒ No

If no, this section is not applicable and the worksheet is complete.

If yes, provide the effluent monitoring data for the parameters regulated in the existing permit. If a parameter is not regulated in the existing permit, enter N/A.

Table 3.0(5) – Effluent Monitoring Data

Date	30 Day Avg Flow MGD	BOD5 mg/l	TSS mg/l	pH	Chlorine Residual mg/l	Acres irrigated

Date	30 Day Avg Flow MGD	BOD5 mg/l	TSS mg/l	pH	Chlorine Residual mg/l	Acres irrigated

Provide a discussion of all persistent excursions above the permitted limits and any corrective actions taken.

Click to enter text.

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 3.1: SURFACE LAND DISPOSAL OF EFFLUENT

The following is required for new and major amendment permit applications. Renewal and minor amendment permit applications may be asked for this worksheet on a case by case basis.

Section 1. Surface Disposal (Instructions Page 72)

Complete the item that applies for the method of disposal being used.

A. Irrigation

Area under irrigation, in acres: Click to enter text.

Design application frequency:

hours/day Click to enter text. **And** days/week Click to enter text.

Land grade (slope):

average percent (%): Click to enter text.

maximum percent (%): Click to enter text.

Design application rate in acre-feet/acre/year: Click to enter text.

Design total nitrogen loading rate, in lbs N/acre/year: Click to enter text.

Soil conductivity (mmhos/cm): Click to enter text.

Method of application: Click to enter text.

Attach a separate engineering report with the water balance and storage volume calculations, method of application, irrigation efficiency, and nitrogen balance.

Attachment: Click to enter text.

B. Evaporation ponds

Daily average effluent flow into ponds, in gallons per day: Click to enter text.

Attach a separate engineering report with the water balance and storage volume calculations.

Attachment: Click to enter text.

C. Evapotranspiration beds

Number of beds: Click to enter text.

Area of bed(s), in acres: Click to enter text.

Depth of bed(s), in feet: Click to enter text.

Void ratio of soil in the beds: Click to enter text.

Storage volume within the beds, in acre-feet: Click to enter text.

Attach a separate engineering report with the water balance and storage volume calculations, and a description of the lining.

Attachment: Click to enter text.

D. Overland flow

Area used for application, in acres: Click to enter text.

Slopes for application area, percent (%): Click to enter text.

Design application rate, in gpm/foot of slope width: Click to enter text.

Slope length, in feet: Click to enter text.

Design BOD_5 loading rate, in lbs BOD_5/acre/day: Click to enter text.

Design application frequency:

hours/day: Click to enter text. **And** days/week: Click to enter text.

Attach a separate engineering report with the method of application and design requirements according to *30 TAC Chapter 217*.

Attachment: Click to enter text.

Section 2. Edwards Aquifer (Instructions Page 73)

Is the facility subject to *30 TAC Chapter 213*, Edwards Aquifer Rules?

☐ Yes ☐ No

If **yes**, is the facility located on the Edwards Aquifer Recharge Zone?

☐ Yes ☐ No

If yes, attach a geological report addressing potential recharge features.

Attachment: Click to enter text.

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 3.2: SURFACE LAND DISPOSAL OF EFFLUENT

The following **is required** for **new and major amendment** permit applications. Renewal and minor amendments applicants may be asked for the worksheet on a case by case basis.

NOTE: All applicants proposing new/amended subsurface disposal MUST complete and submit Worksheet 7.0. This worksheet applies to any subsurface disposal system that **does not meet** the definition of a subsurface area drip dispersal system as defined in *30 TAC Chapter 222, Subsurface Area Drip Dispersal System.*

Section 1. Subsurface Application (Instructions Page 74)

Identify the type of system:

- ☐ Conventional Gravity Drainfield, Beds, or Trenches (new systems must be less than 5,000 GPD)
- ☐ Low Pressure Dosing
- ☐ Other, specify: Click to enter text.

Application area, in acres: Click to enter text.

Area of drainfield, in square feet: Click to enter text.

Application rate, in gal/square foot/day: Click to enter text.

Depth to groundwater, in feet: Click to enter text.

Area of trench, in square feet: Click to enter text.

Dosing duration per area, in hours: Click to enter text.

Number of beds: Click to enter text.

Dosing amount per area, in inches/day: Click to enter text.

Infiltration rate, in inches/hour: Click to enter text.

Storage volume, in gallons: Click to enter text.

Area of bed(s), in square feet: Click to enter text.

Soil Classification: Click to enter text.

Attach a separate engineering report with the information required in *30 TAC § 309.20,* excluding the requirements of *§* 309.20 b(3)(A) and (B) design analysis which may be asked for on a case by case basis. Include a description of the schedule of dosing basin rotation.

Attachment: Click to enter text.

Section 2. Edwards Aquifer (Instructions Page 74)

Is the subsurface system over the Edwards Aquifer Recharge Zone as mapped by TCEQ?

☐ Yes ☐ No

Is the subsurface system over the Edwards Aquifer Transition Zone as mapped by TCEQ?

☐ Yes ☐ No

If yes to either question, the subsurface system may be prohibited by *30 TAC §213.8*. Please call the Municipal Permits Team, at 512-239-4671, to schedule a pre-application meeting.

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 3.3: SUBSURFACE AREA DRIP DISPERSAL (SADDS) LAND DISPOSAL OF EFFLUENT

The following **is required** for **new and major amendment** subsurface area drip dispersal system permit applications. Renewal and minor amendments applicants may be asked for the worksheet on a case by case basis.

NOTE: All applicants proposing new/amended subsurface disposal MUST complete and submit Worksheet 7.0. This worksheet applies to any subsurface disposal system that **meets** the definition of a subsurface area drip dispersal system as defined in *30 TAC Chapter 222, Subsurface Area Drip Dispersal System.*

Section 1. Administrative Information (Instructions Page 75)

A. Provide the legal name of all corporations or other business entities managed, owned, or otherwise closely related to the owner of the treatment facility:

B. White Rocks Entertainment LLC Is the owner of the land where the treatment facility is located the same as the owner of the treatment facility?

☒ Yes ☐ No

If **no**, provide the legal name of all corporations or other business entities managed, owned, or otherwise closely related to the owner of the land where the treatment facility is located.

Click to enter text.

C. Owner of the subsurface area drip dispersal system: White Rocks Entertainment LLC

D. Is the owner of the subsurface area drip dispersal system the same as the owner of the wastewater treatment facility or the site where the wastewater treatment facility is located?

☒ Yes ☐ No

If **no**, identify the names of all corporations or other business entities managed, owned, or otherwise closely related to the entity identified in Item 1.C.

Click to enter text.

E. Owner of the land where the subsurface area drip dispersal system is located: White Rocks Entertainment LLC

F. Is the owner of the land where the subsurface area drip dispersal system is located the same as owner of the wastewater treatment facility, the site where the wastewater treatment facility is located, or the owner of the subsurface area drip dispersal system?

☒ Yes ☐ No

If **no**, identify the name of all corporations or other business entities managed, owned, or otherwise closely related to the entity identified in item 1.E.

Click to enter text.

Section 2. Subsurface Area Drip Dispersal System (Instructions Page

75)

A. Type of system

☒ Subsurface Drip Irrigation

☐ Surface Drip Irrigation

☐ Other, specify: Click to enter text.

B. Irrigation operations

Application area, in acres: 35.16 acres

Infiltration Rate, in inches/hour: 0.24 in/hr (0.61 gph emitter on 4ft2)

Average slope of the application area, percent (%): 9%

Maximum slope of the application area, percent (%): 14%

Storage volume, in gallons: Using NRCS profile of 60 inches: 1.5 gallons

Major soil series: Clay loam

Depth to groundwater, in feet: 65 ft

C. Application rate

Is the facility located **west** of the boundary shown in *30 TAC § 222.83* **and** also using a vegetative cover of non-native grasses over seeded with cool season grasses during the winter months (October-March)?

☒ Yes ☐ No

If yes, then the facility may propose a hydraulic application rate not to exceed 0.1 gal/square foot/day.

Is the facility located **east** of the boundary shown in *30 TAC § 222.83* **or** in any part of the state when the vegetative cover is any crop other than non-native grasses?

☐ Yes ☒ No

If **yes**, the facility must use the formula in *30 TAC §222.83* to calculate the maximum hydraulic application rate.

Do you plan to submit an alternative method to calculate the hydraulic application rate for approval by the executive director?

☐ Yes ☒ No

Hydraulic application rate, in gal/square foot/day: 0.1 gal/sqft/day

Nitrogen application rate, in lbs/gal/day: 0.00146 lbs/gal/day

D. Dosing information

Number of doses per day: 3 per zone

Dosing duration per area, in hours: 0.6 hours per day (12-minute doses)

Rest period between doses, in hours: 7.8 hours

Dosing amount per area, in inches/day: 0.125 in/day

Number of zones: 20

Does the proposed subsurface drip irrigation system use tree vegetative cover as a crop?

☐ Yes ☒ No

If **yes**, provide a vegetation survey by a certified arborist. Please call the Water Quality Assessment Team at (512) 239-4671 to schedule a pre-application meeting.

Attachment: Click to enter text.

Section 3. Required Plans (Instructions Page 75)

A. Recharge feature plan

Attach a Recharge Feature Plan with all information required in *30 TAC §222.79*.

Attachment: R

B. Soil evaluation

Attach a Soil Evaluation with all information required in *30 TAC §222.73*.

Attachment: Q

C. Site preparation plan

Attach a Site Preparation Plan with all information required in *30 TAC §222.75*.

Attachment: S

D. Soil sampling/testing

Attach soil sampling and testing that includes all information required in *30 TAC §222.157*.

Attachment: Q

Section 4. Floodway Designation (Instructions Page 76)

A. Site location

Is the existing/proposed land application site within a designated floodway?

☐ Yes ☒ No

B. Flood map

Attach either the FEMA flood map or alternate information used to determine the floodway.

Attachment: T

Section 5. Surface Waters in the State (Instructions Page 76)

A. Buffer Map

Attach a map showing appropriate buffers on surface waters in the state, water wells, and springs/seeps.

Attachment: J

B. Buffer variance request

Do you plan to request a buffer variance from water wells or waters in the state?

☐ Yes ☒ No

If yes, then attach the additional information required in *30 TAC § 222.81(c).*

Attachment: Click to enter text.

Section 6. Edwards Aquifer (Instructions Page 76)

A. Is the SADDS located over the Edwards Aquifer Recharge Zone as mapped by TCEQ?

☐ Yes ☒ No

B. Is the SADDS located over the Edwards Aquifer Transition Zone as mapped by TCEQ?

☐ Yes ☒ No

If yes to either question, then the SADDS may be prohibited by *30 TAC §213.8*. Please call the Municipal Permits Team at 512-239-4671 to schedule a pre-application meeting.

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 4.0: POLLUTANT ANALYSIS REQUIREMENTS

The following **is required** for facilities with a permitted or proposed flow of **1.0 MGD or greater**, facilities with an approved **pretreatment** program, or facilities classified as a **major** facility. See instructions for further details.

This worksheet is not required minor amendments without renewal.

Section 1. Toxic Pollutants (Instructions Page 78)

For pollutants identified in Table 4.0(1), indicate the type of sample.

Grab ☐ Composite ☐

Date and time sample(s) collected: Click to enter text.

Table 4.0(1) – Toxics Analysis

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Acrylonitrile				50
Aldrin				0.01
Aluminum				2.5
Anthracene				10
Antimony				5
Arsenic				0.5
Barium				3
Benzene				10
Benzidine				50
Benzo(a)anthracene				5
Benzo(a)pyrene				5
Bis(2-chloroethyl)ether				10
Bis(2-ethylhexyl)phthalate				10
Bromodichloromethane				10
Bromoform				10
Cadmium				1
Carbon Tetrachloride				2
Carbaryl				5
Chlordane*				0.2
Chlorobenzene				10
Chlorodibromomethane				10

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Chloroform				10
Chlorpyrifos				0.05
Chromium (Total)				3
Chromium (Tri) **(*1)**				N/A
Chromium (Hex)				3
Copper				2
Chrysene				5
p-Chloro-m-Cresol				10
4,6-Dinitro-o-Cresol				50
p-Cresol				10
Cyanide **(*2)**				10
4,4'- DDD				0.1
4,4'- DDE				0.1
4,4'- DDT				0.02
2,4-D				0.7
Demeton (O and S)				0.20
Diazinon				0.5/0.1
1,2-Dibromoethane				10
m-Dichlorobenzene				10
o-Dichlorobenzene				10
p-Dichlorobenzene				10
3,3'-Dichlorobenzidine				5
1,2-Dichloroethane				10
1,1-Dichloroethylene				10
Dichloromethane				20
1,2-Dichloropropane				10
1,3-Dichloropropene				10
Dicofol				1
Dieldrin				0.02
2,4-Dimethylphenol				10
Di-n-Butyl Phthalate				10
Diuron				0.09
Endosulfan I (alpha)				0.01
Endosulfan II (beta)				0.02

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Endosulfan Sulfate				0.1
Endrin				0.02
Ethylbenzene				10
Fluoride				500
Guthion				0.1
Heptachlor				0.01
Heptachlor Epoxide				0.01
Hexachlorobenzene				5
Hexachlorobutadiene				10
Hexachlorocyclohexane (alpha)				0.05
Hexachlorocyclohexane (beta)				0.05
gamma-Hexachlorocyclohexane (Lindane)				0.05
Hexachlorocyclopentadiene				10
Hexachloroethane				20
Hexachlorophene				10
Lead				0.5
Malathion				0.1
Mercury				0.005
Methoxychlor				2
Methyl Ethyl Ketone				50
Mirex				0.02
Nickel				2
Nitrate-Nitrogen				100
Nitrobenzene				10
N-Nitrosodiethylamine				20
N-Nitroso-di-n-Butylamine				20
Nonylphenol				333
Parathion (ethyl)				0.1
Pentachlorobenzene				20
Pentachlorophenol				5
Phenanthrene				10
Polychlorinated Biphenyls (PCB's) **(*3)**				0.2
Pyridine				20

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Selenium				5
Silver				0.5
1,2,4,5-Tetrachlorobenzene				20
1,1,2,2-Tetrachloroethane				10
Tetrachloroethylene				10
Thallium				0.5
Toluene				10
Toxaphene				0.3
2,4,5-TP (Silvex)				0.3
Tributyltin (see instructions for explanation)				0.01
1,1,1-Trichloroethane				10
1,1,2-Trichloroethane				10
Trichloroethylene				10
2,4,5-Trichlorophenol				50
TTHM (Total Trihalomethanes)				10
Vinyl Chloride				10
Zinc				5

(*1) Determined by subtracting hexavalent Cr from total Cr.

(*2) Cyanide, amenable to chlorination or weak-acid dissociable.

(*3) The sum of seven PCB congeners 1242, 1254, 1221, 1232, 1248, 1260, and 1016.

Section 2. Priority Pollutants

For pollutants identified in Tables 4.0(2)A-E, indicate type of sample.

Grab ☐ Composite ☐

Date and time sample(s) collected: Click to enter text.

Table 4.0(2)A – Metals, Cyanide, and Phenols

Pollutant	**AVG Effluent Conc. (µg/l)**	**MAX Effluent Conc. (µg/l)**	**Number of Samples**	**MAL (µg/l)**
Antimony				5
Arsenic				0.5
Beryllium				0.5
Cadmium				1
Chromium (Total)				3
Chromium (Hex)				3
Chromium (Tri) **(*1)**				N/A
Copper				2
Lead				0.5
Mercury				0.005
Nickel				2
Selenium				5
Silver				0.5
Thallium				0.5
Zinc				5
Cyanide **(*2)**				10
Phenols, Total				10

(*1) Determined by subtracting hexavalent Cr from total Cr.

(*2) Cyanide, amenable to chlorination or weak-acid dissociable

Table 4.0(2)B – Volatile Compounds

Pollutant	**AVG Effluent Conc. (µg/l)**	**MAX Effluent Conc. (µg/l)**	**Number of Samples**	**MAL (µg/l)**
Acrolein				50
Acrylonitrile				50
Benzene				10
Bromoform				10
Carbon Tetrachloride				2
Chlorobenzene				10
Chlorodibromomethane				10
Chloroethane				50
2-Chloroethylvinyl Ether				10
Chloroform				10
Dichlorobromomethane [Bromodichloromethane]				10
1,1-Dichloroethane				10
1,2-Dichloroethane				10
1,1-Dichloroethylene				10
1,2-Dichloropropane				10
1,3-Dichloropropylene [1,3-Dichloropropene]				10
1,2-Trans-Dichloroethylene				10
Ethylbenzene				10
Methyl Bromide				50
Methyl Chloride				50
Methylene Chloride				20
1,1,2,2-Tetrachloroethane				10
Tetrachloroethylene				10
Toluene				10
1,1,1-Trichloroethane				10
1,1,2-Trichloroethane				10
Trichloroethylene				10
Vinyl Chloride				10

Table 4.0(2)C – Acid Compounds

Pollutant	**AVG Effluent Conc. (µg/l)**	**MAX Effluent Conc. (µg/l)**	**Number of Samples**	**MAL (µg/l)**
2-Chlorophenol				10
2,4-Dichlorophenol				10
2,4-Dimethylphenol				10
4,6-Dinitro-o-Cresol				50
2,4-Dinitrophenol				50
2-Nitrophenol				20
4-Nitrophenol				50
P-Chloro-m-Cresol				10
Pentalchlorophenol				5
Phenol				10
2,4,6-Trichlorophenol				10

Table 4.0(2)D – Base/Neutral Compounds

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Acenaphthene				10
Acenaphthylene				10
Anthracene				10
Benzidine				50
Benzo(a)Anthracene				5
Benzo(a)Pyrene				5
3,4-Benzofluoranthene				10
Benzo(ghi)Perylene				20
Benzo(k)Fluoranthene				5
Bis(2-Chloroethoxy)Methane				10
Bis(2-Chloroethyl)Ether				10
Bis(2-Chloroisopropyl)Ether				10
Bis(2-Ethylhexyl)Phthalate				10
4-Bromophenyl Phenyl Ether				10
Butyl benzyl Phthalate				10
2-Chloronaphthalene				10
4-Chlorophenyl phenyl ether				10
Chrysene				5
Dibenzo(a,h)Anthracene				5
1,2-(o)Dichlorobenzene				10
1,3-(m)Dichlorobenzene				10
1,4-(p)Dichlorobenzene				10
3,3-Dichlorobenzidine				5
Diethyl Phthalate				10
Dimethyl Phthalate				10
Di-n-Butyl Phthalate				10
2,4-Dinitrotoluene				10
2,6-Dinitrotoluene				10
Di-n-Octyl Phthalate				10
1,2-Diphenylhydrazine (as Azo-benzene)				20
Fluoranthene				10
Fluorene				10

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Hexachlorobenzene				5
Hexachlorobutadiene				10
Hexachlorocyclo-pentadiene				10
Hexachloroethane				20
Indeno(1,2,3-cd)pyrene				5
Isophorone				10
Naphthalene				10
Nitrobenzene				10
N-Nitrosodimethylamine				50
N-Nitrosodi-n-Propylamine				20
N-Nitrosodiphenylamine				20
Phenanthrene				10
Pyrene				10
1,2,4-Trichlorobenzene				10

Table 4.0(2)E - Pesticides

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Aldrin				0.01
alpha-BHC (Hexachlorocyclohexane)				0.05
beta-BHC (Hexachlorocyclohexane)				0.05
gamma-BHC (Hexachlorocyclohexane)				0.05
delta-BHC (Hexachlorocyclohexane)				0.05
Chlordane				0.2
4,4-DDT				0.02
4,4-DDE				0.1
4,4,-DDD				0.1
Dieldrin				0.02
Endosulfan I (alpha)				0.01
Endosulfan II (beta)				0.02
Endosulfan Sulfate				0.1
Endrin				0.02
Endrin Aldehyde				0.1
Heptachlor				0.01
Heptachlor Epoxide				0.01
PCB-1242				0.2
PCB-1254				0.2
PCB-1221				0.2
PCB-1232				0.2
PCB-1248				0.2
PCB-1260				0.2
PCB-1016				0.2
Toxaphene				0.3

* For PCBS, if all are non-detects, enter the highest non-detect preceded by a “<”.

Section 3. Dioxin/Furan Compounds

A. Indicate which of the following compounds from may be present in the influent from a contributing industrial user or significant industrial user. Check all that apply.

☐ 2,4,5-trichlorophenoxy acetic acid

Common Name 2,4,5-T, CASRN 93-76-5

☐ 2-(2,4,5-trichlorophenoxy) propanoic acid

Common Name Silvex or 2,4,5-TP, CASRN 93-72-1

☐ 2-(2,4,5-trichlorophenoxy) ethyl 2,2-dichloropropionate

Common Name Erbon, CASRN 136-25-4

☐ 0,0-dimethyl 0-(2,4,5-trichlorophenyl) phosphorothioate

Common Name Ronnel, CASRN 299-84-3

☐ 2,4,5-trichlorophenol

Common Name TCP, CASRN 95-95-4

☐ hexachlorophene

Common Name HCP, CASRN 70-30-4

For each compound identified, provide a brief description of the conditions of its/their presence at the facility.

Click to enter text.

B. Do you know or have any reason to believe that 2,3,7,8 Tetrachlorodibenzo-P-Dioxin (TCDD) or any congeners of TCDD may be present in your effluent?

☐ Yes ☐ No

If **yes**, provide a brief description of the conditions for its presence.

Click to enter text.

C. If any of the compounds in Subsection A **or** B are present, complete Table 4.0(2)F.

For pollutants identified in Table 4.0(2)F, indicate the type of sample.

Grab ☐ Composite ☐

Date and time sample(s) collected: Click to enter text.

Table 4.0(2)F – Dioxin/Furan Compounds

Compound	**Toxic Equivalency Factors**	**Wastewater Concentration (ppq)**	**Wastewater Equivalents (ppq)**	**Sludge Concentration (ppt)**	**Sludge Equivalents (ppt)**	**MAL (ppq)**
2,3,7,8 TCDD	1					10
1,2,3,7,8 PeCDD	0.5					50
2,3,7,8 HxCDDs	0.1					50
1,2,3,4,6,7,8 HpCDD	0.01					50
2,3,7,8 TCDF	0.1					10
1,2,3,7,8 PeCDF	0.05					50
2,3,4,7,8 PeCDF	0.5					50
2,3,7,8 HxCDFs	0.1					50
2,3,4,7,8 HpCDFs	0.01					50
OCDD	0.0003					100
OCDF	0.0003					100
PCB 77	0.0001					0.5
PCB 81	0.0003					0.5
PCB 126	0.1					0.5
PCB 169	0.03					0.5
Total						

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 5.0: TOXICITY TESTING REQUIREMENTS

The following **is required** for facilities with a current operating design flow of **1.0 MGD or greater**, with an EPA-approved **pretreatment** program (or those required to have one under 40 CFR Part 403), or are required to perform Whole Effluent Toxicity testing. See instructions for further details.

This worksheet is not required minor amendments without renewal.

Section 1. Required Tests (Instructions Page 88)

Indicate the number of 7-day chronic or 48-hour acute Whole Effluent Toxicity (WET) tests performed in the four and one-half years prior to submission of the application.

7-day Chronic: Click to enter text.

48-hour Acute: Click to enter text.

Section 2. Toxicity Reduction Evaluations (TREs)

Has this facility completed a TRE in the past four and a half years? Or is the facility currently performing a TRE?

☐ Yes ☐ No

If yes, describe the progress to date, if applicable, in identifying and confirming the toxicant.

Click to enter text.

Section 3. Summary of WET Tests

If the required biomonitoring test information has not been previously submitted via both the Discharge Monitoring Reports (DMRs) and the Table 1 (as found in the permit), provide a summary of the testing results for all valid and invalid tests performed over the past four and one-half years. Make additional copies of this table as needed.

Table 5.0(1) Summary of WET Tests

Test Date	Test Species	NOEC Survival	NOEC Sub-lethal

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 6.0: INDUSTRIAL WASTE CONTRIBUTION

The following **is required** for **all publicly owned treatment works**.

Section 1. All POTWs (Instructions Page 89)

A. Industrial users (IUs)

Provide the number of each of the following types of industrial users (IUs) that discharge to your POTW and the daily flows from each user. See the Instructions for definitions of Categorical IUs, Significant IUs – non-categorical, and Other IUs.

If there are no users, enter 0 (zero).

Categorical IUs:

Number of IUs: Click to enter text.

Average Daily Flows, in MGD: Click to enter text.

Significant IUs – non-categorical:

Number of IUs: Click to enter text.

Average Daily Flows, in MGD: Click to enter text.

Other IUs:

Number of IUs: Click to enter text.

Average Daily Flows, in MGD: Click to enter text.

B. Treatment plant interference

In the past three years, has your POTW experienced treatment plant interference (see instructions)?

☐ Yes ☐ No

If yes, identify the dates, duration, description of interference, and probable cause(s) and possible source(s) of each interference event. Include the names of the IUs that may have caused the interference.

Click to enter text.

C. Treatment plant pass through

In the past three years, has your POTW experienced pass through (see instructions)?

☐ Yes ☐ No

If yes, identify the dates, duration, a description of the pollutants passing through the treatment plant, and probable cause(s) and possible source(s) of each pass through event. Include the names of the IUs that may have caused pass through.

Click to enter text.

D. Pretreatment program

Does your POTW have an approved pretreatment program?

☐ Yes ☐ No

If yes, complete Section 2 only of this Worksheet.

Is your POTW required to develop an approved pretreatment program?

☐ Yes ☐ No

If yes, complete Section 2.c. and 2.d. only, and skip Section 3.

If no to either question above, skip Section 2 and complete Section 3 for each significant industrial user and categorical industrial user.

E. Service Area Map

Attach a map indicating the service area of the POTW. The map should include the applicant's service area boundaries and the location of any known industrial users discharging to the POTW. Please see the instructions for guidance.

Attachment: Click to enter text.

Section 2. POTWs with Approved Programs or Those Required to Develop a Program (Instructions Page 90)

A. Substantial modifications

Have there been any **substantial modifications** to the approved pretreatment program that have not been submitted to the TCEQ for approval according to *40 CFR §403.18*?

☐ Yes ☐ No

If yes, identify the modifications that have not been submitted to TCEQ, including the purpose of the modification.

Click to enter text.

B. Non-substantial modifications

Have there been any **non-substantial modifications** to the approved pretreatment program that have not been submitted to TCEQ for review and acceptance?

☐ Yes ☐ No

If yes, identify all non-substantial modifications that have not been submitted to TCEQ, including the purpose of the modification.

Click to enter text.

C. Effluent parameters above the MAL

In Table 6.0(1), list all parameters measured above the MAL in the POTW's effluent monitoring during the last three years. Submit an attachment if necessary.

Table 6.0(1) – Parameters Above the MAL

Pollutant	Concentration	MAL	Units	Date

D. Industrial user interruptions

Has any SIU, CIU, or other IU caused or contributed to any problems (excluding interferences or pass throughs) at your POTW in the past three years?

☐ Yes ☐ No

If yes, identify the industry, describe each episode, including dates, duration, description of the problems, and probable pollutants.

Click to enter text.

Section 3. Significant Industrial User (SIU) Information and Categorical Industrial User (CIU) (Instructions Page 90)

A. General information

Company Name: Click to enter text.

SIC Code: Click to enter text.

Contact name: Click to enter text.

Address: Click to enter text.

City, State, and Zip Code: Click to enter text.

Telephone number: Click to enter text.

Email address: Click to enter text.

B. Process information

Describe the industrial processes or other activities that affect or contribute to the SIU(s) or CIU(s) discharge (i.e., process and non-process wastewater).

Click to enter text.

C. Product and service information

Provide a description of the principal product(s) or services performed.

Click to enter text.

D. Flow rate information

See the Instructions for definitions of “process” and “non-process wastewater.”

Process Wastewater:

Discharge, in gallons/day: Click to enter text.

Discharge Type: ☐ Continuous ☐ Batch ☐ Intermittent

Non-Process Wastewater:

Discharge, in gallons/day: Click to enter text.

Discharge Type: ☐ Continuous ☐ Batch ☐ Intermittent

E. Pretreatment standards

Is the SIU or CIU subject to technically based local limits as defined in the *i*nstructions?

☐ Yes ☐ No

Is the SIU or CIU subject to categorical pretreatment standards found in *40 CFR Parts 405-471*?

☐ Yes ☐ No

If subject to categorical pretreatment standards, indicate the applicable category and subcategory for each categorical process.

Category: Subcategories: Click to enter text.

Click or tap here to enter text. Click to enter text.

Category: Click to enter text.

Subcategories: Click to enter text.

Category: Click to enter text.

Subcategories: Click to enter text.

Category: Click to enter text.

Subcategories: Click to enter text.

Category: Click to enter text.

Subcategories: Click to enter text.

F. Industrial user interruptions

Has the SIU or CIU caused or contributed to any problems (e.g., interferences, pass through, odors, corrosion, blockages) at your POTW in the past three years?

☐ Yes ☐ No

If yes, identify the SIU, describe each episode, including dates, duration, description of problems, and probable pollutants.

Click to enter text.

WORKSHEET 7.0

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

CLASS V INJECTION WELL INVENTORY/AUTHORIZATION FORM

Submit the completed form to:

TCEQ
IUC Permits Team
Radioactive Materials Division
MC-233
PO Box 13087
Austin, Texas 78711-3087
512-239-6466

For TCEQ Use Only
Reg. No._____
Date Received_____
Date Authorized_____

Section 1. General Information (Instructions Page 92)

1. TCEQ Program Area

Program Area (PST, VCP, IHW, etc.): TPDES/SADDS

Program ID: Click to enter text.

Contact Name: Click to enter text.

Phone Number: Click to enter text.

2. Agent/Consultant Contact Information

Contact Name: James Prochaska

Address: PO Box 5667

City, State, and Zip Code: Bryan, TX 77805

Phone Number: 979-779-6500

3. Owner/Operator Contact Information

☒ Owner ☐ Operatore

Owner/Operator Name: White Rocks Entertainment

Contact Name: Chris Milam

Address: 3300 Bee Cave Rd

City, State, and Zip Code: Westlake Hills, TX, 78746

Phone Number: 512-923-9796

4. Facility Contact Information

Facility Name: same as owner

Address: Click to enter text.

City, State, and Zip Code: Click to enter text.

Location description (if no address is available): Click to enter text.

Facility Contact Person: Click to enter text.

Phone Number: Click to enter text.

5. Latitude and Longitude, in degrees-minutes-seconds

Latitude: 30-16-45

Longitude: 97-54-55

Method of determination (GPS, TOPO, etc.): GPS

Attach topographic quadrangle map as attachment A.

6. Well Information

Type of Well Construction, select one:

- ☐ Vertical Injection
- ☒ Subsurface Fluid Distribution System
- ☐ Infiltration Gallery
- ☐ Temporary Injection Points
- ☐ Other, Specify: Click to enter text.

Number of Injection Wells: Click to enter text.

7. Purpose

Detailed Description regarding purpose of Injection System:

Subsurface area drip dispersal system (SADDS) for onsite wastewater disposal of treated effluent.

Attach a Site Map as Attachment B (Attach the Approved Remediation Plan, if appropriate.)

8. Water Well Driller/Installer

Water Well Driller/Installer Name: N/A

City, State, and Zip Code: Click to enter text.

Phone Number: Click to enter text.

License Number: Click to enter text.

Section 2. Proposed Down Hole Design

Attach a diagram signed and sealed by a licensed engineer as Attachment C.

Table 7.0(1) – Down Hole Design Table

Name of String	Size	Setting Depth	Sacks Cement/Grout – Slurry Volume – Top of Cement	Hole Size	Weight (lbs/ft) PVC/Steel
Casing	N/A				
Tubing					
Screen					

Section 3. Proposed Trench System, Subsurface Fluid Distribution

System, or Infiltration Gallery

Attach a diagram signed and sealed by a licensed engineer as Attachment D.

System(s) Dimensions: < 35 ac

System(s) Construction: Poly drip tubing and PVC pipe

Section 4. Site Hydrogeological and Injection Zone Data

1. Name of Contaminated Aquifer: NA

2. Receiving Formation Name of Injection Zone: Click to enter text.

3. Well/Trench Total Depth: Click to enter text.

4. Surface Elevation: Click to enter text.

5. Depth to Ground Water: Click to enter text.

6. Injection Zone Depth: Click to enter text.

7. Injection Zone vertically isolated geologically? ☐ Yes ☐ No

Impervious Strata between Injection Zone and nearest Underground Source of Drinking Water:

Name: Click to enter text.

Thickness: Click to enter text.

8. Provide a list of contaminants and the levels (ppm) in contaminated aquifer

Attach as Attachment E.

9. Horizontal and Vertical extent of contamination and injection plume

Attach as Attachment F.

10. Formation (Injection Zone) Water Chemistry (Background levels) TDS, etc.

Attach as Attachment G.

11. Injection Fluid Chemistry in PPM at point of injection

Attach as Attachment H.

12. Lowest Known Depth of Ground Water with < 10,000 PPM TDS: Click to enter text.

13. Maximum injection Rate/Volume/Pressure: 0.61 gph, 0.1 gpd/sqft

14. Water wells within 1/4 mile radius (attach map as Attachment I): O

15. Injection wells within 1/4 mile radius (attach map as Attachment J): NA

16. Monitor wells within 1/4 mile radius (attach drillers logs and map as Attachment K): NA

17. Sampling frequency: NA

18. Known hazardous components in injection fluid: None

Section 5. Site History

1. Type of Facility: NA
2. Contamination Dates: Click to enter text.
3. Original Contamination (VOCs, TPH, BTEX, etc.) and Concentrations (attach as Attachment L): Click to enter text.
4. Previous Remediation (attach results of any previous remediation as attachment M): Click to enter text.

NOTE: Authorization Form should be completed in detail and authorization given by the TCEQ before construction, operation, and/or conversion can begin. Attach additional pages as necessary.

Class V Injection Well Designations

5A07 Heat Pump/AC return (IW used for groundwater to heat and/or cool buildings)
5A19 Industrial Cooling Water Return Flow (IW used to cool industrial process equipment)
5B22 Salt Water Intrusion Barrier (IW used to inject fluids to prevent the intrusion of salt water into an aquifer)
5D02 Storm Water Drainage (IW designed for the disposal of rain water)
5D04 Industrial Stormwater Drainage Wells (IW designed for the disposal of rain water associated with industrial facilities)
5F01 Agricultural Drainage (IW that receive agricultural runoff)
5R21 Aquifer Recharge (IW used to inject fluids to recharge an aquifer)
5S23 Subsidence Control Wells (IW used to control land subsidence caused by ground water withdrawal)
5W09 Untreated Sewage
5W10 Large Capacity Cesspools (Cesspools that are designed for 5,000 gpd or greater)
5W11 Large Capacity Septic systems (Septic systems designed for 5,000 gpd or greater)
5W12 WTTP disposal
5W20 Industrial Process Waste Disposal Wells
5W31 Septic System (Well Disposal method)
5W32 Septic System Drainfield Disposal
5X13 Mine Backfill (IW used to control subsidence, dispose of mining byproducts, and/or fill sections of a mine)
5X25 Experimental Wells (Pilot Test) (IW used to test new technologies or tracer dye studies)
5X26 Aquifer Remediation (IW used to clean up, treat, or prevent contamination of a USDW)
5X27 Other Wells
5X28 Motor Vehicle Waste Disposal Wells (IW used to dispose of waste from a motor vehicle site - These are currently banned)
5X29 Abandoned Drinking Water Wells (waste disposal)

ATTACHMENT A

TCEQ Use Only

TCEQ Core Data Form

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

SECTION I: General Information

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

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

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

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

SECTION II: Customer Information

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

☒ New Customer ☐ Update to Customer Information ☐ Change in Regulated Entity Ownership

☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).

6. Customer Legal Name *(If an individual, print last name first: eg: Doe, John)*	*If new Customer, enter previous Customer below:*
White Rocks Entertainment 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)*
803394227	32071621034	842698451	

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

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

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

☐ Owner ☐ Operator ☒ Owner & Operator

☐ Occupational Licensee ☐ Responsible Party ☐ Voluntary Cleanup Applicant ☐ Other:

15. Mailing Address:								
	3300 Bee Cave Road							
	Suite 650-1313							
	City	Westlake Hills	State	TX	ZIP	78746	ZIP + 4	6600

16. Country Mailing Information *(if outside USA)*	17. E-Mail Address *(if applicable)*
	cbryan@idmco.us

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(512) 923-9796		( ) -

SECTION III: Regulated Entity Information

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

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

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

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

White Rocks Entertainment LLC

23. Street Address of the Regulated Entity: *(No PO Boxes)*	10549 HWY 71 West							
	City	Austin	State	TX	ZIP	78736	ZIP + 4	
24. County	Travis							

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:	On SH 71, 1/2 mile NW of intersection of SH 71 and Southwest Parkway

26. Nearest City	State	Nearest ZIP Code
Bee Cave	TX	78736

27. Latitude (N) In Decimal:			28. Longitude (W) In Decimal:		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
30	16	45	97	54	55

29. Primary SIC Code (4 digits)	30. Secondary SIC Code (4 digits)	31. Primary NAICS Code (5 or 6 digits)	32. Secondary NAICS Code (5 or 6 digits)

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

Project Development

34. Mailing Address:	3300 Bee Cave Road, Suite 650-1313							
	City	Westlake Hills	State	TX	ZIP	78746	ZIP + 4	6600

35. E-Mail Address:	cbryan@idmco.us

36. Telephone Number	37. Extension or Code	38. Fax Number *(if applicable)*
(512) 923-9796		( ) -

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form. See the Core Data Form instructions for additional guidance.

☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Emissions Inventory Air	☐ Industrial Hazardous Waste
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☒ Waste Water	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	James Miertschin	41. Title:	Engineer

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(512) 327-2708		(512) 327-2733	jm@jmaenv.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:	White Rocks Entertainment LLC	Job Title:	President
Name *(In Print)*:	Christopher Milam	Phone:	(512) 923- 9796
Signature:		Date:	May 15, 2024

ATTACHMENT B

SECTION 15. PLAIN LANGUAGE SUMMARY

White Rocks Entertainment LLC proposes to operate White Rocks Treatment Facility, an activated sludge treatment plant. The facility will be located near the intersection of Hwy 71 and Southwest Parkway in Travis County, Texas.

Applicant requests a TLAP permit for wastewater disposal. This permit will not authorize a discharge of pollutants into water in the state. Discharges from the facility are expected to contain organic and nutrient materials from domestic wastewater sources. The raw wastewater will be treated in an activated sludge-based treatment plant to provide an effluent quality suitable for drip irrigation.

ATTACHMENT C

Texas Commission on Environmental Quality

Public Involvement Plan Form for Permit and Registration Applications

The Public Involvement Plan is intended to provide applicants and the agency with information about how public outreach will be accomplished for certain types of applications in certain geographical areas of the state. It is intended to apply to new activities; major changes at existing plants, facilities, and processes; and to activities which are likely to have significant interest from the public. This preliminary screening is designed to identify applications that will benefit from an initial assessment of the need for enhanced public outreach.

All applicable sections of this form should be completed and submitted with the permit or registration application. For instructions on how to complete this form, see TCEQ-20960-inst.

Section 1. Preliminary Screening

☒ New Permit or Registration Application

☐ New Activity – modification, registration, amendment, facility, etc. (see instructions)

If neither of the above boxes are checked, completion of the form is not required and does not need to be submitted.

Section 2. Secondary Screening

☒ Requires public notice,

☐ Considered to have significant public interest, **and**

☒ Located within any of the following geographical locations:

- Austin
- Dallas
- Fort Worth
- Houston
- San Antonio
- West Texas
- Texas Panhandle
- Along the Texas/Mexico Border
- Other geographical locations should be decided on a case-by-case basis

If all the above boxes are not checked, a Public Involvement Plan is not necessary. Stop after Section 2 and submit the form.

☒ Public Involvement Plan not applicable to this application. Provide **brief** explanation.

TLAP with drip irrigation, 71-ac site; lack of discharge component should minimize public interest.

Section 3. Application Information

Type of Application (check all that apply):

Air ☐ Initial ☐ Federal ☐ Amendment ☐ Standard Permit ☐ Title V

Waste ☐ Municipal Solid Waste ☐ Industrial and Hazardous Waste ☐ Scrap Tire
☐ Radioactive Material Licensing ☐ Underground Injection Control

Water Quality

☐ Texas Pollutant Discharge Elimination System (TPDES)

- ☐ Texas Land Application Permit (TLAP)
- ☐ State Only Concentrated Animal Feeding Operation (CAFO)
- ☐ Water Treatment Plant Residuals Disposal Permit

☐ Class B Biosolids Land Application Permit

☐ Domestic Septage Land Application Registration

Water Rights New Permit

☐ New Appropriation of Water

☐ New or existing reservoir

Amendment to an Existing Water Right

☐ Add a New Appropriation of Water

☐ Add a New or Existing Reservoir

☐ Major Amendment that could affect other water rights or the environment

Section 4. Plain Language Summary

Provide a brief description of planned activities.

Section 5. Community and Demographic Information

Community information can be found using EPA's EJ Screen, U.S. Census Bureau information, or generally available demographic tools.

Information gathered in this section can assist with the determination of whether alternative language notice is necessary. Please provide the following information.

(City)

(County)

(Census Tract)
Please indicate which of these three is the level used for gathering the following information.

☐ City ☐ County ☐ Census Tract

(a) Percent of people over 25 years of age who at least graduated from high school

(b) Per capita income for population near the specified location

(c) Percent of minority population and percent of population by race within the specified location

(d) Percent of Linguistically Isolated Households by language within the specified location

(e) Languages commonly spoken in area by percentage

(f) Community and/or Stakeholder Groups

(g) Historic public interest or involvement

Section 6. Planned Public Outreach Activities

(a) Is this application subject to the public participation requirements of Title 30 Texas Administrative Code (30 TAC) Chapter 39?

☐ Yes ☐ No

(b) If yes, do you intend at this time to provide public outreach other than what is required by rule?

☐ Yes ☐ No

If Yes, please describe.

If you answered "yes" that this application is subject to 30 TAC Chapter 39, answering the remaining questions in Section 6 is not required.

(c) Will you provide notice of this application in alternative languages?

☐ Yes ☐ No

Please refer to Section 5. If more than 5% of the population potentially affected by your application is Limited English Proficient, then you are required to provide notice in the alternative language.

If yes, how will you provide notice in alternative languages?

☐ Publish in alternative language newspaper

☐ Posted on Commissioner's Integrated Database Website

☐ Mailed by TCEQ's Office of the Chief Clerk

☐ Other (specify)

(d) Is there an opportunity for some type of public meeting, including after notice?

☐ Yes ☐ No

(e) If a public meeting is held, will a translator be provided if requested?

☐ Yes ☐ No

(f) Hard copies of the application will be available at the following (check all that apply):

☐ TCEQ Regional Office ☐ TCEQ Central Office

☐ Public Place (specify)

Section 7. Voluntary Submittal

For applicants voluntarily providing this Public Involvement Plan, who are not subject to formal public participation requirements.

Will you provide notice of this application, including notice in alternative languages?

☐ Yes ☐ No

What types of notice will be provided?

☐ Publish in alternative language newspaper

☐ Posted on Commissioner's Integrated Database Website

☐ Mailed by TCEQ's Office of the Chief Clerk

☐ Other (specify)

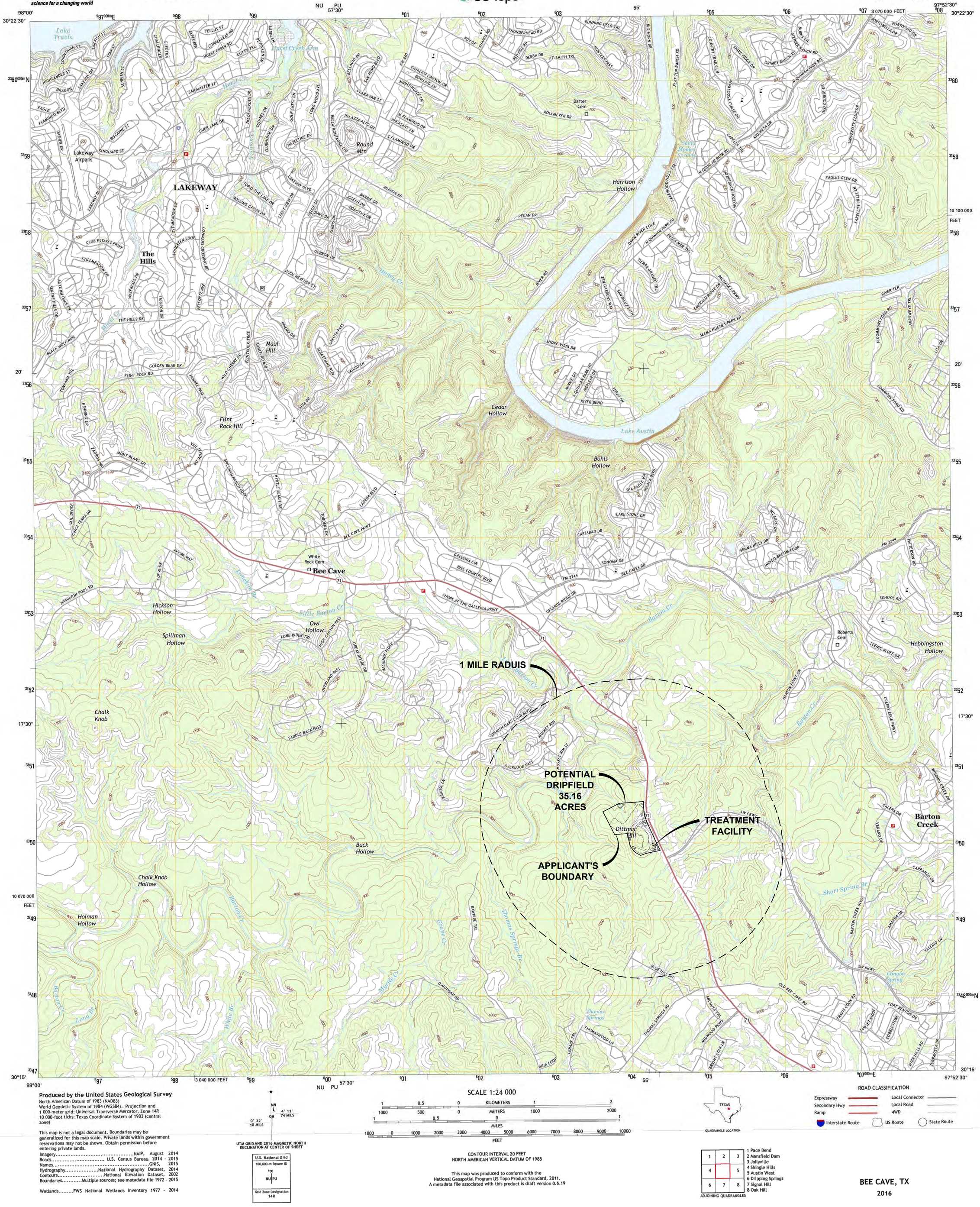
ATTACHMENT D

USGS science for a changing world

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map US Topo

BEE CAVE QUADRANGLE
TEXAS-TRAVIS CO.
7.5-MINUTE SERIES



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and 1 000-meter grid: Universal Transverse Mercator, Zone 14R
10 000-foot ticks: Texas Coordinate System of 1983 (central zone)

This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery.....NAIP, August 2014
Roads.....U.S. Census Bureau, 2014 - 2015
Names.....GNIS, 2015
Hydrography.....National Hydrography Dataset, 2014
Contours.....National Elevation Dataset, 2002
Boundaries.....Multiple sources; see metadata file 1972 - 2015

Wetlands.....FWS National Wetlands Inventory 1977 - 2014

MN 4° 11' 74 MILS
GN 0° 32' 10 MILS

UTM GRID AND 2016 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000-m Square ID
400 NU PU
Grid Zone Designation 14R

SCALE 1:24 000

1 0.5 0 KILOMETERS 1 2
1000 500 0 METERS 1000 2000
1 0.5 0 1 MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 FEET

CONTOUR INTERVAL 20 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the National Geospatial Program US Topo Product Standard, 2011.
A metadata file associated with this product is draft version 0.6.19

TEXAS
QUADRANGLE LOCATION

ROAD CLASSIFICATION

Expressway	Local Connector
Secondary Hwy	Local Road
Ramp	4WD
Interstate Route	US Route / State Route

1	2	3
4		5
6	7	8

1 Pace Bend
2 Mansfield Dam
3 Jollyville
4 Shingle Hills
5 Austin West
6 Dripping Springs
7 Signal Hill
8 Oak Hill

ADJOINING QUADRANGLES

BEE CAVE, TX
2016

7643016395021
NSN. 7643016395021
NGA REF NO. USGSX24K69298

0 1000' 2000' 4000'
SCALE: 1" = 2000'

N

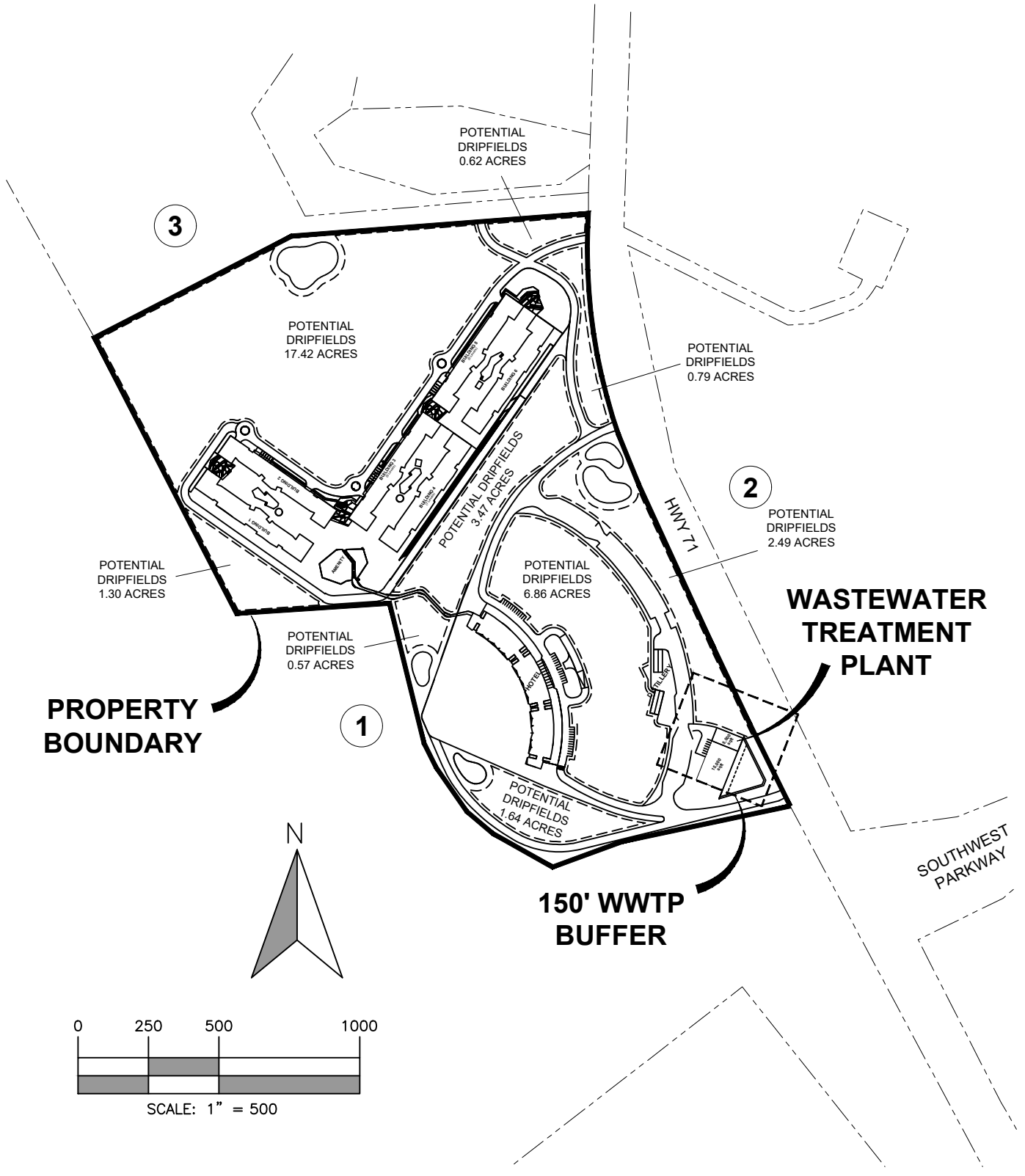
WHITE ROCKS PROJECT

BEE CAVES QUADRANGLE USGS MAP

PROJECT NO.	DESIGNED BY:
FILE NO:	DRAWN BY: ACS
DATE: 25 MARCH 2024	CHECKED BY:
SCALE: 1"=2000'	

JAMES MIERTSCHIN & ASSOCIATES, INC
ENVIRONMENTAL ENGINEERING
TX REG. # F-2458
P.O. Box 162305 Austin, Texas 78716-2305
Phone (512) 327-2708

ATTACHMENT E



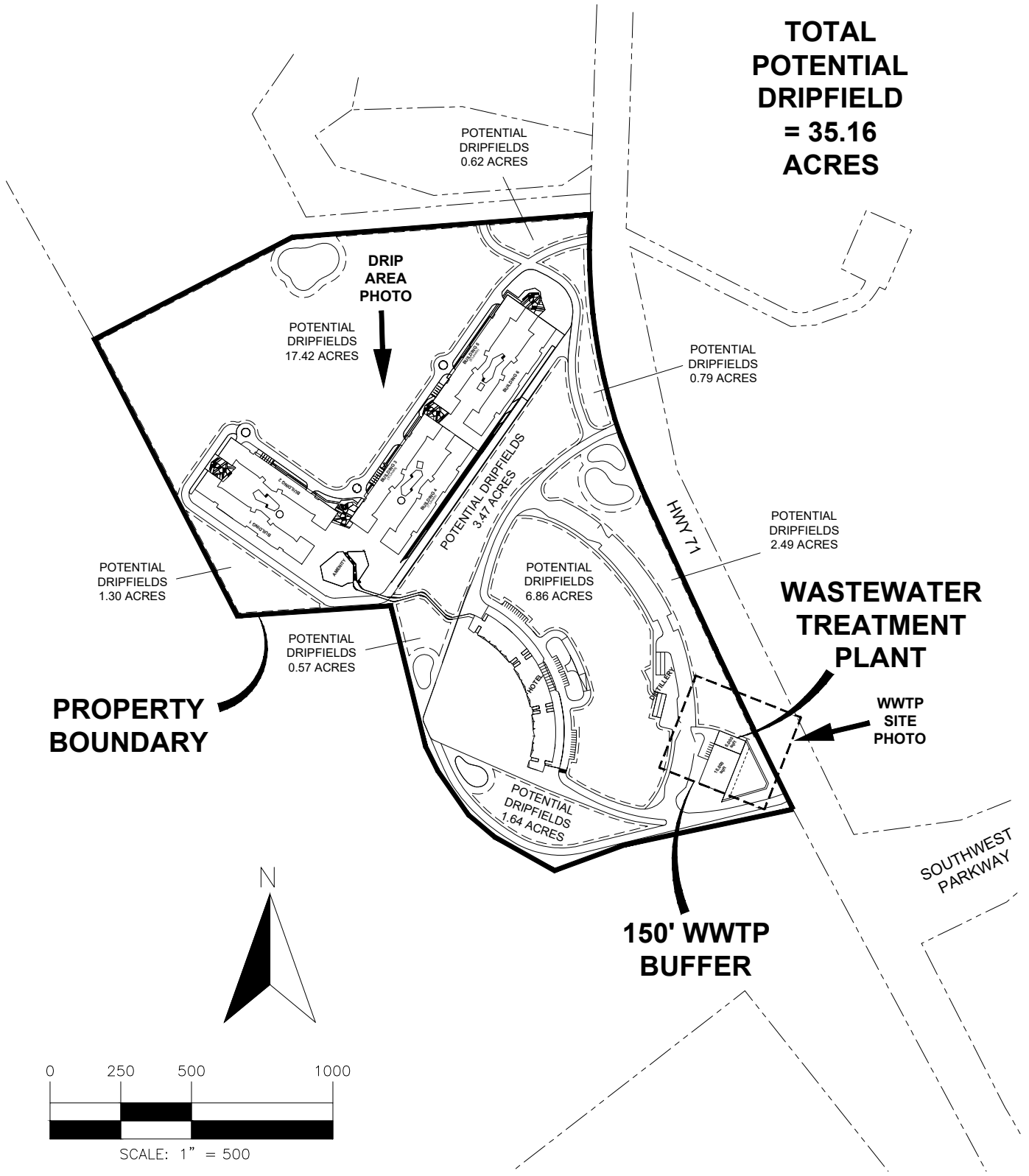
	WHITE ROCKS PROJECT	ADJACENT LANDOWNERS MAP	PROJECT NO.	DESIGNED BY:
			FILE NO:	DRAWN BY: ACS
			DATE: 25 MARCH 2024	CHECKED BY:
			SCALE: 1"=500'	

JAMES MIERTSCHIN & ASSOCIATES, INC
ENVIRONMENTAL ENGINEERING
TX REG. # F-2458
P.O. Box 162305 Austin, Texas 78716-2305
Phone (512) 327-2708

Adjacent Landowners List

Number	Name	Address	City	State	Zipcode	Prop ID
1	The Nature Conservancy	P.O. Box 81439	Corpus Christi	Tx	78468-1439	103009
2	The Nature Conservancy	P.O. Box 81439	Corpus Christi	Tx	78468-1439	109645
3	Limestone 40 LLC	4826 E Cesar Chavez	Austin	Tx	78702-5136	109635

ATTACHMENT F



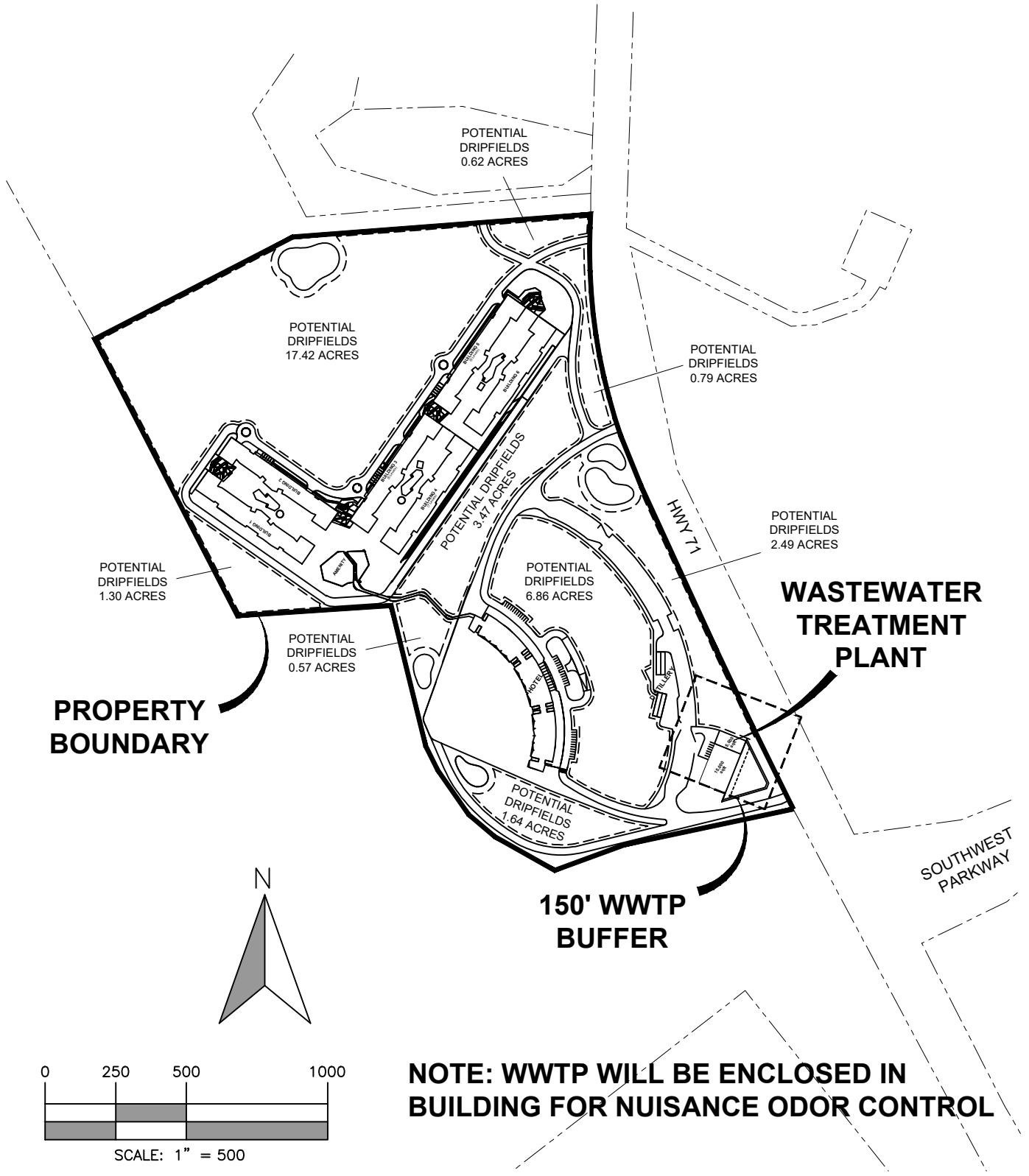
	WHITE ROCKS PROJECT	PHOTO MAP	PROJECT NO.	DESIGNED BY:
			FILE NO:	DRAWN BY: ACS
			DATE: 22 APRIL 2024	CHECKED BY:
			SCALE: 1"=500'	

JAMES MIERTSCHIN & ASSOCIATES, INC
ENVIRONMENTAL ENGINEERING
TX REG. # F-2458
P.O. Box 162305 Austin, Texas 78716-2305
Phone (512) 327-2708

PLANT SITE PHOTO

DRIP FILED PHOTO

ATTACHMENT G



NOTE: WWTP WILL BE ENCLOSED IN BUILDING FOR NUISANCE ODOR CONTROL

WHITE ROCKS PROJECT

BUFFER ZONE MAP

PROJECT NO.	DESIGNED BY:
FILE NO:	DRAWN BY: ACS
DATE: 25 MARCH 2024	CHECKED BY:
SCALE: 1"=500'	

JAMES MIERTSCHIN & ASSOCIATES, INC
ENVIRONMENTAL ENGINEERING
TX REG. # F-2458
P.O. Box 162305 Austin, Texas 78716-2305
Phone (512) 327-2708

ATTACHMENT H

James Miertschin

From: Christopher Milam <cmilam@idmco.us>
Sent: Thursday, May 16, 2024 5:13 PM
To: James Miertschin
Subject: TCEQ ePay Receipt for 582EA000610706

Done. Here's the receipt I received by email.

Begin forwarded message:

From: steers@tceq.texas.gov
Subject: TCEQ ePay Receipt for 582EA000610706
Date: May 16, 2024 at 5:11:44 PM CDT
To: cmilam@icloud.com

This is an automated message from the TCEQ ePay system. Please do not reply.
Trace Number: 582EA000610706
Date: 05/16/2024 05:11 PM
Payment Method: CC - Authorization 0000577303
TCEQ Amount: $850.00
Texas.gov Price: $869.38*

* This service is provided by Texas.gov, the official website of Texas. The price of this service includes funds that support the ongoing operations and enhancements of Texas.gov, which is provided by a third party in partnership with the State.

Actor: CHRISTOPHER MILAM
Email: cmilam@icloud.com

Payment Contact: CHRISTOPHER MILAM
Phone: 512-923-9796
Company: WHITE ROCKS ENTERTAINMENT LLC
Address: 3300 BEE CAVE RD NO 650-1313, AUSTIN, TX 78746

Fees Paid:
Fee Description AR Number Amount
WW PERMIT - FACILITY WITH FLOW >= .10 & < .25 MGD - NEW AND MAJOR AMENDMENTS $800.00
30 TAC 305.53B WQ NOTIFICATION FEE $50.00

TCEQ Amount: $850.00

==========
Voucher: 705853
Trace Number: 582EA000610706
Date: 05/16/2024 05:11 PM
Payment Method: CC - Authorization 0000577303
Voucher Amount: $800.00
Fee Paid: WW PERMIT - FACILITY WITH FLOW >= .10 & < .25 MGD - NEW AND MAJOR AMENDMENTS

Site Name: WHITE ROCKS
Site Address: 10549 STATE HIGHWAY 71 WEST, AUSTIN, TX 78736
Site Location: WEST SIDE OF HWY 71 NORTH OF SOUTHWEST PARKWAY TRAVIS COUNTY
Customer Name: WHITE ROCKS ENTERTAINMENT LLC
Customer Address: 3300 BEE CAVE RD NO 650-1313, AUSTIN, TX 78746

Voucher: 705854
Trace Number: 582EA000610706
Date: 05/16/2024 05:11 PM
Payment Method: CC - Authorization 0000577303
Voucher Amount: $50.00
Fee Paid: 30 TAC 305.53B WQ NOTIFICATION FEE

==========
To print out a copy of the receipt and vouchers for this transaction
either click on or copy and paste the following url into your browser:
https://www3.tceq.texas.gov/epay/index.cfm?fuseaction=cor.search&trace_num_txt=582EA000610706.

ATTACHMENT I

SUPPLEMENTAL TECHNICAL REPORT

FOR WASTEWATER TREATMENT PLANT

WHITE ROCKS PROJECT

Prepared by:

James Miertschin & Associates, Inc.

Post Office Box 162305

Austin, Texas 78716

01 May-2024

May 2024

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1.0 INTRODUCTION

The White Rocks project will begin construction on a wastewater treatment plant (WWTP) to serve the development upon TPDES permit approval. The construction will have a single phase to meet the needs of the complete development. The proposed project will consist of residential condominium units and a hotel. No residential units have been constructed to date.

The first and final phase will be designed to handle an average daily flow of 0.12 million gallons per day (MGD) and a peak flow of 0.24 MGD.

The applicant is proposing effluent treatment levels of 10 mg/L Carbonaceous Biochemical Oxygen Demand ($CBOD_5$), 15 mg/L Total Suspended Solids (TSS), 3 mg/L Ammonia Nitrogen (NH_3N), and 4 mg/L Dissolved Oxygen (DO). After treatment, effluent will be released for disposal in onsite drip irrigation fields.

2.0 SYSTEM FLOW PROJECTIONS

At full build-out, the primarily residential development to be served by the wastewater treatment plant is projected to have approximately 590 condominium/apartment living unit equivalents (LUEs). In addition, the hotel is projected to have 150 rooms, 50 condominiums, and associated dining and meeting spaces.

Wastewater flows were projected with assumed flows provided in Chapter 217, Table B.1 related to residential units, hotel, and restaurant categories.

3.0 INFLUENT AND EFFLUENT QUALITY DESIGN CRITERIA

3.1 INFLUENT QUALITY

Projected influent quality for the wastewater treatment plant is consistent with typical design parameters for domestic wastewater:

BOD_5: 325 mg/L

TSS: 300 mg/L

3.2 EFFLUENT QUALITY

The effluent will be discharged to drip irrigation fields located on the project tract. The wastewater treatment plant will be designed to achieve effluent limitations of:

BOD_5: 10 mg/L

TSS: 15mg/L

NH_3N: 3 mg/L

DO: 4 mg/L

4.0 WASTEWATER TREATMENT PLANT DESIGN

4.1 TREATMENT PROCESS

The first and final phase of the WWTP will consist of an activated sludge system operating in complete mix mode, single stage nitrification. The influent will pass through the headworks, aeration basin, clarifier, filters, and chlorine contact before the effluent is released to storage prior to dispersal in drip irrigation fields. Sludge will be contained in a digester/sludge holding tank before being dewatered and hauled to a TCEQ-permitted disposal site. The minimum sizes for the key treatment plant components are shown below.

Initial and Final Phase, 0.12 MGD Average Daily Flow

Treatment Unit	Dimensions/Capacity
Aeration Basin	9,293 cf
Clarifier	200 sf
Chlorine Contact Chamber	3,333 gal
Sludge Holding Tank	15,015 gal
Filters	42 sf

A schematic flow diagram for the plant treatment process is displayed in Figure 1. Sizing criteria and design calculations for the plant are found in Table 1.

The actual plant configuration will be determined at the design stage. The plant unit processes may be located in stand-alone basins, or a concentric-circle arrangement may be used. Whatever final configuration is selected, sizing will adhere to the Ch. 217 criteria summarized in Table 1.

Figure 1: Schematic Flow Diagram

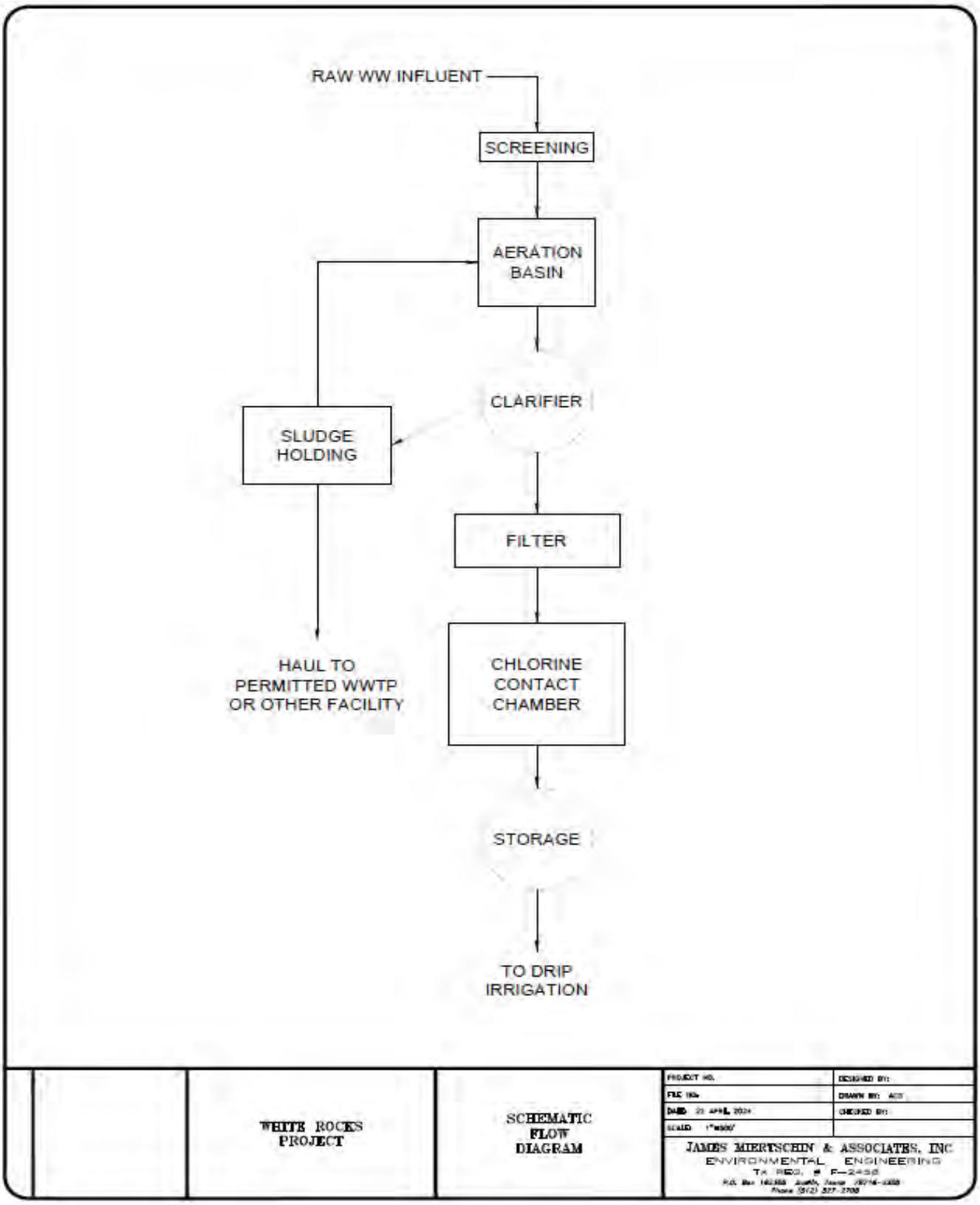


Table 1: WWTP Sizing Criteria and Design Calculations

INFLUENT STRENGTH CONDITIONS			**EFFLUENT STRENGTH CONDITIONS**		
BOD	**325**	**mg/l**	**BOD**	**10**	**mg/l**
TSS	**300**	**mg/l**	**TSS**	**15**	**mg/l**
			NH3	**3**	**mg/l**
			P		**mg/l**
PROCESS LOADINGS					
MLSS	2500	mg/l			
RASS	10000	mg/l			

	Reference		Phase: 0.1MGD	
INFLUENT FLOW CONDITIONS				
Average Daily Flow (Qd)			120,000	gpd
			83.33	gpm
2 Hour Peak Flow (Qp)			240,000	gpd
			166.67	gpm
BOD5 Load			325.26	lb/day
TSS Load			300.24	lb/day
TOTAL AERATION VOLUME REQUIRED				
Loading	30 TAC §217.154(b)(2)		**35**	**lb/1000 cf**
Req. Aeration Volume (cf)	§217.156(a)(6)		9,293	cf
Req. Aeration Volume (gal)			69,513	gal
Volume Provided, normal depth			13,827	cf
SLUDGE HOLDING VOLUME REQUIRED				
Suggested Retention Time	BPJ		20	days
VSS Reduction			0.45	
Sludge Yield, Y (from incoming BOD)			0.70	
Mass Sludge Incoming			125	lb/day
Mass Stored = Ret Time x Mass Incoming				
Holding Volume Required			15,015	gal
Holding Volume Provided			15,015	gal
CLARIFIER SIZING REQUIRED				
Surface Loading at Qp	§217.154(c)(1)		**1,200**	**gal/sf**
Conventional Area Required			200.00	sf
Surface Area Provided			200.00	sf
Vertical Flow Velocity	§217.152(a)(4)		**0.15**	**ft/sec**
Stilling Well Area Required			2.48	sf
Weir Loading	§217.152(c)(4)		**20,000**	**gal/ft**
Weir Length Required			12.00	**ft**
Detention Time	§217.154(c)(1)		**1.80**	**hours**
Volume Required (gal)			18,000.00	gal
Volume Required (cf)			2,406.42	cf
Side Water Depth (est.)			15	ft
Surface Area Required			160.43	sf
FILTRATION				
Filter Loading at Qp	§217.191(a)(2)		**4.00**	**gal/min-sf**
Surface Area Required			41.7	sf
Surface Area Provided			64.8	sf
CHLORINE CONTACT CHAMBER				
HRT	§217.281(b)((1)		**20**	**minutes**
Volume Required			3,333.3	gallons
			445.63	cf
Volume Provided			1,080.00	cf
AIR REQUIREMENTS				
Process Flow	§217.155(a)(3)		**2.20**	**lb O2/lb BOD5**
Oxygen Demand based on Load			716	lb O2/day
Airflow Default Rate	§217.155(b)(1)		**3,200**	**scf/d/lb BOD5**
Default Airflow			723	scfm
Site-Specific Airflow	§217.155(b)(2)			
Site-Specific Calculated Airflow	(see air calcs sheet)		723	icfm
Digester Air				
Air for Storage Rate	§217.251(d)(1)(C)		**30**	**scfm/1000 ft3**
Calculated Airflow			34.60	scfm
Total Calculated Airflow			**757.60**	**scfm**

4.2 EFFLUENT DISPOSAL

Effluent from the WWTP will be sent for disposal via drip irrigation on the project site.

4.3 WASTEWATER TREATMENT PLANT SITE

The WWTP site is located approximately 0.5 mile NW of the intersection SH 71 and Southwest Parkway in Travis County. The WWTP is located in an area of minimal flood hazard due to the topography.

4.4 DESIGN FEATURES

4.4.1 Overflow Prevention

The wastewater treatment plant is designed to hydraulically accommodate peak wet weather flows. The sanitary collection system for the buildings on the project site is relatively limited in extent, and there will be only minimal opportunity for any wet weather flows to intrude. Under the proposed wastewater management system, the treatment plant will be flexible for accommodation of peak flows, as specific process units are sized with a peaking factor of 2. This excess capacity should enhance the operator's ability to prevent washout of solids under high flow conditions. The influent lift station will be configured to pump the peak flow with the largest single pump out of service.

4.4.2 Emergency Power

An emergency generator will be provided at the plant site to provide auxiliary electrical power in the event of power outages from the local utility supplier. The generator will start automatically in the event of a failure.

4.4.3 Alarms

An automatic alarm dialer system will be provided at the treatment plant. An alarm will be signaled in the event of a power outage, chlorine leak, or lift station high water level. The auto-dialer will automatically dial a series of telephone numbers in order to notify an operator.

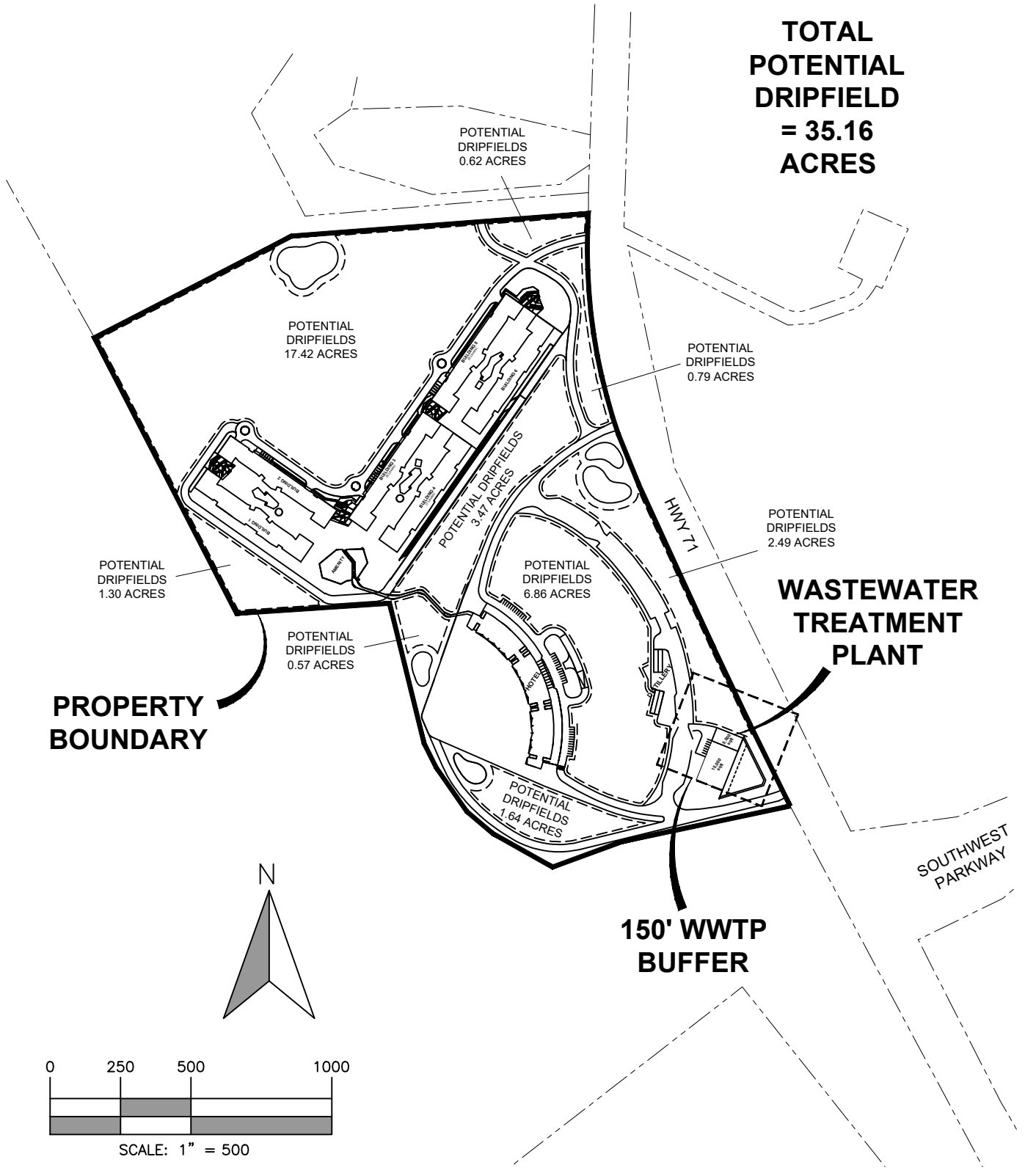
4.4.4 Reliability and Flexibility

The influent lift station will include multiple pumps that are sized to meet peak flow rates with the largest pump out of service. High wet well level will result in an alarm condition.

4.5 EFFLUENT QUALITY ENHANCEMENT

The proposed WWTP facility will be designed to achieve effluent limitations of 10 mg/L $CBOD_5$, 15 mg/L TSS, 3 mg/L NH_3N, and 4 mg/L DO.

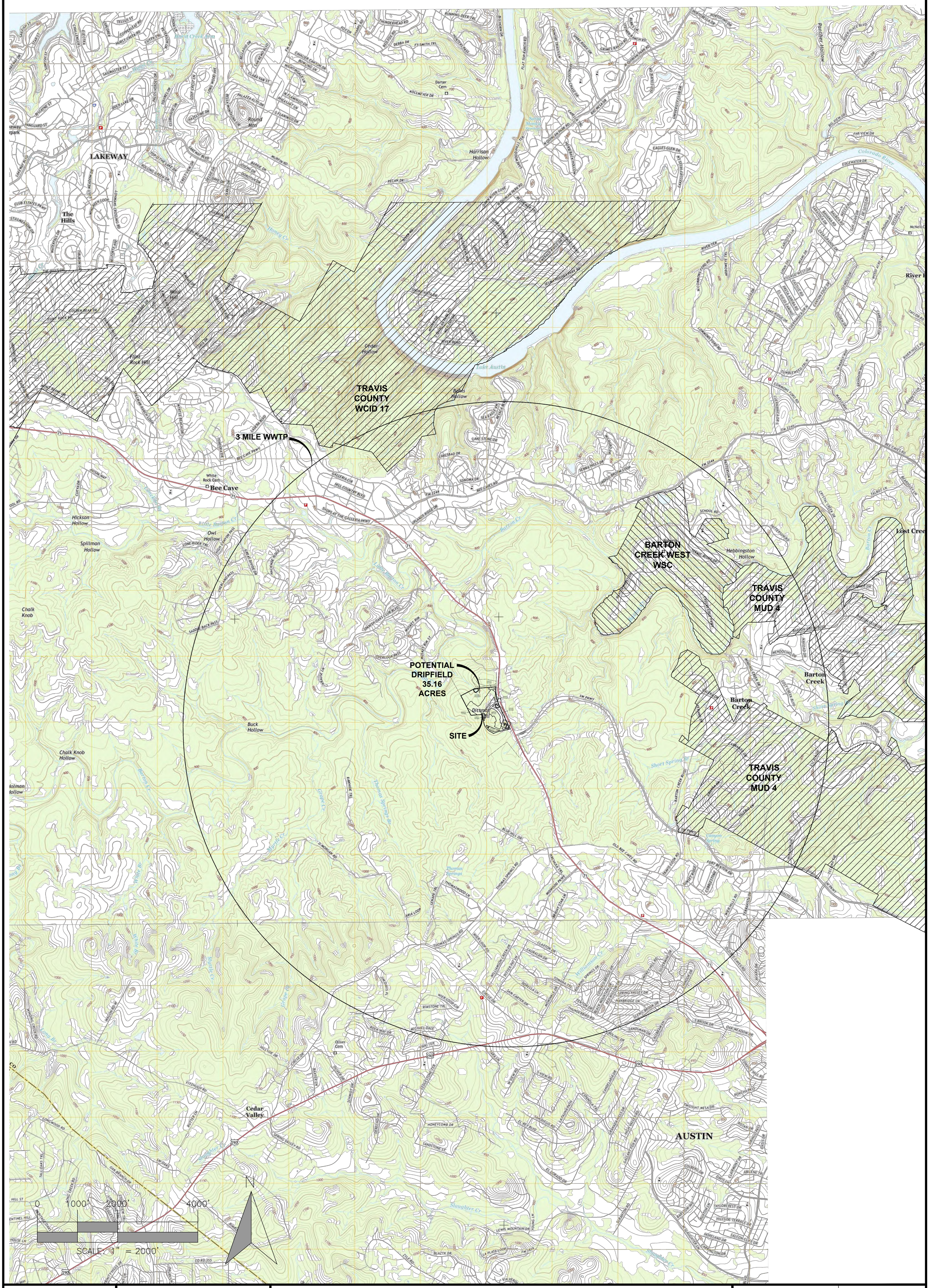
ATTACHMENT J



	WHITE ROCKS PROJECT	SITE DRAWING MAP	PROJECT NO.	DESIGNED BY:
			FILE NO:	DRAWN BY: ACS
			DATE: 22 APRIL 2024	CHECKED BY:
			SCALE: 1"=500'	

JAMES MIERTSCHIN & ASSOCIATES, INC
ENVIRONMENTAL ENGINEERING
TX REG. # F-2458
P.O. Box 162305 Austin, Texas 78716-2305
Phone (512) 327-2708

ATTACHMENT K



WHITE ROCKS PROJECT

WASTEWATER TREATMENT PLANTS WITHIN 3 MILE RADIUS

PROJECT NO.	DESIGNED BY:
FILE NO:	DRAWN BY: ACS
DATE: 25 MARCH 2024	CHECKED BY:
SCALE: 1"=2000'	

JAMES MIERTSCHIN & ASSOCIATES, INC
ENVIRONMENTAL ENGINEERING
TX REG. # F-2458
P.O. Box 162305 Austin, Texas 78716-2305
Phone (512) 327-2708

WASTEWATER COLLECTION SYSTEMS WITHIN 3 MILES

There are four wastewater collection systems located within 3 miles of the proposed project site;

- West Travis County Public Utility Agency
- WCID 17
- Cypress Hills West
- TCMUD 4

Each of these systems utilizes land disposal of effluent. None of these systems has the capability to provide wastewater service to the proposed project because of the lack of surplus available irrigation area and lack of surplus storage capacity, even without consideration of adequate wastewater treatment capacity.

James Miertschin

From: Christopher Milam <cmilam@idmco.us>
Sent: Sunday, May 12, 2024 10:36 AM
To: James Miertschin
Subject: 02. WTC PUA (Rejection)

Here is the rejection chain.

Begin forwarded message:

From: Tricia Altamirano <taltamirano@wtcpua.org>
Subject: RE: Violet Crown Project (WTCPUA SER Application)
Date: March 7, 2022 at 6:02:35 PM CST
To: Christopher Milam <cmilam@idmco.us>
Cc: Kelly Pattison <kpattison@wtcpua.org>, Jennifer Riechers <jriechers@wtcpua.org>, George Murfee <gmurfee@murfee.com>

Hi Chris,
To clarify, we do not have treatment or disposal capacity.
Thank you,

Tricia S. Tichenor-Altamirano, P.E.
Senior Engineer

WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY
13215 BEE CAVE PARKWAY
BLDG B, SUITE 110
BEE CAVE, TX 78738
DIRECT: (512) 501-8084
CELL: (512) 466-8407

-----Original Message-----
From: Christopher Milam <cmilam@idmco.us>
Sent: Monday, March 7, 2022 1:55 PM
To: Tricia Altamirano <taltamirano@wtcpua.org>
Cc: Kelly Pattison <kpattison@wtcpua.org>; Jennifer Riechers <jriechers@wtcpua.org>; George Murfee <gmurfee@murfee.com>
Subject: Re: Violet Crown Project (WTCPUA SER Application)

We would be happy to pay to extend the wastewater services infrastructure from our site to your current infrastructure, which is not too far away. I originally developed and owned the Galleria and the Shops at the Galleria, so I'm pretty familiar with the services in the area. I purchased a large number of LUEs from the PUA a few years ago for the new Backyard as well. With respect to capacity, 750 LUEs is about $7.5 million in income to the PUA, which should assist in increasing your wastewater processing

capacity, if that is necessary.

On Mar 7, 2022, at 12:04 PM, Tricia Altamirano <taltamirano@wtcpua.org> wrote:

Hi Chris,
The PUA does not have wastewater facilities in the vicinity of your project nor do we have the wastewater capacity to serve your project.
Thank you,

Tricia S. Tichenor-Altamirano, P.E.
Senior Engineer

WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY
13215 BEE CAVE PARKWAY
BLDG B, SUITE 110
BEE CAVE, TX 78738
DIRECT: (512) 501-8084
CELL: (512) 466-8407

-----Original Message-----
From: Christopher Milam <cmilam@idmco.us>
Sent: Monday, March 7, 2022 11:24 AM
To: Tricia Altamirano <taltamirano@wtcpua.org>
Cc: Kelly Pattison <kpattison@wtcpua.org>; Jennifer Riechers <jriechers@wtcpua.org>; George Murfee <gmurfee@murfee.com>
Subject: Re: Violet Crown Project (WTCPUA SER Application)

Yes, we are within the CoA potable water CCN. We are not within the CoA wastewater CCN. We are not in anyone's CCN for wastewater. It's not required that we receive water and wastewater services from the same provider. We would like for the WTC-PUA to provide wastewater service.

> On Mar 7, 2022, at 11:18 AM, Tricia Altamirano <taltamirano@wtcpua.org> wrote:
>
> Hi Chris,
>
> Our records indicate that your project is within the COA service area (CCN 11322) and will be receiving water from the COA. I have confirmed with the General Manager and District Engineer that the PUA would not be able to provide your development with wastewater service. We will return your check.
>
> Thank you,

Tricia S. Tichenor-Altamirano, P.E.
Senior Engineer
West Travis County Public Utility Agency
13215 Bee Cave Parkway
Bldg B, Suite 110
Bee Cave, TX 78738
Direct: (512) 501-8084
CELL: (512) 466-8407

From: Christopher Milam <cmilam@idmco.us>
Sent: Monday, March 7, 2022 11:07 AM
To: Tricia Altamirano <taltamirano@wtcpua.org>
Cc: Kelly Pattison <kpattison@wtcpua.org>; Jennifer Riechers <jriechers@wtcpua.org>
Subject: Violet Crown Project (WTCPUA SER Application)

Good morning Tricia.

Would it be possible to meet with you or one of your colleagues for a few minutes tomorrow morning. I will be in the Bee Cave area. I would like to get a better understanding of the PUA's process for evaluating our wastewater SER application.

Thanks, Chris.

ATTACHMENT L

Weather archive in Austin

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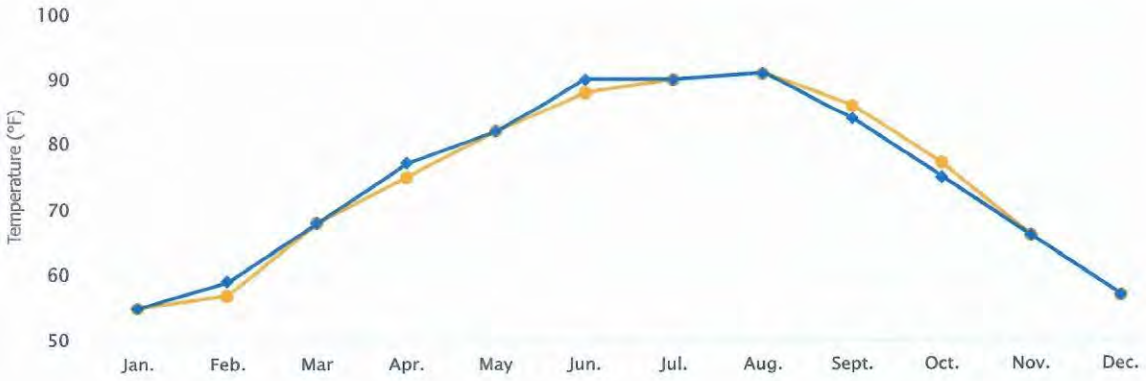
Average temperature in Austin for a year



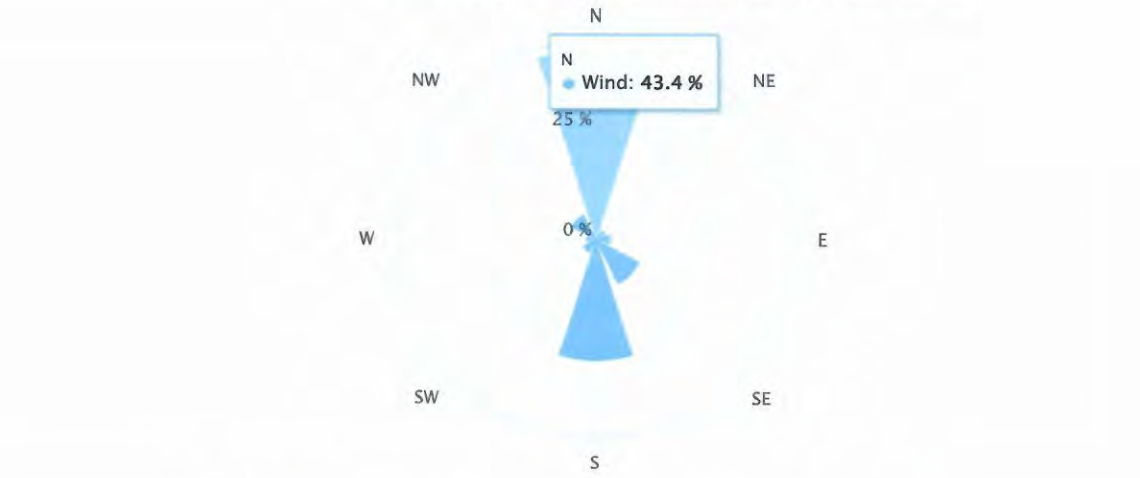
Average day and night temperatures graph in Austin for the history of our observations.

Weather archive in Austin for months and seasons

January	April	July	October
February	May	August	November
March	June	September	December

Winter Spring Summer Autumn

Wind rose in Austin

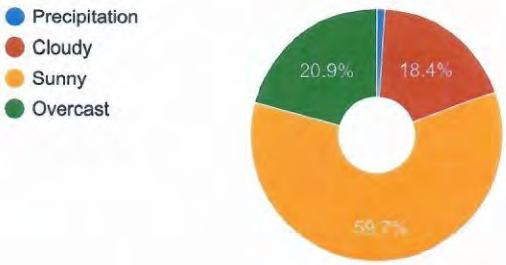


Wind direction graph in Austin using average values according to our data.

N	NE	E	SE	S	SW	W	NW
Northern	Northeastern	Eeastern	Southeastern	Southern	Southwestern	Western	Northwestern
43.4%	**2.4%**	**3.4%**	**11.2%**	**27.6%**	**3.3%**	**2.2%**	**6.4%**

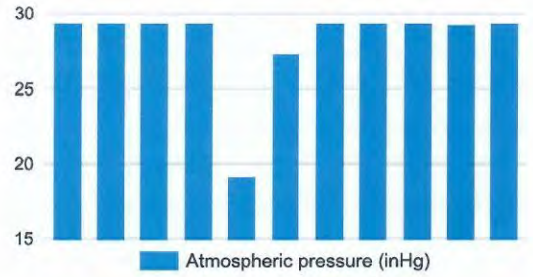
Weather characteristics

Chance of precipitation during the year:



Atmospheric pressure

Average atmospheric pressure during the year:



Graph displays the average yearly atmospheric pressure in Austin.

ATTACHMENT M

SOLIDS MANAGEMENT PLAN
PHASE - 0.12 MGD

FINAL PHASE

System Parameters:	**Symbols:**		
Design Q	Qd :=	0.12	MGD
Design BOD_5 Concentration	BOD: =	325	mg/l
Design BOD_5 Load	LBOD :=	325.26	lbs/d
Design MLSS Concentration in aeration basin	MLSS :=	2500	mg/l
F/M Food to Microorganism ratio	FM :=	0.07	day^{-1}
Sludge Yield	Y :=	0.7	lbs sludge / lb BOD5 / day
VS reduction in Digester	R :=	0.45	
Digester SS	DSS :=	20000	mg/l
Aeration basin volume	Avol :=	0.069	MG
Digester volume	Dvol :=	0.015	MG

Sludge Wasting from Aeration Basin to Digester:

Mass solids wasted = (BOD load)(sludge yield) $MSw := LBOD \cdot Y$

Mass solids under aeration = (BOD load)/(F/M) (equivalent to basin vol x MLSS) $MSa := \frac{LBOD}{FM}$

Aeration solids retention time $ASRT := \frac{MSa}{MSw}$

F/M will vary up to design condition if maintain MLSS

Flow	F/M		Solids under Aeration (lbs)		Solids Wasted (lbs/d)		Aeration SRT (days)	
25% Design Q	$FM_{.25}$ =	0.057	$MSa_{.25}$ =	1439	$MSw_{.25}$ =	56.9205	$ASRT_{.25}$=	25.275
50% Design Q	$FM_{.50}$ =	0.113	$MSa_{.50}$ =	1439	$MSw_{.50}$ =	113.841	$ASRT_{.50}$=	12.637
75% Design Q	$FM_{.75}$ =	0.170	$Msa_{.75}$ =	1439	$MSw_{.75}$ =	170.7615	$ASRT_{.75}$=	8.425
100% Design Q	$FM_{1.00}$ =	0.226	$Msa_{1.00}$ =	1439	$MSw_{1.00}$ =	227.682	$ASRT_{1.00}$=	6.319

SOLIDS MANAGEMENT PLAN
PHASE - 0.12 MGD

Sludge Wasting from Digester:

Mass solids wasted = (BOD load)(sludge yield)(VS remaining)

$$DMSw := lbod \cdot Y \cdot (1 - R)$$

Mass solids in digester = (digester volume)(digester SS)(8.34)(VS remaining)

$$DMSa := Dvol \cdot DSS \cdot 8.34 \cdot (1 - R)$$

Digester solids retention time = (mass solids in digestion)/(mass solids wasted)

$$DSRT := \frac{DMSa}{DMSw}$$

Total solids retention time = (aeration SRT) + (digester SRT)

$$TSRT := ASRT + DSRT$$

Digester SS will be maintained

Flow	Digester SS (mg/l)		Solids in Digester (lbs)		Solids Wasted (lbs/d)		Digester Solids Retention Time Days	
25% Design Q	$DSS_{.25}$ =	20000	$DMSa_{.25}$ =	1376.1	$DMSw_{.25}$ =	31.3063	$DMS_{.25}$ =	43.956
50% Design Q	$DSS_{.50}$ =	20000	$DMSa_{.50}$ =	1376.1	$DMSw_{.50}$ =	62.6126	$DMS_{.50}$ =	21.978
75% Design Q	$DSS_{.75}$ =	20000	$DMSa_{.75}$ =	1376.1	$DMSw_{.75}$ =	93.9188	$DMS_{.75}$ =	14.652
100% Design Q	$DSS_{1.00}$ =	20000	$DMSa_{1.00}$ =	1376.1	$DMSw_{1.00}$ =	125.225	$DMS_{1.00}$ =	10.989

Total Aeration Plus Digester SRT (days)

$SRT_{.25}$ = 69.231

$SRT_{.50}$ = 34.615

$SRT_{.70}$ = 23.077

$SRT_{1.00}$ = 17.308

ATTACHMENT N

CROPPING PLAN
Domestic Worksheet 3.0, Section 5

The drip irrigation fields will be a dedicated area within White Rock Entertainment property as shown on the design plans. The drip field areas are currently moderate to thickly vegetated with non-grazed vegetation, native herbaceous and woody species. The goals are to maintain considerable native areas. A significant portion of the area has been cleared.

Prior to installation of the drip irrigation system the drip field areas will be prepared for installation of piping, valves, and drip tubing. Debris and oversized rocks will be removed from the drip irrigation fields. The least amount of natural soil removed will be minimized in accomplishing that action as needed. It is the goal to minimize the amount of imported soils to supplement.

Field areas and other disturbed areas will be vegetated with approved vegetation. Applied vegetation will meet the intent of the landscaping plan, but at a minimum can hold the soil in place so that erosion does not occur and so that essential transpiration can occur. The intent of this plan is to ensure a vegetative cover that promotes transpiration throughout the year. Failure to keep a good vegetative cover can result in system failure since the operation of this system depends to a certain degree upon vegetative transpiration. Erosion of soils within the drain field areas will be addressed and repaired immediately and reseeded to maintain a thick and healthy vegetative cover.

The drip irrigation areas will be maintained and mowed as necessary to keep the existing vegetation healthy and actively growing. The grass will be mowed on an as-needed basis to maintain optimum grass height between four and eight inches. Records of mowing frequency and dates will be recorded, and records maintained on site.

It is recommended that all mowing activities utilize equipment with mulching blades. This will allow all clippings to fall through the canopy and degrade on the soil surface. The quality of the wastewater will be exceptional and will not meet the nutritive demands of the vegetation. Mulching will assist with maintaining a nutrient balance.

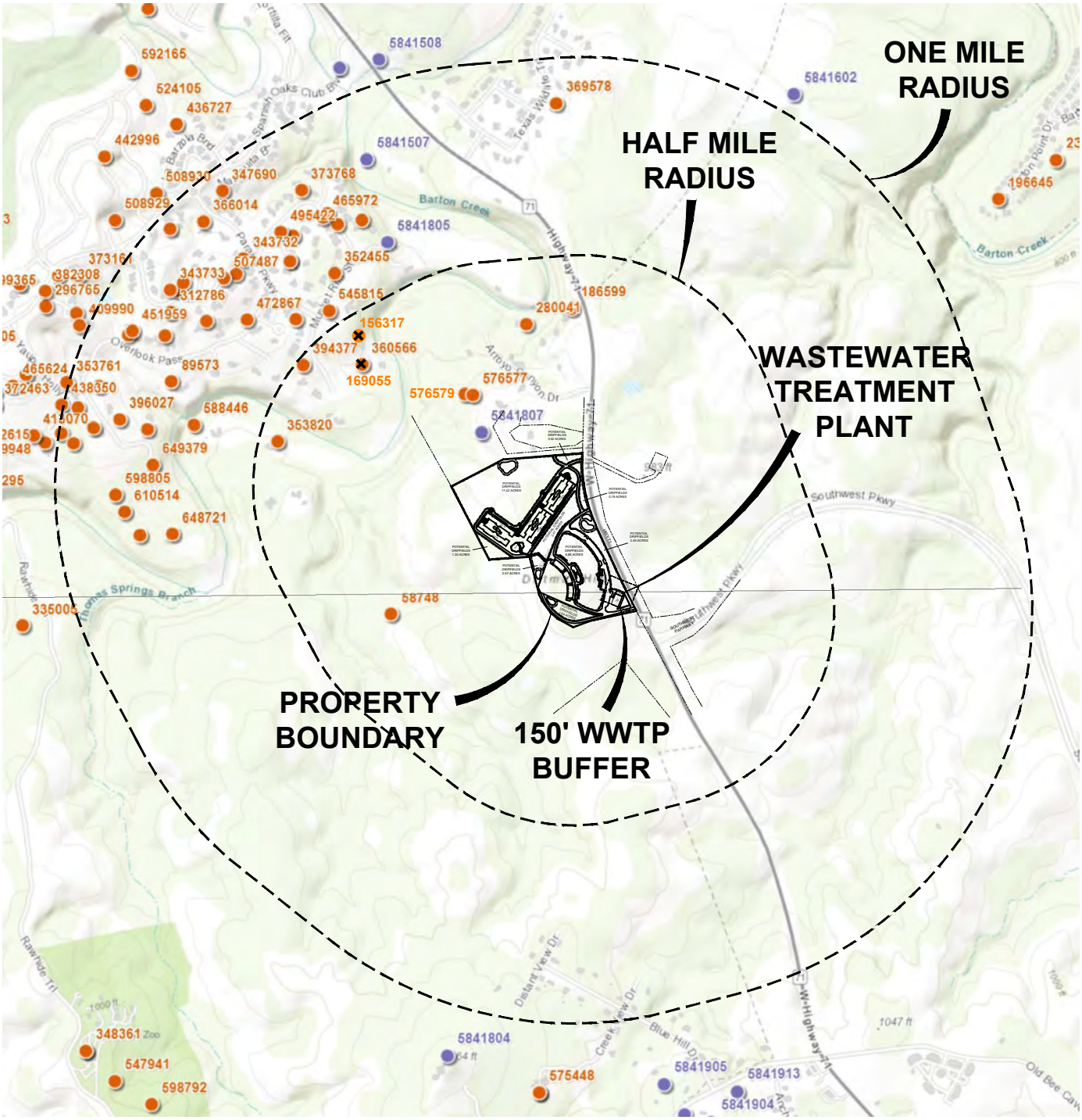
Supplemental fertilization and watering will be provided as necessary to maintain healthy vegetation. The condition of the established grass cover will be evaluated at each mowing/harvesting period, and the need for supplemental watering or fertilizer will be considered and implemented only if necessary.

All vegetation utilized will be moderately tolerant to soil salinity, although it is not anticipated that the treated wastewater will warrant concerns. A hybrid Bermuda variety typical to central Texas will be planted or seeded. A winter overseeding of Rye grass will be done in the fall in anticipation of the normal dormancy of the Bermuda grass.

James F. Prochaska, MS-PE
LWRE, LLC
TBPE Firm No. 21045

May 16, 2024

ATTACHMENT O



	WHITE ROCKS PROJECT	WELL MAP	PROJECT NO.	DESIGNED BY:
			FILE NO:	DRAWN BY: ACS
			DATE: 25 MARCH 2024	CHECKED BY:
			SCALE: 1"=500'	

JAMES MIERTSCHIN & ASSOCIATES, INC
ENVIRONMENTAL ENGINEERING
TX REG. # F-2458
P.O. Box 162305 Austin, Texas 78716-2305
Phone (512) 327-2708

STATE OF TEXAS PLUGGING REPORT for Tracking #156317

Owner:	**Emerald Crest Development**	Owner Well #:	**1**
Address:	**8131 W. Hwy 71 Austin, TX 78735**	Grid #:	**58-41-8**
		Latitude:	**30° 17' 11.51" N**
Well Location:	**11308 Musket Rim Austin, TX 78738**	Longitude:	**097° 55' 35.57" W**
Well County:	**Travis**	Elevation:	**795**

Well Type: **Withdrawal of Water**

Drilling Information

Company: **Unknown** Date Drilled: **No Data**

Driller: **Unknown** License Number: **No Data**

	Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
Borehole:	**5**	**0**	**379**

Plugging Information

Date Plugged: **2/16/2016** Plugger: **Bee Cave Drilling**

Plug Method: **Tremmie pipe bentonite from bottom to 2 feet from surface, cement top 2 feet**

Casing Left in Well:

DIa (in.)	*Top (ft.)*	*Bottom (ft.)*
5	**2**	**379**

Plug(s) Placed in Well:

Top (ft.)	*Bottom (ft.)*	*Description (number of sacks & material)*
0	**5**	**Cement 4 Bags/Sacks**
5	**379**	**Bentonite 43 Bags/Sacks**

Certification Data: The driller certified that the driller plugged this well (or the well was plugged under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the reports(s) being returned for completion and resubmittal.

Company Information: **Bee Cave Drilling, Inc.**

185 Angel Fire Dr.
Dripping Springs, TX 78620

Driller Name: **Jim Blair** License Number: **54416**

Comments: **Water level 278' BGL**

STATE OF TEXAS PLUGGING REPORT for Tracking #169055

Owner:	**Jim Evans**	Owner Well #:	**No Data**
Address:	**11917 Musket Rim St Austin, TX 78738**	Grid #:	**58-41-8**
Well Location:	**11917 Musket Rim St Austin, TX 78738**	Latitude:	**30° 17' 08" N**
		Longitude:	**097° 55' 35" W**
Well County:	**Travis**	Elevation:	**938**

Well Type: **Irrigation**

Drilling Information

Company: **Whisenant & Lyle Water Services** Date Drilled: **4/8/2014**

Driller: **Martin Dale Lingle Jr** License Number: **54813**

Well Report Tracking #360566

	Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
Borehole:	**7.875**	**0**	**900**

Plugging Information

Date Plugged: **5/12/2017** Plugger: **FRED SMITH**

Plug Method: **Tremmie pipe bentonite from bottom to 2 feet from surface, cement top 2 feet**

Casing Left in Well:

Dia (in.)	*Top (ft.)*	*Bottom (ft.)*
4.5	**0**	**900**

Plug(s) Placed in Well:

Top (ft.)	*Bottom (ft.)*	*Description (number of sacks & material)*
0	**2**	**Cement 1 Bags/Sacks**
2	**900**	**Bentonite 38 Bags/Sacks**

Certification Data: The driller certified that the driller plugged this well (or the well was plugged under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the reports(s) being returned for completion and resubmittal.

Company Information: **Hydro Resources Mid-Continent, Inc.**

31866 RR 12
Dripping Springs, TX 78620

Driller Name: **FRED SMITH** License Number: **54437**

Apprentice Name: **MATT OVERTON** Apprentice Number: **59990**

Comments: **No Data**

Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number 58-41-807

GWDB Reports and Downloads

Well Basic Details

Scanned Documents

State Well Number	5841807
County	Travis
River Basin	Colorado
Groundwater Management Area	9
Regional Water Planning Area	K - Lower Colorado
Groundwater Conservation District	Southwestern Travis County GCD
Latitude (decimal degrees)	30.283055
Latitude (degrees minutes seconds)	30° 16' 59" N
Longitude (decimal degrees)	-97.921389
Longitude (degrees minutes seconds)	097° 55' 17" W
Coordinate Source	+/- 1 Second
Aquifer Code	217HSTN - Hosston Formation
Aquifer	Trinity
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	900
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	800
Well Depth Source	Geophysical Log
Drilling Start Date	
Drilling End Date	4/0/1982
Drilling Method	
Borehole Completion	

Well Type	Withdrawal of Water
Well Use	Industrial
Water Level Observation	Miscellaneous Measurements
Water Quality Available	No
Pump	
Pump Depth (feet below land surface)	
Power Type	
Annular Seal Method	
Surface Completion	
Owner	Gearhart
Driller	Central Texas Drlg.
Other Data Available	Electric Log; Gamma Ray
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	
Groundwater Conservation District Well Number	
Owner Well Number	
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	4/14/1982
Last Update Date	3/4/2020

Remarks	

Casing - No Data

Well Tests - No Data

Lithology - No Data

Annular Seal Range - No Data

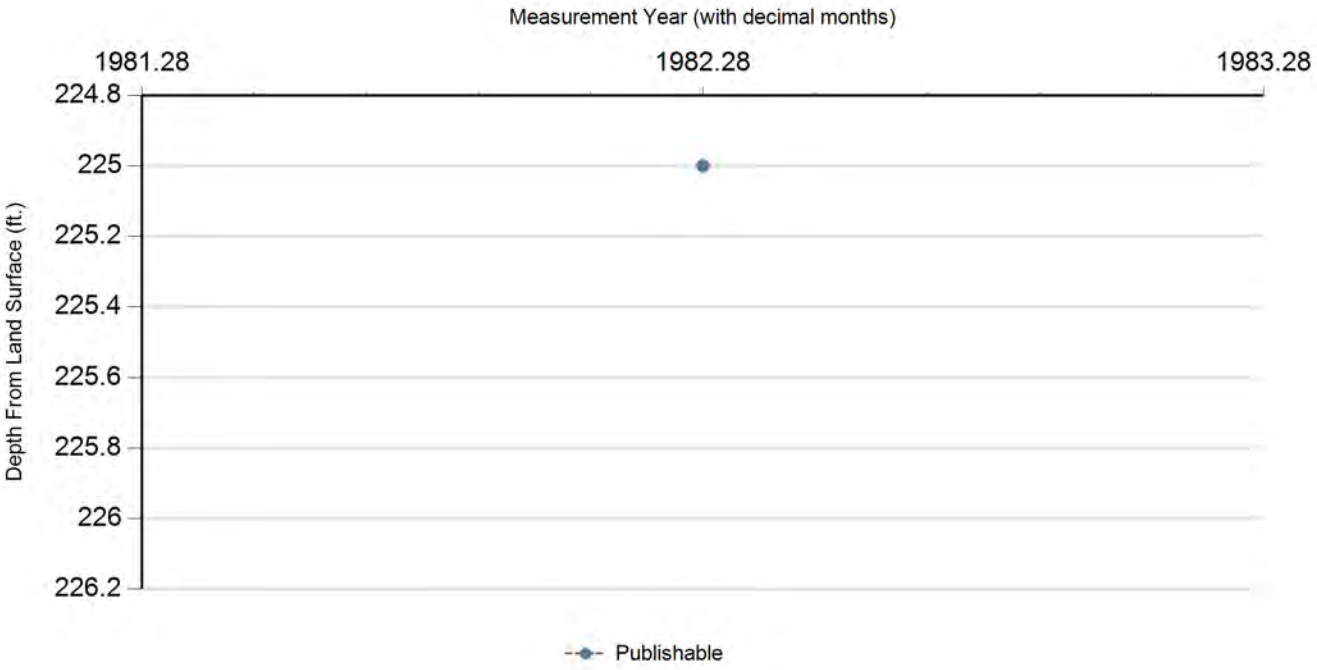
Borehole - No Data

Plugged Back - No Data

Filter Pack - No Data

Packers - No Data

Water Level Measurements



Status Code	Date	Time	Water Level (ft. below land surface)	Change value in ( ) indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	4/14/1982		225		675	1	Texas Water Development Board	Logging Sonde		

Code Descriptions

Status Code	Status Description
P	Publishable

Water Quality Analysis - No Data Available

STATE OF TEXAS WELL REPORT for Tracking #186599

Owner:	**STAN DENISON**	Owner Well #:	**No Data**
Address:	**P. O. BOX 91989 AUSTIN, TX 78709**	Grid #:	**58-41-8**
Well Location:	**10901 HWY. 71 WEST AUSTIN, TX 78735**	Latitude:	**30° 17' 15" N**
		Longitude:	**097° 55' 03" W**
Well County:	**Travis**	Elevation:	**No Data**

Type of Work: **New Well** Proposed Use: **Domestic**

Drilling Start Date: **6/8/2009** Drilling End Date: **6/8/2009**

Borehole:

Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
11	**0**	**100**
6.5	**100**	**830**

Drilling Method: **Air Rotary**

Borehole Completion: **CASED**

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
0	**100**	**10 CEMENT**
0	**100**	**12 VOLCLAY**

Seal Method: **PRESSURE TRIMMY CEMENTING**

Sealed By: **Driller**

Distance to Property Line (ft.): **N/A**

Distance to Septic Field or other concentrated contamination (ft.): **N/A**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **WELL DRILLED FIRST**

Surface Completion: **Surface Sleeve Installed**

Water Level: **397.7 ft.** below land surface on **2009-06-08** Measurement Method: **Unknown**

Packers: **5 BURLAP,PVC,RUBBER 60',570',590',610',750'**

Type of Pump: **Submersible**

Well Tests: **Jetted** **Yield: 60 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
80	**TRINITY**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **CENTRAL TEXAS DRILLING, INC.**

2520 HWY. 290 WEST
DRIPPING SPRINGS, TX 78620

Driller Name: **AARON GLASS** License Number: **4227**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**30**	**FILL**
30	**40**	**CALICHE**
40	**42**	**BLUE LIMESTONE**
42	**330**	**GRAY LIMESTONE**
330	**480**	**TAN LIMESTONE**
480	**510**	**GRAY LIMESTONE**
510	**540**	**TAN LIMESTONE**
540	**550**	**GRAY W/TAN LIMESTONE**
550	**590**	**HAMMIT CLAY**
590	**605**	**HAMMIT CLAY W/RED CLAY**
605	**690**	**GRAY/TAN SANDSTONE**
690	**720**	**TRINITY SAND (RED)**
720	**740**	**SAND W/RED CLAY STRIPS**
740	**800**	**RED SAND**
800	**830**	**SAND & GRAVEL**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia. (in.) New/Used Type Setting From/To (ft.)
5" OD N SDR17 PVC +3 TO 830
5" OD N SDR17 PVC 670 TO 710 .032
5" OD N SDR17 PVC SLOT 770 TO 830 .032

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #280041

Owner:	**Foursquare Builders / Scott residence**	Owner Well #:	**No Data**
Address:	**3315 RR 620 south Austin, TX 78738**	Grid #:	**58-41-8**
Well Location:	**11036 Arroyo Canyon Dr. TX**	Latitude:	**30° 17' 13" N**
		Longitude:	**097° 55' 10" W**
Well County:	**Travis**	Elevation:	**No Data**
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **1/2/2012** Drilling End Date: **1/3/2012**

Borehole:

Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
9	**0**	**100**
6.125	**100**	**690**

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
1	**100**	**13cmt 4aqgel**

Seal Method: **positive displacement ext./tremie**

Sealed By: **ADC**

Distance to Property Line (ft.): **10**

Distance to Septic Field or other concentrated contamination (ft.): **100+**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **Tape**

Surface Completion: **Surface Sleeve Installed**

Water Level: **315 ft.** below land surface on **2012-01-03** Measurement Method: **Unknown**

Packers: **burlap and plastic @ 600,580, and 100**

Type of Pump: **Submersible** Pump Depth (ft.): **640**

Well Tests: **Jetted** **Yield: 25 GPM**

Plug Information:

Description (number of sacks & material)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
n/a		

Water Quality:

Strata Depth (ft.)	Water Type
630-690	**trinity**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Associated Drilling Inc.**

12928 Lowden Ln.
Manchaca, TX 78652

Driller Name: **James Benoit** License Number: **4064**

Comments: **Emily Marsh / Chris Minor**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**30**	**sandy loam**
30	**32**	**gravel**
32	**325**	**gray lime**
325	**390**	**tan lime**
390	**410**	**tan limestone**
410	**525**	**gray lime**
525	**540**	**gray shale**
540	**590**	**gray limestone**
590	**630**	**red sandstone**
630	**680**	**multi-colored limestones**
680	**690**	**yellow limestone**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
5 od.	**new**	**sdr17 pvc**	**-2 to 620**
5 od.	**new**	**sdr17 pvc (.032) screen**	**620 to 680**
5 od.	**new**	**sdr17 pvc**	**680 to 690**

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P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #353820

Owner:	**Scott Duncan**	Owner Well #:	**No Data**
Address:	**11945 Overlook Pass Austin, TX 78738**	Grid #:	**58-41-8**
Well Location:	**11945 Overlook Pass Austin, TX 78738**	Latitude:	**30° 16' 58" N**
		Longitude:	**097° 55' 48" W**
Well County:	**Travis**	Elevation:	**No Data**
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **12/27/2013** Drilling End Date: **12/27/2013**

Borehole:

Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
9	**0**	**50**
6.25	**50**	**790**

Drilling Method: **Air Rotary**

Borehole Completion: **cased; Straight Wall**

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
1	**50**	**5cmt 3gel**

Seal Method: **hand poured**

Sealed By: **ADC**

Distance to Property Line (ft.): **60**

Distance to Septic Field or other concentrated contamination (ft.): **n/a**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **well drilled first / owner**

Surface Completion: **Surface Sleeve Installed**

Water Level: **396 ft.** below land surface on **2013-12-27** Measurement Method: **Unknown**

Packers: **burlap,plastic,rubber @ 530,510,50**

Type of Pump: **Submersible** Pump Depth (ft.): **0**

Well Tests: **Jetted** **Yield: 20-25 GPM**

Plug Information:

Description (number of sacks & material)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
n/a		

Water Quality:

Strata Depth (ft.)	Water Type
525-780	**trinity**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Associated Drilling Inc.**

PO Box 673
Dripping Springs, TX 78620

Driller Name: **James Benoit** License Number: **4064**

Comments: **Glass Well Service**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**5**	**topsoil**
5	**20**	**tan lime**
20	**415**	**gray lime**
415	**455**	**gray shale**
455	**525**	**gray and white limestone**
525	**630**	**red sandstone**
630	**710**	**red and white limestone**
710	**720**	**multi-colored limestones (gravel)**
720	**780**	**yellow limestone**
780	**790**	**gray shale**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia. (in.) New/Used Type Setting From/To (ft.)
5 od new sdr17 pvc -3 to 690
5 od new sdr17 pvc (.032) screen 690 to 770
5 od new sdr17 pvc 770 to 790

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P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #360566

Owner:	**Jim Evans**	Owner Well #:	**No Data**
Address:	**11917 Musket Rim St Austin, TX 78738**	Grid #:	**58-41-8**
Well Location:	**11917 Musket Rim St Austin, TX 78738**	Latitude:	**30° 17' 08" N**
		Longitude:	**097° 55' 35" W**
Well County:	**Travis**	Elevation:	**938 ft. above sea level**

****This well has been plugged**** **Plugging Report Tracking #169055**

Type of Work: **New Well** Proposed Use: **Irrigation**

Drilling Start Date: **4/3/2014** Drilling End Date: **4/8/2014**

	Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
Borehole:	**7.875**	**0**	**900**

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
Annular Seal Data:	**0**	**380**	**3-3/8hp24bs9ptH**

Seal Method: **Pos. Displacement**

Sealed By: **Driller**

Variance Number: **042-14**

Distance to Property Line (ft.): **8'**

Distance to Septic Field or other concentrated contamination (ft.): **N/A**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **Measured**

Surface Completion: **Pitless Adapter Used**

Water Level: **394 ft.** below land surface on **2014-04-04** Measurement Method: **Unknown**

Packers: **6Mil-Poly -Shale Packer 380**
6Mil-Poly 400
6Mil-Poly- Shale Packer 600

Type of Pump: **Submersible** Pump Depth (ft.): **760**

Well Tests: **Jetted** **Yield: 25+ GPM**

Water Quality:

Strata Depth (ft.)	Water Type
800-900	**Good TDS 900**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Whisenant & Lyle Water Services**

PO Box 525
Dripping Springs, TX 78620

Driller Name: **Martin Lingle** License Number: **54813**

Apprentice Name: **Travis Haffelder** Apprentice Number: **58603**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**1**	**Top soil**
1	**3**	**Tan brown limestone**
3	**55**	**Light gray limestone**
55	**60**	**Gray shale**
60	**180**	**Light gray tan limestone**
180	**210**	**Tan Limestone**
210	**520**	**Tan brown limestone 380 - 18GPM**
520	**570**	**Gray Limestone**
570	**600**	**Gray Clay**
600	**620**	**Tan white -brown limestone**
620	**640**	**Gray limestone**
640	**660**	**Gray brown sandstone**
660	**680**	**Tan brown-black rock**
680	**700**	**Conglomerate**
700	**720**	**Red clay Red sandstone blue limestone**
720	**900**	**Conglomerate**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
4.5	**New**	**PVC-SDR 17IB**	**+2 to 800**
4.5	**New**	**PVC-17 Slotted .035**	**800 to 900**

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P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #394377

Owner:	**Don Thomas**	Owner Well #:	**No Data**
Address:	**5020 Calabria Ct. Austin, TX 78738**	Grid #:	**58-41-8**
Well Location:	**5020 Calabria Ct. Austin, TX 78738**	Latitude:	**30° 17' 08" N**
		Longitude:	**097° 55' 44" W**
Well County:	**Travis**	Elevation:	**No Data**
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **4/1/2015** Drilling End Date: **4/1/2015**

Borehole:

Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
9	**0**	**50**
6.25	**50**	**790**

Drilling Method: **Air Rotary**

Borehole Completion: **cased; Straight Wall**

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
-1	**50**	**7cmt 2gel**

Seal Method: **hand poured**

Sealed By: **ADC**

Distance to Property Line (ft.): **>100**

Distance to Septic Field or other concentrated contamination (ft.): **>100 city**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **owner**

Surface Completion: **Surface Sleeve Installed**

Water Level: **521 ft.** below land surface on **2015-04-01** Measurement Method: **Unknown**

Packers: **burlap,plastic,rubber @ 590,585,510,50**

Type of Pump: **Submersible** Pump Depth (ft.): **720**

Well Tests: **Jetted** **Yield: 20-25 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
521-790	**Trinity**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Associated Drilling Inc.**

PO Box 673
Dripping Springs, TX 78620

Driller Name: **James Benoit** License Number: **4064**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**25**	**white chalk**
25	**395**	**gray lime**
395	**410**	**tan white limestone**
410	**490**	**gray lime**
490	**510**	**gray shale**
510	**585**	**tan white limestone**
585	**610**	**red sandstone**
610	**635**	**red white sandstone (h2o)**
635	**775**	**red sandstone**
775	**790**	**multi-colored limestones (h2o)**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
5	**od**	**new**	**sdr17 pvc -3 to 630**
5	**od**	**new**	**sdr17 pvc (.032) screen 630 to 790 stag.**

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Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #576577

Owner:	**Kenyon Companies, Inc.**	Owner Well #:	**MW-1**
Address:	**4824 East Cesar Chavez Street Austin, TX 78702**	Grid #:	**58-41-8**
Well Location:	**10711 West Highway 71 Austin, TX 78735**	Latitude:	**30° 17' 03.8" N**
		Longitude:	**097° 55' 18.15" W**
Well County:	**Travis**	Elevation:	**No Data**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Start Date: **5/6/2021** Drilling End Date: **5/6/2021**

Borehole:

Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
6	**0**	**30**

Drilling Method: **Air Rotary**

Borehole Completion: **Filter Packed**

Filter Pack Intervals:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
8	**30**	**Sand**	**12/20**

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
0	**2**	**Concrete 0.58 Bags/Sacks**
2	**8**	**Bentonite 1.37 Bags/Sacks**

Seal Method: **Hand Mixed**

Sealed By: **Driller**

Distance to Property Line (ft.): **No Data**

Distance to Septic Field or other concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **No Data**

Surface Completion: **Surface Slab Installed** **Surface Completion by Driller**

Water Level: **No Data**

Packers: **No Data**

Type of Pump: **No Data**

Well Tests: **No Test Data Specified**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	**No Data**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Vortex Drilling Partners, LP**

4412 Bluemel Road
San Antonio, TX 78240

Driller Name: **James E. Neal** License Number: **4868**

Apprentice Name: **Brandon Myers**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**2**	**FILL MATERIAL; Gravel/Sand**
2	**15**	**WEATHERED LIMESTONE; Light Tan to White, Slightly Moist**
15	**30**	**LIMESTONE; Grey, Dry**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
2	**Top Cap (Locking)**	**New Plastic (PVC)**	**40**		
2	**Bottom Cap**	**New Plastic (PVC)**	**40**		
2	**Riser**	**New Plastic (PVC)**	**40**	**0**	**10**
2	**Screen**	**New Plastic (PVC)**	**40 0.010**	**10**	**30**

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Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #576579

Owner:	**Kenyon Companies, Inc.**	Owner Well #:	**MW-2**
Address:	**4824 East Cesar Chavez Street Austin, TX 78702**	Grid #:	**58-41-8**
Well Location:	**10711 West Highway 71 Austin, TX 78735**	Latitude:	**30° 17' 03.99" N**
		Longitude:	**097° 55' 19.33" W**
Well County:	**Travis**	Elevation:	**No Data**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Start Date: **5/6/2021** Drilling End Date: **5/6/2021**

Borehole:

Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
6	**0**	**30**

Drilling Method: **Air Rotary**

Borehole Completion: **Filter Packed**

Filter Pack Intervals:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
8	**30**	**Sand**	**12/20**

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
0	**2**	**Concrete 0.58 Bags/Sacks**
2	**8**	**Bentonite 1.37 Bags/Sacks**

Seal Method: **Hand Mixed**

Sealed By: **Driller**

Distance to Property Line (ft.): **No Data**

Distance to Septic Field or other concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **No Data**

Surface Completion: **Surface Slab Installed** **Surface Completion by Driller**

Water Level: **No Data**

Packers: **No Data**

Type of Pump: **No Data**

Well Tests: **No Test Data Specified**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	**No Data**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Vortex Drilling Partners, LP**

4412 Bluemel Road
San Antonio, TX 78240

Driller Name: **James E. Neal** License Number: **4868**

Apprentice Name: **Brandon Myers**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**3**	**SANDY SILT; Brown, Moist**
3	**5**	**FILL MATERIAL**
5	**18**	**WEATHERED LIMESTONE; Light Tan to White, Dry**
18	**30**	**LIMESTONE; Grey, Dry**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
2	**Top Cap (Locking)**	**New Plastic (PVC)**	**40**		
2	**Bottom Cap**	**New Plastic (PVC)**	**40**		
2	**Riser**	**New Plastic (PVC)**	**40**	**0**	**10**
2	**Screen**	**New Plastic (PVC)**	**40 0.010**	**10**	**30**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #58748

Owner:	**JOHN COOK**	Owner Well #:	**No Data**
Address:	**12310 CARLSBAD DRIVE AUSTIN, TX 78738**	Grid #:	**58-41-8**
Well Location:	**11941 OVERLOOK PASS AUSTIN, TX 78738**	Latitude:	**30° 16' 35" N**
		Longitude:	**097° 55' 31" W**
Well County:	**Travis**	Elevation:	**No Data**
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **2/28/2005** Drilling End Date: **2/28/2005**

Borehole:

Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
9	**0**	**100**
6.125	**100**	**700**

Drilling Method: **Air Rotary**

Borehole Completion: **CASED**

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
0	**10**	**12 CEMENT**
0	**10**	**15 VOLCLAY**

Seal Method: **PRESSURE TRIMMY CEMENTING**

Sealed By: **Driller**

Distance to Property Line (ft.): **N/A**

Distance to Septic Field or other concentrated contamination (ft.): **N/A**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **WELL DRILLED FIRST**

Surface Completion: **Surface Sleeve Installed**

Water Level: **No Data**

Packers: **6 BURLAP & RUBBER 100', 110',300', 470',490',450'**

Type of Pump: **Submersible**

Well Tests: **Jetted** **Yield: 40 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
65	**TRINITY**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **CENTRAL TEXAS DRILLING, INC.**

2520 HWY. 290 WEST
DRIPPING SPRINGS,, TX 78620

Driller Name: **AARON GLASS** License Number: **4227**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**1**	**TOP SOIL**
1	**35**	**CALICHE**
35	**40**	**BLUE LIMESTONE**
40	**210**	**GRAY LIMESTONE**
210	**330**	**GRAY W/TAN LIMESTONE**
330	**380**	**GRAY LIMESTONE**
380	**390**	**TAN LIMESTONE**
390	**430**	**BROWN LIMESTONE**
430	**440**	**GRAY LIMESTONE**
440	**470**	**HAMMID CLAY**
470	**480**	**HAMMID CLAY W/RED CLAY**
480	**490**	**TAN SANDSTONE**
490	**500**	**TAN/GRAY SANDSTONE**
500	**520**	**GRAY LIMESTONE**
520	**540**	**GRAY/TAN/RED SANDSTONE**
540	**570**	**RED/PIN/TAN SANDSTONE**
570	**690**	**TRINITY SANDSTONE**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
5" OD N SDR17 PVC +2 TO 700 .020			

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

ATTACHMENT P

Domestic Worksheet 3.0
White Rock SADDS

Section 7. Groundwater Quality

A. Groundwater Quality Technical Report, 30 TAC Chapter 309.20

1. There are 11 wells within ½ mile of the property boundary. None of these wells will be used for monitoring groundwater for this site. Listed by well number the use, casing, yield, static elevation, water quality, and age of each well is listed below. The listed information is limited by what is publicly available on the TWDB website. The individual well logs are provided in Exhibit O.

    a. 156317 - Plugged
        i. Use: Withdraw of Water
        ii. Casing: Cement and Bentonite
        iii. Yield: 0gpm
        iv. Static Elevation: 795 ft
        v. Water Quality: N/A
        vi. Year Drilled: Plugged 2016
    b. 169055 - Plugged
        i. Use: Irrigation
        ii. Casing: Cement and Bentonite
        iii. Yield: 0gpm
        iv. Static Elevation: 938 ft
        v. Water Quality: N/A
        vi. Year Drilled: Plugged 2017
    c. 58-41-807
        i. Use: Industrial
        ii. Casing: Steel
        iii. Yield: Not available
        iv. Static Elevation: 900 ft
        v. Water Quality: N/A
        vi. Year Drilled: 1982
    d. 186599
        i. Use: Domestic
        ii. Casing: SDR17
        iii. Yield: 60 gpm
        iv. Static Elevation: No data
        v. Water Quality: Strata depth of 80ft, Trinity formation
        vi. Year Drilled: 2009
    e. 280041
        i. Use: Domestic
        ii. Casing: SDR17

iii. Yield: 25 gpm
iv. Static Elevation: No Data
v. Water Quality: Strata Depth of 630-690ft, Trinity formation
vi. Year Drilled: 2012

f. 353820
i. Use: Domestic
ii. Casing: SDR17
iii. Yield: 20-25 gpm
iv. Static Elevation: No Data
v. Water Quality: Strata depth of 525-780 ft, Trinity formation
vi. Year Drilled: 2013

g. 360566 - Plugged
i. Use: Irrigation
ii. Casing: PVC-SDR17
iii. Yield: 25+ gpm
iv. Static Elevation: 938 ft
v. Water Quality: Strata depth of 800-900 ft, water type "Good TDS 900"
vi. Year Drilled: 2014

h. 394377
i. Use: Domestic
ii. Casing: SDR17
iii. Yield: 20-25 gpm
iv. Static Elevation: No data
v. Water Quality: Strata depth of 521-790 ft, Trinity formation
vi. Year Drilled: 2015

i. 576577
i. Use: Monitor
ii. Casing: PVC
iii. Yield: No data
iv. Static Elevation: No data
v. Water Quality: No data
vi. Year Drilled: 2021

j. 576579
i. Use: Monitor
ii. Casing: PVC
iii. Yield: No data
iv. Static Elevation: No data
v. Water Quality: No data
vi. Year Drilled: 2021

k. 58748
i. Use: Domestic
ii. Casing: SDR17
iii. Yield: 40 gpm
iv. Static Elevation: No data
v. Water Quality: Strata depth of 65 ft, Trinity formation
vi. Year Drilled: 2005

2. The hydraulic application rate for this site will be 0.1 gal/ft^2/day and will therefore limit the impacts on local groundwater. Effluent storage will be a steel tank on a concrete foundation to prevent seepage to groundwater sources.

Groundwater Quality Report Completed by:
James F. Prochaska, MS-PE
TXPE License # 80504
TBPE Firm No. 21045

May 16, 2024

ATTACHMENT Q

Site Soils Investigation

Prepared for:

WHITE ROCK ENTERTAINMENT, LLC
AUSTIN TEXAS
TRAVIS COUNTY
APRIL 2024

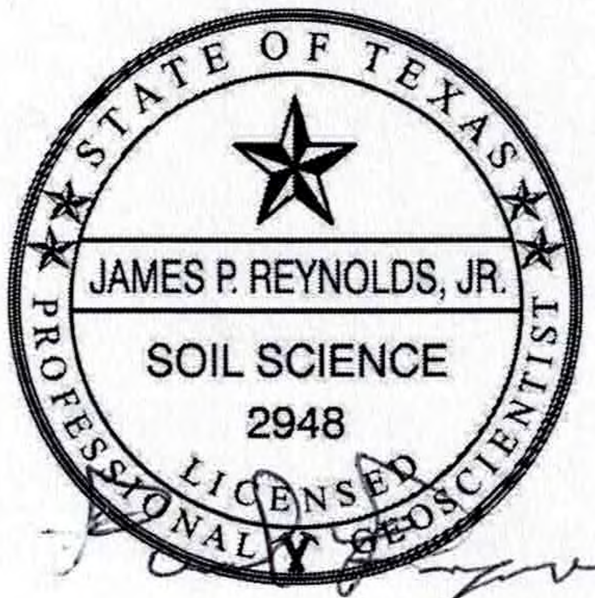
Prepared By:

Paul Reynolds, P.G. - Soil Scientist
PK double C Environmental Consulting
PO Box 778
Clarendon Texas 79226

CERTIFICATION

I certify that the content contained within this report is accurate to the extent of the data utilized in this report. The purpose of this report is to address generalities pertaining to the proposed drip irrigation operations as required by 30 TAC 222.

All information presented on this page and in the following supporting documents is true and accurate to the best of my knowledge.



4-20-2024

Paul Reynolds, P.G. – Soil Scientist
PK double C Environmental Consulting

Executive Summary

White Rock Entertainment (WRE) is applying for a new TCEQ Water Quality Permit (TLAP) for wastewater treatment to beneficially land apply treated municipal effluent via drip irrigation. The purpose of this report is to assist in the determination of land suitability and to assist in the planning phases of the project for the new drip irrigation system.

The proposed project will utilize a mixture of native woody vegetation, native grasses and improved grasses for the main mechanism of wastewater application. Any existing vegetation will be trimmed to allow for installation of the drip tubing. All tubing will be placed on contour. Tubing may be plowed or staked to the soils. The areas where subsurface drip fields are installed will then be covered with mulch to a suitable depth to protect the drip irrigation system. Areas with subsurface drip installed will be overseeded with native grasses/vegetation and/or improved grasses.

As illustrated by this report, some of the areas proposed for irrigation may require site specific work/alterations where it pertains to vegetation and some specific soil conditions and limestone outcrops associated with the landscape. In areas where the soils exhibit shallowness, best management practices will need to be developed to alleviate concerns.

The proposed Total Nitrogen loading of the effluent will be insufficient to meet the maximum nitrogen potential/demands of the vegetation. Nutrient application rates at a rate less than required for maximum growth will result in a slower growth rate, thus helping to alleviate concerns with over application of nutrients.

It is recommended that a detailed site development plan be developed prior to beginning construction to list and address specific development issues associated with the implementation of the irrigation system. This report should address the removal of limestone, trees, the importation of soil/mulch to augment existing conditions, fertility, vegetative establishment and long term maintenance.

Table of Contents

Introduction

This report was developed by PK double C Environmental Consulting (PKCC) to provide technical services in support of the irrigation system proposed at the White Rock Entertainment Development Site.

White Rock Entertainment is applying to the Commission on Environmental Quality (TCEQ) Water Quality Permit. They are proposing beneficial reuse of the treated effluent through drip irrigation that will be located on property owned and operated by the District within the confines of the permitted property.

In environmentally sensitive areas, such as the Texas Hill Country, wastewater treatment systems can discharge to a nearby stream (where allowable), surface irrigate (spray systems) or use drip irrigation technology. Topographically, the typical Hill Country landscapes generally prohibit, or severely limit, the use of surface spray systems for treated effluent application. Characteristics of major concern are slope, rock outcrop, potential erosion hazards, shallow soils and the destruction of the native landscape (cutting trees) to ensure that the system will allow for even distribution.

Drip irrigation is the desired method of irrigation. These systems have scheduled dosing cycles and function well in the Hill Country and help alleviate concerns with erosion. The scheduled cycles generally allow for three extended rest periods during a 24 hour irrigation cycle. The resting periods are critical in allowing the soils to assimilate the water and nutrients applied.

Specific site characteristics are highly variable. Most of the variability is due to depth to the most restrictive horizon, generally bedrock. Management practices will need to be developed and initiated to account for the varying soil depths. A management system will need to be installed to allow for varying application rates and to set a dosing cycle for application events.

A site investigation was performed to obtain information that would assist in the design of the irrigation system. This report will summarize these results and will be utilized to assist in the development of the irrigation system to be used for treated effluent application.

Site Details

Geology

It is not the intent of the following geological assessment to be utilized for specific issues associated with the White Rock Entertainment Property. This section is for general description only.

Some areas of The Central Texas Hill Country are unique in its topography. The limestone associated with the Glen Rose formation exhibits stair step type topography. According to the Geologic Atlas of Texas, Austin Sheet, this site is predominately located on the Glen Rose Formation. The official description is;

The Glen Rose Formation is generally made up of alternating hard and soft beds that make up the formation and have resulted in the "stair-step hills" typical of the Central Texas Hill Country (Woodruff 1992). The characteristic stair-step topography occurs because of the different weathering and erosion rates of the formations alternating interbeds. The limestone and dolomite beds stand out as ledges capping the "risers" of the stair steps and forming the resistant substrate underlying the "treads". In contrast, the risers are eroded back to form the base of the risers.

The rock outcrops associated with the sloping topography of the Glen Rose formation are associated with the heel and toe of the underlying limestone formation. The areas between the heel and the toe generally have a gravelly, or stony, soil matrix that is generally deep enough to support a diverse plant community.

USDA – Soil Survey

A soils map is located in the Appendix I of this document. According to the results of the site investigation and visual observations, the soils at the site are **not** representative of the soils mapped and listed within the USDA-NRCS soil survey.

Climate

According to the USDA-NRCS Soil Survey for Travis County, Texas, the climate in Travis County is humid subtropical and is characterized by hot summers and relatively mild winters. Temperature, vegetative growth and rainfall are the climatic factors that have the greatest influence on the formation of soils in this area. The pattern of rainfall consists of interspersed wet and dry periods.

Soils

According to the Soil Survey, soils of the development site are dominated by the Brackett-Rock Outcrop Complex, which includes soils of the Brackett series (mapped as BlD). This site also includes soils of the Valente (VoD) series that only make up approximately 2 acres out of the 70 acres associated with this property.

Bracket Soils

Brackett soils are generally shallow to weathered rock. They are considered well drained and formed from weathered limestone of the Cretaceous age, mainly associated with the Glen Rose formation. These soils range from nearly level to very steep in slope and are located on the backslopes of ridges on dissected plateaus of the Edwards Plateau. Slopes range from 1 to 60%.

Brackett soils generally have 3 distinct horizons, an A, B and C horizon. The typical A horizon may be gravelly (15%) and consist of a loam or clay loam texture. The structure of the soil trends from granular to subangular blocky and may be dependent on organic matter content.

The B horizon can tend to be gravelly and consist of a silt loam, loam, silty clay loam or clay loam texture. Limestone fragments are typically 0-34% by volume. Soil structure is subangular blocky to granular. The horizon boundary is generally clear and wavy.

The C horizon consists of weathered limestone that is weakly to moderately cemented. Roots do penetrate into this layer.

Volente Soils

Volente (VoD) soils consist of deep, well drained and moderately slowly permeable soil that formed in calcareous clayey sediments. Soil are nearly level to sloping uplands with slopes of 0-8%.

These soils generally have 4 distinct horizons, two A (A11 and A12), a B and C horizon. The typical A11 horizon extends to approximately 22 inches and consists of silty clay with a subangular blocky and granular structure. Surficial and inner limestone fragments are few. The horizoon boundary is clear and smooth.

The A12 horizon is generally 14 inches thick and consists of a silty clay with subangular block and granular structures. A few limestone fragments can be expected. The horizon boundary is clear and smooth.

The B horizon is generally 10 inches thick and consists of a silty clay with a weak fine granular structure. A few limestone fragments can be expected. A clear smooth horizon boundary.

The C horizon is generally 8 inches thick and consists of a clay loam with a massive structure. Limestone fragments are common along with strongly cemented concretions.

USDA-NRCS Soil Survey Map

Soil Map—Travis County, Texas
(White Rock Entertainment)

Map Scale: 1:5,980 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 250 500 1000 1500

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BID	Brackett-Rock outcrop complex, 1 to 12 percent slopes	69.1	97.1%
VoD	Volente silty clay loam, 1 to 8 percent slopes	2.1	2.9%
Totals for Area of Interest		**71.2**	**100.0%**

Soil Summary

During the site investigation, it was determined that the soils of this site are not completely representative of those mapped within the Soil Survey. As illustrated in the Soil Profile Hole Summary Table, in the Appendices, soils of this site are highly variable and do not reflect the official descriptions indicated by the Soil Survey. In general, the soils of the site illustrated greater depths.

Regardless of the extent of field work, there will be variations that can not be accounted for until installation of the irrigation system begins. At that time, any and all features that are deemed unsuitable to the development of the irrigation fields will be addressed. Care should be taken to ensure that the system meets the requirements of the permit and 30 TAC 222.

The soils, for the most part, are well suited for irrigation with treated wastewater via drip irrigation and can generally be classified as a Loam and Clay Loam material, without consideration of limestone fragments. In areas of the irrigation tracts that exhibit shallower soils, a cut and fill practice can be utilized to level and temper the landscape and ensure surface water runoff to assist in alleviating standing water on the irrigation fields.

Due to the evident of soil erosion from the past, there may be need to utilize subsurface and surface drip irrigation. The subsurface irrigation will be plowed into the soils to a prescribed depth. However, where the soils don't meet the prescribed depths, above and below, it may be necessary to pin the tubing to the surface then cover to the desired depths with mulch or soil, or a mixture of both.

Vegetation

The dominate vegetation of this site is Ash Juniper and Oak. Some of the subdominate woody species include Agarito, Prickly Pear, Texas Persimmon and Madrone.

The herbaceous component varied and was not consistant. Numerous species of grass and forbs were present. All of the grasses ranged from mid to tall varieties.

Profile Holes

The purpose of the subsoil evaluation was to determine the soil characteristics across the property. Numerous profile pits were dug and evaluated for specific soil characteristics. Overall the site was typical of the Glen Rose formation with fairly deep soil materials beneath each “toe” of the stair step of the Glen Rose stratigraphy.

Soils range from a few inches of depth, located towards the exposed limestone near the toe of the tread, to four-five feet in depth along the "heel" of the tread and below the toe of the upper tread.

A soil profile summary table is located in the Appendix of this document.

Management Plan

Site Development

The Irrigation Area Exhibit map (provided by others) illustrates proposed fields for the development of the irrigation fields. These areas vary in soil, topographic and general characteristics.

In developing the irrigation areas, upslope surface drainage will be accounted for to prevent adverse effects from run-on onto the treated effluent application areas. Areas where drainage appears to be concentrated, and active, will meet all buffer requirements from application of treated effluent. All drainage areas will be controlled in a manner to ensure that adverse conditions do not occur within the areas slated for application of treated effluent.

Site Preparation

Where native soils are not of sufficient depth, or significant amounts of limestone material requires removal, a suitable material will need to be imported to ensure that there is adequate rootable material beneath the irrigation system, no less than one foot in depth beneath the tubing. This will ensure that there is sufficient rooting depth to allow for the growth of vegetation that will utilize the treated effluent.

Where soils may be imported, the surface of the existing soils will be scarified to a depth of 4-6 inches and left in a rough state. When placing the soils, a 4-6 inch layer should be placed on top of the scarified soils and then mixed into the existing soils. This will alleviate concerns with the development of artificial boundaries that can impede root development and water movement through the soil. After the material has been mixed, additional import material can be applied. Import soils should have no less than 20% clay content.

All sites should be graded for surface drainage and ensure that water is not allowed to stand on the surface. In areas where grading is complicated due to topographic variations, developed drainages may be placed and vegetated. The "developed" drainages may be included in the overall acreages for irrigation, but may require more detailed management. The developed drainages must be maintained with vegetation to alleviate concerns with erosion developing undesired drainage features.

Any surface limestone fragments greater than cobble size shall be removed. This would include any stones that may be turned up during tree removal or placing the drip tubing beneath the surface. Any divots associated with tree or stone removal shall be filled with a soil material that is at least 20% clay in content.

Vegetation Selection

There are multiple vegetative options for the drip irrigation system. These are:

1. Woody vegetation
2. Native herbaceous grasses and forbs
3. Improved turf type grasses
4. A mix of any of the above

The primary goal of this project is to preserve select native vegetation where possible. Areas where woody species does not exist will require herbaceous vegetation.

In areas of significant woody vegetation a surface drip application with the tubing covered with a wood based mulch is applicable if desired. Surface systems have been installed in other developments and have proven to be more than adequate. Areas of herbaceous production should be subsurface.

The selection of vegetative species should take into account the ultimate goals/usage of the irrigation tracts within the projects Development Plan. The proposal for the treated effluent application areas relying on herbaceous vegetation is to utilize a mixture of improved grasses (species such as, but not limited to bermuda grass and rye grass) along with select native species (woody and herbaceous species) for aesthetic purposes. Consideration for specified vegetation will need to account for any site limitations associated with each area. Areas that are not able to support improved and vigorous growing herbaceous vegetation should maintain native vegetation species.

Portions of the existing vegetation, such as select trees, may be left to reside in the areas of the proposed herbaceous irrigation fields. Existing woody species may be maintained to ensure maximum production. All areas are slated for green space/common space usage.

Vegetative Management

All herbaceous areas should be mowed and managed to ensure that the vegetation continues to exhibit vigorous growth habits and to maximize the uptake potential. A maintenance schedule should be put in place to ensure that a standing crop does not interfere with the establishment of the following seasons vegetation emergence.

Grass height should be maintained at a level that will optimize leaf production to ensure maximum leaf area for evaporation of applied treated effluent. The height requirement will be dependant upon the following;

1. operator
2. stated use of the property
3. specific species of grass/herbaceous vegetation
4. vegetative reproduction for long term sustainability

Mowing heights shall be maintained. Turf type grasses perform best when the cut height is 4 inches. Native grasses, generally bunch grasses, require a cut height of 8 inches to maintain vigor and ensure adequate regrowth. In general, native herbaceous vegetation does not perform well when cut multiple times in a growing season. It is recommended that the native herbaceous vegetation be cut at the end of the growing season.

Mowing frequency should be dependant upon items 1-4, above, and the amount of total height removal. Mowing frequencies will vary throughout the year based upon seasonal changes and the decision should be made by the party responsible for maintaining the irrigated fields. All turf grass management is to ensure that the vegetation is maintained in a manner that will ensure longevity and viability of the vegetation. It is recommended that mowing equipment utilize "mulching" blades to assist, long term, with nutrient management of the soils and vegetation.

It is virtually impossible to preliminarily establish requirements for mowing frequencies. In general, and the exception of plant reproduction, maximum vegetative height should be 6-8 inches with a minimum mowing height not to exceed 3-4 inches of the herbaceous material. Frequencies should be set by the vegetation growth rates and patterns, which are variety and seasonally specific. With the exception of the "end of season" cut, no more than 30-40% of the leaf material should be removed in one cutting. Inflorescent (flower/seed stalks or branches) portions of the plant **do not** count toward herbaceous/leaf height of all species in the vegetative mix, and ensuring that the average height does not exceed the maximum height of the herbaceous growth if an improved bermuda variety is to be utilized.

All clippings should be cut fine enough to allow for fall-through (mulching) in the canopies of the grasses to be grown. Municipal effluent, in general, especially tertiary systems, do not supply enough total nutrients to maintain long term sustainability and vigor of turf grasses. Thus, removal of the clippings could be a detriment to the sustainability of the vegetation associated with the treated effluent application sites. Leaving the clippings on the fields can reduce, and even eliminate, the use of commercial fertilizers.

Fertility Management

It would be recommended that starter fertilizers be utilized in establishing vegetation, and possibly during the beginning of seasonal growth. These recommendations should be based upon most current soil analyses. Soil sampling, effluent monitoring and crop requirements should be the determining factors of a fertility management program.

Recommended fertilizer rates would be 440 lb/Ac N and 185 lb/Ac P2O5 to be applied for areas of improved grasses at increments not to exceed 100 lb/Ac N. The second increment for N should be applied no less than 45 days after the initial application. If these applications are to include compost material, utilizing the most recent nutrient analysis for that material, applications would not have to occur incrementally.

Most bermuda and rye grass varieties have a high to very high salt tolerance (>6-8.0 mmhos). Due to the high quality of this effluent, it is not anticipated that salt will become a problem to the vegetation or within the soils. As with the bermuda and rye grasses, native vegetation for this area has proven to be considerably salt tolerant.

When transitioning between seasonally associated grasses, the predecessor vegetation should be mowed to allow for the onset of the next seasons vegetation. For instance: If transitioning from bermuda to rye, during mid to late October, the bermuda would need to be mowed short to a height no greater than 3 inches, so the rye grass can establish as the dominate cool season vegetation. Conversely, when transitioning from rye grass to bermuda, the rye grass should be mowed to a shorter height of 2-3 inches no later than mid April to allow for the bermuda, and other warm season grasses, to establish. However, regardless of season, annual grasses should be allowed to set seed approximately one to two months prior to the establishment of the grasses for the following season.

Conclusions

The overall goal of the project is to minimize disturbance to the land areas selected for irrigation of treated wastewater. Due to the overall soil/site variations of the property, the sites may need to be subdivided into areas of similar characteristics and then classified according to use potential where it pertains to methods of application.

Based on the anticipated nutrient load nitrogen should not be a concern and hydraulic characteristics will be the determining factor in application rates. Through appropriate dosing cycles, nutrient and hydraulic applications will provide optimum growth to maximize water and nutrient utilization. Drip irrigation systems incorporate the most efficient method of application due to the placement of the wastewater directly into the root zone at a prescribed dosing rate and schedule.

Near surface groundwater was not noted in any of the proposed areas. However, several profile holes exibited excess moisture that was the result of a significant rainfall event the week prior to the Site Soil Investigation event. There were no indications during the subsoil investigations to indicate recurring problems with near surface groundwater. Where excess water occurred, there was a silty clay soil materials sitting on the surface of the limestone layers in areas where there was limited vegetation. In areas of sufficient vegetation the wetter soils did not occur.

APPENDIX I: Profile Hole Summary Table

Field Summary Table White Rock Entertainment PK double C Environmental Consulting					
Profile Hole	Horizon	Depth by Horizon	Texture (FSL, LFS, CL, LC, C)	Structure (SBK, blocky, massive, loose, single grained)	Total Depth of Hole
1	A	3	Loam	SBK	27
	C	3.5	Loam	Single grained	
	C1	8.5	Loam	Single grained	
	C2	4	Loam	Single grained	
	C3	8	Sandy Loam	Single grained	
2	A	2.5	Clay Loam	SBK	20.5
	B	8	Clay Loam	SBK	
	B/C	10	Silty Clay Loam	SBK	
3	A	7	Clay Loam	SBK	44
	B	5	Clay Loam	SBK	
	B1	14	Clay Loam-Clay	Blocky	
	B2	8	Clay Loam	Blocky	
	B3	4	Silty Clay Loam	Blocky	
	B4	6	Silty Clay	Blocky to Mass	
4	A	Var 1-3	Clay Loam	SBK	40-42
	C	39	Loam	Single/Platy	
5	A	7	Clay Loam	SBK	32
	B	9	Loam-CL	Blocky	
	B1	7	Loam	Blocky to Single	
	C	9	Loam	Single grained	
6	A	4	Clay Loam	SBK	37
	B	7	Clay Loam	Blocky	
	C	12	Loam	Single grained	
	C1	14	Loam	Single grained	
8	A	6	Clay Loam	SBK	12
	B	6	Clay Loam	SBK-Blocky	
9	A	5	Clay Loam	SBK	19
	B	8	Clay Loam	SBK-Blocky	
	C	6	Loam	Single grained	
10	A	5	Clay Loam	SBK	15
	B	10	Clay Loam	Blocky	
11	A	7	Clay Loam	SBK	17
	B	3	Clay Loam	Blocky	
	C	7	Loam	Single/Platy	

Profile Hole	Horizon	Depth by Horizon	Texture (FSL, LFS, CL, LC, C)	Structure (SBK, blocky, massive, loose, single grained)	Total Depth of Hole
	B	11	Clay Loam	SBK-Blocky	
	B/C	6	CL to Loam	Blocky	
	C	8	Loam	Single grained	
	C1	21	Silty Clay		
13	A	6	Clay Loam	SBK	47
	B	6	Clay Loam	Blocky	
	C	5	Silt Loam	Single grained	
	C1	7	Loam	Single/Coarse	
	C2	14	Loam	Single grained	
	C3	8	Silt Loam	Single grained	
14	A	5	Clay Loam	SBK	13
	B	8	Clay Loam	SBK	
15	A	3	Clay Loam	SBK	45
	B	4	Clay Loam	SBK-Blocky	
	C	8	Loam	Single grained	
	C1	9	Loam	Single grained	
	C2	7	Loam	Single – Talc	
	C3	8	Silt Loam	Single grained	
	C4	6	Silt Loam	Single grained	
16	A	5	Clay Loam	SBK	29
	B	3	Clay Loam	SBK-Blocky	
	B/C	3	CL to Loam	Blocky/single	
	C	18	Loam	Single grained	
17	A	5	Clay Loam	SBK	42
	B/C	8	CL-Loam	SBK & Single	
	C	9	Loam	Single grained	
	C1	10	Loam	Single grained	
	C2	10	Silt Loam	Mass	
18	A	3	Clay Loam	SBK	51
	B/C	10	CL to Loam	SBK-Single	
	C	12	Loam	Single grained	
	C1	7	Crystaline	Single-Coarse	
	C2	19	Silt Loam	Single grained	
19	A	4	Clay Loam	SBK	34
	B	3	Clay Loam	SBK-Blocky	
	C	11			
	C1	16	Loam	Single grained	
20	A	5	Clay Loam	SBK	26
	B	4	Clay Loam	SBK-Blocky	
	C	17	Loam	Single grained	

Profile Hole	Horizon	Depth by Horizon	Texture (FSL, LFS, CL, LC, C)	Structure (SBK, blocky, massive, loose, single grained)	Total Depth of Hole
22	A	3	Clay Loam	SBK	33
	B	4	Silt Loam	Single grained	
	B1	8.5	Clay Loam	SBK	
	C	6.5	Loam	Single grained	
	C1	11	Silt Loam	Single grained	
23	A	2	Loam to CL	SBK	44
	B	7	Clay Loam	SBK	
	C	6	L-Silt Loam	Single grained	
	C1	12	L-Silt Loam	Single grained	
	C2	17	Loam	Single grained	
24	A	2.5	Loam to CL	SBK	37.5
	B	13	Clay Loam	SBK	
	C	11	L-Silt Loam	Single grained	
	C1	11	L-Silt Loam	Single grained	
25	A	4	L-Silt Loam	SBK	17
	B	5	Clay Loam	SBK	
	B1	6	Clay Loam	Bocky	
	C	2	Silt Loam	Single grained	
26	A	4	L-Silt Loam	Granulated	18
	B	4.5	Clay Loam	SBK	
	C	4.5	Silt Loam	Single grained	
	C1	5	Siltstone	Single grained	
27	A	3	Clay Loam	SBK	24
	B	5	CL / single	SBK/single	
	B1	6	Single/CL	Single grained	
	C	10			
28	A	5	Loam	Granulated	36
	B	4	Clay Loam	Blocky	
	B1	9	Loam	Blocky	
	B2	6	Clay Loam	Blocky	
	B3	12	Clay Loam	Blocky	
29	A	5.5	Loam	Granulated	36
	B	4	Clay Loam	Blocky	
	B1	9.5	Loam	Blocky	
	B2	5	Clay Loam	Blocky	
	B3	12	Clay Loam	Blocky	

Profile Hole	Horizon	Depth by Horizon	Texture (FSL, LFS, CL, LC, C)	Structure (SBK, blocky, massive, loose, single grained)	Total Depth of Hole
	B	13	Loam	SBK	
	B1	5	Clay Loam	SBK	
	B2	1	Loam	Single grained	
	B3	7	Clay Loam	Blocky	
	C	11	Loam	Single grained	
31	A	4.5	Loam	Single to gran	20
	B	10.5	Clay Loam	SBK	
	C	5	Loam – Stoney		
31a	A/O	2	Clay Loam	Very Granulated	41
	A	5	Clay Loam	SBK	
	B	6	Clay Loam	Blocky	
	C	28	Loam	Single grained	
32	A	4	Clay Loam	SBK	13
	B	9	Clay Loam	SBK	
33	A/O	1	Clay Loam	Granulated	26
	A	6	Clay Loam	SBK	
	C	19	Loam	Single grained	
34	A	4	Clay Loam	Granulated	14
	B	5	Clay Loam	SBK	
	C	5	Loam	Single grained	
35	A	4	Clay Loam	Granulated	34
	B	3	Clay Loam	Blocky	
	B1	5	Clay Loam	Blocky	
	C	13	Silt Loam	Single grained	
	C1	9	Loam	Single grained	
36	A	3	Clay Loam	SBK	23
	C	20	Loam	Single grained	
37	A/O	2	Clay Loam	Granulated	32
	A	3	Clay Loam	SBK-Granulate	
	B	4	Clay Loam	SBK	
	C	18	Silt Loam	Single grained	
	C1	5	Cherty Loam	Single grained	
38	A/O	1	Clay Loam	Granulated	13
	A	2	Clay Loam	SBK	
	B	10	Clay Loam	Bocky and Platy	
39	A	4.5	Clay Loam	SBK	29.5
	B	6	Clay Loam	SBK	
	C	19	Silt Loam	Single grained	

Profile Hole	Horizon	Depth by Horizon	Texture (FSL, LFS, CL, LC, C)	Structure (SBK, blocky, massive, loose, single grained)	Total Depth of Hole
	B	5	Clay Loam	SBK	
	C	18.5	Silt Loam	Single grained	
41	A	4	Clay Loam	SBK	36
	B	5	Clay Loam	Blocky	
	B/C	6	CL / single	Blocky-Single	
	C	21	Single Grained	Single grained	
42	A	6	Loam	SBK	13
	B	7	Loam	Single grained	
43	A	5	Loam	SBK	25
	B	5	Clay Loam	SBK	
	B1	6	Clay Loam	Blocky	
	C	9	Loam	Single grained	
44	A	7	Clay Loam	SBK	15
	B	8	Clay Loam	SBK-Blocky	
45	A	5	Clay Loam	SBK	35
	B	18	Clay Loam	SBK-Blocky	
	C	12	Loam	Single grained	
47	A	7.5	Clay Loam	SBK	19
	B	5	Clay Loam	SBK-Blocky	
	C	6.5	Loam	Single grained	
48	A	4	Clay Loam	SBK	18
	B	10	Clay Loam	SBK-Blocky	
49	A	3	Sandy Loam	Gran-Single	29
	B	8	Sandy Loam	Gran-Single	
	B1	3	Loam	Gran-SBK	
	B2	12	Clay Loam	Blocky	
	C	3	Silt Loam	Single grained	
50	A	1.5	Clay Loam	SBK	31
	C	29.5	Silty Clay Loam	Blocky	
51	A	3	Clay Loam	Granulated	32
	C	18	Loam	Gran-Single	
	C1	11	Silt Clay	Massive	
53	A	2	Clay Loam	SBK	23.5
	B	6.5	Clay Loam	SBK-Blocky	
	C	7.5	Loam	Single grained	
	C1	7.5	Silt Clay	Massive	
54	A	6	Clay Loam	Granulated	14
	B	8	Clay Loam	SBK	

	C	5.5	Loam	Granulated	
Profile Hole	Horizon	Depth by Horizon	Texture (FSL, LFS, CL, LC, C)	Structure (SBK, blocky, massive, loose, single grained)	Total Depth of Hole
56	A	2.5	Clay Loam	SBK	10.5
	B	8	Loam	Single grained	
57	A	5	Clay Loam	Gran-SBK	51
	B	34	Clay Loam	SBK-Blocky	
	C	12	Clay Loam	Blocky	
58	A	5.5	Clay Loam	Gran-SBK	50
	B	32.5	Clay Loam	SBK-Blocky	
	C	12	Clay Loam	Blocky	
59	A	2	Clay Loam	Gran-SBK	48
	B	6	Clay Loam	SBK-Blocky	
	C	24	CL-SiCL	Granular-Single	
	C1	16	Silty Clay	Massive	
60	A	2	Clay Loam	Gran-SBK	48
	B	6	Clay Loam	SBK-Blocky	
	C	24	CL-SiCL	Granular-Single	
	C1	16	Silty Clay	Massive	
61	A	5	Clay Loam	Gran-SBK	32
	B	6	Clay Loam	SBK-Blocky	
	B1	9	Clay Loam	Blocky	
	C	12	CL-SiCL	Blocky	
62	C	4	Loam	Gran-SBK	32
	C1	8	Loam	SBK	
	C2	13	Clay Loam	Bocky	
	C3	7	Clay	Blocky	
63	A	5.5	Clay Loam	Gran-SBK	22.5
	B	6	Clay Loam	SBK	
	C	11	Loam	Single grained	
64	A	5.5	Clay Loam	Gran-SBK	22.5
	B	6	Clay Loam	SBK	
	C	11	Loam	Single grained	
65	A	2	Clay Loam	Gran-SBK	48
	B	6	Clay Loam	SBK-Blocky	
	C	24	CL-SiCL	Granular-Single	
	C1	16	Silty Clay	Massive	
66	A	4	Clay Loam	Gran-SBK	26
	B1	13	Clay Loam	Bocky	
	B2	9	Silt Clay	Massive	

Profile Hole	Horizon	Depth by Horizon	Texture (FSL, LFS, CL, LC, C)	Structure (SBK, blocky, massive, loose, single grained)	Total Depth of Hole
	B	10	Loam	Gran-Single	
	C	10	SiCL	Blocky	
	C1	10	SiCL – SiC	Blocky-Mass	
68	A (B)	8	Loam	Gran-Single	38
	B	11	Loam	Gran-Single	
	C	11	SiCL	Blocky	
	C1	8	SiCL – SiC	Blocky-Mass	
69	A	5	Clay Loam	Granulated	29
	B	11	Clay Loam	SBK-Blocky	
	C	13	SiCL	Blocky	
70	A	4	Clay Loam	SBK	37
	B	5	Clay Loam	SBK-Blocky	
	B1	12	CL-Clay	SBK-Blocky	
	C	16	Loam	Single grained	
71	A	4	Clay Loam	SBK	32
	B	13	Clay Loam	SBK-Blocky	
	C	15	Loam	Single grained	
72	A	4	Clay Loam	SBK	19
	B	9	Clay Loam	SBK-Blocky	
	C	6	Loam	Single grained	
73	A	4	Clay Loam	SBK	23
	B	9	Clay Loam	SBK-Blocky	
	C	10	Loam	Single grained	
74	A	5	Clay Loam	SBK	29
	B	13	Clay Loam	SBK-Blocky	
	C	11	SiCL	Blocky	
75	A	5	Clay Loam		28
	C	23	CL-SiLoam		
76	A	6	Clay Loam	SBK	32
	B	5	Clay Loam	Blocky	
	C	12	Loam	Single grained	
	C1	8	SiCL	Blocky	
77	A	5	Clay Loam	SBK	31
	B	4	Clay Loam	SBK-Blocky	
	C	22	SiCL	Blocky	
78	A	4	Clay Loam	Blocky	10.5
	C	8	Loam	Single grained	

Profile Hole	Horizon	Depth by Horizon	Texture (FSL, LFS, CL, LC, C)	Structure (SBK, blocky, massive, loose, single grained)	Total Depth of Hole
	C	13.5	SiL-SiCL	Blocky	
80	A	4	Clay Loam	SBK	28
	B	6	Clay Loam	SBK-Blocky	
	C	16	SiCL	Blocky	
81	C	6.5	SiCL	Block-Mass	6.5
82	A	6	Clay Loam	SBK	22
	B	8	Clay Loam	SBK-Blocky	
	C	8	SiCL	Blocky	
83	A	7	Clay Loam	SBK	24
	C	8	Clay Loam	SBK-Blocky	
	C1	8	SiCL	Blocky-Mass	
84	A	5.5	Clay Loam	SBK	22.5
	C	7	Clay Loam	SBK-Blocky	
	C1	10	SiCL	Blocky-Mass	
85	A	3	Clay Loam	SBK	13
	C	10	SiCL	Blocky-Mass	
86	A	5.5	Clay Loam	SBK	27.5
	B	3	Clay Loam	SBK-Blocky	
	C	11	Silty Loam	Single grained	
	C1	9	SiCL	Block-Mass	
87	A	4	Clay Loam	SBK	30
	B	4	Clay Loam	SBK-Blocky	
	C	20	SiL-SiCL	Blocky-Mass	
88	A	5	Clay Loam	SBK	40
	B	15	Clay Loam	Blocky	
	C	6	Loam	Single grained	
	C1	14	SiCL	Blocky	
89	A	11	Clay Loam	SBK	52
	B	8	Clay Loam	Blocky	
	C	10	Loam	Single grained	
	C1	23	SiCL	Blocky	
90	A	6	Clay Loam	SBK	42
	B	27	Clay Loam	Blocky	
	C	9	Loam	Single grained	
91	A	4	Clay Loam	SBK	9.5
	B	5.5	Clay Loam	Blocky	

Profile Hole	Horizon	Depth by Horizon	Texture (FSL, LFS, CL, LC, C)	Structure (SBK, blocky, massive, loose, single grained)	Total Depth of Hole
	B	12	Clay Loam	SBK-Single	
93	A	6	Clay Loam	SBK	22
	B	5	Clay Loam	SBK-Blocky	
	C	11	SiL-SiCL	Blocky-Mass	
94	A	6	Clay Loam	SBK	38
	C	12	Clay Loam	SBK-Blocky	
	C1	20	SiL-SiCL	Blocky-Mass	
95	A	5	Clay Loam	SBK	27
	C	8	Loam	Single grained	
	C1	14	Silt Loam	Blocky	
96	A	4	Clay Loam	SBK	32
	B	7	Clay Loam	SBK-Blocky	
	B/C	6	Loam	Single grained	
	C	15	SiL-SiCL	Blocky-Mass	
97	A	5	Clay Loam	SBK	28
	C	9	Loam	Single grained	
	C1	14	SiL-SiCL	Blocky-Mass	
98	A	5	Clay Loam	SBK	29
	B	8	Clay Loam	SBK-Blocky	
	C	16	Silt Loam	Single grained	
99	A	5.5	Clay Loam	SBK	31.5
	B	6	Clay Loam	SBK-Blocky	
	C	20	SiL-SiCL	Blocky	
100	A	5	Clay Loam	SBK	35
	B	5	Clay Loam	SBK-Blocky	
	C	25	SiL-SiCL	Blocky	
101	A	5	Clay Loam	SBK	32
	B	5	Clay Loam	SBK-Blocky	
	C	22	SiL-SiCL	Blocky	
102	A	3	Clay Loam	SBK	25
	C	9	Clay Loam	Single grained	
	C1	13	SiL	Single grained	
103	A	3	Clay Loam	Granulated	14
	B	11	Loam	Gran-Single	
104	A	5	Clay Loam	SBK	18
	B	13	Loam	Single grained	

Profile Hole	Horizon	Depth by Horizon	Texture (FSL, LFS, CL, LC, C)	Structure (SBK, blocky, massive, loose, single grained)	Total Depth of Hole
	B	6	Clay Loam	SBK-Blocky	
	C	7	Loam	Single grained	
106	A	4	Clay Loam	Granulated	13
	B	9	Clay Loam	SBK-Blocky	
107	A	5	Clay Loam	Granulated	34
	B	8	Clay Loam	SBK-Blocky	
	C	21	Silt Loam	Single-Blocky	
108	A	3	Clay Loam	Granulated	23
	B	8	Clay Loam	SBK-Blocky	
	C	12	Loam	Single-Blocky	

	Coordinates		
Profile Hole	Lat	Long	Depth
889-1	30 05 14.5		27
890-2	30 16 38.5	097 54 57.0	20.5
3	30 16 36.2	097 54 58.9	44
4	30 16 36.4	097 54 58.9	40-42
5	30 16 35.6	097 55 04.6	32
6	30 16 35.0	097 55 03.3	37
7	30 16 35.0	097 55 03.3	12
8			
9	30 16 37.4	097 55 03.6	19
10	30 16 37.1	097 55 04.8	15
11	30 16 36.5	097 55 05.5	17
12	30 16 36.3	097 55 06.3	49
13	30 16 37.1	097 55 06.2	47
13	30 16 37.2	097 55 06.1	47
14	30 16 37.1	097 55 06.2	13
15	30 16 39.2	097 55 01.9	45
16	30 16 39.9		29
17	30 16 40.9	97 55 02.3	42
18	30 16 41.7	097 55 02.4	51
19	30 16 41.8	097 55 02.4	34
20	30 16 42.6	097 55 02.6	26
21	30 16 42.7	097 55 02.6	12.5
22	30 16 42.6	097 55 00.4	33
23	30 16 42.8	097 55 01.0	44
24	30 16 43.2	097 55 00.3	37.5
25	30 16 43.5	097 55 01.3	17
26	30 16 43.8	097 55 02.1	18
27	30 16 43.5	097 55 02.1	24
28	30 16 44.3	097 55 01.8	36
29	30 16 44.5	097 55 01.5	36
30	30 16 44.2	097 55 00.8	32
31	30 16 43.8	097 55 00.4	20
31a	30 16 41.3	097 55 01.3	41
32	30 16 41.3	097 55 01.1	13
33	30 16 40.6	097 55 01.0	26
34	30 16 40.4	097 54 59.8	14
35	30 16 40.4	097 55 00.2	34
36	30 16 39.6	097 54 59.7	23
37	30 16 39.7	097 55 00.0	32
38	30 16 39.0	097 55 00.0	13
39	30 16 39.0	097 55 00.3	29.5
40	30 16 38.6	097 55 00.5	29.5
41	30 16 38.7	097 55 00.2	36
42	30 16 49.3	097 55 03.4	13
43	30 16 50.1	097 55 03.0	25
44	30 16 51.7	097 55 02.5	15
45	30 16 51.5	097 55 03.7	35
46	30 16 53.5	097 55 03.1	21
47	30 16 53.9	097 55 0.3.	19
48	30 16 54.1	097 55 03.9	18
49	30 16 53.1	097 55 06.5	29

50	30 16 54.5	097 55 06.5	31
51	30 16 54.1	097 55 06.6	32
52	30 16 53.8	097 55 06.6	23.5
53	30 16 54.6	097 55 09.1	24
54	30 16 54.8	097 55 09.4	14
55	30 16 54.0	097 55 10.0	9.5
56	30 16 54.3	097 55 10.7	10.5
57	30 16 53.7	097 55 10.8	51
58	30 16 53.2	097 55 12	50
59	30 16 52.1	097 55 13.4	48
60	30 16 51.8	097 55 13.0	48
61	30 16 51.7	097 55 12.7	32
62	30 16 50.7	097 55 13.4	32
63	30 16 50.5	097 55 12.9	22.5
64	30 16 50.2	097 55 12.7	22.5
65	30 16 52.7	097 55 13.4	48
66	30 16 53.0	097 55 14.1	26
67	30 16 53.0	097 55 15.1	40
68	30 16 52.4	097 55 16.6	38
69	30 16 51.5	097 55 16.9	29
70	30 16 50.8	097 55 18.4	37
71	30 16 49.2	097 55 18.7	32
72	30 16 48.6	097 55 19.1	19
73	30 16 48.6	097 55 19.1	23
74	30 16 46.3	097 55 17.7	27
75	30 16 45.4	097 55 16.0	28
76	30 16 45.4	097 55 16.8	32
77	30 16 44.4	097 55 16.5	31
78	30 16 43.9	097 55 15.8	10.5
79	30 16 43.7	097 55 15.9	18
80	30 16 43.4	097 55 16.0	28
81	30 16 43.4	097 55 16.3	6.5
82	30 16 44.8	097 55 08.3	22
83	30 16 43.7	097 55 09.3	24
84	30 16 43.6	097 55 09.4	22.5
85	30 16 43.1	097 55 09.8	13
86	30 16 44.7	097 55 10.0	27.5
87	30 16 45.3	097 55 09.7	30
88	30 16 45.4	097 55 10.9	40
89	30 16 45.8	097 55 10.5	52
90	30 16 44.2	097 55 11.5	42
91	30 16 46.1	097 5512.3	9.5
92	30 16 47.5	097 55 13.3	16
93	30 16 48.2	097 55 14.0	22
94	30 16 48.1	097 55 14.4	38
95	30 16 48.1	097 55 14.4	27
96	30 16 50.5	097 55 19.2	32
97	30 16 50.3	097 55 19.6	28
98	30 16 45.1	097 55 03.4	29
99	30 16 44.9	097 55 04.4	31.5
100	30 16 44.7	097 55 04.3	35
101	30 16 44.4	097 55 05.5	32
102	30 16 43.6	097 55 04.4	25

103	30 16 44.6	097 55 04.5	14
104	30 16 43.5	097 55 05.0	18
105	30 16 43.2	097 55 06.1	15
106	30 16 42.9	097 55 05.0	13
107	30 16 41.8	097 55 05.3	34
108	30 16 41.7	097 55 0.60	23

APPENDIX IV: Soil Analyses

SOIL ANALYSIS REPORT

CLIENT:	
41493	PKCC PAUL REYNOLDS PO BOX 778 CLARENDON, TX 79226

Servi-Tech Laboratories
www.servitechlabs.com
1816 E. Wyatt Earp
PO Box 1397
Dodge City, KS 67801
800.557.7509
620.227.7123
Fax 620.227.2047

LAB NO:	90834 - 90835
INVOICE NO:	906215
DATE RECEIVED:	2/28/2024
DATE REPORTED:	04/18/2024

SOIL ANALYSIS RESULTS FOR: WHITE ROCK ENTERTAINMENT **FIELD IDENTIFICATION:** IRRIGATION

METHOD USED:

Lab Number	Sample ID	Sample Depth	1:2 Soil-Water Soil pH	Buffer pH	1:2 Soil-Water Sol. Salts mmho/cm	XSL(i) Excess Lime	LOI(r) % Organic Matter	Cd Reduction Nitrate-Nitrogen ppm	Cd Reduction Nitrate-Nitrogen lb. N/A	Mehlich 3 ICP Phosphorus ppm P	Mehlich 3 ICP Potassium ppm K	Mehlich 3 ICP Sulfur ppm	Mehlich 3 ICP Sulfur lb. S/A	Ammonium Acetate Calcium ppm Ca	Ammonium Acetate Magnesium ppm Mg	Mehlich 3 ICP Sodium ppm Na	Calculated DTPA Zinc ppm Zn	DTPA Iron ppm Fe	DTPA Manganese ppm Mn	DTPA Copper ppm Cu	Boron ppm B
90834		0 - 12	8.0		0.26	Hi	3.0	4.3	15	4	149	21	76	4820	239	46	0.6	7	5.6	0.2	
90835		12 - 24	8.2		0.21	Hi	2.1	2.0	7	2	84	22	79	4444	251	34	0.4	6	5.3	0.2	

METHOD USED:

Lab Number	Sample ID	Sample Depth	KCl Extr. Ammonium Nitrogen ppm	KCl Extr. Ammonium Nitrogen lb. /A	Calculated Total N ppm	TKN ppm	Sat. Paste Saturation % Sat	Sat. Paste Electrical Conductivity mmho/cm	Sat. Paste Calcium mg/L Ca	Sat. Paste Magnesium mg/L Mg	Sat. Paste Sodium mg/L Na	Sat. Paste Sodium Adsorption Ratio SAR
90834		0 - 12	11	40	1921	1917	47	0.75	112	13.9	27	0.6
90835		12 - 24	6	22	1437	1435	46	0.42	64	9.5	19	0.6

FERTILIZER RECOMMENDATIONS: POUNDS ACTUAL NUTRIENT PER ACRE

Lab Number	Sample ID	Crop To Be Grown	Yield Goal	Lime, ECC Tons/A to raise pH to: 6.0	6.5	7.0	N	P2O5	K2O	Zn	S	Mn	Cu	MgO	B	Ca	Cl
90834																	
90835																	

Cation Exchange Capacity

CEC	%H	%K	%Ca	%Mg	%Na
27	0	1	90	7	1
25	0	1	90	8	1

SPECIAL COMMENTS AND SUGGESTIONS:

Lab Number(s): 90834, 90835

The CEC value calculated by cation summation has been adjusted to compensate for the presence of excess lime (reactive carbonates).

Lab Number(s): 90834, 90835

ZINC: The "c-DTPA-Zinc" equivalent was calculated from the Mehlich-3 ICP zinc value. Zinc fertilizer recommendations were calculated using the Mehlich-3 ICP zinc value.

Lab Number(s): 90834

Servi-Tech Laboratory fertilizer recommendations were not requested.

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Michele Lawson, Data Review Coordinator

Michele Lawson

05/01/2024 3:23 pm

APPENDIX V: Supporting Documents

Chemical Soil Properties

This table shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Cation-exchange capacity is the total amount of extractable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

Effective cation-exchange capacity refers to the sum of extractable cations plus aluminum expressed in terms of milliequivalents per 100 grams of soil. It is determined for soils that have pH of less than 5.5.

Soil reaction is a measure of acidity or alkalinity. It is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Calcium carbonate equivalent is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil.

Gypsum is expressed as a percent, by weight, of hydrated calcium sulfates in the fraction of the soil less than 20 millimeters in size. Gypsum is partially soluble in water. Soils that have a high content of gypsum may collapse if the gypsum is removed by percolating water.

Salinity is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of soil if used as construction material, and the potential of the soil to corrode metal and concrete.

Sodium adsorption ratio (SAR) is a measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration. Soils that have SAR values of 13 or more may be characterized by an increased dispersion of organic matter and clay particles, reduced saturated hydraulic conductivity and aeration, and a general degradation of soil structure.

Report—Chemical Soil Properties

Chemical Soil Properties–Travis County, Texas								
Map symbol and soil name	**Depth**	**Cation-exchange capacity**	**Effective cation-exchange capacity**	**Soil reaction**	**Calcium carbonate**	**Gypsum**	**Salinity**	**Sodium adsorption ratio**
	In	*meq/100g*	*meq/100g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
BID—Brackett-Rock outcrop complex, 1 to 12 percent slopes								
Brackett	0-6	17-25	—	7.4-8.4	40-80	0	0.0-2.0	0
	6-18	9.5-21	—	7.4-8.4	40-90	0-5	0.0-2.0	0
	18-60	—	—	—	—	—	—	—
Rock outcrop	0-48	—	—	—	—	—	—	—
Eckrant	—	—	—	—	—	—	—	—
San saba	—	—	—	—	—	—	—	—
Volente	—	—	—	—	—	—	—	—
VoD—Volente silty clay loam, 1 to 8 percent slopes								
Volente	0-22	15-21	—	7.9-8.4	1-5	0	0.0-2.0	0
	22-36	15-25	—	7.9-8.4	1-5	0	0.0-2.0	0
	36-46	15-24	—	7.9-8.4	2-5	0	0.0-2.0	0
	46-59	15-22	—	7.9-8.4	5-10	0	0.0-2.0	0
Lewisville	—	—	—	—	—	—	—	—
Brackett	—	—	—	—	—	—	—	—
Eckrant	—	—	—	—	—	—	—	—
Orif	—	—	—	—	—	—	—	—
Rock outcrop	—	—	—	—	—	—	—	—

Data Source Information

Soil Survey Area: Travis County, Texas
Survey Area Data: Version 25, Sep 5, 2023

RUSLE2 Related Attributes

This report summarizes those soil attributes used by the Revised Universal Soil Loss Equation Version 2 (RUSLE2) for the map units in the selected area. The report includes the map unit symbol, the component name, and the percent of the component in the map unit. Soil property data for each map unit component include the hydrologic soil group, erosion factor Kf for the surface horizon, erosion factor T, and the representative percentage of sand, silt, and clay in the mineral surface horizon. Missing surface data may indicate the presence of an organic layer.

Report—RUSLE2 Related Attributes

Soil properties and interpretations for erosion runoff calculations. The surface mineral horizon properties are displayed or the first mineral horizon below an organic surface horizon. Organic horizons are not displayed.

RUSLE2 Related Attributes–Travis County, Texas

Map symbol and soil name	Pct. of map unit	Slope length (ft)	Hydrologic group	Kf	T factor	Representative value		
						% Sand	% Silt	% Clay
BID—Brackett-Rock outcrop complex, 1 to 12 percent slopes								
Brackett	68	131	D	.24	2	33.0	37.0	30.0
VoD—Volente silty clay loam, 1 to 8 percent slopes								
Volente	75	161	C	.24	5	15.0	49.0	36.0

Data Source Information

Soil Survey Area: Travis County, Texas
Survey Area Data: Version 25, Sep 5, 2023

Physical Soil Properties

This table shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In this table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In this table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, saturated hydraulic conductivity (Ksat), plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3- or 1/10-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute linear extensibility, shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates in the table are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity (Ksat) is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at 1/3- or 1/10-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. The amount and type of clay minerals in the soil influence volume change.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In this table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter. The content of organic matter in a soil can be maintained by returning crop residue to the soil.

Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in the table as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and Ksat. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind and/or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the "National Soil Survey Handbook."

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Reference:
United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. (http://soils.usda.gov)

Report—Physical Soil Properties

Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Physical Soil Properties–Travis County, Texas														
Map symbol and soil name	**Depth**	**Sand**	**Silt**	**Clay**	**Moist bulk density**	**Saturated hydraulic conductivity**	**Available water capacity**	**Linear extensibility**	**Organic matter**	**Erosion factors**			**Wind erodibility group**	**Wind erodibility index**
										Kw	**Kf**	**T**		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
BID—Brackett-Rock outcrop complex, 1 to 12 percent slopes														
Brackett	0-6	20-33- 45	20-37- 53	27-30- 35	1.30-1.40 -1.50	4.00-9.00-14.00	0.09-0.13-0. 16	1.6- 3.3- 5.6	1.0- 2.0- 4.0	.17	.24	2	5	56
	6-18	20-32- 50	15-38- 53	18-30- 35	1.30-1.43 -1.55	4.00-9.00-14.00	0.09-0.13-0. 16	0.2- 3.0- 5.1	0.5- 1.3- 2.0	.24	.24			
	18-60	—	—	—	—	0.42-2.70-14.00	—	—	—					
Rock outcrop	0-48	—	—	—	—	0.42-2.70-14.00	—	—	—					
Eckrant	—	—	—	—	—	—	—	—	—					
San saba	—	—	—	—	—	—	—	—	—					
Volente	—	—	—	—	—	—	—	—	—					

Physical Soil Properties–Travis County, Texas														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
VoD—Volente silty clay loam, 1 to 8 percent slopes														
Volente	0-22	5-15- 22	40-49- 66	28-36- 42	1.25-1.33 -1.40	1.40-2.70-4.00	0.15-0.18-0. 20	2.5- 4.3- 5.7	1.0- 2.5- 4.0	.24	.24	5	5	56
	22-36	5-13- 30	35-44- 60	35-43- 50	1.30-1.38 -1.45	0.42-2.70-4.00	0.15-0.18-0. 20	3.4- 5.6- 7.4	1.0- 2.0- 3.5	.28	.28			
	36-46	5-13- 30	35-44- 60	35-43- 50	1.30-1.38 -1.45	0.42-0.91-4.00	0.15-0.18-0. 20	3.1- 5.3- 7.2	0.5- 0.8- 1.0	.24	.24			
	46-59	5-25- 35	30-36- 58	35-39- 50	1.35-1.43 -1.50	0.42-2.70-4.00	0.13-0.17-0. 20	2.5- 4.0- 6.9	0.1- 0.3- 0.5	.28	.28			
Lewisville	—	—	—	—	—	—	—	—	—					
Brackett	—	—	—	—	—	—	—	—	—					
Eckrant	—	—	—	—	—	—	—	—	—					
Orif	—	—	—	—	—	—	—	—	—					
Rock outcrop	—	—	—	—	—	—	—	—	—					

Data Source Information

Soil Survey Area: Travis County, Texas
Survey Area Data: Version 25, Sep 5, 2023

Hydrologic Soil Group and Surface Runoff

This table gives estimates of various soil water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

Surface runoff refers to the loss of water from an area by flow over the land surface. Surface runoff classes are based on slope, climate, and vegetative cover. The concept indicates relative runoff for very specific conditions. It is assumed that the surface of the soil is bare and that the retention of surface water resulting from irregularities in the ground surface is minimal. The classes are negligible, very low, low, medium, high, and very high.

Report—Hydrologic Soil Group and Surface Runoff

Absence of an entry indicates that the data were not estimated. The dash indicates no documented presence.

Hydrologic Soil Group and Surface Runoff–Travis County, Texas			
Map symbol and soil name	**Pct. of map unit**	**Surface Runoff**	**Hydrologic Soil Group**

Hydrologic Soil Group and Surface Runoff–Travis County, Texas			
Map symbol and soil name	**Pct. of map unit**	**Surface Runoff**	**Hydrologic Soil Group**
BID—Brackett-Rock outcrop complex, 1 to 12 percent slopes			
Brackett	68	High	D
Rock outcrop	20	High	D
Eckrant	4	—	—
San saba	4	—	—
Volente	4	—	—
VoD—Volente silty clay loam, 1 to 8 percent slopes			
Volente	75	High	C
Lewisville	15	—	—
Brackett	5	—	—
Eckrant	2	—	—
Orif	2	—	—
Rock outcrop	1	—	D

Data Source Information

Soil Survey Area: Travis County, Texas
Survey Area Data: Version 25, Sep 5, 2023

Water Features

This table gives estimates of various soil water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

Surface runoff refers to the loss of water from an area by flow over the land surface. Surface runoff classes are based on slope, climate, and vegetative cover. The concept indicates relative runoff for very specific conditions. It is assumed that the surface of the soil is bare and that the retention of surface water resulting from irregularities in the ground surface is minimal. The classes are negligible, very low, low, medium, high, and very high.

The *months* in the table indicate the portion of the year in which a water table, ponding, and/or flooding is most likely to be a concern.

Water table refers to a saturated zone in the soil. The water features table indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table. The kind of water table, apparent or perched, is given if a seasonal high water table exists in the soil. A water table is perched if free water is restricted from moving downward in the soil by a restrictive feature, in most cases a hardpan; there is a dry layer of soil underneath a wet layer. A water table is apparent if free water is present in all horizons from its upper boundary to below 2 meters or to the depth of observation. The water table kind listed is for the first major component in the map unit.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. The table indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Report—Water Features

Map unit symbol and soil name	Hydrologic group	Surface runoff	Most likely months	Water table			Ponding			Flooding	
				Upper limit	Lower limit	Kind	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*		*Ft*				
BID—Brackett-Rock outcrop complex, 1 to 12 percent slopes											
Brackett	D	High	Jan-Dec	—	—	—	—	—	None	—	None
Rock outcrop	D	High	Jan-Dec	—	—	—	—	—	None	—	None
Eckrant			Jan-Dec	—	—	—	—	—	None	—	None
San saba			Jan-Dec	—	—	—	—	—	None	—	None
Volente			Jan-Dec	—	—	—	—	—	None	—	None
VoD—Volente silty clay loam, 1 to 8 percent slopes											
Volente	C	High	Jan-Dec	—	—	—	—	—	None	—	None
Lewisville			Jan-Dec	—	—	—	—	—	None	—	None
Brackett			Jan-Dec	—	—	—	—	—	None	—	None
Eckrant			Jan-Dec	—	—	—	—	—	None	—	None
Orif			Jan-Feb	—	—	—	—	—	None	—	
			Mar-Jun	—	—	—	—	—	None	Very brief (4 to 48 hours)	Occasional
			Jul-Aug	—	—	—	—	—	None	—	
			Sep-Oct	—	—	—	—	—	None	Very brief (4 to 48 hours)	Occasional
			Nov-Dec	—	—	—	—	—	None	—	
Rock outcrop	D		Jan-Dec	—	—	—	—	—	None	—	None

Data Source Information

Soil Survey Area: Travis County, Texas
Survey Area Data: Version 25, Sep 5, 2023

LOCATION BRACKETT TX+OK

Established Series
Rev. GLL-CLN-WJG-JAM
07/2010

BRACKETT SERIES

The Brackett series consists of shallow to paralithic bedrock, well drained soils formed in residuum weathered from limestone of Cretaceous age, mainly from the Glen Rose formation. These nearly level to very steep soils are located on backslopes of ridges on dissected plateaus of the Edwards Plateau. Slopes are1 to 60 percent. Mean annual air temperature is about 19 degrees C (67 degrees F), and mean annual precipitation is about 737 mm (29 in).

TAXONOMIC CLASS: Loamy, carbonatic, thermic, shallow Typic Haplustepts

TYPICAL PEDON: Brackett paragravelly clay loam on rangeland. (Colors are for dry soil unless otherwise stated.)

A--0 to 15 cm (0 to 6 in); grayish brown (10YR 5/2) paragravelly clay loam, dark grayish brown (10YR 4/2) moist; moderate fine subangular blocky and granular structure; hard, friable; common fine roots; few masses and nodules of calcium carbonate; 15 percent weakly cemented limestone gravel; violently effervescent; moderately alkaline; clear smooth boundary. (Thickness of the A horizon is 8 to 30 cm [3 to 12 in])

Bk--15 to 36 cm (6 to 14 in); light gray (10YR 7/2) paragravelly clay loam, light brownish gray (10YR 6/2) moist; moderate fine subangular blocky and granular structure; hard, friable; common fine roots; few masses and nodules of calcium carbonate; 20 percent weakly cemented limestone gravel; violently effervescent; moderately alkaline; clear wavy boundary. (Thickness of the Bk horizon is 8 to 41 cm [3 to 16 in])

Cr--36 to 152 cm (14 to 60 in); weakly cemented, fractured and weathered limestone bedrock with vertical fractures that roots can enter, 10 to 25 cm (4 to 10 in) apart, interbedded with thin strata of pale yellow (2.5Y 7/3) and very pale brown (10YR 7/4) weathered chalk bedrock; moderately alkaline.

TYPE LOCATION: Hays County, Texas; from the intersection of Ranch Road 32 and Ranch Road 12 about 10 miles west of San Marcos, 6 miles west on Ranch Road 32 and 1,000 feet north of the road in rangeland. (Devils Backbone USGS topographic quadrangle; Latitude: 30 degrees, 3 minutes, 57.8 seconds N; Longitude: 98 degrees 11 minutes 18.4 seconds W; NAD83)

RANGE IN CHARACTERISTICS:
Depth to paralithic contact: 13 to 50 cm (5 to 20 in)
Pararock and rock fragments above the paralithic contact: Amount-0 to 34 percent, size-2 to 250 mm, kind-limestone
Effervescence: Strongly to violently
Calcium Carbonate Equivalent: 40 to 85 percent by weight
Reaction: Slightly alkaline or moderately alkaline

Particle-size control section (weighted average):
Silicate clay content: 18 to 30 percent
Carbonate clay content: 2 to 10 percent

A horizon
Hue: 10YR or 2.5Y
Value: 5 to 8

Chroma: 2 to 4
Texture: Loam or clay loam; and paragravelly and gravelly modifiers
Pararock and rock fragments: Amount-0 to 34 percent by volume, size-2 to 250 mm, kind-limestone
Other features: Where dry value is 5 or more, the organic carbon content is less than 2.5 percent

Bk horizon
Hue: 7.5YR to 2.5Y
Value: 5 to 8
Chroma: 2 to 4
Texture: Silt loam, loam, silty clay loam, or clay loam; and paragravelly and gravelly modifiers
Pararock and rock fragments: Amount-0 to 34 percent by volume, size-2 to 250 mm, kind-limestone
Identifiable secondary carbonate: Amount-1 to 4 percent by volume; kind-masses, concretions or nodules, location-around rock fragments, in the matrix, and throughout
Mottle features: brownish or grayish mottles in the matrix and along faces of peds and within porous limestone fragments in some pedons.

Cr layer
Hue: 10YR or 2.5Y
Value: 7 or 8
Chroma: 2 to 4
Other features: Secondary carbonate cementation where present, does not meet the thickness or continuity or fracture requirements of a petrocalcic horizon.
Cementation: Weakly cemented to moderately cemented
Bedrock features: Fracture interval-10 to 25 cm (4 to 10 in) apart horizontally, kind-limestone, chalk or marl.

COMPETING SERIES: Whitewright (TX) is a competing series in the same family. Similar soils are the Doss (TX), Keese (TX), Quinlan (OK+KS), and Spikebox (OK+TX).
Doss soils: Have a mollic epipedon.
Keese soils: Have a paralithic contact with weathered granite, granite grus, or gneiss of Precambrian Era.
Quinlan soils: Has a shallow contact with densic sandstone bedrock.
Spikebox soils: Has a paralithic contact with sandstone bedrock
Whitewright soils: Are moist in the control section for longer periods.

GEOGRAPHIC SETTING:
Parent material: Residuum weathered from limestone bedrock of Cretaceous period, mainly from the Glen Rose and Comanche Peak formations. Also, interbedded marls and chalks occur on such formations as the Walnut and Keys Valley marls.
Landscape: Dissected Plateaus
Landform: Backslopes of ridges
Landform notes: Occurs on benched or stair-stepped topography consisting of risers and treads, also. The Brackett soils are mainly on the treads.
Slope: 1 to 60 percent, but is mostly 1 to 20 percent
Climate: Dry subhumid
Soil moisture: Typic ustic moisture regime
Precipitation Pattern: The majority of the yearly amount occurs during the fall and spring months. The winter and summer months are normally drier.
Mean annual air temperature: 18 to 21 degrees C (64 to 69 degrees F)
Mean annual precipitation: 610 to 864 mm (24 to 34 in)
Frost free days: 210 to 270 days
Elevation: 107 to 746 m (600 to 2,450 ft)
Thornthwaite annual P-E indices: 32 to 52

GEOGRAPHICALLY ASSOCIATED SOILS: These are Cranfill (TX), Denton (TX), Doss (TX), Eckrant (TX), Karnes (TX), Kerrville (TX), Maloterre (TX), Real (TX), Tarrant (TX), Topsey (TX) and Valera (TX) series.

Cranfill, Denton, Doss, Karnes, Topsey, and Valera soils: Occur lower on the landscape in footslope positions.
Eckrant, Maloterre, and Tarrant soils: Occur higher on the landscape in summit, shoulder, and backslope positions.
Kerrville and Real soils: Occur on similar position in the landscape.

DRAINAGE AND PERMEABILITY: Well drained. Permeability is moderate. Permeability in the petrocalcic horizon is slow to very slow. Runoff is very low on 1 to 3 percent slopes, low on 3 to 5 percent slopes, and medium on 5 to 20 percent slopes and high on 20 to 60 percent slopes.

USE AND VEGETATION: Mainly used as rangeland. The climax plant community is a tall grass savannah with motts of live oak and Texas oak scattered throughout the landscape. The dominant grass is little bluestem. Other grasses include yellow Indiangrass, sideoats grama, tall grama, seep muhly, slim tridens, hairy grama, silver bluestem, slim tridens, tall dropseed, and perennial threeawns. Woody plants include live oak, Texas oak, kidneywood and shin oak. Forbs, such as bundleflower, sensitive briar, Maximilian sunflower, Engelmann daisy, and gayfeather, are found throughout the site. With over grazing, the site could potentially deteriorate to a plant population of Ashe juniper, Texas persimmon, agarito, live oak, threeawns, Texas grama, hairy tridens, red grama, prairie coneflower, broomweed, and ragweed.

DISTRIBUTION AND EXTENT: West-Central Texas; Southwest Plateaus and Plains Range and Cotton Region, LLR I: MLRA 81B and 81C-Edwards Plateau, Central and Eastern parts; and. Southwestern Prairies Cotton and Forage Region, LRR J: MLRA 85-Grand Prairie;. The series is extensive.

MLRA SOIL SURVEY REGIONAL OFFICE (MO) RESPONSIBLE: Temple, Texas

SERIES ESTABLISHED: Kinney County, Texas (Reconnaissance Soil Survey of Southwest Texas); 1911.

REMARKS: Classification was changed 11/89 from Typic Ustochrepts to Udic Ustochrepts. On 10/2001 the type location was moved to Hays County, and the depth was changed from very deep to shallow and the subgroup changed back to Typic which was the original series concept.

Diagnostic horizons and features recognized in this pedon are:
Ochric epipedon: 0 to 15 cm (0 to 6 in) (A horizon)
Cambic horizon: 15 to 36 cm (6 to 14 in) (Bk horizon)
Paralithic contact: 36 cm (14 in) (top of Cr layer)

ADDITIONAL DATA: None

TAXONOMIC VERSION: Keys to Soil Taxonomy, 11th Edition, 2010.

National Cooperative Soil Survey
U.S.A.

LOCATION VOLENTE TX

Established Series
Rev. LEW:CLG:JCW
03/2003

VOLENTE SERIES

The Volente series consists of deep, well drained, moderately slowly permeable soils that formed in calcareous clayey sediments. These soils are on nearly level to sloping uplands. Slopes vary from 0 to 8 percent.

TAXONOMIC CLASS: Fine, mixed, active, thermic Pachic Haplustolls

TYPICAL PEDON: Volente silty clay loam--pasture. (Colors are for dry soil unless otherwise stated.)

A11--0 to 22 inches; dark grayish brown (10YR 4/2) silty clay loam, very dark grayish brown (10YR 3/2) moist; strong fine subangular blocky and granular structure; hard, friable; many fine limestone fragments on surface, few within horizon; calcareous; moderately alkaline; clear smooth boundary. (10 to 30 inches thick)

A12--22 to 36 inches; dark brown (7.5YR 4/2) silty clay, dark brown (7.5YR 3/2) moist; moderate fine and medium subangular blocky and granular structure; hard, firm but crumbly; few fine fragments of limestone; some mixing of above materials in earthworm channels; calcareous; moderately alkaline; clear smooth boundary. (10 to 15 inches thick)

B--36 to 46 inches; brown (7.5YR 5/4) silty clay, dark brown (7.5YR 4/4) moist; weak fine granular structure; hard, friable; few fine fragments of limestone; calcareous; moderately alkaline; clear smooth boundary. (8 to 20 inches thick)

C--46 to 54 inches; reddish yellow (5YR 7/6) clay loam, reddish yellow (5YR 6/6) moist; massive; very hard, friable; many fine fragments of limestone and strongly cemented concretions of calcium carbonate; calcareous; moderately alkaline.

TYPE LOCATION: Travis County, Texas, approximately 8 miles north, 32 degrees west of the State Capitol in Austin, 100 feet west of Ranch Road 2222 at a point 0.8 mile northwest of intersection of Ranch Road 2222 and Lake Austin Metropolitan Park Road.

RANGE IN CHARACTERISTICS: Thickness of the solum ranges from 34 to about 50 inches. The mollic epipedon ranges from 20 to 40 inches in thickness. Texture of all horizons ranges from silty clay loam, clay loam to silty clay, with a clay content ranging from 35 to 50 percent. Fragments of limestone from 1/8 to 3 inch

range from few to common throughout the pedon. The matrix is calcareous throughout.

The A horizon has values of 4 or 5, chromas of 2 or 3 in 7.5YR hues or values of 3 or 4, chromas of 2, 3 or 4 in 10YR hues. Structure ranges from fine granular in the upper part to fine subangular blocky and granular in the lower part.

The B horizon has values of 5 or 6, chroma of 4 in 7.5YR hue or values of 5 or 6, chromas ranging from 3 to 8 in 10YR hue. Structure is weak fine granular to moderate fine granular and subangular blocky.

The C horizon has values ranging from 4 to 7, chromas 3 to 8 in 5YR hue, or values ranging from 5 to 8 chromas, 2 to 8 in 7.5YR or 10YR hue. In some pedons it contains common limestone pebbles and cobbles.

Competing Series: These include the Austin, Bippus, Crawford, Dale, Denton, Frio, Krum, Lewisville, and San Saba series. Austin soils have more than 40 percent calcium carbonate equivalent in and immediately below the mollic epipedon. Bippus soils have fine-loamy control sections. Crawford and San Saba soils have intersecting slickensides and are less than 40 inches thick over bedrock. Dale soils have fine-silty control sections. Denton and Krum soils have coefficient of linear extensibility values of 0.09 or greater. Frio soils have organic matter contents that decrease irregularly with depth.

GEOGRAPHIC SETTING: Volente soils occur in valleys with slope gradients of 0 to 8 percent. Surfaces are plain to concave. The soil formed in calcareous clayey sediments 4 to 6 feet thick over limestone. The climate is moist subhumid to dry subhumid. Mean annual precipitation ranges from about 20 to 34 inches, mean annual air temperature from 64 degrees to 70 degrees F, and Thornthwaite P-E indices from 36 to 54.

GEOGRAPHICALLY ASSOCIATED SOILS: These include the competing Crawford, Denton, Krum, Lewisville, and San Saba series, and the Brackett, Eckrant, Tarpley, and Tarrant series. Brackett, Eckrant, Tarpley, and Tarrant soils have sola less than 20 inches thick.

Drainage and Permeability: Well drained; slow to rapid runoff; moderately slow permeability.

USE AND VEGETATION: Used as rangeland, pastureland, and cropland. Small grain and grain sorghums are the main crops grown. Native vegetation consists mainly of mid and tall grasses. Live oak and other hardwood overstory varies from scattered to dense.

DISTRIBUTION AND EXTENT: Texas, possibly Oklahoma. Most areas are in the valleys in the Edwards Plateau where drainage is predominantly from the Brackett series. The series is of moderate extent.

SERIES ESTABLISHED: Travis County, Texas; 1969.

REMARKS: The series would have been classified in the Rendzina great soil group. Volente soils were included in the Krum series.

National Cooperative Soil Survey
U. S. A.

ATTACHMENT R

Domestic Worksheet 3.3
White Rock SADDS

Section 3. Required Plans

A. Recharge Feature Plan, 30 TAC Chapter 222.79

An inspection of the site was conducted to ascertain the existence of observable site features that could potentially contribute to the recharge of local aquifers.

1. There were no sites on or within the neighboring properties that would indicate that an aquifer recharge feature was in existence. The existing drainage features do not show signs of continuous flow and appeared to only carry surface and shallow subsurface stormwater flow from the area during storm events.

2. A review of available data found in several sources concluded that there were no current or historical sites that might be considered recharge feature. The geologic profile does not contain typical karst topographic elements that are prone to the ease of movement of surface waters to shallow and deep aquifers that might underly the site. The following sources were consulted:
    a. Railroad commission. No findings.
    b. TWDB Mapping. No findings.
    c. Groundwater conservation district. No findings.
    d. TCEQ. Logged wells. No recharge features were noted. Edwards aquifer viewer lists as not part of a recharge area.
    e. NRCS. Soils maps for this site and neighboring sites indicated no recharge zones and showed that wetland type features existed offsite that retained water for long periods of time indicating minimal deep percolation potential.
    f. No previous ownership info was available.
    g. An onsite inspection was conducted, and no recharge features were found.

3. Groundwater Narrative.
    a. The area is known for water production from the Trinity formation.
    b. The depth to ground water is between 65’ and 400’ from the surface according to the literature and well logs for wells in that area. Irrigation and potable water wells are typically drilled to about 600’. The typical yield ranges from 25 gpm to 60 gpm but most records show the range to be in the 20-gpm range. The primary, high volume water comes from wells drilled to approximately 750’ and more from the surface.
    c. The general direction of groundwater flow is generally from west to east.
    d. Groundwater use in this area is for private and public potable water supplies. Irrigation wells are also drilled into the Trinity formation.

4. Measures to prevent impacts to groundwater from recharge features.

a. No measures were taken to prevent impacts to recharge features since no recharge features were found.

Recharge Plan and Site Inspection Completed by:
James F. Prochaska, MS-PE
TXPE License # 80504
TBPE Firm No. 21045

Recharge Feature Plan Exhibit 1 – Southwestern Travis County GCD

Source: Hunt, B.B., Cockrell, L.P., Gary, R.H., Vay, J.M., Kennedy, V., Smith, B.A., and Camp, J.P., 2020, Hydrogeologic Atlas of Southwest Travis County, Central Texas: Barton Springs/Edwards Aquifer Conservation District Report of Investigations 2020-0429, April 2020, 80 p. + digital datasets. http://dx.doi.org/10.26153/tsw/8570

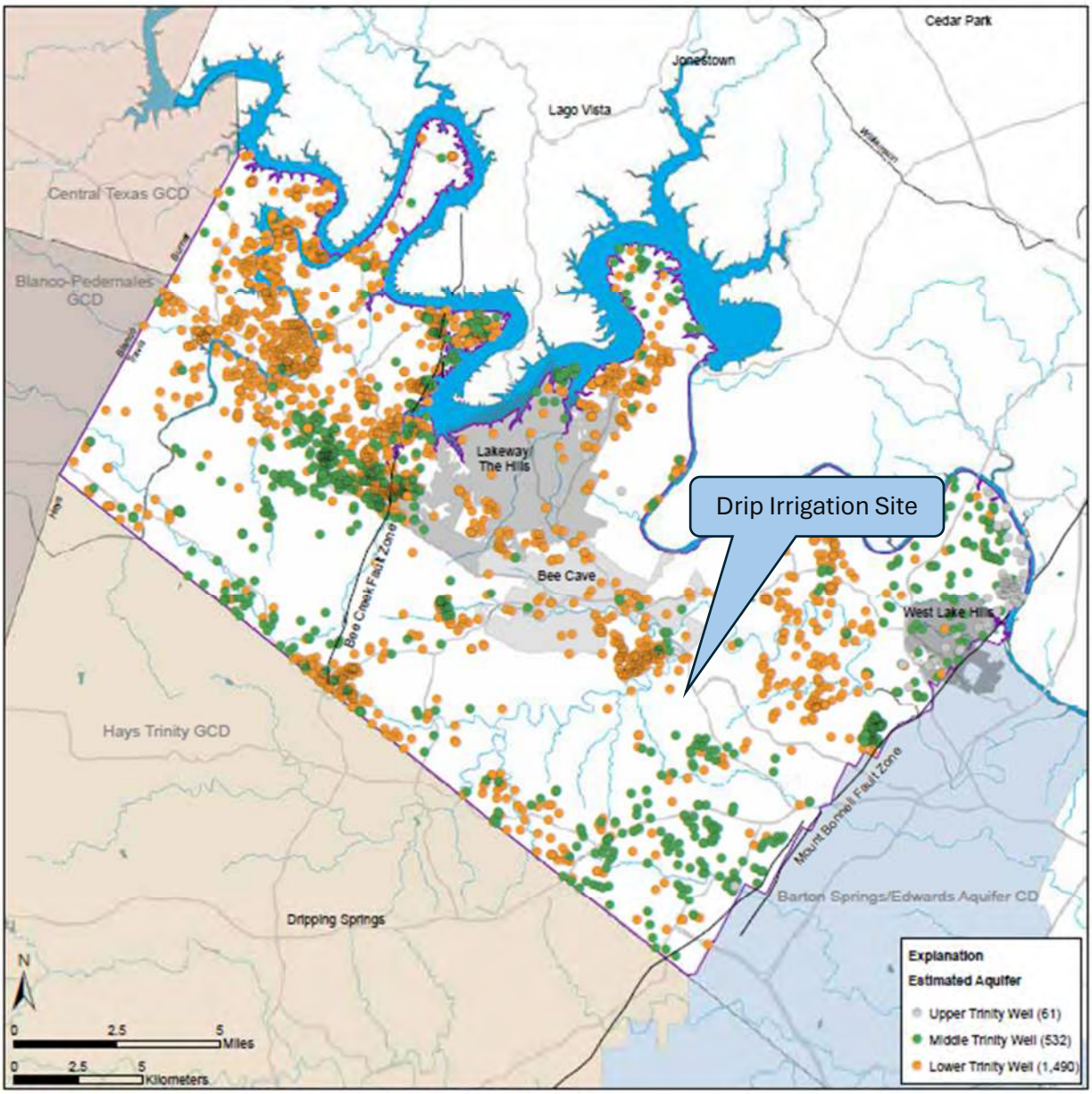


Figure 10.6 Wells Drilled Since 2003 by Estimated Aquifer.
The Lower Trinity is the dominant supply aquifer in SWTC, followed by the Middle Trinity. Very few wells are sourced in the Upper Trinity in SWTC. Well location and depth data used to estimate aquifer completions for wells in the study area are from TWDB, 2019b.

Aquifer source for local wells

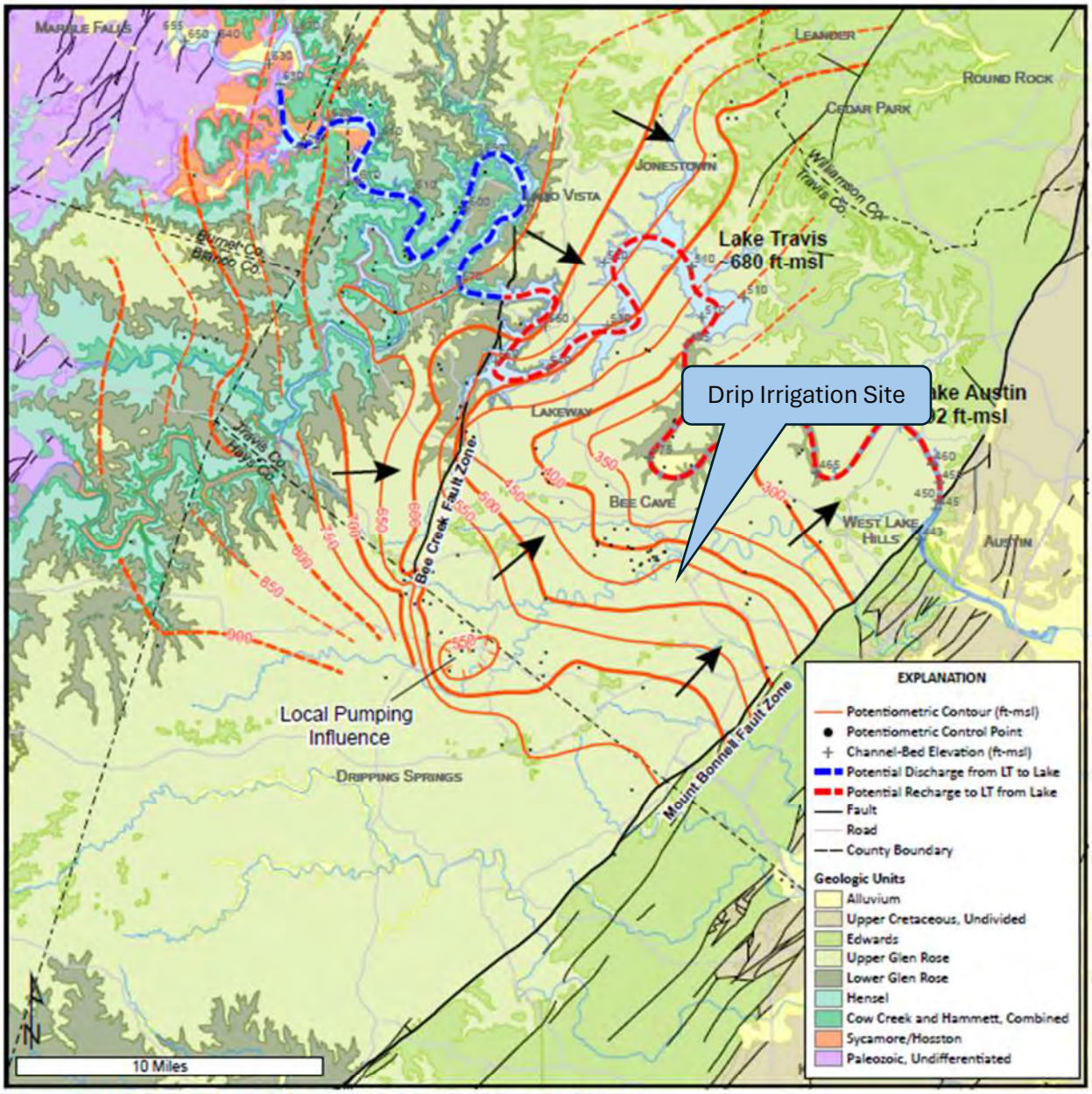
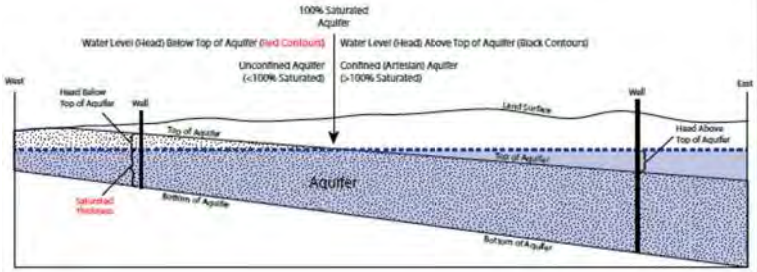


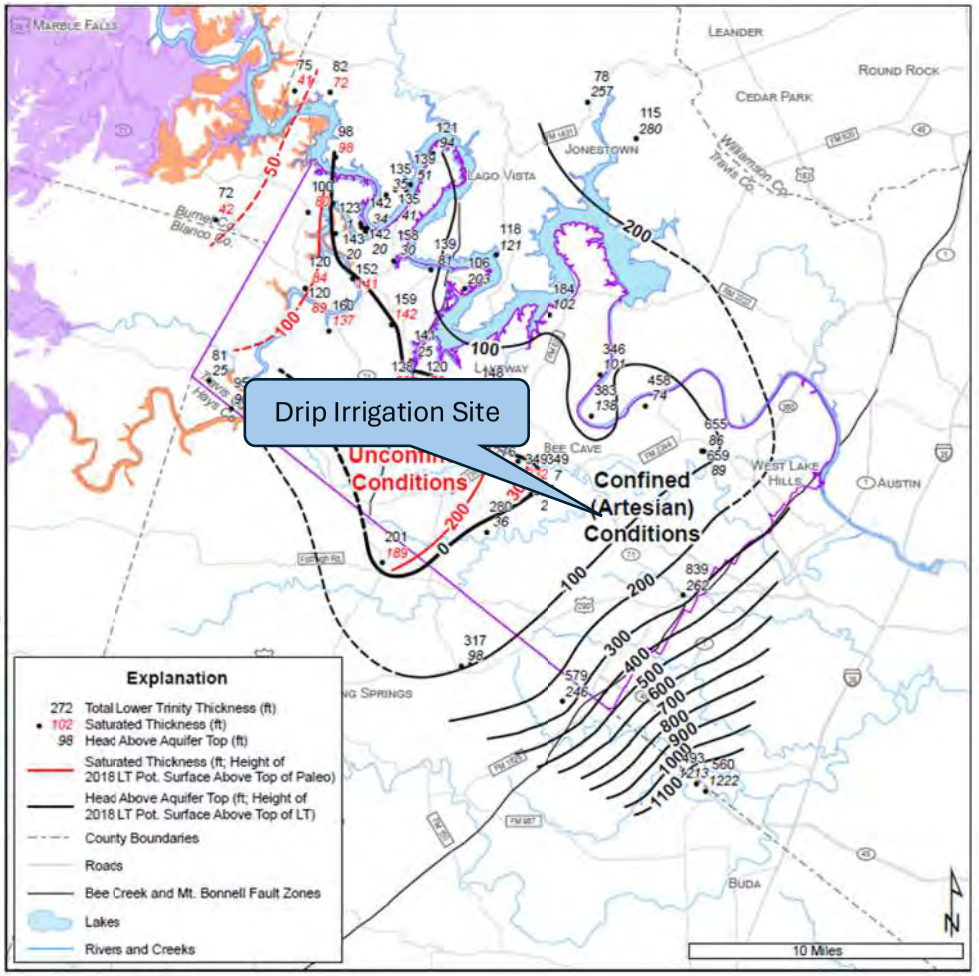
Figure 11.7 Lower Trinity Potentiometric Surface – Fall 2018.

Lower Trinity water-level elevations measured primarily during fall 2018 (data collected between 2017 and 2019 were also included for control in areas with sparse data) are shown in feet above mean sea level (ft-msl). Flow direction and gradients deviate from the historic Lower Trinity potentiometric surface in several ways: 1) Contours appear to be similar to the pattern mapped in the Middle Trinity, with a potential east-northeast flow component toward Williamson County, although data are sparse north of the river; 2) Water-level gradients steepen around the Bee Creek Fault Zone, indicating a potential hydrologic barrier; 3) Absence of drawdown cone around Jonestown and the development of a drawdown cone along the Hays County line near Fitzhugh Road; and 4) Water levels throughout are lower in elevation, with recent water-level data indicating that the potential for recharge from the river and lake systems exists throughout most of the study area, except west of the Pedernales River where potential for discharge exists.

Flow direction of local groundwater

Figure 15.8 Lower Trinity Aquifer Saturated Thickness.
Map showing the saturated thickness of the Lower Trinity Aquifer, based on fall 2018 potentiometric levels. Black contours indicate the height (in feet) to which water levels would rise above the top of the aquifer (confined or artesian conditions), and red contours indicate the total saturated thickness (in feet) where water levels are below the top of the aquifer (unconfined conditions). Below: generalized cross section diagram depicting confined and unconfined aquifer conditions referenced in map at right

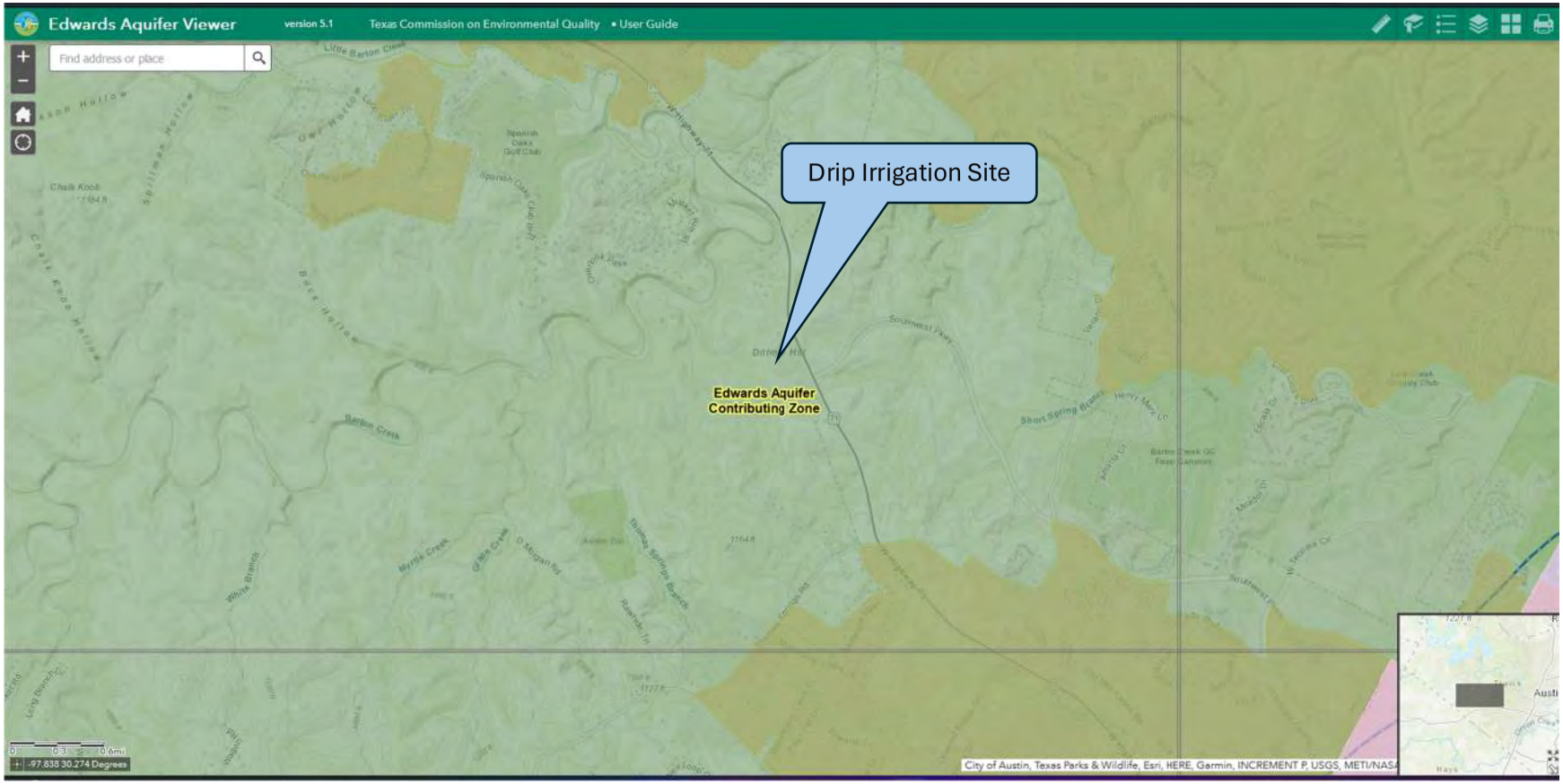




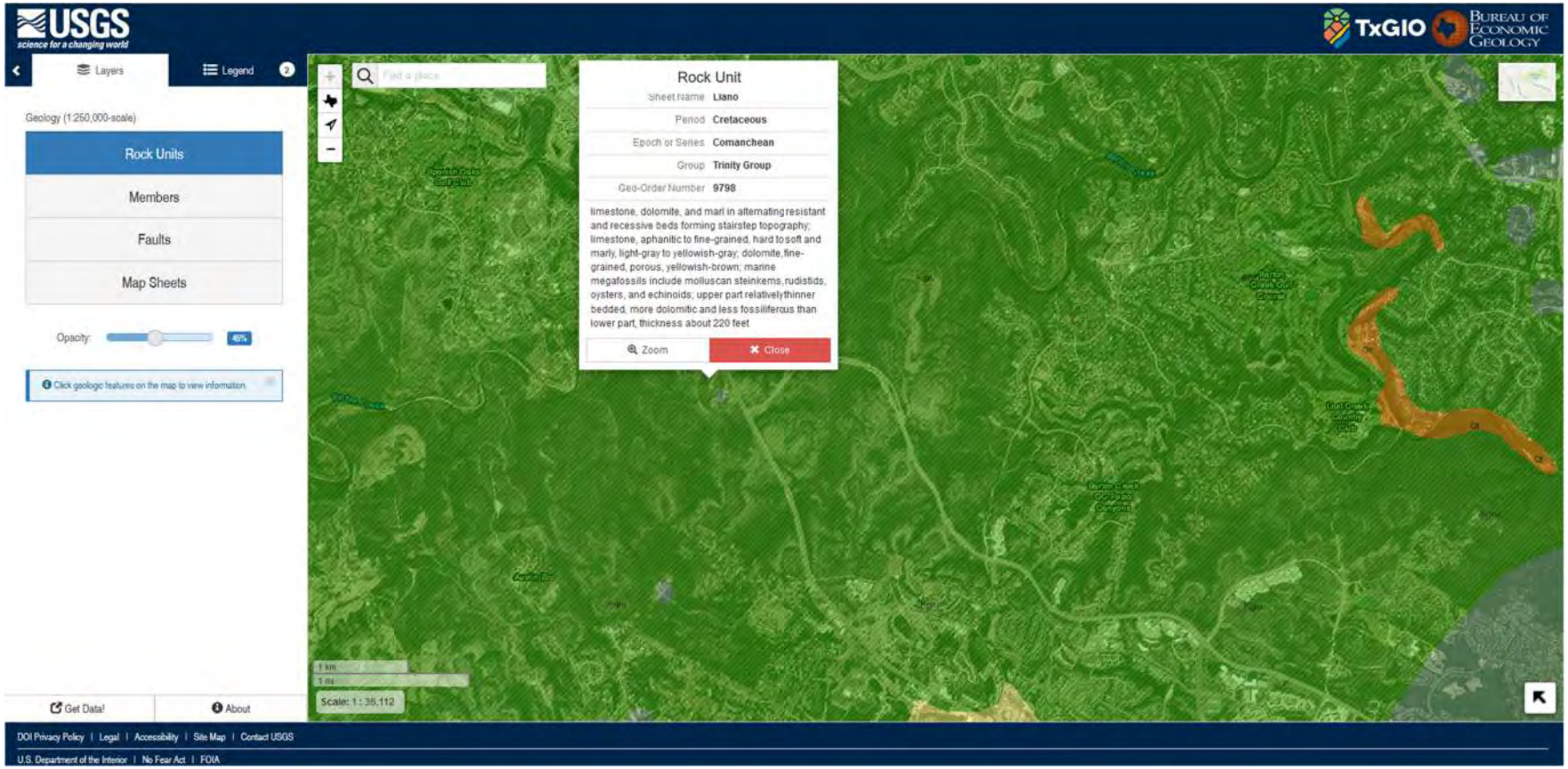
Recharge Feature Plan Exhibit 2 – Texas Water Development Board


WATER DATA Interactive
Groundwater
Layers
Base Maps
Help
Disclaimer
Texas Water Development Board
Find address or place
Drip Irrigation Site
Legend
Major Aquifers
Pecos Valley
Seymour
Gulf Coast
Carrizo - Wilcox (outcrop)
Carrizo - Wilcox (subcrop)
Hueco - Mesilla Bolson
Ogallala
Edwards - Trinity Plateau (outcrop)
Edwards - Trinity Plateau (subcrop)
Edwards BFZ (outcrop)
Edwards BFZ (subcrop)
Trinity (outcrop)
Trinity (subcrop)
2km
1mi
1 : 72224
Pointer - DMS: 30° 12' 26.03" N 97° 51' 22.49" W || DD: 30.207230 -97.856248
City of Austin, Texas Parks & Wildlife, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, NGA, EPA, USDA
esri
TEXAS WATER DEVELOPMENT BOARD

Recharge Feature Plan Exhibit 3 – TCEQ


Edwards Aquifer Viewer
version 5.1
Texas Commission on Environmental Quality
• User Guide
Find address or place
Drip Irrigation Site
Edwards Aquifer
Contributing Zone
Barton Creek
City of Austin, Texas Parks & Wildlife, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA
-97.835 30.274 Degrees

Recharge Feature Plan Exhibit 4 – USGS


USGS
science for a changing world
TxGIO
Bureau of Economic Geology
Layers
Legend
Geology (1:250,000-scale)
Rock Units
Members
Faults
Map Sheets
Opacity:
40%
Click geologic features on the map to view information
Find a place
Rock Unit
Sheet Name Llano
Period Cretaceous
Epoch or Series Comanchean
Group Trinity Group
Geo-Order Number 9798
limestone, dolomite, and marl in alternating resistant and recessive beds forming stairstep topography; limestone, aphanitic to fine-grained, hard to soft and marly, light-gray to yellowish-gray; dolomite, fine-grained, porous, yellowish-brown; marine megafossils include molluscan steinkerns, rudistids, oysters, and echinoids; upper part relatively thinner bedded, more dolomitic and less fossiliferous than lower part, thickness about 220 feet
Zoom
Close
Scale: 1 : 36,112
Get Data!
About
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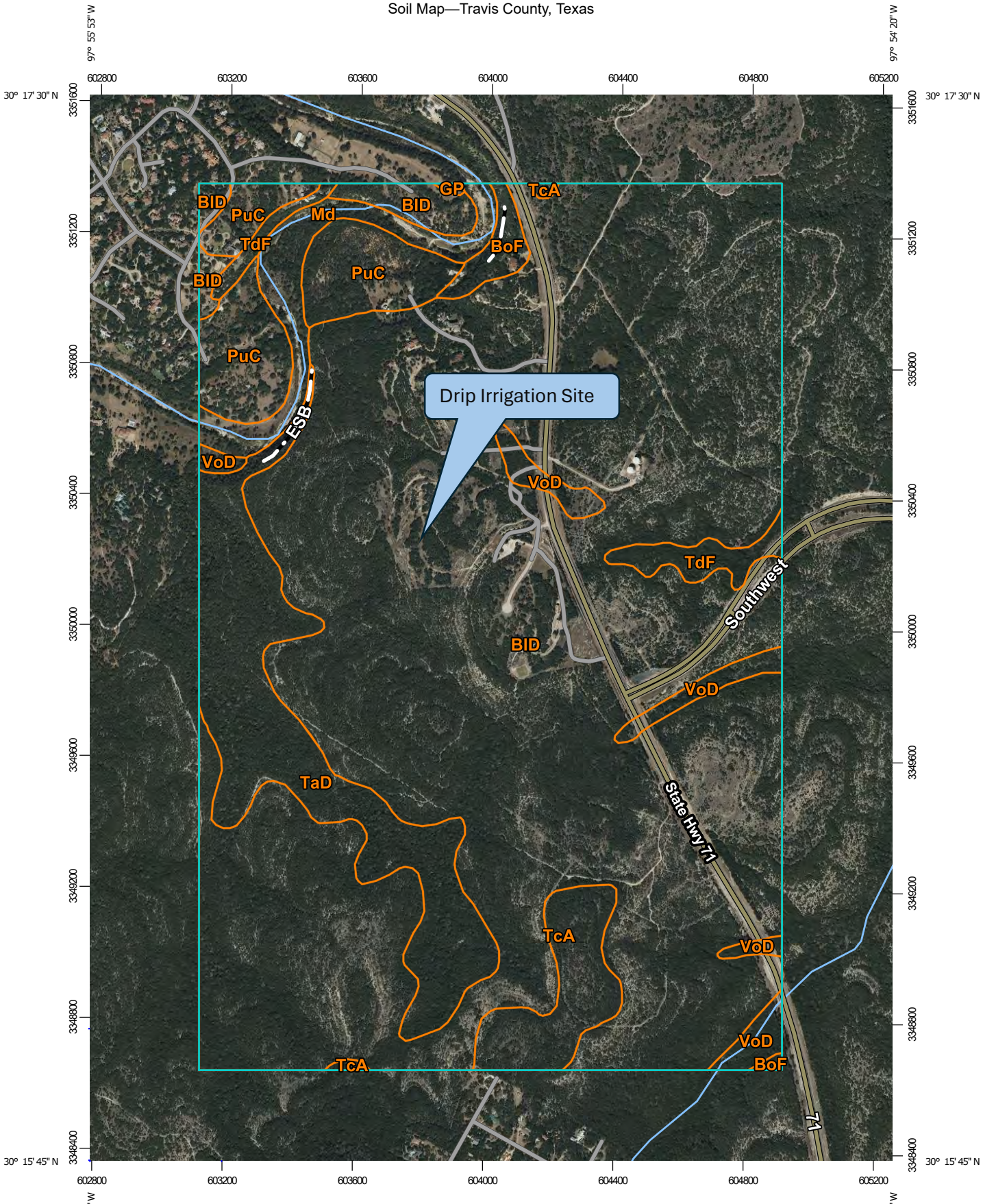
U.S. Department of the Interior | No Fear Act | FOIA

Recharge Feature Plan Exhibit 5 – Natural Resources Conservation Service



Map Scale: 1:15,900 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 200 400 800 1200

Feet: 0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Travis County, Texas
Survey Area Data: Version 25, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BlD	Brackett-Rock outcrop complex, 1 to 12 percent slopes	915.8	76.2%
BoF	Brackett-Rock outcrop-Real complex, 8 to 30 percent slopes	9.7	0.8%
GP	Pits, gravel, 1 to 90 percent slopes	0.5	0.0%
Md	Mixed alluvial land, 0 to 1 percent slopes, frequently flooded	32.7	2.7%
PuC	Purves clay, 1 to 5 percent slopes	61.3	5.1%
TaD	Eckrant very stony clay, 5 to 18 percent slopes	108.0	9.0%
TcA	Eckrant and Speck soils, 0 to 2 percent slopes	33.8	2.8%
TdF	Eckrant-Rock outcrop complex, 18 to 50 percent slopes	16.3	1.4%
VoD	Volente silty clay loam, 1 to 8 percent slopes	24.5	2.0%
Totals for Area of Interest		**1,202.6**	**100.0%**

ATTACHMENT S

Domestic Worksheet 3.3
White Rock SADDS

Section 3. Required Plans

C. Site Preparation Plan, 30 TAC Chapter 222.75

1. Rainwater will be prevented from running onto the dispersal sites using berms and diversions to detention ponds. Runoff from the developed areas will be routed to stormwater ponds via curbs, gutters and catchments installed into and along the drive areas Run-off for the dispersal sites will be promoted by using areas that have slopes that prevent the stagnation of rainwater.

2. In areas where the distance to a restrictive horizon is not sufficient, soil will be imported in the manner described in Exhibit Q by the soil scientist.

3. Soils imported will have a clay content of no less than 20%. Potential soils will be evaluated to ensure that favorable physical and chemical characteristics are present.

4. The existing vegetation will be evaluated and any areas with less than favorable vegetation will be clear-cut. The clear-cut areas will be reseeded with Bermuda grass and overseeded with winter rye to ensure year-round dispersal site usability.

Site Preparation Plan Completed by:
James F. Prochaska, MS-PE
TXPE License # 80504
TBPE Firm No. 21045

May 16, 2024

ATTACHMENT T

FEMA (//www.fema.gov/)

FEMA Flood Map Service Center: Search By Address

Navigation

Search

MSC Home (/portal/)

MSC Search by Address (/portal/search)

MSC Search All Products (/portal/advanceSearch)

MSC Products and Tools (/portal/resources/productsandtools)

Hazus (/portal/resources/hazus)

LOMC Batch Files (/portal/resources/lomc)

Product Availability (/portal/productAvailability)

MSC Frequently Asked Questions (FAQs) (/portal/resources/faq)

MSC Email Subscriptions (/portal/subscriptionHome)

Contact MSC Help (/portal/resources/contact)

Enter an address, place, or coordinates:

bee cave tx Search

Whether you are in a high risk zone or not, you may need flood insurance (https://www.fema.gov/national-flood-insurance-program) because most homeowners insurance doesn't cover flood damage. If you live in an area with low or moderate flood risk, you are 5 times more likely to experience flood than a fire in your home over the next 30 years. For many, a National Flood Insurance Program's flood insurance policy could cost less than $400 per year. Call your insurance agent today and protect what you've built.

Learn more about steps you can take (https://www.fema.gov/what-mitigation) to reduce flood risk damage.

Search Results—Products for **TRAVIS COUNTY**

Show ALL Products » (https://msc.fema.gov/portal/availabilitySearch?addcommunity=48453C&communityName=TRAVIS COUNTY#searchre

The flood map for the selected area is number **48453C0420J**, effective on **1/22/2020**

DYNAMIC MAP

PRINT MAP/ FIRMette (https://msc.fema.gov/portal/firmette?latitude=30.275492&longitude=-97.918581)

MAP IMAGE

DOWNLOAD FIRM PANEL (https://msc.fema.gov/portal/downloadProduct?productTypeID=FINAL_PRODUCT&productSubTypeID=FIRM_PANEL&productID=48453C0420J)

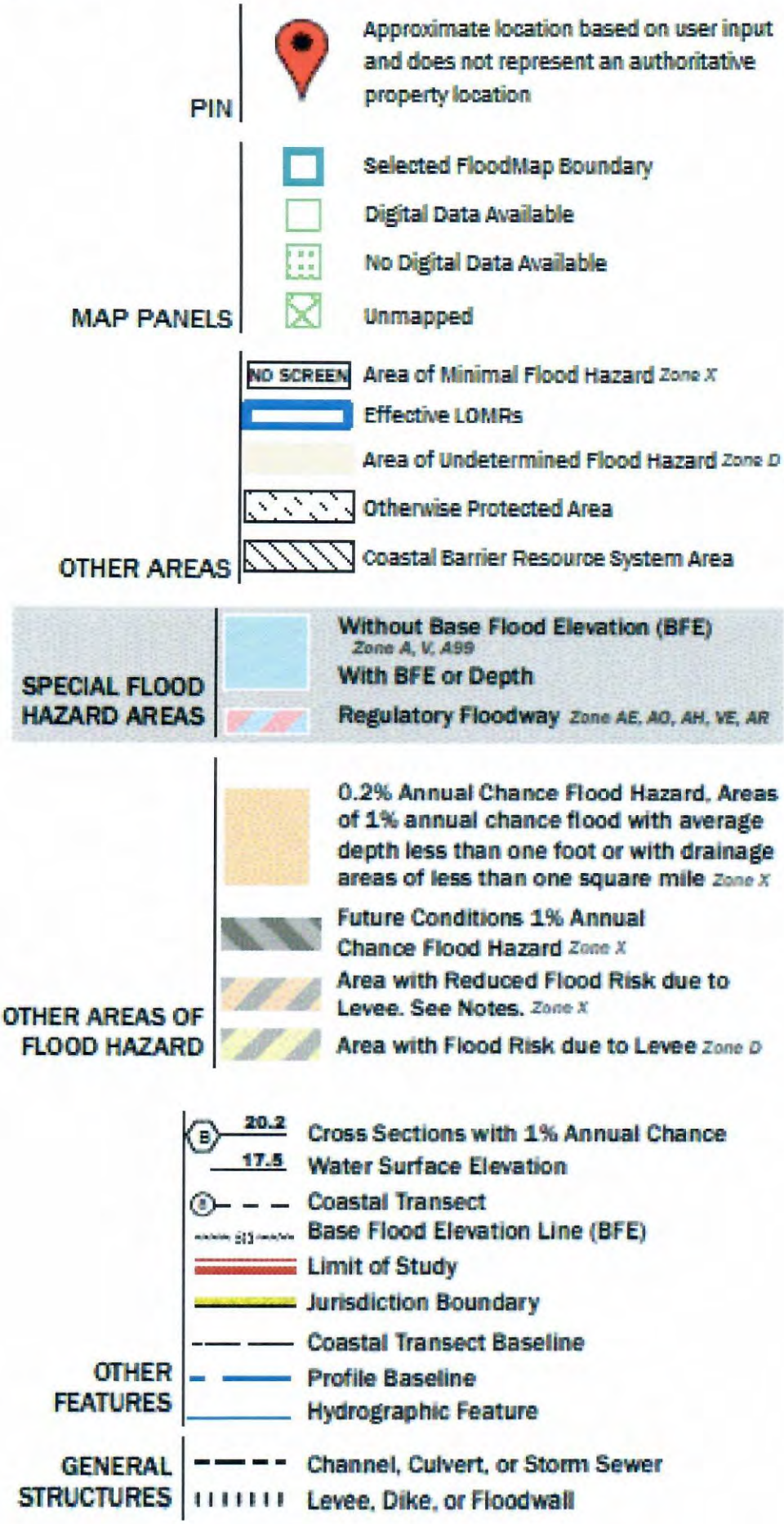
Changes to this FIRM

- Revisions (0)
- Amendments (0)
- Revalidations (1)

You can choose a new flood map or move the location pin by selecting a different location on the locator map below or by entering a new location in the search field above. It may take a minute or more during peak hours to generate a dynamic FIRMette.

Go To NFHL Viewer » (https://fema.maps.arcgis.com/home/webmap/viewer.html?webmap=cbe088e7c8704464aa0fc34eb99e7f30)

Feedback


PIN
Approximate location based on user input and does not represent an authoritative property location
MAP PANELS
Selected FloodMap Boundary
Digital Data Available
No Digital Data Available
Unmapped
OTHER AREAS
NO SCREEN
Area of Minimal Flood Hazard Zone X
Effective LOMRs
Area of Undetermined Flood Hazard Zone D
Otherwise Protected Area
Coastal Barrier Resource System Area
SPECIAL FLOOD HAZARD AREAS
Without Base Flood Elevation (BFE) Zone A, V, A99
With BFE or Depth
Regulatory Floodway Zone AE, AO, AH, VE, AR
OTHER AREAS OF FLOOD HAZARD
0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
Future Conditions 1% Annual Chance Flood Hazard Zone X
Area with Reduced Flood Risk due to Levee. See Notes. Zone X
Area with Flood Risk due to Levee Zone D
OTHER FEATURES
20.2
17.5
Cross Sections with 1% Annual Chance Water Surface Elevation
Coastal Transect
Base Flood Elevation Line (BFE)
Limit of Study
Jurisdiction Boundary
Coastal Transect Baseline
Profile Baseline
Hydrographic Feature
GENERAL STRUCTURES
Channel, Culvert, or Storm Sewer
Levee, Dike, or Floodwall