Technical Package Cover Page

This file contains the following documents:

1. Summary of application (in plain language)
   - English
   - Alternative Language (Spanish)
2. First notice (NORI-Notice of Receipt of Application and Intent to Obtain a Permit)
   - English
   - Alternative Language (Spanish)
3. Second notice (NAPD-Notice of Preliminary Decision)
   - English
   - Alternative Language (Spanish)
4. Application materials *
5. Draft permit *
6. Technical summary or fact sheet *

* **NOTE:** This application was declared Administratively Complete before June 1, 2024. The application materials, draft permit, and technical summary or fact sheet are available for review at the Public Viewing Location provided in the NAPD.

Section 15. Plain Language Summary (Instructions Page 40)

ENGLISH TEMPLATE FOR TPDES or TLAP NEW/RENEWAL/AMENDMENT APPLICATIONS

DOMESTIC WASTEWATER

The following summary is provided for this pending water quality permit application being reviewed by the Texas Commission on Environmental Quality as required by 30 Texas Administrative Code Chapter 39. The information provided in this summary may change during the technical review of the application and are not federal enforceable representations of the permit application.
HH-CH-B Bue Lake LLC (CN 606028868) proposes to operate Vizcaya Wastewater Treatment Plant RN105337497. a Wastewater Treatment Plant with subsurface drip irrigation. The facility will be located approximately 0.37 miles northeast of the intersection of Rod and Gun Club Road and Siesta Shores Drive, in Travis County, Texas 78669.

This application is for renewal of Permit No. 0014848001 with a major amendment to revise the location of subsurface drip fields. This permit will not authorize a discharge of pollutants into water in the state.

Discharges from the facility are expected to contain biochemical oxygen demand, total suspended solids, ammonia nitrogen, and E Coli. Municipal wastewater will be treated by *a membrane bioreactor process including a fine screen, anoxic basins, aeration/membrane basins, sludge holding basins, and ultraviolet disinfection*.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

June 6, 2024

Mr. John Blake, P.E.
Vice President of Land Development
Murfee Engineering Company, Inc.
1101 South Capital of Texas Highway, Building D
Austin, Texas 78746

RE: Declaration of Administrative Completeness
Applicant Name: HH-CH-B Blue Lake, LLC (CN606028868)
Permit No.: WQ0014848001
Site Name: Vizcaya WWTP (RN105337497)
Type of Application: Major Amendment

Dear Mr. Blake:

The executive director has declared the above referenced application, received on November 27, 2023 administratively complete on June 6, 2024.

You are now required to publish notice of your proposed activity and make a copy of the application available for public review. The following items are included to help you meet the regulatory requirements associated with this notice:

- Instructions for Public Notice
- Notice for Newspaper Publication
- Public Notice Verification Form
- Publisher's Affidavits

You must follow all the directions in the enclosed instructions. The most common mistakes are the unauthorized changing of notice, wording, or font. If you fail to follow these instructions, you may be required to republish the notices.

The following requirements are also described in the enclosed instructions. However, due to their importance, they are highlighted here as well.

1. Publish the enclosed notice within **30 calendar days** after your application is declared administratively complete. (See this letter's first paragraph for the declaration date.) **You may be required to publish the notice in more than one newspaper, including a newspaper published in an alternative language, to satisfy all of the notice requirements.**

2. On or before the date you publish notice, place a copy of your permit application in a public place in the county where the facility is or will be located. This copy must be accessible to the public for review and copying, must be updated to reflect changes to the application, and must remain in place throughout the comment period.

3. For each publication, submit proof of publication of the notice that shows the publication date and newspaper name to the Office of the Chief Clerk within **30 calendar days** after notice is published in the newspaper.

4. Return the original enclosed Public Notice Verification and the Publisher's Affidavits to the Office of the Chief Clerk within **30 calendar days** after the notice is published in the newspaper.

If you do not comply with all the requirements described in the instructions, further processing of your application may be suspended or the agency may take other actions.

If you have any questions regarding publication requirements, please contact the Office of Legal Services at (512) 239-0600. If you have any questions regarding the content of the notice, please contact Ms. Abesha Michael at (512) 239-4912.

Sincerely,

J Bowers

Jennifer E. Bowers, Section Manager
Water Quality Division Support
Office of Water
Texas Commission on Environmental Quality

JEB/ahm

Enclosures

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

NOTICE OF APPLICATION AND PRELIMINARY DECISION FOR WATER QUALITY LAND APPLICATION PERMIT FOR MUNICIPAL WASTEWATER

AMENDMENT

PERMIT NO. WQ0014848001

APPLICATION AND PRELIMINARY DECISION. HH-CH-B Blue Lake, LLC, 1111 West 11th Street, Austin, Texas 78703, has applied to the Texas Commission on Environmental Quality (TCEQ) for a major amendment to TCEQ Permit No. WQ0014848001, to authorize a revision of the location of drip irrigation fields, and to use seasonal native Texas grasses on the drip fields. The current permit authorizes the disposal of treated domestic wastewater at a daily average flow not to exceed 150,000 gallons per day via public access subsurface area drip dispersal system (SADDS) with a minimum area of 34.5 acres. This permit will not authorize a discharge of pollutants into waters in the State. TCEQ received this application on November 11, 2023.

The wastewater treatment facility and disposal site will be located approximately 0.37 miles northeast of the intersection of Rod and Gun Club Road and Siesta Shores Drive in Travis County, Texas 78669. The wastewater treatment facility and subsurface drip disposal fields are located in the drainage basin of Lake Travis in Segment No. 1404 of the Colorado River Basin. 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 exact location, refer to application. https://gisweb.tceq.texas.gov/LocationMapper/?marker=-98.03527,30.384444&level=18

The TCEQ Executive Director has completed the technical review of the application and prepared a draft permit. The draft permit, if approved, would establish the conditions under which the facility must operate. The Executive Director has made a preliminary decision that this permit, if issued, meets all statutory and regulatory requirements. The permit application, Executive Director's preliminary decision, and draft permit are available for viewing and copying at Lake Travis Community Library, 1938 Lohmans Crossing Road, Austin, Texas. 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.

PUBLIC COMMENT / PUBLIC MEETING. You may submit public comments or request a public meeting about this application. The purpose of a public meeting is to provide the opportunity to submit comments or to ask questions about the application. TCEQ holds 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 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 a contested case hearing or reconsideration of the Executive Director's decision**. A contested case hearing is a legal proceeding similar to a civil trial in a 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.**

EXECUTIVE DIRECTOR ACTION. The Executive Director may issue final approval of the application unless a timely contested case hearing request or request for reconsideration is filed. If a timely hearing request or request for reconsideration is filed, the Executive Director will not issue final approval of the permit and will forward the application and request to the TCEQ Commissioners for their consideration at a scheduled Commission meeting.

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.

All written public comments and public meeting requests must be submitted to the Office of the Chief Clerk, MC 105, Texas Commission on Environmental Quality, P.O. Box 13087, Austin, TX 78711-3087 or electronically at www.tceq.texas.gov/goto/comment **within 30 days from the date of newspaper publication of this notice.**

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. Public comments and requests must be submitted either electronically at www.tceq.texas.gov/goto/comment, 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. Any personal information you submit to the TCEQ will become part of the agency's record; this includes email addresses. 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 HH-CH-B Blue Lake, LLC at the address stated above or by calling Mr. John Blake, P.E., Vice President of Land Development, Murfee Engineering Company, Inc. at 512-323-9204.

Issuance Date: May 15, 2025

TECHNICAL SUMMARY AND
EXECUTIVE DIRECTOR'S PRELIMINARY DECISION

DESCRIPTION OF APPLICATION

Applicant:	HH-CH-B Blue Lake, LLC TCEQ Permit No. WQ0014848001
Regulated Activity:	Domestic Wastewater Permit
Type of Application:	Major Amendment with Renewal
Request:	to authorize a revision of the location of drip irrigation fields, and to use seasonal native Texas grasses on the drip fields.
Authority:	Texas Water Code (TWC) § 26.027; 30 Texas Administrative Code (TAC) Chapters 222, 305, 309, 312, 319, and 30; and Commission policies.

EXECUTIVE DIRECTOR RECOMMENDATION

The Executive Director has made a preliminary decision that this permit, if issued, meets all statutory and regulatory requirements. The draft permit includes an expiration date of **five years from the date of issuance,** according to 30 TAC § 305.127(1)(C)(ii)(III), Conditions to be Determined for Individual Permits.

REASON FOR PROJECT PROPOSED

HH-CH-B Blue Lake, LLC has applied to the Texas Commission on Environmental Quality (TCEQ) for a major amendment with renewal of Permit No. 14848001, to authorize a revision of the location of drip irrigation fields, and to use seasonal native Texas grasses on the drip fields. The existing permit authorize the disposal of treated domestic wastewater at a daily average flow not to exceed 0.04 million gallons per day (MGD) in the Interim I phase, 0.10 MGD in the Interim II phase, and 0.15 MGD in the Final phase via public access subsurface area drip dispersal system (SADDS) with a minimum area of 9.18 acres in the Interim I phase, 23 acres in the Interim II phase, and 34.5 acres in the Final phase.

The proposed wastewater treatment facility will serve the Vizcaya Residential Development that will consist of single-family residential homes, villas, a golf course, a golf house, and a marina/ amenities center.

PROJECT DESCRIPTION AND LOCATION

The Vizcaya Wastewater Treatment Facility will consist of a membrane bioreactor (MBR) treatment system, which combines conventional biological activated sludge processes with membrane filtration. For Phase 1, influent will be pumped to dual fine auger screens, then gravity flow to a membrane bioreactor, thence pumped through ultraviolet disinfection chambers, to an effluent storage tank, thence to Phase 1 drip irrigation system and drip fields. Phase 2 will add a second train for the membrane bioreactor (which brings the bioreactor capacity to 150,000 gpd), thence to effluent storage, thence to the Phase 2 drip fields. Phase 3 will add drip irrigation fields only. Waste sludge is pumped to a sludge holding tank for

transport to a sludge processing facility (Wastewater Transport Services). The facility has not been constructed.

Sludge generated from the treatment facility will be hauled by a registered transporter to City of Austin Walnut Creek Wastewater Treatment Facility, Permit No. WQ0010543011 to be digested, dewatered and then disposed of with the bulk of the sludge from the plant accepting the sludge. The draft permit also authorizes the disposal of sludge at a TCEQ authorized land application site or co-disposal landfill.

The wastewater treatment facility and disposal site are located approximately 0.37 miles northeast of the intersection of Rod and Gun Club Road and Siesta Shores Drive in Travis County, Texas 78669.

The wastewater treatment facility and subsurface drip disposal fields are located in the drainage basin of Lake Travis in Segment No. 1404 of the Colorado River Basin. No discharge of pollutants into water in the State is authorized by this permit.

SUMMARY OF EFFLUENT DATA

There is no effluent data since the facility has not been constructed.

DRAFT PERMIT CONDITIONS

The draft permit authorizes the disposal of treated domestic wastewater effluent at a daily average flow not to exceed 0.04 MGD in the Interim I phase, 0.10 MGD in the Interim II phase, and 0.15 MGD in the Final phase via public access SADDS with a minimum area of 9.18 acres in the Interim I phase, 23 acres in the Interim II phase, and 34.5 acres in the Final phase. The permittee is required to provide at least three days of temporary storage for times when the facility is out of service due to an emergency or for scheduled maintenance. Application rates shall not exceed 0.1 gallons per square foot per day. The permittee will maintain the seasonal native Texas grasses on the disposal site.

The effluent limitations in all phases of the draft permit, based on a daily average, are 5.0 mg/l biochemical oxygen demand (BOD_5), 5.0 mg/l total suspended solids (TSS), 2.0 mg/l ammonia-nitrogen (NH3-N) and 200 colony forming units (CFU) or most probable number (MPN) of Fecal Coliform Bacteria per 100 ml, based on a single grab. The permittee shall utilize an ultraviolet light (UV) system for disinfection purposes.

The draft permit includes Sludge Provisions according to the requirements of 30 TAC Chapter 312, Sludge Use, Disposal and Transportation. Sludge generated from the treatment facility will be hauled by a registered transporter to City of Austin Walnut Creek Wastewater Treatment Facility, Permit No. WQ0010543011 to be digested, dewatered and then disposed of with the bulk of the sludge from the plant accepting the sludge. The draft permit also authorizes the disposal of sludge at a TCEQ authorized land application site or co-disposal landfill.

SUMMARY OF CHANGES FROM APPLICATION

None.

SUMMARY OF CHANGES FROM EXISTING PERMIT

The Sludge Provisions, Special Provisions and Standard Provisions have been revised in the draft permit.

The ownership of the existing facility has been transferred from 'RDD Vista, LLC' to 'HH-CH-B Blue Lake, LLC' on October 4, 2023.

The draft permit includes all updates based on the 30 TAC § 312 rule change effective April 23, 2020.

BASIS FOR DRAFT PERMIT

The following items were considered in developing the draft permit:

1. Application submitted with letter dated November 11, 2023 and additional information submitted with letter dated May 1, 2024.

2. Existing TCEQ permit: Permit No. WQ0014848001 issued November 21, 2019.

3. Interoffice Memorandum from the Water Quality Assessment Team, Water Quality Assessment & Standards Section, Water Quality Division.

PROCEDURES FOR FINAL DECISION

When an application is declared administratively complete, the Chief Clerk sends a letter to the applicant advising the applicant to publish the Notice of Receipt of Application and Intent to Obtain Permit in the newspaper. In addition, the Chief Clerk instructs the applicant to place a copy of the application in a public place for review and copying in the county where the facility is or will be located. This application will be in a public place throughout the comment period. The Chief Clerk also mails this notice to any interested persons and, if required, to landowners identified in the permit application. This notice informs the public about the application, and provides that an interested person may file comments on the application or request a contested case hearing or a public meeting.

Once a draft permit is completed, it is sent, along with the Executive Director's preliminary decision, as contained in the technical summary or fact sheet, to the Chief Clerk. At that time, Notice of Application and Preliminary Decision will be mailed to the same people and published in the same newspaper as the prior notice. This notice sets a deadline for making public comments. The applicant must place a copy of the Executive Director's preliminary decision and draft permit in the public place with the application.

Any interested person may request a public meeting on the application until the deadline for filing public comments. A public meeting is intended for the taking of public comment, and is not a contested case proceeding.

After the public comment deadline, the Executive Director prepares a response to all significant public comments on the application, or the draft permit raised during the public comment period. The Chief Clerk then mails the Executive Director's Response to Comments and Final

Decision to people who have filed comments, requested a contested case hearing, or requested to be on the mailing list. This notice provides that if a person is not satisfied with the Executive Director's response and decision, they can request a contested case hearing or file a request to reconsider the Executive Director's decision within 30 days after the notice is mailed.

The Executive Director will issue the permit unless a written hearing request or request for reconsideration is filed within 30 days after the Executive Director's Response to Comments and Final Decision is mailed. If a hearing request or request for reconsideration is filed, the Executive Director will not issue the permit and will forward the application and request to the TCEQ Commissioners for their consideration at a scheduled Commission meeting. If a contested case hearing is held, it will be a legal proceeding similar to a civil trial in state district court.

If the Executive Director calls a public meeting or the Commission grants a contested case hearing as described above, the Commission will give notice of the date, time, and place of the meeting or hearing. If a hearing request or request for reconsideration is made, the Commission will consider all public comments in making its decision and shall either adopt the Executive Director's response to public comments or prepare its own response.

For additional information about this application, contact Abdur Rahim at (512) 239-0504.

Abdur Rahim

Abdur Rahim
Municipal Permits Team
Wastewater Permitting Section (MC 148)

March 6, 2025

Date

PERMIT NO. WQ0014848001

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
P.O. Box 13087
Austin, Texas 78711-3087

This major amendment with renewal supersedes and replaces Permit No. WQ0014848001, issued November 21, 2019.

PERMIT TO DISCHARGE WASTES
under provisions of Chapter 26
of the Texas Water Code

HH-CH-B Blue Lake, LLC

whose mailing address is

1111 West 11th Street
Austin, Texas 78703

Nature of Business Producing Waste: Domestic wastewater treatment operation, SIC Code 4952.

General Description and Location of Waste Disposal System:

Description: The Vizcaya Wastewater Treatment Facility will consist of a membrane bioreactor (MBR) treatment system, which combines conventional biological activated sludge processes with membrane filtration. For Phase 1, influent will be pumped to dual fine auger screens, then gravity flow to a membrane bioreactor, thence pumped through ultraviolet disinfection chambers, to an effluent storage tank, thence to Phase 1 drip irrigation system and drip fields. Phase 2 will add a second train for the membrane bioreactor (which brings the bioreactor capacity to 150,000 gpd), thence to effluent storage, thence to the Phase 2 drip fields. Phase 3 will add drip irrigation fields only. Waste sludge is pumped to a sludge holding tank for transport to a sludge processing facility (Wastewater Transport Services). The permittee is authorized to dispose of treated domestic wastewater effluent at a daily average flow not to exceed 0.04 million gallons per day (MGD) in the Interim I phase, 0.10 MGD in the Interim II phase, and 0.15 MGD in the Final phase via public access with a minimum area of 9.18 acres in the Interim I phase, 23 acres in the Interim II phase, and 34.5 acres in the Final phase. Application rates shall not exceed 0.1 gallons per square foot per day. The permittee will maintain the seasonal native Texas grasses on the disposal site.

Location: The wastewater treatment facility and disposal site are located approximately 0.37 miles northeast of the intersection of Rod and Gun Club Road and Siesta Shores Drive, in Travis County, Texas 78669. (See Attachment A.)

Drainage Area: The wastewater treatment facility and subsurface drip disposal fields are located in the drainage basin of Lake Travis in Segment No. 1404 of the Colorado River Basin.

No discharge of pollutants into water in the State is authorized by this permit. No discharge of pollutants into water in the State is authorized by this permit.

This permit and the authorization contained herein shall expire at midnight, **five years from the date of issuance**.

ISSUED DATE:

For the Commission

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

Conditions of the Permit: No discharge of pollutants into water in the State is authorized.

A. Effluent Limitations

Character: Treated Domestic Sewage Effluent

Volume: Daily Average Flow – 0.04 MGD in the Interim I Phase
Daily Average Flow – 0.10 MGD in the Interim II Phase
Daily Average Flow – 0.15 MGD in the Final Phase from the treatment system

Quality: The following effluent limitations shall be required:

	Effluent Concentrations (Not to Exceed)			
Parameter	Daily Average mg/l	7-Day Average mg/l	Daily Maximum mg/	Single Grab mg/l
Biochemical Oxygen Demand (5-day)	5	10	20	30
Total Suspended Solids	5	10	20	30
Ammonia Nitrogen	2	10	12	15
Fecal Coliform Bacteria, colonies per 100 ml	N/A	N/A	N/A	200

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units.

B. Monitoring Requirements:

Parameter	Monitoring Frequency	Sample Type
Flow	Continuous	Totalizing Meter
Biochemical Oxygen Demand (5-day)	One/week	Grab
Total Suspended Solids	One/week	Grab
Ammonia Nitrogen	One/week	Grab
pH	One/month	Grab
Fecal Coliform Bacteria	Five/week	Grab

The monitoring shall be done after the final treatment unit and prior to storage of the treated effluent. If the effluent is land applied directly from the treatment system, monitoring shall be done after the final treatment unit and prior to land application. These records shall be maintained on a monthly basis and be available at the plant site for inspection by authorized representatives of the Commission for at least three years.

STANDARD PERMIT CONDITIONS

This permit is granted in accordance with the Texas Water Code and the rules and other Orders of the Commission and the laws of the State of Texas.

DEFINITIONS

All definitions in Section 26.001 of the Texas Water Code and 30 TAC Chapter 305 shall apply to this permit and are incorporated by reference. Some specific definitions of words or phrases used in this permit are as follows:

1. Flow Measurements

    a. Daily average flow - the arithmetic average of all determinations of the daily flow within a period of one calendar month. The daily average flow determination shall consist of determinations made on at least four separate days. If instantaneous measurements are used to determine the daily flow, the determination shall be the arithmetic average of all instantaneous measurements taken during that month. Daily average flow determination for intermittent discharges shall consist of a minimum of three flow determinations on days of discharge.

    b. Annual average flow - the arithmetic average of all daily flow determinations taken within the preceding 12 consecutive calendar months. The annual average flow determination shall consist of daily flow volume determinations made by a totalizing meter, charted on a chart recorder and limited to major domestic wastewater discharge facilities with a 1 million gallons per day or greater permitted flow.

    c. Instantaneous flow - the measured flow during the minimum time required to interpret the flow measuring device.

2. Concentration Measurements

    a. Daily average concentration - the arithmetic average of all effluent samples, composite or grab as required by this permit, within a period of one calendar month, consisting of at least four separate representative measurements.

        i. For domestic wastewater treatment plants - When four samples are not available in a calendar month, the arithmetic average (weighted by flow) of all values in the previous four consecutive month period consisting of at least four measurements shall be utilized as the daily average concentration.

        ii. For all other wastewater treatment plants - When four samples are not available in a calendar month, the arithmetic average (weighted by flow) of all values taken during the month shall be utilized as the daily average concentration.

    b. 7-day average concentration - the arithmetic average of all effluent samples, composite or grab as required by this permit, within a period of one calendar week, Sunday through Saturday.

    c. Daily maximum concentration - the maximum concentration measured on a single day, by the sample type specified in the permit, within a period of one calendar month.

3. Sample Type

   a. Composite sample - For domestic wastewater, a composite sample is a sample made up of a minimum of three effluent portions collected in a continuous 24-hour period or during the period of daily discharge if less than 24 hours, and combined in volumes proportional to flow, and collected at the intervals required by 30 TAC § 319.9 (a). For industrial wastewater, a composite sample is a sample made up of a minimum of three effluent portions collected in a continuous 24-hour period or during the period of daily discharge if less than 24 hours, and combined in volumes proportional to flow, and collected at the intervals required by 30 TAC § 319.9 (b).

   b. Grab sample - an individual sample collected in less than 15 minutes.

4. Treatment Facility (facility) - wastewater facilities used in the conveyance, storage, treatment, recycling, reclamation and/or disposal of domestic sewage, industrial wastes, agricultural wastes, recreational wastes, or other wastes including sludge handling or disposal facilities under the jurisdiction of the Commission.

5. The term “sewage sludge” is defined as solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in 30 TAC Chapter 312. This includes the solids which have not been classified as hazardous waste separated from wastewater by unit processes.

6. The term “biosolids” is defined as sewage sludge that has been tested or processed to meet Class A, Class AB, or Class B pathogen standards in 30 TAC Chapter 312 for beneficial use.

7. Bypass - the intentional diversion of a waste stream from any portion of a treatment facility.

MONITORING REQUIREMENTS

1. Monitoring Requirements

   Monitoring results shall be collected at the intervals specified in the permit. Unless otherwise specified in this permit or otherwise ordered by the Commission, the permittee shall conduct effluent sampling in accordance with 30 TAC §§ 319.4 - 319.12.

   As provided by state law, the permittee is subject to administrative, civil and criminal penalties, as applicable, for negligently or knowingly violating the Texas Water Code, Chapters 26, 27, and 28, and Texas Health and Safety Code, Chapter 361, including but not limited to knowingly making any false statement, representation, or certification on any report, record or other document submitted or required to be maintained under this permit, including monitoring reports, records or reports of compliance or noncompliance, or falsifying, tampering with or knowingly rendering inaccurate any monitoring device or method required by this permit or violating any other requirement imposed by state or federal regulations.

2. Test Procedures

   a. Unless otherwise specified in this permit, test procedures for the analysis of pollutants shall comply with procedures specified in 30 TAC §§ 319.11 - 319.12. Measurements, tests and calculations shall be accurately accomplished in a representative manner.

b. All laboratory tests submitted to demonstrate compliance with this permit must meet the requirements of 30 TAC Chapter 25, Environmental Testing Laboratory Accreditation and Certification.

3. Records of Results

a. Monitoring samples and measurements shall be taken at times and in a manner so as to be representative of the monitored activity.

b. Except for records of monitoring information required by this permit related to the permittee's sewage sludge or biosolids use and disposal activities, which shall be retained for a period of at least five years, monitoring and reporting records, including strip charts and records of calibration and maintenance, copies of all records required by this permit, and records of all data used to complete the application for this permit shall be retained at the facility site, or shall be readily available for review by a TCEQ representative for a period of three years from the date of the record or sample, measurement, report, or application. This period shall be extended at the request of the Executive Director.

c. Records of monitoring activities shall include the following:

i. date, time and place of sample or measurement;
ii. identity of individual who collected the sample or made the measurement.
iii. date and time of analysis;
iv. identity of the individual and laboratory who performed the analysis;
v. the technique or method of analysis; and
vi. the results of the analysis or measurement and quality assurance/quality control records.

The period during which records are required to be kept shall be automatically extended to the date of the final disposition of any administrative or judicial enforcement action that may be instituted against the permittee.

4. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit using approved analytical methods as specified above, all results of such monitoring shall be included in determining compliance with permit requirements.

5. Calibration of Instruments

All automatic flow measuring or recording devices and all totalizing meters for measuring flows shall be accurately calibrated by a trained person at plant start-up and as often thereafter as necessary to ensure accuracy, but not less often than annually unless authorized by the Executive Director for a longer period. Such person shall verify in writing that the device is operating properly and giving accurate results. Copies of the verification shall be retained at the facility site and/or shall be readily available for review by a TCEQ representative for a period of three years.

6. Compliance Schedule Reports

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of the permit shall be submitted no later than 14 days following each schedule date to the Regional Office and the Enforcement Division (MC 224).

7. Noncompliance Notification

   a. In accordance with 30 TAC § 305.125(9), any noncompliance which may endanger human health or safety, or the environment shall be reported by the permittee to the TCEQ. Except as allowed by 30 TAC § 305.132, report of such information shall be provided orally or by facsimile transmission (FAX) to the Regional Office within 24 hours of becoming aware of the noncompliance. A written submission of such information shall also be provided by the permittee to the Regional Office and the Enforcement Division (MC 224) within five working days of becoming aware of the noncompliance. The written submission shall contain a description of the noncompliance and its cause; the potential danger to human health or safety, or the environment; the period of noncompliance, including exact dates and times; if the noncompliance has not been corrected, the time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance, and to mitigate its adverse effects.

   b. The following violations shall be reported under Monitoring and Reporting Requirement 7.a.:

      i. Unauthorized discharges as defined in Permit Condition 2(g).

      ii. Any unanticipated bypass which exceeds any effluent limitation in the permit.

   c. In addition to the above, any effluent violation which deviates from the permitted effluent limitation by more than 40% shall be reported by the permittee in writing to the Regional Office and the Enforcement Division (MC 224) within 5 working days of becoming aware of the noncompliance.

   d. Any noncompliance other than that specified in this section, or any required information not submitted or submitted incorrectly, shall be reported to the Enforcement Division (MC 224) as promptly as possible.

8. In accordance with the procedures described in 30 TAC §§ 35.301 - 35.303 (relating to Water Quality Emergency and Temporary Orders) if the permittee knows in advance of the need for a bypass, it shall submit prior notice by applying for such authorization.

9. Changes in Discharges of Toxic Substances

   All existing manufacturing, commercial, mining, and silvicultural permittees shall notify the Regional Office, orally or by facsimile transmission within 24 hours, and both the Regional Office and the Enforcement Division (MC 224) in writing within five (5) working days, after becoming aware of or having reason to believe:

   a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant listed at 40 CFR Part 122, Appendix D, Tables II and III (excluding Total Phenols) which is not limited in the permit, if that discharge will exceed the highest of the following “notification levels”:

i. One hundred micrograms per liter (100 µg/L);
ii. Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
iii. Five (5) times the maximum concentration value reported for that pollutant in the permit application; or
iv. The level established by the TCEQ.

b. That any activity has occurred or will occur which would result in any discharge, on a nonroutine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

i. Five hundred micrograms per liter (500 µg/L);
ii. One milligram per liter (1 mg/L) for antimony;
iii. Ten (10) times the maximum concentration value reported for that pollutant in the permit application; or
iv. The level established by the TCEQ.

10. Signatories to Reports

All reports and other information requested by the Executive Director shall be signed by the person and in the manner required by 30 TAC § 305.128 (relating to Signatories to Reports).

PERMIT CONDITIONS

1. General

a. When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in an application or in any report to the Executive Director, it shall promptly submit such facts or information.

b. This permit is granted on the basis of the information supplied and representations made by the permittee during action on an application, and relying upon the accuracy and completeness of that information and those representations. After notice and opportunity for a hearing, this permit may be modified, suspended, or revoked, in whole or in part, in accordance with 30 TAC Chapter 305, Subchapter D, during its term for good cause including, but not limited to, the following:

i. Violation of any terms or conditions of this permit;
ii. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts; or
iii. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

c. The permittee shall furnish to the Executive Director, upon request and within a reasonable time, any information to determine whether cause exists for amending, revoking, suspending or terminating the permit. The permittee shall also furnish to the Executive Director, upon request, copies of records required to be kept by the permit.

2. Compliance

a. Acceptance of the permit by the person to whom it is issued constitutes acknowledgment and agreement that such person will comply with all the terms and conditions embodied in the permit, and the rules and other orders of the Commission.

b. The permittee has a duty to comply with all conditions of the permit. Failure to comply with any permit condition constitutes a violation of the permit and the Texas Water Code or the Texas Health and Safety Code, and is grounds for enforcement action, for permit amendment, revocation or suspension, or for denial of a permit renewal application or an application for a permit for another facility.

c. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit.

d. The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal or other permit violation which has a reasonable likelihood of adversely affecting human health or the environment.

e. Authorization from the Commission is required before beginning any change in the permitted facility or activity that may result in noncompliance with any permit requirements.

f. A permit may be amended, suspended and reissued, or revoked for cause in accordance with 30 TAC §§ 305.62 and 305.66 and Texas Water Code Section 7.302. The filing of a request by the permittee for a permit amendment, suspension and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

g. There shall be no unauthorized discharge of wastewater or any other waste. For the purpose of this permit, an unauthorized discharge is considered to be any discharge of wastewater into or adjacent to water in the state at any location not permitted as an outfall or otherwise defined in the Special Provisions section of this permit.

h. The permittee is subject to administrative, civil, and criminal penalties, as applicable, under Texas Water Code §§ 7.051 - 7.075 (relating to Administrative Penalties), 7.101 - 7.111 (relating to Civil Penalties), and 7.141 - 7.202 (relating to Criminal Offenses and Penalties).

3. Inspections and Entry

a. Inspection and entry shall be allowed as prescribed in the Texas Water Code Chapters 26, 27, and 28, and Texas Health and Safety Code Chapter 361.

b. The members of the Commission and employees and agents of the Commission are entitled to enter any public or private property at any reasonable time for the purpose of inspecting and investigating conditions relating to the quality of water in the state or the compliance with any rule, regulation, permit or other order of the Commission. Members, employees, or agents of the Commission and Commission contractors are entitled to enter public or private property at any reasonable time to investigate or monitor or, if the responsible party is not responsive or there is an immediate danger to public health or the environment, to remove or remediate a condition related to the

quality of water in the state. Members, employees, Commission contractors, or agents acting under this authority who enter private property shall observe the establishment's rules and regulations concerning safety, internal security, and fire protection, and if the property has management in residence, shall notify management or the person then in charge of his presence and shall exhibit proper credentials. If any member, employee, Commission contractor, or agent is refused the right to enter in or on public or private property under this authority, the Executive Director may invoke the remedies authorized in Texas Water Code Section 7.002. The statement above, that Commission entry shall occur in accordance with an establishment's rules and regulations concerning safety, internal security, and fire protection, is not grounds for denial or restriction of entry to any part of the facility, but merely describes the Commission's duty to observe appropriate rules and regulations during an inspection.

4. Permit Amendment and/or Renewal

   a. The permittee shall give notice to the Executive Director as soon as possible of any planned physical alterations or additions to the permitted facility if such alterations or additions would require a permit amendment or result in a violation of permit requirements. Notice shall also be required under this paragraph when:

      i. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements in Monitoring and Reporting Requirements No. 9;

      ii. The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.

   b. Prior to any facility modifications, additions, or expansions that will increase the plant capacity beyond the permitted flow, the permittee must apply for and obtain proper authorization from the Commission before commencing construction.

   c. The permittee must apply for an amendment or renewal at least 180 days prior to expiration of the existing permit in order to continue a permitted activity after the expiration date of the permit. If an application is submitted prior to the expiration date of the permit, the existing permit shall remain in effect until the application is approved, denied, or returned. If the application is returned or denied, authorization to continue such activity shall terminate upon the effective date of the action. If an application is not submitted prior to the expiration date of the permit, the permit shall expire and authorization to continue such activity shall terminate.

   d. Prior to accepting or generating wastes which are not described in the permit application or which would result in a significant change in the quantity or quality of the existing discharge, the permittee must report the proposed changes to the Commission. The permittee must apply for a permit amendment reflecting any necessary changes in permit conditions, including effluent limitations for pollutants not identified and limited by this permit.

e. In accordance with the Texas Water Code § 26.029(b), after a public hearing, notice of which shall be given to the permittee, the Commission may require the permittee, from time to time, for good cause, in accordance with applicable laws, to conform to new or additional conditions.

5. Permit Transfer

a. Prior to any transfer of this permit, Commission approval must be obtained. The Commission shall be notified in writing of any change in control or ownership of facilities authorized by this permit. Such notification should be sent to the Applications Review and Processing Team (MC 148) of the Water Quality Division.

b. A permit may be transferred only according to the provisions of 30 TAC § 305.64 (relating to Transfer of Permits) and 30 TAC § 50.133 (relating to Executive Director Action on Application or WQMP update).

6. Relationship to Hazardous Waste Activities

This permit does not authorize any activity of hazardous waste storage, processing, or disposal which requires a permit or other authorization pursuant to the Texas Health and Safety Code.

7. Property Rights

A permit does not convey any property rights of any sort, or any exclusive privilege.

8. Permit Enforceability

The conditions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstances, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

9. Relationship to Permit Application

The application pursuant to which the permit has been issued is incorporated herein; provided, however, that in the event of a conflict between the provisions of this permit and the application, the provisions of the permit shall control.

10. Notice of Bankruptcy.

a. Each permittee shall notify the Executive Director, in writing, immediately following the filing of a voluntary or involuntary petition for bankruptcy under any chapter of Title 11 (Bankruptcy) of the United States Code (11 USC) by or against:

i. the permittee;
ii. an entity (as that term is defined in 11 USC, § 101(14)) controlling the permittee or listing the permit or permittee as property of the estate; or
iii. an affiliate (as that term is defined in 11 USC, § 101(2)) of the permittee.

b. This notification must indicate:

i. the name of the permittee;
ii. the permit number(s);
iii. the bankruptcy court in which the petition for bankruptcy was filed; and
iv. the date of filing of the petition.

OPERATIONAL REQUIREMENTS

1. The permittee shall at all times ensure that the facility and all of its systems of collection, treatment, and disposal are properly operated and maintained. This includes, but is not limited to, the regular, periodic examination of wastewater solids within the treatment plant by the operator in order to maintain an appropriate quantity and quality of solids inventory as described in the various operator training manuals and according to accepted industry standards for process control. Process control, maintenance, and operations records shall be retained at the facility site, or shall be readily available for review by a TCEQ representative, for a period of three years.

2. Upon request by the Executive Director, the permittee shall take appropriate samples and provide proper analysis in order to demonstrate compliance with Commission rules. Unless otherwise specified in this permit or otherwise ordered by the Commission, the permittee shall comply with all applicable provisions of 30 TAC Chapter 312 concerning sewage sludge or biosolids use and disposal and 30 TAC §§ 319.21 - 319.29 concerning the discharge of certain hazardous metals.

3. Domestic wastewater treatment facilities shall comply with the following provisions:

   a. The permittee shall notify the Municipal Permits Team, Wastewater Permitting Section (MC 148) of the Water Quality Division, in writing, of any facility expansion at least 90 days prior to conducting such activity.

   b. The permittee shall submit a closure plan for review and approval to the Municipal Permits Team, Wastewater Permitting Section (MC 148) of the Water Quality Division, for any closure activity at least 90 days prior to conducting such activity. Closure is the act of permanently taking a waste management unit or treatment facility out of service and includes the permanent removal from service of any pit, tank, pond, lagoon, surface impoundment and/or other treatment unit regulated by this permit.

4. The permittee is responsible for installing prior to plant start-up, and subsequently maintaining, adequate safeguards to prevent the discharge of untreated or inadequately treated wastes during electrical power failures by means of alternate power sources, standby generators, and/or retention of inadequately treated wastewater.

5. Unless otherwise specified, the permittee shall provide a readily accessible sampling point and, where applicable, an effluent flow measuring device or other acceptable means by which effluent flow may be determined.

6. The permittee shall remit an annual water quality fee to the Commission as required by 30 TAC Chapter 21. Failure to pay the fee may result in revocation of this permit under Texas Water Code § 7.302(b)(6).

7. Documentation

For all written notifications to the Commission required of the permittee by this permit, the permittee shall keep and make available a copy of each such notification under the same conditions as self-monitoring data are required to be kept and made available. Except for information specified as not confidential in 30 TAC § 1.5(d), any information submitted pursuant to this permit may be claimed as confidential by the submitter. Any such claim must be asserted in the manner prescribed in the application form or by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, information may be made available to the public without further notice. If the Commission or Executive Director agrees with the designation of confidentiality, the TCEQ will not provide the information for public inspection unless required by the Texas Attorney General or a court pursuant to an open records request. If the Executive Director does not agree with the designation of confidentiality, the person submitting the information will be notified.

8. Facilities which generate domestic wastewater shall comply with the following provisions; domestic wastewater treatment facilities at permitted industrial sites are excluded.

   a. Whenever flow measurements for any domestic sewage treatment facility reach 75 percent of the permitted daily average or annual average flow for three consecutive months, the permittee must initiate engineering and financial planning for expansion and/or upgrading of the domestic wastewater treatment and/or collection facilities. Whenever the flow reaches 90 percent of the permitted daily average or annual average flow for three consecutive months, the permittee shall obtain necessary authorization from the Commission to commence construction of the necessary additional treatment and/or collection facilities. In the case of a domestic wastewater treatment facility which reaches 75 percent of the permitted daily average or annual average flow for three consecutive months, and the planned population to be served or the quantity of waste produced is not expected to exceed the design limitations of the treatment facility, the permittee shall submit an engineering report supporting this claim to the Executive Director of the Commission.

      If in the judgement of the Executive Director the population to be served will not cause permit noncompliance, then the requirement of this section may be waived. To be effective, any waiver must be in writing and signed by the Director of the Enforcement Division (MC 219) of the Commission, and such waiver of these requirements will be reviewed upon expiration of the existing permit; however, any such waiver shall not be interpreted as condoning or excusing any violation of any permit parameter.

   b. The plans and specifications for domestic sewage collection and treatment works associated with any domestic permit must be approved by the Commission and failure to secure approval before commencing construction of such works or making a discharge is a violation of this permit and each day is an additional violation until approval has been secured.

   c. Permits for domestic wastewater treatment plants are granted subject to the policy of the Commission to encourage the development of area-wide waste collection, treatment and disposal systems. The Commission reserves the right to amend any domestic wastewater permit in accordance with applicable procedural requirements to require the system covered by this permit to be integrated into an area-wide system, should such be developed; to require the delivery of the wastes authorized to be collected in, treated by or discharged from said system, to such area-wide system; or to amend this permit in any other particular to effectuate the Commission's policy. Such amendments may be made

when the changes required are advisable for water quality control purposes and are feasible on the basis of waste treatment technology, engineering, financial, and related considerations existing at the time the changes are required, exclusive of the loss of investment in or revenues from any then existing or proposed waste collection, treatment or disposal system.

9. Domestic wastewater treatment plants shall be operated and maintained by sewage plant operators holding a valid certificate of competency at the required level as defined in 30 TAC Chapter 30.

10. Facilities which generate industrial solid waste as defined in 30 TAC § 335.1 shall comply with these provisions:

    a. Any solid waste, as defined in 30 TAC § 335.1 (including but not limited to such wastes as garbage, refuse, sludge from a waste treatment, water supply treatment plant or air pollution control facility, discarded materials, discarded materials to be recycled, whether the waste is solid, liquid, or semisolid), generated by the permittee during the management and treatment of wastewater, must be managed in accordance with all applicable provisions of 30 TAC Chapter 335, relating to Industrial Solid Waste Management.

    b. Industrial wastewater that is being collected, accumulated, stored, or processed before discharge through any final discharge outfall, specified by this permit, is considered to be industrial solid waste until the wastewater passes through the actual point source discharge and must be managed in accordance with all applicable provisions of 30 TAC Chapter 335.

    c. The permittee shall provide written notification, pursuant to the requirements of 30 TAC § 335.8(b)(1), to the Corrective Action Section (MC 127) of the Remediation Division informing the Commission of any closure activity involving an Industrial Solid Waste Management Unit, at least 90 days prior to conducting such an activity.

    d. Construction of any industrial solid waste management unit requires the prior written notification of the proposed activity to the Registration and Reporting Section (MC 129) of the Permitting and Remediation Support Division. No person shall dispose of industrial solid waste, including sludge or other solids from wastewater treatment processes, prior to fulfilling the deed recordation requirements of 30 TAC § 335.5.

    e. The term “industrial solid waste management unit” means a landfill, surface impoundment, waste-pile, industrial furnace, incinerator, cement kiln, injection well, container, drum, salt dome waste containment cavern, or any other structure vessel, appurtenance, or other improvement on land used to manage industrial solid waste.

    f. The permittee shall keep management records for all sludge (or other waste) removed from any wastewater treatment process. These records shall fulfill all applicable requirements of 30 TAC Chapter 335 and must include the following, as it pertains to wastewater treatment and discharge:

        i. Volume of waste and date(s) generated from treatment process;
        ii. Volume of waste disposed of on-site or shipped off-site;
        iii. Date(s) of disposal;
        iv. Identity of hauler or transporter;

v. Location of disposal site; and
vi. Method of final disposal.

The above records shall be maintained on a monthly basis. The records shall be retained at the facility site, or shall be readily available for review by authorized representatives of the TCEQ for at least five years.

11. For industrial facilities to which the requirements of 30 TAC Chapter 335 do not apply, sludge and solid wastes, including tank cleaning and contaminated solids for disposal, shall be disposed of in accordance with Chapter 361 of the Texas Health and Safety Code.

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SLUDGE PROVISIONS

The permittee is authorized to dispose of sludge or biosolids only at a Texas Commission on Environmental Quality (TCEQ) authorized land application site, co-disposal landfill, wastewater treatment facility, or facility that further processes sludge. **The disposal of sludge or biosolids by land application on property owned, leased or under the direct control of the permittee is a violation of the permit unless the site is authorized with the TCEQ. This provision does not authorize Distribution and Marketing of Class A or Class AB Biosolids. This provision does not authorize the permittee to land apply biosolids on property owned, leased or under the direct control of the permittee.**

SECTION I. REQUIREMENTS APPLYING TO ALL SEWAGE SLUDGE OR BIOSOLIDS LAND APPLICATION

A. General Requirements

1. The permittee shall handle and dispose of sewage sludge or biosolids in accordance with 30 TAC § 312 and all other applicable state and federal regulations in a manner that protects public health and the environment from any reasonably anticipated adverse effects due to any toxic pollutants that may be present in the sludge or biosolids.

2. In all cases, if the person (permit holder) who prepares the sewage sludge or biosolids supplies the sewage sludge or biosolids to another person for land application use or to the owner or lease holder of the land, the permit holder shall provide necessary information to the parties who receive the sludge or biosolids to assure compliance with these regulations.

3. The land application of processed or unprocessed chemical toilet waste, grease trap waste, grit trap waste, milk solids, or similar non-hazardous municipal or industrial solid wastes, or any of the wastes listed in this provision combined with biosolids, WTP residuals or domestic septage is prohibited unless the grease trap waste is added at a fats, oil and grease (FOG) receiving facility as part of an anaerobic digestion process.

B. Testing Requirements

1. Sewage sludge or biosolids shall be tested once during the term of this permit in accordance with the method specified in both 40 CFR Part 261, Appendix II and 40 CFR Part 268, Appendix I [Toxicity Characteristic Leaching Procedure (TCLP)] or other method that receives the prior approval of the TCEQ for the contaminants listed in 40 CFR Part 261.24, Table 1. Sewage sludge or biosolids failing this test shall be managed according to RCRA standards for generators of hazardous waste, and the waste's disposition must be in accordance with all applicable requirements for hazardous waste processing, storage, or disposal. Following failure of any TCLP test, the management or disposal of sewage sludge or biosolids at a facility other than an authorized hazardous waste processing, storage, or disposal facility shall be prohibited until such time as the permittee can demonstrate the sewage sludge or biosolids no longer exhibits the hazardous waste toxicity characteristics (as demonstrated by the results of the TCLP tests). A written report shall be provided to both the TCEQ Registration and Reporting Section (MC 129) of the Permitting and Registration Support Division and the Regional Director (MC Region 11) within seven (7) days after failing the TCLP Test.

The report shall contain test results, certification that unauthorized waste management has stopped, and a summary of alternative disposal plans that comply with RCRA standards for the management of hazardous waste. The report shall be addressed to: Director, Permitting and Registration Support Division (MC 129), Texas Commission on Environmental Quality, P.O. Box 13087, Austin, Texas 78711-3087. In addition, the permittee shall prepare an annual report on the results of all sludge toxicity testing. The permittee shall submit the following information in an annual report to the TCEQ by September 30th of each year. The permittee must submit this annual report using the online electronic reporting system available through TCEQ's website. If the permitee requests and obtains an electronic reporting waiver, the annual report can be submitted in hard copy to the TCEQ Regional Office (MC Region 11) and the Enforcement Division (MC 224).

2. Biosolids shall not be applied to the land if the concentration of the pollutants exceeds the pollutant concentration criteria in Table 1. The frequency of testing for pollutants in Table 1 is found in Section I.C. of this permit.

TABLE 1

Pollutant	Ceiling Concentration (Milligrams per kilogram)*
Arsenic	75
Cadmium	85
Chromium	3000
Copper	4300
Lead	840
Mercury	57
Molybdenum	75
Nickel	420
PCBs	49
Selenium	100
Zinc	7500

* Dry weight basis

3. Pathogen Control

All sewage sludge that is applied to agricultural land, forest, a public contact site, or a reclamation site must be treated by one of the following methods to ensure that the sludge meets either the Class A, Class AB or Class B biosolids pathogen requirements.

a. For sewage sludge to be classified as Class A biosolids with respect to pathogens, the density of fecal coliform in the sewage sludge must be less than 1,000 most probable number (MPN) per gram of total solids (dry weight basis), or the density of Salmonella sp. bacteria in the sewage sludge must be less than three MPN per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed. In addition, one of the alternatives listed below must be met:

Alternative 1 - The temperature of the sewage sludge that is used or disposed shall be maintained at or above a specific value for a period of time. See 30 TAC § 312.82(a)(2)(A) for specific information;

Alternative 5 (PFRP) - Sewage sludge that is used or disposed of must be treated in one of the Processes to Further Reduce Pathogens (PFRP) described in 40 CFR Part 503, Appendix B. PFRP include composting, heat drying, heat treatment, and thermophilic aerobic digestion; or

Alternative 6 (PFRP Equivalent) - Sewage sludge that is used or disposed of must be treated in a process that has been approved by the U. S. Environmental Protection Agency as being equivalent to those in Alternative 5.

b. For sewage sludge to be classified as Class AB biosolids with respect to pathogens, the density of fecal coliform in the sewage sludge must be less than 1,000 MPN per gram of total solids (dry weight basis), or the density of *Salmonella* sp. bacteria in the sewage sludge be less than three MPN per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed. In addition, one of the alternatives listed below must be met:

   Alternative 2 - The pH of the sewage sludge that is used or disposed shall be raised to above 12 std. units and shall remain above 12 std. units for 72 hours.

   The temperature of the sewage sludge shall be above 52° Celsius for 12 hours or longer during the period that the pH of the sewage sludge is above 12 std. units.

   At the end of the 72-hour period during which the pH of the sewage sludge is above 12 std. units, the sewage sludge shall be air dried to achieve a percent solids in the sewage sludge greater than 50%; or

   Alternative 3 - The sewage sludge shall be analyzed for enteric viruses prior to pathogen treatment. The limit for enteric viruses is less than one Plaque-forming Unit per four grams of total solids (dry weight basis) either before or following pathogen treatment. See 30 TAC § 312.82(a)(2)(C)(i-iii) for specific information. The sewage sludge shall be analyzed for viable helminth ova prior to pathogen treatment. The limit for viable helminth ova is less than one per four grams of total solids (dry weight basis) either before or following pathogen treatment. See 30 TAC § 312.82(a)(2)(C)(iv-vi) for specific information; or

   Alternative 4 - The density of enteric viruses in the sewage sludge shall be less than one Plaque-forming Unit per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed. The density of viable helminth ova in the sewage sludge shall be less than one per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed.

c. Sewage sludge that meets the requirements of Class AB biosolids may be classified a Class A biosolids if a variance request is submitted in writing that is supported by substantial documentation demonstrating equivalent methods for reducing odors and written approval is granted by the executive director. The executive director may deny the variance request or revoke that approved variance if it is determined that the variance may potentially endanger human health or the environment, or create nuisance odor conditions.

d. Three alternatives are available to demonstrate compliance with Class B biosolids criteria.

Alternative 1

i. A minimum of seven random samples of the sewage sludge shall be collected within 48 hours of the time the sewage sludge is used or disposed of during each monitoring episode for the sewage sludge.

ii. The geometric mean of the density of fecal coliform in the samples collected shall be less than either 2,000,000 MPN per gram of total solids (dry weight basis) or 2,000,000 Colony Forming Units per gram of total solids (dry weight basis).

Alternative 2 - Sewage sludge that is used or disposed of shall be treated in one of the Processes to Significantly Reduce Pathogens (PSRP) described in 40 CFR Part 503, Appendix B, so long as all of the following requirements are met by the generator of the sewage sludge.

i. Prior to use or disposal, all the sewage sludge must have been generated from a single location, except as provided in paragraph v. below;

ii. An independent Texas Licensed Professional Engineer must make a certification to the generator of a sewage sludge that the wastewater treatment facility generating the sewage sludge is designed to achieve one of the PSRP at the permitted design loading of the facility. The certification need only be repeated if the design loading of the facility is increased. The certification shall include a statement indicating the design meets all the applicable standards specified in Appendix B of 40 CFR Part 503;

iii. Prior to any off-site transportation or on-site use or disposal of any sewage sludge generated at a wastewater treatment facility, the chief certified operator of the wastewater treatment facility or other responsible official who manages the processes to significantly reduce pathogens at the wastewater treatment facility for the permittee, shall certify that the sewage sludge underwent at least the minimum operational requirements necessary in order to meet one of the PSRP. The acceptable processes and the minimum operational and record keeping requirements shall be in accordance with established U.S. Environmental Protection Agency final guidance;

iv. All certification records and operational records describing how the requirements of this paragraph were met shall be kept by the generator for a minimum of three years and be available for inspection by commission staff for review; and

v. If the sewage sludge is generated from a mixture of sources, resulting from a person who prepares sewage sludge from more than one wastewater treatment facility, the resulting derived product shall meet one of the PSRP, and shall meet the certification, operation, and record keeping requirements of this paragraph.

Alternative 3 - Sewage sludge shall be treated in an equivalent process that has been approved by the U.S. Environmental Protection Agency, so long as all of the following requirements are met by the generator of the sewage sludge.

i. Prior to use or disposal, all the sewage sludge must have been generated from a single location, except as provided in paragraph v. below;

ii. Prior to any off-site transportation or on-site use or disposal of any sewage sludge generated at a wastewater treatment facility, the chief certified operator of the wastewater treatment facility or other responsible official who manages the processes to significantly reduce pathogens at the wastewater treatment facility for the permittee, shall certify that the sewage sludge underwent at least the minimum operational requirements necessary in order to meet one of the PSRP. The acceptable processes and the minimum operational and record keeping requirements shall be in accordance with established U.S. Environmental Protection Agency final guidance;

iii. All certification records and operational records describing how the requirements of this paragraph were met shall be kept by the generator for a minimum of three years and be available for inspection by commission staff for review;

iv. The Executive Director will accept from the U.S. Environmental Protection Agency a finding of equivalency to the defined PSRP; and

v. If the sewage sludge is generated from a mixture of sources resulting from a person who prepares sewage sludge from more than one wastewater treatment facility, the resulting derived product shall meet one of the Processes to Significantly Reduce Pathogens, and shall meet the certification, operation, and record keeping requirements of this paragraph.

In addition to the Alternatives 1 – 3, the following site restrictions must be met if Class B biosolids are land applied:

i. Food crops with harvested parts that touch the biosolids/soil mixture and are totally above the land surface shall not be harvested for 14 months after application of biosolids.

ii. Food crops with harvested parts below the surface of the land shall not be harvested for 20 months after application of biosolids when the biosolids remain on the land surface for 4 months or longer prior to incorporation into the soil.

iii. Food crops with harvested parts below the surface of the land shall not be harvested for 38 months after application of biosolids when the biosolids remain on the land surface for less than 4 months prior to incorporation into the soil.

iv. Food crops, feed crops, and fiber crops shall not be harvested for 30 days after application of biosolids.

v. Domestic livestock shall not be allowed to graze on the land for 30 days after application of biosolids.

vi. Turf grown on land where biosolids are applied shall not be harvested for 1 year after application of the sewage sludge when the harvested turf is placed on either land with a high potential for public exposure or a lawn.

vii. Public access to land with a high potential for public exposure shall be restricted for 1 year after application of biosolids.

viii. Public access to land with a low potential for public exposure shall be restricted

for 30 days after application of biosolids.

ix. Land application of biosolids shall be in accordance with the buffer zone requirements found in 30 TAC § 312.44.

4. Vector Attraction Reduction Requirements

All bulk sewage sludge that is applied to agricultural land, forest, a public contact site, or a reclamation site shall be treated by one of the following Alternatives 1 through 10 for vector attraction reduction.

Alternative 1 - The mass of volatile solids in the sewage sludge shall be reduced by a minimum of 38%.

Alternative 2 - If Alternative 1 cannot be met for an anaerobically digested sludge, demonstration can be made by digesting a portion of the previously digested sludge anaerobically in the laboratory in a bench-scale unit for 40 additional days at a temperature between 30° and 37° Celsius. Volatile solids must be reduced by less than 17% to demonstrate compliance.

Alternative 3 - If Alternative 1 cannot be met for an aerobically digested sludge, demonstration can be made by digesting a portion of the previously digested sludge with percent solids of two percent or less aerobically in the laboratory in a bench-scale unit for 30 additional days at 20° Celsius. Volatile solids must be reduced by less than 15% to demonstrate compliance.

Alternative 4 - The specific oxygen uptake rate (SOUR) for sewage sludge treated in an aerobic process shall be equal to or less than 1.5 milligrams of oxygen per hour per gram of total solids (dry weight basis) at a temperature of 20° Celsius.

Alternative 5 - Sewage sludge shall be treated in an aerobic process for 14 days or longer. During that time, the temperature of the sewage sludge shall be higher than 40° Celsius and the average temperature of the sewage sludge shall be higher than 45° Celsius.

Alternative 6 - The pH of sewage sludge shall be raised to 12 or higher by alkali addition and, without the addition of more alkali shall remain at 12 or higher for two hours and then remain at a pH of 11.5 or higher for an additional 22 hours at the time the sewage sludge is prepared for sale or given away in a bag or other container.

Alternative 7 - The percent solids of sewage sludge that does not contain unstabilized solids generated in a primary wastewater treatment process shall be equal to or greater than 75% based on the moisture content and total solids prior to mixing with other materials. Unstabilized solids are defined as organic materials in sewage sludge that have not been treated in either an aerobic or anaerobic treatment process.

Alternative 8 - The percent solids of sewage sludge that contains unstabilized solids

generated in a primary wastewater treatment process shall be equal to or greater than 90% based on the moisture content and total solids prior to mixing with other materials at the time the sludge is used. Unstabilized solids are defined as organic materials in sewage sludge that have not been treated in either an aerobic or anaerobic treatment process.

Alternative 9 - i. Biosolids shall be injected below the surface of the land.

ii. No significant amount of the biosolids shall be present on the land surface within one hour after biosolids are injected.

iii. When sewage sludge that is injected below the surface of the land is Class A or Class AB with respect to pathogens, the biosolids shall be injected below the land surface within eight hours after being discharged from the pathogen treatment process.

Alternative 10- i. Biosolids applied to the land surface or placed on a surface disposal site shall be incorporated into the soil within six hours after application to or placement on the land.

ii. When biosolids that are incorporated into the soil is Class A or Class AB with respect to pathogens, the biosolids shall be applied to or placed on the land within eight hours after being discharged from the pathogen treatment process.

C. Monitoring Requirements

Toxicity Characteristic Leaching Procedure (TCLP) Test	- once during the term of this permit
PCBs	- once during the term of this permit

All metal constituents and fecal coliform or *Salmonella* sp. bacteria shall be monitored at the appropriate frequency shown below, pursuant to 30 TAC § 312.46(a)(1):

Amount of biosolids (*) metric tons per 365-day period	Monitoring Frequency
0 to less than 290	Once/Year
290 to less than 1,500	Once/Quarter
1,500 to less than 15,000	Once/Two Months
15,000 or greater	Once/Month

(*) *The amount of bulk biosolids applied to the land (dry wt. basis).*

Representative samples of sewage sludge shall be collected and analyzed in accordance with the methods referenced in 30 TAC § 312.7

Identify each of the analytic methods used by the facility to analyze enteric viruses, fecal

coliforms, helminth ova, *Salmonella* sp., and other regulated parameters.

Identify in the following categories (as applicable) the sewage sludge or biosolids treatment process or processes at the facility: preliminary operations (e.g., sludge or biosolids grinding and degritting), thickening (concentration), stabilization, anaerobic digestion, aerobic digestion, composting, conditioning, disinfection (e.g., beta ray irradiation, gamma ray irradiation, pasteurization), dewatering (e.g., centrifugation, sludge drying beds, sludge lagoons), heat drying, thermal reduction, and methane or biogas capture and recovery.

Identify the nature of material generated by the facility (such as a biosolid for beneficial use or land-farming, or sewage sludge or biosolids for disposal at a monofill) and whether the material is ultimately conveyed off-site in bulk or in bags.

SECTION II. REQUIREMENTS SPECIFIC TO BULK SEWAGE SLUDGE FOR APPLICATION TO THE LAND MEETING CLASS A, CLASS AB or B BIOSOLIDS PATHOGEN REDUCTION AND THE CUMULATIVE LOADING RATES IN TABLE 2, OR CLASS B PATHOGEN REDUCTION AND THE POLLUTANT CONCENTRATIONS IN TABLE 3

For those permittees meeting Class A, Class AB or B pathogen reduction requirements and that meet the cumulative loading rates in Table 2 below, or the Class B pathogen reduction requirements and contain concentrations of pollutants below listed in Table 3, the following conditions apply:

A. Pollutant Limits

Table 2

Pollutant	Cumulative Pollutant Loading Rate (pounds per acre)*
Arsenic	36
Cadmium	35
Chromium	2677
Copper	1339
Lead	268
Mercury	15
Molybdenum	Report Only
Nickel	375
Selenium	89
Zinc	2500

Table 3

Pollutant	Monthly Average Concentration (milligrams per kilogram)*
Arsenic	41
Cadmium	39
Chromium	1200
Copper	1500
Lead	300
Mercury	17
Molybdenum	Report Only
Nickel	420
Selenium	36
Zinc	2800

*Dry weight basis

B. Pathogen Control

All bulk sewage sludge that is applied to agricultural land, forest, a public contact site, a reclamation site, shall be treated by either Class A, Class AB or Class B biosolids pathogen reduction requirements as defined above in Section I.B.3.

C. Management Practices

1. Bulk biosolids shall not be applied to agricultural land, forest, a public contact site, or a reclamation site that is flooded, frozen, or snow-covered so that the bulk sewage sludge enters a wetland or other waters in the State.

2. Bulk sewage sludge not meeting Class A biosolids requirements shall be land applied in a manner which complies with Applicability in accordance with 30 TAC §312.41 and the Management Requirements in accordance with 30 TAC § 312.44.

3. Bulk biosolids shall be applied at or below the agronomic rate of the cover crop.

4. An information sheet shall be provided to the person who receives bulk Class A or AB biosolids sold or given away. The information sheet shall contain the following information:

    a. The name and address of the person who prepared the Class A or AB biosolids that are sold or given away in a bag or other container for application to the land.

    b. A statement that application of the Class A or AB biosolids to the land is prohibited except in accordance with the instruction on the label or information sheet.

    c. The annual whole sludge application rate for the biosolids application rate for the biosolids that does not cause any of the cumulative pollutant loading rates in Table 2 above to be exceeded, unless the pollutant concentrations in Table 3 found in Section II above are met.

D. Notification Requirements

1. If bulk biosolids are applied to land in a State other than Texas, written notice shall be provided prior to the initial land application to the permitting authority for the State in which the bulk biosolids are proposed to be applied. The notice shall include:

    a. The location, by street address, and specific latitude and longitude, of each land application site.

    b. The approximate time period bulk biosolids will be applied to the site.

    c. The name, address, telephone number, and National Pollutant Discharge Elimination System permit number (if appropriate) for the person who will apply the bulk biosolids.

2. The permittee shall give 180 days prior notice to the Executive Director in care of the Wastewater Permitting Section (MC 148) of the Water Quality Division of any change planned in the biosolids disposal practice.

E. Record Keeping Requirements

The documents will be retained at the facility site and/or shall be readily available for review by a TCEQ representative. The person who prepares bulk sewage sludge or a biosolids material shall develop the following information and shall retain the information at the facility site and/or shall be readily available for review by a TCEQ representative for a period

of five years. If the permittee supplies the sludge to another person who land applies the sludge, the permittee shall notify the land applier of the requirements for record keeping found in 30 TAC § 312.47 for persons who land apply.

1. The concentration (mg/kg) in the sludge of each pollutant listed in Table 3 above and the applicable pollutant concentration criteria (mg/kg), or the applicable cumulative pollutant loading rate and the applicable cumulative pollutant loading rate limit (lbs/ac) listed in Table 2 above.

2. A description of how the pathogen reduction requirements are met (including site restrictions for Class AB and Class B biosolids, if applicable).

3. A description of how the vector attraction reduction requirements are met.

4. A description of how the management practices listed above in Section II.C are being met.

5. The following certification statement:

   "I certify, under penalty of law, that the applicable pathogen requirements in 30 TAC § 312.82(a) or (b) and the vector attraction reduction requirements in 30 TAC § 312.83(b) have been met for each site on which bulk biosolids are applied. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the management practices have been met. I am aware that there are significant penalties for false certification including fine and imprisonment."

6. The recommended agronomic loading rate from the references listed in Section II.C.3. above, as well as the actual agronomic loading rate shall be retained. The person who applies bulk biosolids shall develop the following information and shall retain the information at the facility site and/or shall be readily available for review by a TCEQ representative indefinitely. If the permittee supplies the sludge to another person who land applies the sludge, the permittee shall notify the land applier of the requirements for record keeping found in 30 TAC § 312.47 for persons who land apply:

   a. A certification statement that all applicable requirements (specifically listed) have been met, and that the permittee understands that there are significant penalties for false certification including fine and imprisonment. See 30 TAC § 312.47(a)(4)(A)(ii) or 30 TAC § 312.47(a)(5)(A)(ii), as applicable, and to the permittee's specific sludge treatment activities.

   b. The location, by street address, and specific latitude and longitude, of each site on which sludge is applied.

   c. The number of acres in each site on which bulk sludge is applied.

   d. The date and time sludge is applied to each site.

e. The cumulative amount of each pollutant in pounds/acre listed in Table 2 applied to each site.

f. The total amount of sludge applied to each site in dry tons.

The above records shall be maintained on-site on a monthly basis and shall be made available to the Texas Commission on Environmental Quality upon request.

F. Reporting Requirements

The permittee shall submit the following information in an annual report to the TCEQ by September 30th of each year. The permittee must submit this annual report using the online electronic reporting system available through TCEQ's website. If the permitee requests and obtains an electronic reporting waiver, the annual report can be submitted in hard copy to the TCEQ Regional Office (MC Region 11) and the Enforcement Division (MC 224).

1. Identify in the following categories (as applicable) the sewage sludge or biosolids treatment process or processes at the facility: preliminary operations (e.g., sludge or biosolids grinding and degritting), thickening (concentration), stabilization, anaerobic digestion, aerobic digestion, composting, conditioning, disinfection (e.g., beta ray irradiation, gamma ray irradiation, pasteurization), dewatering (e.g., centrifugation, sludge drying beds, sludge lagoons), heat drying, thermal reduction, and methane or biogas capture and recovery.

2. Identify the nature of material generated by the facility (such as a biosolid for beneficial use or land-farming, or sewage sludge for disposal at a monofill) and whether the material is ultimately conveyed off-site in bulk or in bags.

3. Results of tests performed for pollutants found in either Table 2 or 3 as appropriate for the permittee's land application practices.

4. The frequency of monitoring listed in Section I.C. that applies to the permittee.

5. Toxicity Characteristic Leaching Procedure (TCLP) results.

6. PCB concentration in sludge or biosolids in mg/kg.

7. Identity of hauler(s) and TCEQ transporter number.

8. Date(s) of transport.

9. Texas Commission on Environmental Quality registration number, if applicable.

10. Amount of sludge or biosolids disposal dry weight (lbs/acre) at each disposal site.

11. The concentration (mg/kg) in the sludge or biosolids of each pollutant listed in Table 1 (defined as a monthly average) as well as the applicable pollutant concentration criteria (mg/kg) listed in Table 3 above, or the applicable pollutant loading rate limit (lbs/acre) listed in Table 2 above if it exceeds 90% of the limit.

12. Level of pathogen reduction achieved (Class A, Class AB or Class B).

13. Alternative used as listed in Section I.B.3.(a. or b.). Alternatives describe how the pathogen reduction requirements are met. If Class B biosolids, include information on how site restrictions were met.

14. Identify each of the analytic methods used by the facility to analyze enteric viruses, fecal coliforms, helminth ova, *Salmonella* sp., and other regulated parameters.

15. Vector attraction reduction alternative used as listed in Section I.B.4.

16. Amount of sludge or biosolids transported in dry tons/year.

17. The certification statement listed in either 30 TAC § 312.47(a)(4)(A)(ii) or 30 TAC § 312.47(a)(5)(A)(ii) as applicable to the permittee's sludge or biosolids treatment activities, shall be attached to the annual reporting form.

18. When the amount of any pollutant applied to the land exceeds 90% of the cumulative pollutant loading rate for that pollutant, as described in Table 2, the permittee shall report the following information as an attachment to the annual reporting form.

    a. The location, by street address, and specific latitude and longitude.

    b. The number of acres in each site on which bulk biosolids are applied.

    c. The date and time bulk biosolids are applied to each site.

    d. The cumulative amount of each pollutant (i.e., pounds/acre) listed in Table 2 in the bulk biosolids applied to each site.

    e. The amount of biosolids (i.e., dry tons) applied to each site.

    The above records shall be maintained on a monthly basis and shall be made available to the Texas Commission on Environmental Quality upon request.

SECTION III. REQUIREMENTS APPLYING TO ALL SEWAGE SLUDGE OR BIOSOLIDS DISPOSED IN A MUNICIPAL SOLID WASTE LANDFILL

A. The permittee shall handle and dispose of sewage sludge or biosolids in accordance with 30 TAC § 330 and all other applicable state and federal regulations to protect public health and the environment from any reasonably anticipated adverse effects due to any toxic pollutants that may be present. The permittee shall ensure that the sewage sludge or biosolids meets the requirements in 30 TAC § 330 concerning the quality of the sludge disposed in a municipal solid waste landfill.

B. If the permittee generates sewage sludge or biosolids and supplies that sewage sludge or biosolids to the owner or operator of a municipal solid waste landfill (MSWLF) for disposal, the permittee shall provide to the owner or operator of the MSWLF appropriate information needed to be in compliance with the provisions of this permit.

C. The permittee shall give 180 days prior notice to the Executive Director in care of the Wastewater Permitting Section (MC 148) of the Water Quality Division of any change planned in the sewage sludge or biosolids disposal practice.

D. Sewage sludge s or biosolids hall be tested once during the term of this permit in accordance with the method specified in both 40 CFR Part 261, Appendix II and 40 CFR Part 268, Appendix I (Toxicity Characteristic Leaching Procedure) or other method, which receives the prior approval of the TCEQ for contaminants listed in Table 1 of 40 CFR § 261.24. Sewage sludge or biosolids failing this test shall be managed according to RCRA standards for generators of hazardous waste, and the waste's disposition must be in accordance with all applicable requirements for hazardous waste processing, storage, or disposal.

   Following failure of any TCLP test, the management or disposal of sewage sludge or biosolids at a facility other than an authorized hazardous waste processing, storage, or disposal facility shall be prohibited until such time as the permittee can demonstrate the sewage sludge or biosolids no longer exhibits the hazardous waste toxicity characteristics (as demonstrated by the results of the TCLP tests). A written report shall be provided to both the TCEQ Registration and Reporting Section (MC 129) of the Permitting and Registration Support Division and the Regional Director (MC Region 11) of the appropriate TCEQ field office within 7 days after failing the TCLP Test.

   The report shall contain test results, certification that unauthorized waste management has stopped, and a summary of alternative disposal plans that comply with RCRA standards for the management of hazardous waste. The report shall be addressed to: Director, Permitting and Registration Support Division (MC 129), Texas Commission on Environmental Quality, P. O. Box 13087, Austin, Texas 78711-3087. In addition, the permittee shall prepare an annual report on the results of all sludge toxicity testing. This annual report shall be submitted to the TCEQ Regional Office (MC Region 11) and the Enforcement Division (MC 224), by September 30_{th} of each year.

E. Sewage sludge or biosolids shall be tested as needed, in accordance with the requirements of 30 TAC Chapter 330.

F. Record Keeping Requirements

   The permittee shall develop the following information and shall retain the information for five years.

1. The description (including procedures followed and the results) of all liquid Paint Filter Tests performed.

2. The description (including procedures followed and results) of all TCLP tests performed.

The above records shall be maintained on-site on a monthly basis and shall be made available to the Texas Commission on Environmental Quality upon request.

G. Reporting Requirements

The permittee shall submit the following information in an annual report to the TCEQ by September 30th of each year. The permittee must submit this annual report using the online electronic reporting system available through TCEQ's website. If the permitee requests and obtains an electronic reporting waiver, the annual report can be submitted in hard copy to the TCEQ Regional Office (MC Region 11) and the Enforcement Division (MC 224).

1. Identify in the following categories (as applicable) the sewage sludge or biosolids treatment process or processes at the facility: preliminary operations (e.g., sludge or biosolids grinding and degritting), thickening (concentration), stabilization, anaerobic digestion, aerobic digestion, composting, conditioning, disinfection (e.g., beta ray irradiation, gamma ray irradiation, pasteurization), dewatering (e.g., centrifugation, sludge drying beds, sludge lagoons), heat drying, thermal reduction, and methane or biogas capture and recovery.

2. Toxicity Characteristic Leaching Procedure (TCLP) results.

3. Annual sludge production in dry tons/year.

4. Amount of sludge or biosolids disposed in a municipal solid waste landfill in dry tons/year.

5. Amount of sludge or biosolids transported interstate in dry tons/year.

6. A certification that the sewage sludge or biosolids meets the requirements of 30 TAC § 330 concerning the quality of the sludge disposed in a municipal solid waste landfill.

7. Identity of hauler(s) and transporter registration number.

8. Owner of disposal site(s).

9. Location of disposal site(s).

10. Date(s) of disposal.

The above records shall be maintained on-site on a monthly basis and shall be made available to the Texas Commission on Environmental Quality upon request.

SECTION IV. REQUIREMENTS APPLYING TO SLUDGE OR BIOSOLIDS TRANSPORTED TO ANOTHER FACILITY FOR FURTHER PROCESSING

These provisions apply to sludge or biosolids that is transported to another wastewater treatment facility or facility that further processes sludge or biosolids. These provisions are intended to allow transport of sludge or biosolids to facilities that have been authorized to accept sludge or biosolids. These provisions do not limit the ability of the receiving facility to determine whether to accept the sludge or biosolids, nor do they limit the ability of the receiving facility to request additional testing or documentation.

A. General Requirements

1. The permittee shall handle and dispose of sewage sludge or biosolids in accordance with 30 TAC Chapter 312 and all other applicable state and federal regulations in a manner that protects public health and the environment from any reasonably anticipated adverse effects due to any toxic pollutants that may be present in the sludge.

2. Sludge or biosolids may only be transported using a registered transporter or using an approved pipeline.

B. Record Keeping Requirements

1. For sludge transported by an approved pipeline, the permittee must maintain records of the following:

   a. the amount of sludge or biosolids transported;

   b. the date of transport;

   c. the name and TCEQ permit number of the receiving facility or facilities;

   d. the location of the receiving facility or facilities;

   e. the name and TCEQ permit number of the facility that generated the waste; and

   f. copy of the written agreement between the permittee and the receiving facility to accept sludge or biosolids.

2. For sludge or biosolids transported by a registered transporter, the permittee must maintain records of the completed trip tickets in accordance with 30 TAC § 312.145(a)(1)-(7) and amount of sludge or biosolids transported.

3. The above records shall be maintained on-site on a monthly basis and shall be made available to the TCEQ upon request. These records shall be retained for at least five years.

C. Reporting Requirements

The permittee shall submit the following information in an annual report to the TCEQ by September 30th of each year. The permittee must submit this annual report using the online electronic reporting system available through TCEQ's website. If the permitee requests and obtains an electronic reporting waiver, the annual report can be submitted in hard copy to the TCEQ Regional Office (MC Region 11) and the Enforcement Division (MC 224).

1. Identify in the following categories (as applicable) the sewage sludge or biosolids treatment process or processes at the facility: preliminary operations (e.g., sludge or biosolids grinding and degritting), thickening (concentration), stabilization, anaerobic digestion, aerobic digestion, composting, conditioning, disinfection (e.g., beta ray irradiation, gamma ray irradiation, pasteurization), dewatering (e.g., centrifugation, sludge drying beds, sludge lagoons), heat drying, thermal reduction, and methane or biogas capture and recovery.

2. the annual sludge or biosolids production;

3. the amount of sludge or biosolids transported;

4. the owner of each receiving facility;

5. the location of each receiving facility; and

6. the date(s) of disposal at each receiving facility.

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SPECIAL PROVISIONS:

1. This permit is granted subject to the policy of the Commission to encourage the development of areawide waste collection, treatment and disposal systems. The Commission reserves the right to amend this permit in accordance with applicable procedural requirements to require the system covered by this permit to be integrated into an areawide system, should such be developed; to require the delivery of the wastes authorized to be collected in, treated by or discharged from said system, to such areawide system; or to amend this permit in any other particular to effectuate the Commission's policy. Such amendments may be made when the changes required are advisable for water quality control purposes and are feasible on the basis of waste treatment technology, engineering, financial, and related considerations existing at the time the changes are required, exclusive of the loss of investment in or revenues from any then existing or proposed waste collection, treatment or disposal system.

2. The permittee shall employ or contract with one or more licensed wastewater treatment facility operators or wastewater system operations companies holding a valid license or registration according to the requirements of 30 TAC Chapter 30, Occupational Licenses and Registrations, and in particular 30 TAC Chapter 30, Subchapter J, Wastewater Operators and Operations Companies.

   This Category C facility must be operated by a chief operator or an operator holding a Category C license or higher. The facility must be operated a minimum of five days per week by the licensed chief operator or an operator holding the required level of license or higher. The licensed chief operator or operator holding the required level of license or higher must be available by telephone or pager seven days per week. Where shift operation of the wastewater treatment facility is necessary, each shift which does not have the on-site supervision of the licensed chief operator must be supervised by an operator in charge who is licensed not less than one level below the category for the facility.

3. The permittee shall maintain and operate the treatment facility in order to achieve optimum efficiency of treatment capability. This shall include required monitoring of effluent flow and quality as well as appropriate grounds and building maintenance.

4. Prior to construction of the wastewater treatment facilities in each phase, the permittee shall submit to the TCEQ Wastewater Permitting Section (MC 148) of the Water Quality Division, a summary transmittal letter according to the requirements in 30 TAC § 217.6(d). If requested by the Wastewater Permitting Section, the permittee shall submit plans, specifications and a final engineering design report which comply with the requirements of 30 TAC Chapter 217, Design Criteria for Wastewater Treatment Systems. The permittee shall clearly show how the treatment system will meet the permitted effluent limitations required on Page 2 of the permit. A copy of the summary transmittal letter shall be available at the plant site for inspection by authorized representatives of the TCEQ.

5. Prior to construction of the subsurface area drip dispersal system, the permittee shall submit to the TCEQ Wastewater Permitting Section (MC148) of the Water Quality Division, an engineering report, including plans and specifications, that meets the requirements in 30 TAC Chapter 222, Subsurface Drip Dispersal Systems, Subchapter D: Design Criteria.

6. Monitoring and reporting requirements according to 30 TAC §§ 319.1-319.11 and any additional effluent reporting requirements contained in this permit are suspended from the effective date of the permit until plant startup or discharge, whichever occurs first, from the facility described by this permit. The permittee shall provide written notice to the TCEQ Regional Office (MC Region 11) and the Applications Review and Processing Team (MC 148) of the Water Quality Division at least forty-five (45) days prior to plant startup or anticipated discharge, whichever occurs first, on Notification of Completion Form 20007.

7. The permittee shall provide nuisance odor prevention for the Interim I phase, Interim II phase and the Final phase in accordance with 30 TAC § 309.13(e)(2). Prior to construction of the Interim I phase, Interim

II phase and the Final phase, the permittee shall submit a nuisance odor prevention request for approval by the Executive Director in care of the TCEQ Wastewater Permitting Section (MC 148). The request for nuisance odor prevention shall be in the form of an engineering report, prepared and sealed by a licensed professional engineer, in support of the request according to the requirements of 30 TAC § 309.13(e)(2). The permittee shall comply with the requirements of 30 TAC § 309.13(a) through (d). (See Attachment B.)

8. According to the requirements of 30 TAC § 222.81(a), the permittee shall locate the subsurface area drip dispersal system a minimum horizontal distance of 100 feet from surface waters in the state. The permittee shall locate the subsurface area drip dispersal system a minimum horizontal distance of 500 feet from public water wells, springs, or other similar sources of public drinking water and 150 feet from private water wells as described in 30 TAC § 309.13(c)(1). The permittee shall not locate a subsurface area drip dispersal system within a floodway according to the requirements of 30 TAC § 222.81(d).

9. Based on the requirements of 30 TAC § 222.151, the subsurface drip irrigation system shall be designed and managed so as to prevent seepage or percolation out of the root zone, other than leaching in the amount required to maintain the health of the vegetative cover. Surfacing and ponding is prohibited. Creating a condition at the treatment facility or the drip dispersal zones that contributes to vector attraction or odor is prohibited.

10. The permittee shall maintain 34.5 acres of native grasses in the final phase on the disposal site. The disposal area shall consist of a minimum of 9.2 acres in the Interim I Phase and 23.0 acres in the Interim II Phase. The irrigated crops shall be established and well maintained to provide year-round vegetative growth for effluent and nutrient uptake by the crop and to prevent pathways for effluent surfacing.

11. Application rates shall not exceed 0.1 gallons per square foot per day. The permittee is responsible for providing equipment to determine the application rate and for maintaining accurate records of the volume of effluent applied. According to the requirements of 30 TAC Section 222.161(d), the permittee shall maintain records documenting all activities associated with maintaining the vegetative cover, like planting, over-seeding, mowing height, fertilizing, and harvesting. These records shall be maintained for a minimum of five years and be made available to TCEQ staff upon request.

12. The subsurface drip irrigation system shall consist of a sufficient number of different dispersal zones. The permittee shall maintain a minimum rootable soil depth below the drip irrigation lines of 12 inches. At least a six-inch layer of mulch/soil shall be maintained over the drip lines. If imported soils are utilized, the permittee shall submit no later than 90 days prior to construction to the TCEQ Water Quality Assessment Team (MC 150) and the Wastewater Permitting Section (MC 148) of the Water Quality Division a plan for review/revision and approval describing how the imported soils will be incorporated into the native soils and how soil erosion will be prevented in the affected areas.

13. Effluent shall not be applied for irrigation when the ground is frozen or saturated.

14. Drip irrigation lines shall be installed on the contour and lateral slopes of the tubing shall not exceed 1 percent. The permittee may apply for a variance to this provision by providing justification in the detailed design criteria according to the requirements in 30 TAC Chapter 222 indicating how uneven application of effluent due to back draining will be avoided. The permittee shall notify the TCEQ Region 11 Office at least 30 days prior to installation of the drip lines.

15. The permittee shall design and install temporary storage that equals at least three days of the design flow of the facility for times when the subsurface area drip dispersal system is out of service due to an emergency or scheduled maintenance. In addition, the permittee shall pump and haul wastewater from the facility to prevent the discharge of treated or untreated wastewater if complete shutdown of the wastewater treatment facility becomes necessary or if the storage capacity is exceeded.

16. Each drainfield (zone) shall be dosed a minimum of 3 times in a 24-hour period with minimum rest periods of 8 hours between dosings.

17. Permanent transmission lines shall be installed from the treatment system to each drip irrigation zone of the subsurface drip irrigation system. According to 30 TAC § 222.153, the permittee shall flush the subsurface area drip dispersal system from the dispersal zone and return the flush water to a point preceding the treatment system at least once every two months.

18. The permittee shall monitor the physical condition of the land application fields on a weekly basis when irrigation is being affected. Any areas with problems such as surface runoff, surficial erosion, stressed or damaged vegetation shall be recorded in the field log kept onsite and corrective measures will be initiated within 24 hours of discovery.

19. The permittee shall erect adequate signs stating that the irrigation water is from a non-potable water supply for any area where treated effluent is stored or where there exist hose bibs or faucets. Signs shall consist of a red slash superimposed over the international symbol for drinking water accompanied by the message "DO NOT DRINK THE WATER" in both English and Spanish. All piping transporting the effluent shall be clearly marked with these same signs.

20. The permittee shall maintain a long-term contract with the owner(s) of the land application site which is authorized for use in this permit, or own the land authorized for land application of treated effluent.

21. The permittee shall obtain representative soil samples from the root zones of the land application area receiving wastewater. Composite sampling techniques shall be used. Each composite sample shall represent no more than 34.5 acres with no less than two (2) cores per dosing bed (zone) representing each composite sample. Subsamples shall be composited by like sampling depth, type of crop and soil type for analysis and reporting. Soil types are soils that have like topsoil or plow layer textures. These soils shall be sampled individually from 0 to 12 inches and 12 to 24 inches below ground level. The permittee shall sample soils in December to February of each year. Soil samples shall be analyzed within 30 days of sample collection.

    The permittee shall provide annual soil analyses of the land application area according to the following table:

Parameter	**Method**	**Minimum Analytical Level (MAL)**	**Reporting units**
pH	2:1 (v/v) water to soil mixture		Reported to 0.1 pH units after calibration of pH meter
Electrical Conductivity	2:1 (v/v) water to soil mixture	0.01	dS/m (same as mmho/cm)
Nitrate-nitrogen Ammonium-Nitrogen	From a 1 N KCl soil extract	1	mg/kg (dry weight basis)
Total	For determination of	20	mg/kg (dry weight basis)

A copy of this plan to soil testing shall be provided the

	Kjeldahl Nitrogen (TKN)	Organic plus Ammonium Nitrogen. Procedures that use Mercury (Hg) are not acceptable.		
	Total Nitrogen	= TKN + Nitrate-nitrogen (same as organic-nitrogen + ammonia-nitrogen + nitrate-nitrogen)		mg/kg (dry weight basis)
	Plant-available: Phosphorus	Mehlich III with inductively coupled plasma	1	mg/kg (dry weight basis)
	Plant-available: Potassium (K) Calcium (Ca) Magnesium (Mg) Sodium (Na) Sulfur (S)	May be determined in the same Mehlich III extract with inductively coupled plasma	5 (K) 10 (Ca) 5 (Mg) 10 (Na) 1 (S)	mg/kg (dry weight basis)
	Amendment addition, e.g., gypsum			Report in *short tons/acre* in the year effected

analytical laboratory prior to sample analysis. The permittee shall submit the results of the annual soil sample analyses with copies of the laboratory reports and a map depicting the areas that have received wastewater within the permanent land application fields to the TCEQ Regional Office (MC Region 11, the Compliance Monitoring Team (MC 224) of the Enforcement Division, no later than September 1st of each sampling year. If wastewater is not applied in a particular year, the permittee shall notify the same TCEQ offices and indicate that wastewater has not been applied on the approved land irrigation site(s) during that year.

22. The permittee shall provide facilities for the protection of its wastewater treatment facilities from a 100-year flood.

23. According to 30 TAC § 222.163, Closure Requirements, the permittee shall close the system under the standards set forth in this section.

24. According to the requirements of 30 TAC § 222.43, the permittee shall notify the TCEQ Regional Office (MC Region 11) for each of the following activities:

    a. At least 30 days prior to the date the field layout and/or construction startup is scheduled to begin for the proposed subsurface drip irrigation system.

    b. At least 30 days prior to the date that construction is projected to be complete.

c. Within 30 days after operation of the proposed subsurface drip irrigation system.

d. If soils are imported, at least 30 days prior to completion of the soil importing project.

25. According to the requirements of 30 TAC § 222.45, the permittee shall submit a copy of the issued permit to the health department with jurisdiction in the area where the system is located before commencing operation of the proposed subsurface drip irrigation system. The permittee shall retain proof of delivery for the duration of the permit.

26. In accordance with 30 TAC§ 319.9, a permittee that has at least twelve months of uninterrupted compliance with its bacteria limit may notify the commission in writing of its compliance and request a less frequent measurement schedule. To request a less frequent schedule, the permittee shall submit a written request to the TCEQ Wastewater Permitting Section (MC 148) for each phase that includes a different monitoring frequency. The request must contain all of the reported bacteria values (Daily Avg. and Daily Max/Single Grab) for the twelve consecutive months immediately prior to the request. If the Executive Director finds that a less frequent measurement schedule is protective of human health and the environment, the permittee may be given a less frequent measurement schedule. For this permit, 5/week may be reduced to 3/week in all phases. A violation of any bacteria limit by a facility that has been granted a less frequent measurement schedule will require the permittee to return to the standard frequency schedule and submit written notice to the TCEQ Wastewater Permitting Section (MC 148). The permittee may not apply for another reduction in measurement frequency for at least 24 months from the date of the last violation. The Executive Director may establish a more frequent measurement schedule if necessary to protect human health or the environment.

27. A wastewater treatment plant unit may not be located in wetlands per 30 TAC §309.13(b).

28. Any recharge features uncovered by construction of and operation of the SADDS fields and wastewater treatment facilities shall be addressed in an updated and certified Recharge Feature Plan. The Recharge Feature Plan will include the best management practices implemented that will prevent impact to recharge features from wastewater application and prevent groundwater contamination. The updated and certified Recharge Feature Plan shall be submitted to the TCEQ Water Quality Assessment Team (MC-150) and the TCEQ Region 11 (Austin) Office within 30 days of discovery of the feature. The Recharge Feature Plan must be certified by a Texas-licensed Professional Geoscientist or a Texas-licensed Professional Engineer.

29. The permittee shall comply with buffer zone requirements of 30 TAC Section §309.13(c). A wastewater treatment plant unit, defined by 30 TAC Section §309.11(9), must be located a minimum horizontal distance of 250 feet from a private well and a minimum horizontal distance of 500 feet from a public water well site, spring, or other similar sources of public drinking water, as provided by §290.41(c)(1) of this title.

30. The applicant shall construct berms or swales, or other engineering controls to prevent or divert stormwater from entering all subsurface wastewater application areas.

31. The applicant shall develop a Springs/Seeps Monitoring Plan and submit the plan to the TCEQ Water Quality Assessment Team (MC-150) for review and approval within 30 days of permit issuance. At a minimum, the plan shall include:

a) A procedure to conduct quarterly field checks at the drip irrigation fields and down-gradient of the fields to identify emerging springs or seeps.

b) A procedure to sample springs or seeps in the event that springs/seeps develop after drip irrigation of effluent commences.

c) Quarterly field checks and sampling (if applicable) of the springs/seeps shall occur after a minimum rainfall event of 0.5-inch, if possible.

d) Analysis of springs/seeps water for nutrients, including, but not limited to, a complete nitrogen series [(Nitrate (as N), Nitrite (as N), Total Kjeldahl Nitrogen, ammonia as N], total phosphorus, ortho-phosphate, chlorides, fecal coliform, and specific conductivity.

e) A record of the quarterly checks and sampling of the springs and seeps shall be maintained in a field log and kept onsite for TCEQ inspection.

f) Monitoring of emerging and existing springs/seeps shall continue for the life of the system.

g) The applicant shall submit the data from the Seeps/Springs Monitoring Plan to the Water Quality Assessment Team (MC-150) of the Water Quality Division, the TCEQ Region 11 (Austin) Office, and the Compliance Monitoring Section (MC-224) during the month of September of each year for review.

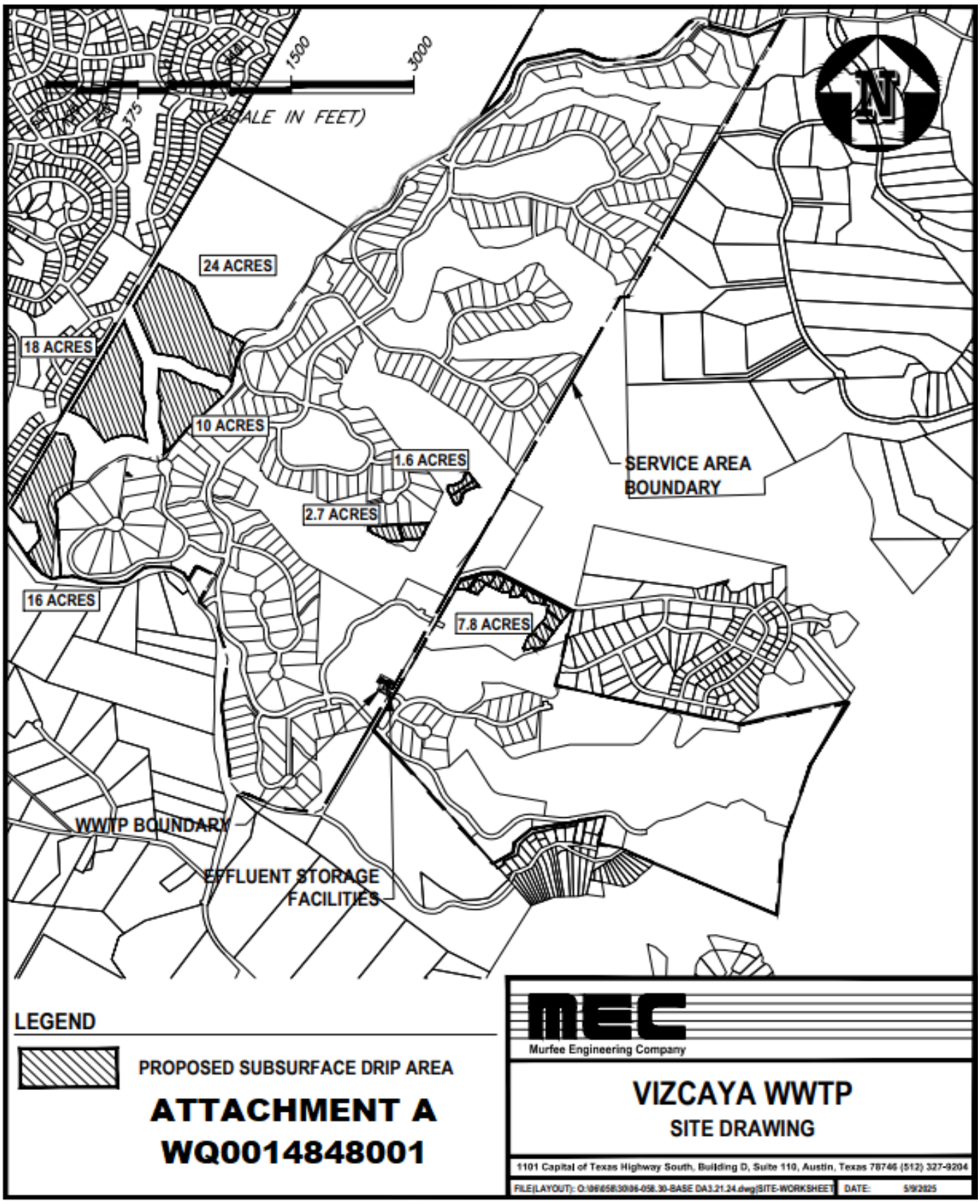
h) A procedure for the implementation of corrective measures to remedy the discharge if laboratory analysis indicates that wastewater is emerging as a seep or spring.

i) The permittee shall implement the plan upon approval by the Water Quality Assessment Team. The executive director may request modification of the approved plan if future information indicates that it would be necessary for the protection of the environment.

32. The permittee shall use cultural practices to promote and maintain the health and propagation of the Bermuda grass, rye grass, and native grasses (warm and cool season grasses). The crops shall be maintained to avoid plant lodging. The permittee shall harvest the crops (cut and remove the grass clippings) at least once during the year. Harvesting and mowing dates shall be recorded in a logbook kept on site to be made available to TCEQ personnel upon request.

33. Subsurface irrigation practices shall be designed and managed as to prevent ponding of effluent or contamination of ground and surface waters and to prevent the occurrence of nuisance conditions in the area. The crops shall be established and well maintained in the irrigation area throughout the year for effluent and nutrient uptake by the crop and to prevent pathways for effluent rising.

34. Each zone shall have at least one soil moisture sensing devices placed at 12 inches below the depth of the drip lines that will automatically shut off irrigation to that zone when the soil becomes saturated. The devices shall be located on the downgradient side of each zone. The soil moisture monitoring devices, including a map of the monitoring device locations, shall be included with the dispersal zone design, and submitted with the engineering report required by 222 TAC Subchapter D.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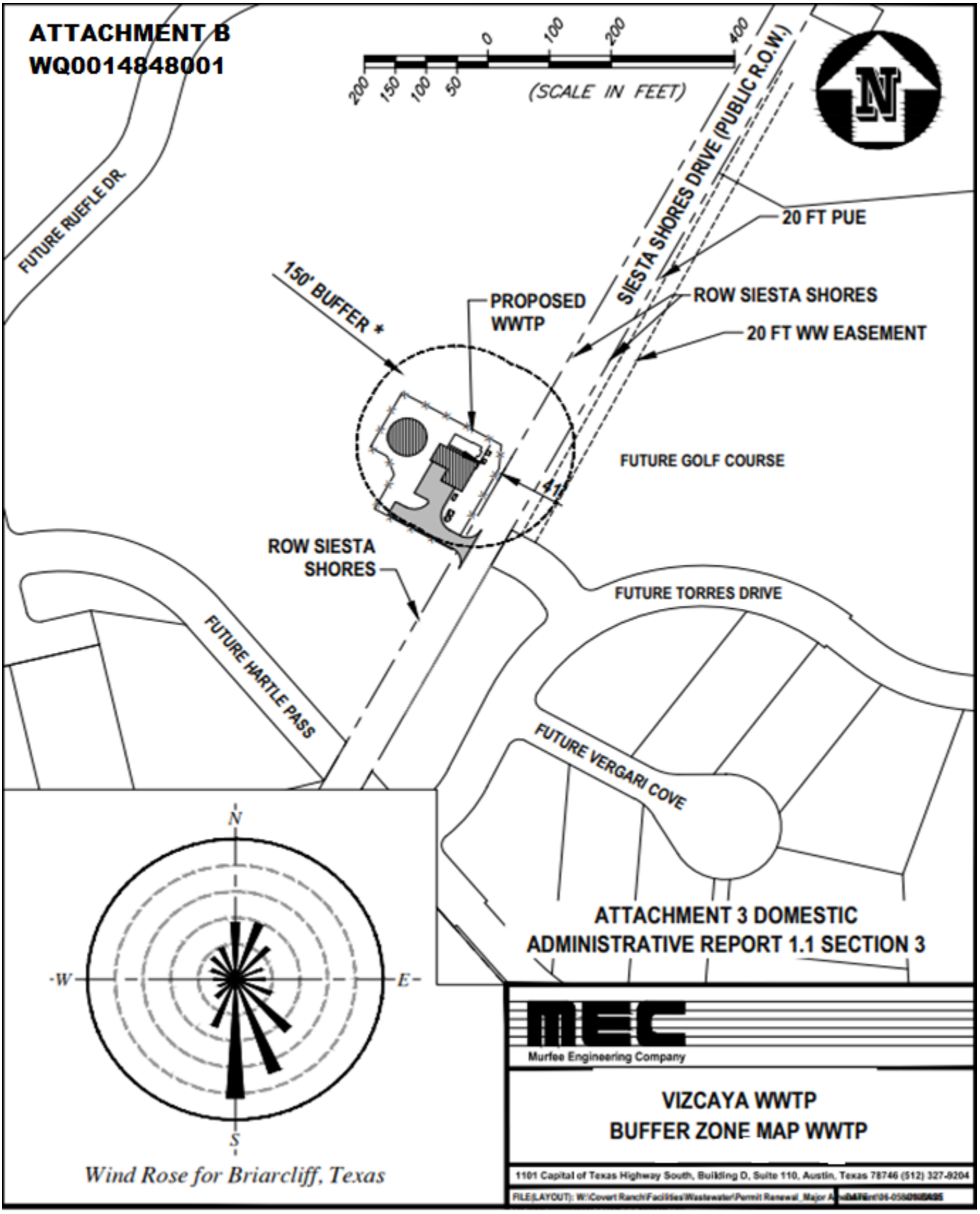
7.8 ACRES
SERVICE AREA BOUNDARY
WWTP BOUNDARY
EFFLUENT STORAGE FACILITIES
LEGEND
PROPOSED SUBSURFACE DRIP AREA
ATTACHMENT A
WQ0014848001
MEC
Murfee Engineering Company
VIZCAYA WWTP
SITE DRAWING
1101 Capital of Texas Highway South, Building D, Suite 110, Austin, Texas 78746 (512) 327-9204
FILE(LAYOUT): O:\06\658\30\06-058.30-BASE DA3.21.24.dwg(SITE-WORKSHEET
DATE: 5/9/2025


ATTACHMENT B
WQ0014848001
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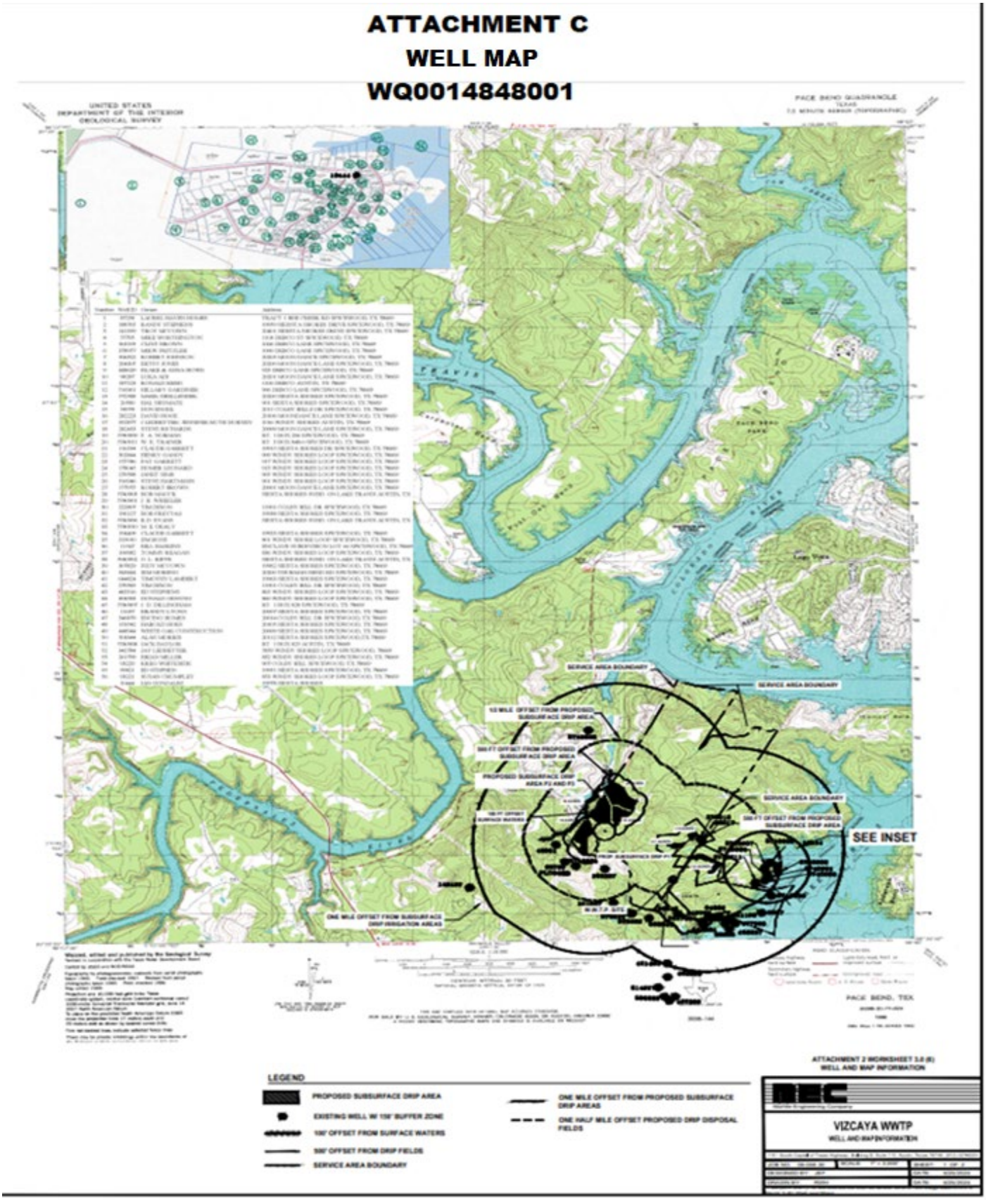
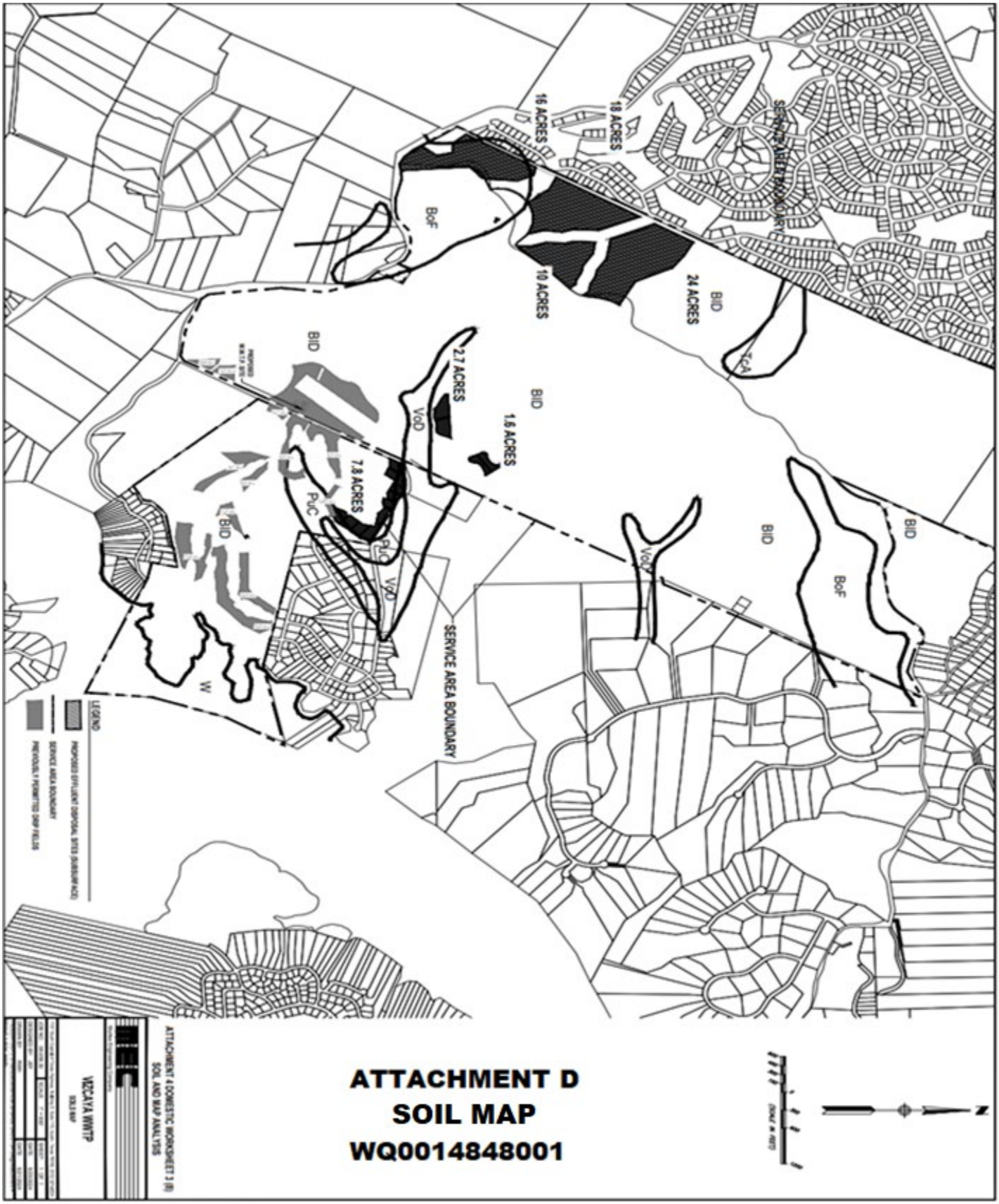
N
SIESTA SHORES DRIVE (PUBLIC R.O.W.)
FUTURE RUEFLE DR.
20 FT PUE
150' BUFFER *
PROPOSED WWTP
ROW SIESTA SHORES
20 FT WW EASEMENT
FUTURE GOLF COURSE
41'
ROW SIESTA SHORES
FUTURE TORRES DRIVE
FUTURE HARTLE PASS
FUTURE VERGARI COVE
N
W
E
S
Wind Rose for Briarcliff, Texas
ATTACHMENT 3 DOMESTIC
ADMINISTRATIVE REPORT 1.1 SECTION 3
MEC
Murfee Engineering Company
VIZCAYA WWTP
BUFFER ZONE MAP WWTP
1101 Capital of Texas Highway South, Building D, Suite 110, Austin, Texas 78746 (512) 327-9204

ATTACHMENT C
WELL MAP
WQ0014848001




16 ACRES
18 ACRES
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BoF
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VoD
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W
SERVICE AREA BOUNDARY
LEGEND
ATTACHMENT D
SOIL MAP
WQ0014848001

Murfee Engineering Company

March 28, 2024

Applications Review and Processing Team (MC 148)
Texas Commission on Environmental Quality
12100 Park35 Circle
Austin, TX 78753

Re: TLAP Renewal with Major Amendment Application
Permit No. WQ0014848001
Vizcaya Wastewater Treatment Plant

Transmitted herewith for your review is a complete Permit Application with Major Amendment for the referenced facility. This application was originally submitted on November 21, 2023, with additional information provided on January 4, 2024. The reason for resubmittal of the entire application is to incorporate changes made by the Owner. These changes include: (1) designation of additional areas for drip fields to the east of Thurman Bend Road; (2) a request that seasonal native Texas grasses be approved for use on the drip fields; and (3) a revision in the first phase flow from 50,000 gallons per day to 40,000 gallons per day. This would result in a second phase total flow of 100,000 gallons per day and a final phase total flow of 150,000 gallons per day.

Four copies and one original are included. Should there be any questions, do not hesitate to contact us.

Regards,

John Blake, P.E.
Vice President Land Development
Murfee Engineering Company

x Hand Delivered

RECEIVED
APR 02 2024
WATER QUALITY DIVISION
TCEQ

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

DOMESTIC WASTEWATER PERMIT APPLICATION CHECKLIST

Complete and submit this checklist with the application.

APPLICANT: HH-CH-B Blue Lake LLC

PERMIT NUMBER: 0014848001

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

APPLICATION FOR A DOMESTIC WASTEWATER PERMIT ADMINISTRATIVE REPORT 1.0

If you have questions about completing this form please contact the Applications Review and Processing Team at 512-239-4671.

Section 1. Application Fees (Instructions Page 29)

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:

Check/Money Order Amount:

Name Printed on Check:

EPAY — Voucher Number:

Copy of Payment Voucher enclosed? Yes ☒

Section 2. Type of Application (Instructions Page 29)

☐ New TPDES

☒ Major Amendment *with* Renewal

☐ Major Amendment *without* Renewal

☐ Renewal without changes

☐ New TLAP

☐ Minor Amendment *with* Renewal

☐ Minor Amendment *without* Renewal

☐ Minor Modification of permit

For amendments or modifications, describe the proposed changes: Revise location of drip irrigation fields.

For existing permits:

Permit Number: WQ0014848001

EPA I.D. (TPDES only): TX

Expiration Date: 11/20/2024

Section 3. Facility Owner (Applicant) and Co-Applicant Information (Instructions Page 29)

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

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

HH-CH-B Blue Lake 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: 606028868

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., Ms., Miss):

First and Last Name: Leisha Elhert

Credential (P.E, P.G., Ph.D., etc.):

Title: Vice President

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?

NA

(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:

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., Ms., Miss): NA

First and Last Name:

Credential (P.E, P.G., Ph.D., etc.):

Title:

Provide a brief description of the need for a co-permittee:

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: Domestic Administrative Report 1.0 Section 3 Core Data Form

Section 4. Application Contact Information (Instructions Page 30)

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., Ms., Miss): Mr.

First and Last Name: John Blake

Credential (P.E, P.G., Ph.D., etc.): P.E.

Title: VP Land Development

Organization Name: Murfee Engineering Company, Inc.

Mailing Address: 1101 S. Capital of TX Hwy, Bldg. D

City, State, Zip Code: Austin, TX 78746

Phone No.: 512-327-9204 Ext.: Fax No.:

E-mail Address: jblake@murfee.com

Check one or both: ☒ Administrative Contact ☒ Technical Contact

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

First and Last Name:

Credential (P.E, P.G., Ph.D., etc.):

Title:

Organization Name:

Mailing Address:

City, State, Zip Code:

Phone No.: Ext.: Fax No.:

E-mail Address:

Check one or both: ☐ Administrative Contact ☐ Technical Contact

Section 5. Permit Contact Information (Instructions Page 30)

Provide two names of individuals that can be contacted throughout the permit term.

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

First and Last Name: Leisha Ehlert

Credential (P.E, P.G., Ph.D., etc.):

Title: Vice President

Organization Name: HH-CH-Blue Lake LLC

Mailing Address: 1111 W. 11th St.

City, State, Zip Code: Austin, TX 78703

Phone No.: 512-663-1880 Ext.: Fax No.:

E-mail Address: le@castleillco.com

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

First and Last Name: Chase Kohlhoff

Credential (P.E, P.G., Ph.D., etc.):

Title: Vice President

Organization Name: Castel Hill Partners

Mailing Address: 1111 W. 11th St.

City, State, Zip Code: Austin, TX 78703

Phone No.: 512-924-1014 Ext.: Fax No.:

E-mail Address: ckohlhoff@castlehillco.com

Section 6. Billing Information (Instructions Page 30)

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., Ms., Miss): Mr.

First and Last Name: John Blake

Credential (P.E, P.G., Ph.D., etc.): P.E.

Title: VP Land Development

Organization Name: Murfee Engineering Company, Inc.

Mailing Address: 1101 S. Capital of TX Hwy, Bldg. D

City, State, Zip Code: Austin, TX 78746

Phone No.: 512-327-9204 Ext.: Fax No.:

E-mail Address: jblake@murfee.com

Section 7. DMR/MER Contact Information (Instructions Page 31)

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

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

First and Last Name: John Blake

Credential (P.E, P.G., Ph.D., etc.): P.E.

Title: VP Land Development

Organization Name: Murfee Engineering Company, Inc.

Mailing Address: 1101 S. Capital of TX Hwy, Bldg. D

City, State, Zip Code: Austin, TX 78746

Phone No.: 512-327-9204 Ext.: Fax No.:

E-mail Address: jblake@murfee.com

DMR data is required to be submitted electronically. Create an account at:
https://www.tceq.texas.gov/permitting/netdmr/netdmr.html.

Section 8. Public Notice Information (Instructions Page 31)

A. Individual Publishing the Notices

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

First and Last Name: John Blake

Credential (P.E, P.G., Ph.D., etc.): P.E.

Title: VP Land Development

Organization Name: Murfee Engineering Company, Inc.

Mailing Address: 1101 S Capital of TX Hwy, Bldg. D

City, State, Zip Code:

Phone No.: 512-327-9204 Ext.: Fax No.:

E-mail Address: jblake@murfee.com

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 person to be listed in the Notices

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

First and Last Name: John Blake

Credential (P.E, P.G., Ph.D., etc.): P.E.

Title: VP Land Development

Organization Name: Murfee Engineering Company, Inc.

Phone No.: 512-327-9204 Ext.:

E-mail: jblake@murfee.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: Lake Travis Community Library

Location within the building: Reception Desk

Physical Address of Building: 1938 Lohmans Crossing

City: Austin County: Travis

Contact Name: Morgan McMillian

Phone No.: 512-263-2885 Ext.:

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?

F. 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: 2 Domestic Administrative Report 1.0 - Section 8(F)

Section 9. Regulated Entity and Permitted Site Information (Instructions Page 33)

A. If the site is currently regulated by TCEQ, provide the Regulated Entity Number (RN) issued to this site. **RN**105337497

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):

Vizcaya WWTP

C. Owner of treatment facility: HH-CH-B Blue Lake, LLC

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

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

Prefix (Mr., Ms., Miss):

First and Last Name: HH-CH-B Blue Lake, LLC

Mailing Address: 1111 W 11th St.

City, State, Zip Code: Austin, TX 78703

Phone No.: 512-663-1880 E-mail Address: le@castlehillco.com

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., Ms., Miss):

First and Last Name: HH-CH-B Blue Lake, LLC

Mailing Address: 1111 W 11th St.

City, State, Zip Code: Austin, TX 78703

Phone No.: 512-663-1880 E-mail Address: le@castlehillco.com

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 of sewage sludge disposal site (if authorization is requested for sludge disposal on property owned or controlled by the applicant):

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

First and Last Name:

Mailing Address:

City, State, Zip Code:

Phone No.: E-mail Address:

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:

Section 10. TPDES Discharge Information (Instructions Page 34)

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:

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:

City nearest the outfall(s):

County in which the outfalls(s) is/are located:

Outfall Latitude: Longitude:

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:

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.

Section 11. TLAP Disposal Information (Instructions Page 36)

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:

The proposed disposal site is located on the north side of Thurman Bend Road in the southeast corner of the Holmes tract, near the intersection of Bee Creek Road and Thurman Bend Drive. The existing permitted fields adjacent to the permitted WWTP are to remain. An area between the existing permitted fields is proposed to be added to the permit as indicated on the exhibits.

B. City nearest the disposal site: Briarcliff, TX

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

D. Disposal Site Latitude: 30°23'22"N Longitude: -98°02.'54.72"W

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

From the treatment plant through a disc filter, 6" pressurized line, to the drip tubing.

F. For **TLAPs**, please identify the nearest watercourse to the disposal site to which rainfall runoff might flow if not contained:

Colorado River (Lake Travis)

Section 12. Miscellaneous Information (Instructions Page 37)

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.

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:

D. Do you owe any fees to the TCEQ?

☐ Yes ☒ No

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

Account number: Amount past due:

E. Do you owe any penalties to the TCEQ?

☐ Yes ☒ No

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

Enforcement order number: Amount past due:

Section 13. Attachments (Instructions Page 38)

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
- 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: - Core Data Form, Public Involvement Form

Section 14. Signature Page (Instructions Page 39)

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

Permit Number: WQ001484001

Applicant: HH-CH-B Bue Lake 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): Leisha ~~Elhert~~ Ehlert

Signatory title: Vice President

Signature: _____ Date: 10/12/23

(Use blue ink)

Subscribed and Sworn to before me by the said Leisha Ehlert

on this 12th day of October, 2023.

My commission expires on the 23rd day of July, 2023.

Notary Public

[SEAL]

Travis

County, Texas

YOAV AZACHI
Notary Public, State of Texas
Comm. Expires 07-23-2027
Notary ID 130306792

Section 15. Plain Language Summary (Instructions Page 40)

If you are subject to the alternative language notice requirements in 30 Texas Administrative Code §39.426, **you must provide a translated copy of the completed plain language summary in the appropriate alternative language as part of your application package**. For your convenience, a Spanish template has been provided below.

ENGLISH TEMPLATE FOR TPDES or TLAP NEW/RENEWAL/AMENDMENT APPLICATIONS

DOMESTIC WASTEWATER

The following summary is provided for this pending water quality permit application being reviewed by the Texas Commission on Environmental Quality as required by 30 Texas Administrative Code Chapter 39. The information provided in this summary may change during the technical review of the application and are not federal enforceable representations of the permit application.
HH-CH-B Bue Lake LLC (CN 606028868) proposes to operate Vizcaya Wastewater Treatment Plant RN 105204309. a Wastewater Treatment Plant with surface and subsurface drip irrigation. The facility will be located approximately 1,940 feet northeast of the intersection of Rod and Gun Club Road and Siesta Shores Drive, on the west side of Siesta Shores Drive, in Vizcaya MUD, Travis County, Texas 78669.

This application is for renewal of Permit No. 0014848001 with a major amendment to revise the location of surface and subsurface drip fields. This permit will not authorize a discharge of pollutants into water in the state.

Discharges from the facility are expected to contain biochemical oxygen demand, total suspended solids, ammonia nitrogen, and E Coli. Municipal wastewater will be treated by *a membrane bioreactor process including a fine screen, anoxic basins, aeration/membrane basins, sludge holding basins, and ultraviolet disinfection.*

PLANTILLA EN ESPAÑOL PARA SOLICITUDES NUEVAS/RENOVACIONES/ENMIENDAS TPDES o TLAP

AGUAS RESIDUALES DOMÉSTICAS

El siguiente resumen se proporciona para esta solicitud de permiso de calidad del agua pendiente que está siendo revisada por la Comisión de Calidad Ambiental de Texas según lo requerido por el Capítulo 39 del Código Administrativo de Texas 30. La información proporcionada en este resumen puede cambiar durante la revisión técnica de la solicitud y no son representaciones federales exigibles de la solicitud de permiso.

1. Introduzca el nombre del solicitante aquí. (2. Introduzca el número de cliente aquí (es decir, CN6 #########).) 3. Elija del menú desplegable. 4. Introduzca el nombre de la instalación aquí. 5. Introduzca el número de entidad regulada aquí (es decir, RN1 #########). 6. Elija del menú desplegable. 7. Introduzca la descripción de la instalación aquí. . La instalación 8. Elija del menú desplegable. ubicado 9. Introduzca la ubicación aquí. , en 10. Introduzca el nombre de la ciudad aquí. , Condado de 11. Introduzca el nombre del condado aquí. , Texas 12. Introduzca el código postal aquí. . 13. Introduzca el resumen de la solicitud de solicitud aquí. *<<Para las aplicaciones de TLAP incluya la siguiente oración, de lo contrario, elimine:>>* Este permiso no autorizará una descarga de contaminantes en el agua en el estado.

Se espera que las descargas de la instalación contengan14. Liste todos los contaminantes esperados aquí. . 15. Introduzca los tipos de aguas residuales descargadas aquí. 16. Elija del menú desplegable. tratado por 17. Introduzca una descripción del tratamiento de aguas residuales utilizado en la instalación aquí.

ATTACHMENT 1.0 - DOMESTIC ADMINISTRATIVE REPORT 1.0 SECTION 3(C)
CORE DATA FORM

TCEQ Use Only

TCEQ Core Data Form

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

SECTION I: General Information

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

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

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

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number *(if issued)*
CN 606028868		RN 105337497

SECTION II: Customer Information

4. General Customer Information | **5. Effective Date for Customer Information Updates** (mm/dd/yyyy) 1/1/2023

☐ 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:*

HH-CH-B Blue Lake, 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)*
804152163	32080162020	871668830	

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

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

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

13. Independently Owned and Operated? ☒ Yes ☐ No

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

☒ Owner ☐ Operator ☐ Owner & Operator ☐ Other:

☐ Occupational Licensee ☐ Responsible Party ☐ VCP/BSA Applicant

15. Mailing Address:	1111 W. 11th St						
	City: Austin	State: TX	ZIP: 78703	ZIP + 4:			

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

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(512) 663-1880		( ) -

SECTION III: Regulated Entity Information

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

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

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

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

Vizcaya Wastewater Treatment Plant

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

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

25. Description to Physical Location:	Approximately 1940 feet northeast of the intersection of Rod and Gun Club Road and Siesta Shores drive, on the west side of Siesta Shores Drive, in Travis Count, Texas 78669.

26. Nearest City	**State**	**Nearest ZIP Code**
Briarcliff	TX	78669

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

27. Latitude (N) In Decimal:			**28. Longitude (W) In Decimal:**		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
30	23	3.58	-98	2	7.29

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)
4952		22332	

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

Wastewater Treatment Plant

34. Mailing Address:	Murfee Engineering Company, Inc.							
	1101 S Capital of TX Hwy, Bldg. D							
	City	Austin	**State**	TX	**ZIP**	78746	**ZIP + 4**	

35. E-Mail Address:	jblake@murfee.com

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(512) 327-9204		( ) -

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	☒ Wastewater	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	John Blake, P.E.	**41. Title:**	VP Land Development

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(512) 327-9204		( ) -	jblake@murfee.com

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:	HH-CH-B Blue Lake, LLC	**Job Title:**	Vice President
Name *(In Print):*	Leisha Ehlert	**Phone:**	(521) 381- 6136
Signature:		**Date:**	11.6.23

ATTACHMENT 2.0 - DOMESTIC ADMINISTRATIVE REPORT 1.0 SECTION 8(F)
PUBLIC INVOLVEMENT FORM

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.

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.

This amendment will relocate proposed drip irrigation fields from the location as approved on the existing permit. The effluent quality will not change from the permitted levels. The method of disposal will not change, surface and subsurface drip irrigation of treated effluent. The effluent is considered Type and is suitable for irrigation of public spaces.

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)

Travis

(County)

352-2

(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

98 %

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

$50,805

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

Black - 31 (0.78 %), American Indian - 23 (0.57 %), Asian 59 (1.47 %)
Native Hawaiian - 1 (0.025%), Other 84 (2.1%)
Two or more races 303(7.6 %)

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

0.70 %

(e) Languages commonly spoken in area by percentage

English 95.1
Spanish 4.9

(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 This is a TLAP permit which is not specifically mentioned in CH 39.

(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) Lake Travis Community Library

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)

DOMESTIC ADMINISTRATIVE REPORT 1.1

The following information is required for new and amendment applications.

Section 1. Affected Landowner Information (Instructions Page 41)

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

- ☒ 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:

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):

Section 2. Original Photographs (Instructions Page 44)

Provide original ground level photographs. Indicate with checkmarks that the following information is provided.

- ☐ 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 44)

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;
- 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
- ☐ 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

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

SUPPLEMENTAL PERMIT INFORMATION FORM (SPIF)

FOR AGENCIES REVIEWING DOMESTIC TPDES WASTEWATER PERMIT APPLICATIONS

TCEQ USE ONLY:

Application type: ____Renewal ____Major Amendment ____Minor Amendment ____New

County: _____ Segment Number: _____

Admin Complete Date: _____

Agency Receiving SPIF:

_____ Texas Historical Commission _____ U.S. Fish and Wildlife

_____ Texas Parks and Wildlife Department _____ U.S. Army Corps of Engineers

This form applies to TPDES permit applications only. (Instructions, Page 53)

The SPIF must be completed as a separate document. The TCEQ will mail a copy of the SPIF to each agency as required by the TCEQ agreement with EPA. If any of the items are not completely addressed or further information is needed, you will be contacted to provide the information before the permit is issued. Each item must be completely addressed.

Do not refer to a response of any item in the permit application form. Each attachment must be provided with this form separately from the administrative report of the application. The application will not be declared administratively complete without this form being completed in its entirety including all attachments.

The following applies to all applications:

1. Permittee:

   Permit No. WQ00 EPA ID No. TX

   Address of the project (or a location description that includes street/highway, city/vicinity, and county):

Provide the name, address, phone and fax number of an individual that can be contacted to answer specific questions about the property.

Prefix (Mr., Ms., Miss):

First and Last Name:

Credential (P.E, P.G., Ph.D., etc.):

Title:

Mailing Address:

City, State, Zip Code:

Phone No.: Ext.: Fax No.:

E-mail Address:

2. List the county in which the facility is located:
3. If the property is publicly owned and the owner is different than the permittee/applicant, please list the owner of the property.

4. Provide a description of the effluent discharge route. The discharge route must follow the flow of effluent from the point of discharge to the nearest major watercourse (from the point of discharge to a classified segment as defined in 30 TAC Chapter 307). If known, please identify the classified segment number.

5. Please provide a separate 7.5-minute USGS quadrangle map with the project boundaries plotted and a general location map showing the project area. Please highlight the discharge route from the point of discharge for a distance of one mile downstream. (This map is required in addition to the map in the administrative report).

Provide original photographs of any structures 50 years or older on the property.

Does your project involve any of the following? Check all that apply.

- ☐ Proposed access roads, utility lines, construction easements
- ☐ Visual effects that could damage or detract from a historic property's integrity
- ☐ Vibration effects during construction or as a result of project design
- ☐ Additional phases of development that are planned for the future

☐ Sealing caves, fractures, sinkholes, other karst features

☐ Disturbance of vegetation or wetlands

6. List proposed construction impact (surface acres to be impacted, depth of excavation, sealing of caves, or other karst features):

7. Describe existing disturbances, vegetation, and land use:

THE FOLLOWING ITEMS APPLY ONLY TO APPLICATIONS FOR NEW TPDES PERMITS AND MAJOR AMENDMENTS TO TPDES PERMITS

8. List construction dates of all buildings and structures on the property:

9. Provide a brief history of the property, and name of the architect/builder, if known.

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:** WQ00 1484001

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

   Name of Project or Site: Vizcaya Wastewater Treatment Facility

   Physical Address of Project or Site: 1940 ft northeast of Rod and Gun Club and Siesta Shores

   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

THIS PAGE INTENTIONALLY LEFT BLANK

ATTACHMENT 1

INDIVIDUAL INFORMATION

Section 1. Individual Information (Instructions Page 50)

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):

Full legal name (first, middle, last):

Driver's License or State Identification Number:

Date of Birth:

Mailing Address:

City, State, and Zip Code:

Phone Number: Fax Number:

E-mail Address:

CN:

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

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 applications 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.) NA

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 Attached ☒ N/A ☐ Yes

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

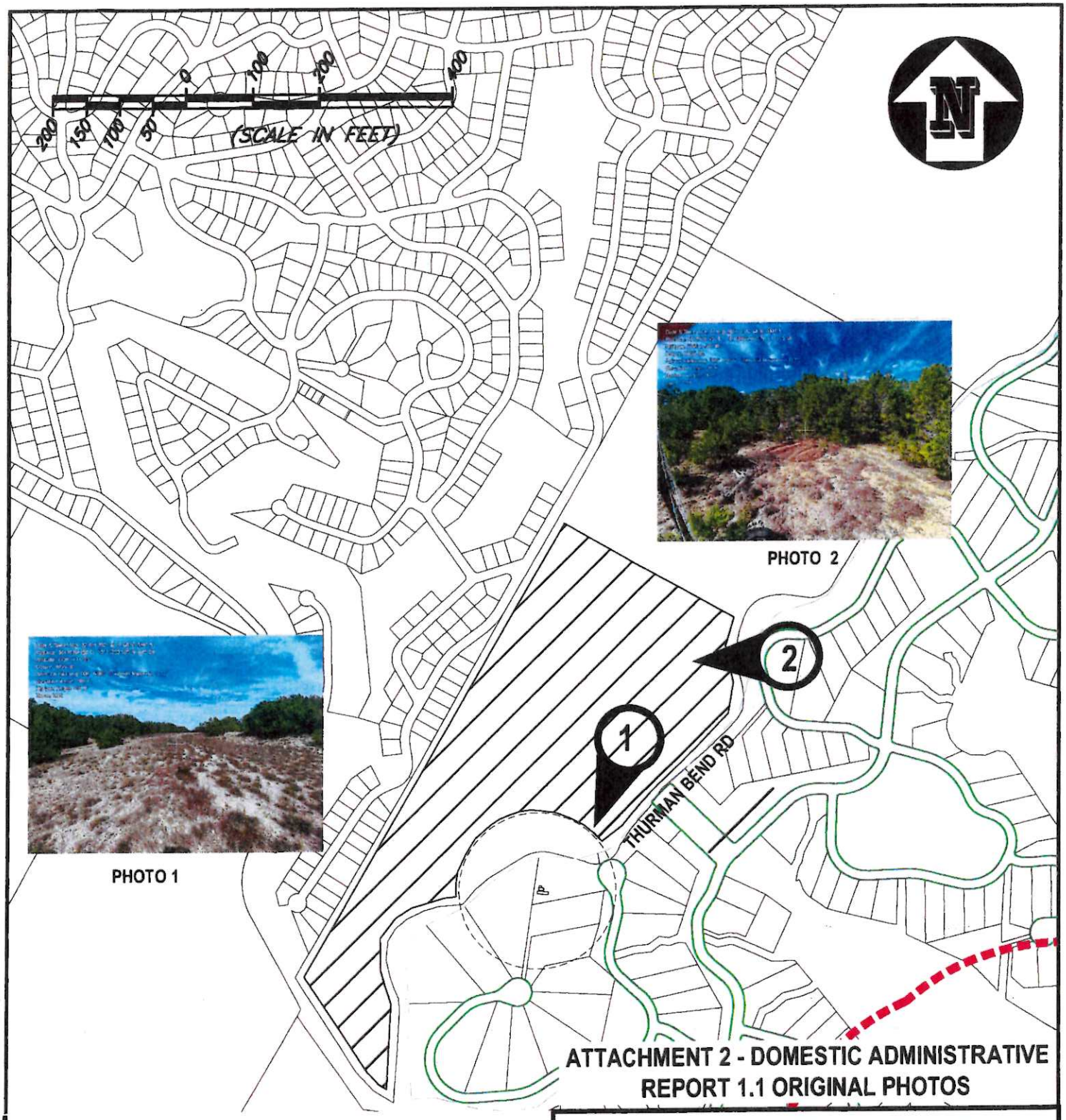
Things to Know:

- 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)



ATTACHMENT 2 - DOMESTIC ADMINISTRATIVE REPORT 1.1 ORIGINAL PHOTOS

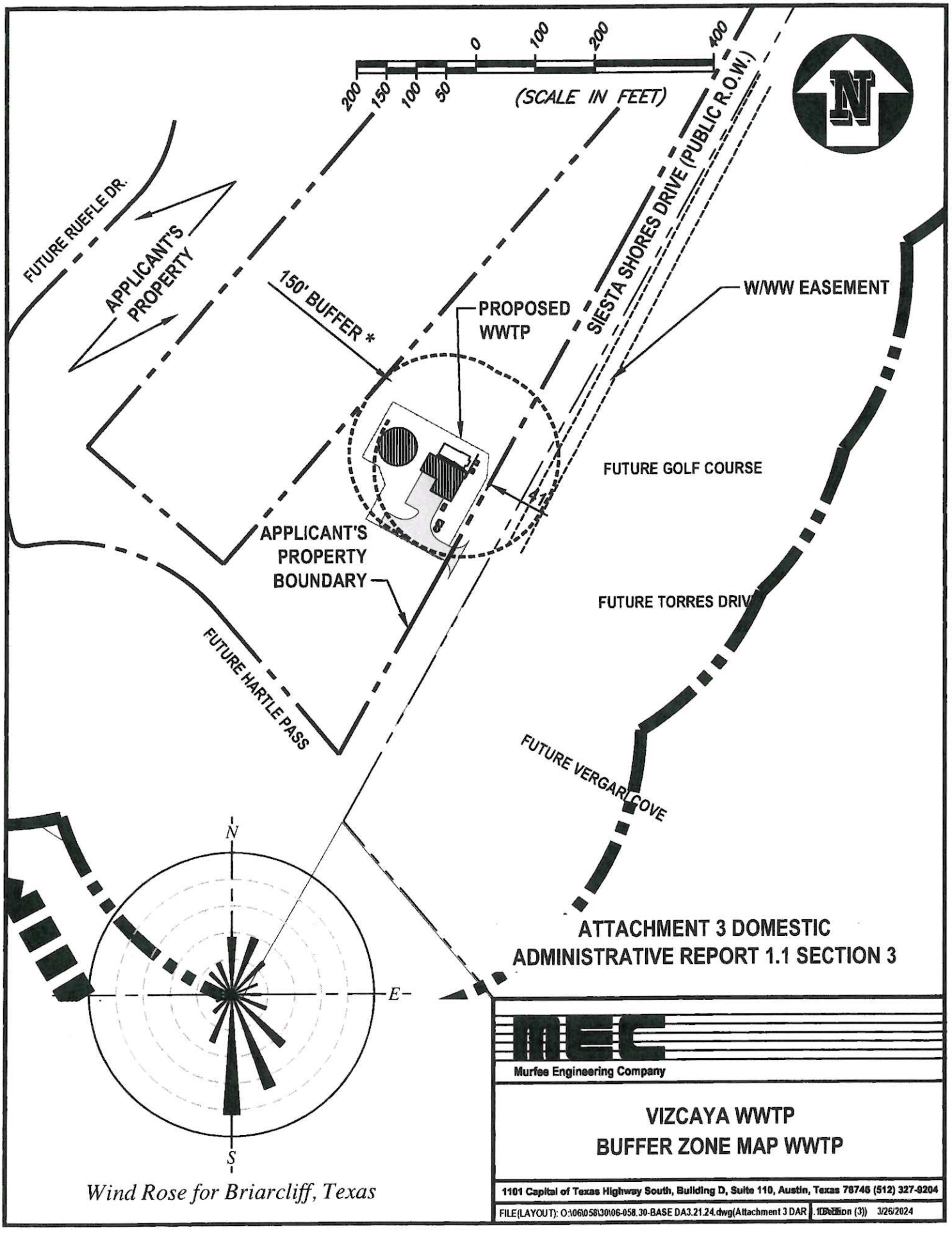
Murfee Engineering Company

VIZCAYA WWTP

PHOTO LOCATION MAP

1101 Capital of Texas Highway South, Building D, Suite 110, Austin, Texas 78746 (512) 327-9204

FILE(LAYOUT): O:\06\058\30\06-058.30-BASE DA.dwg(PHOTO-LOC) | DATE: 11/3/2023



ATTACHMENT 3 DOMESTIC ADMINISTRATIVE REPORT 1.1 SECTION 3

Murfee Engineering Company

VIZCAYA WWTP
BUFFER ZONE MAP WWTP

1101 Capital of Texas Highway South, Building D, Suite 110, Austin, Texas 78746 (512) 327-9204

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TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

DOMESTIC WASTEWATER PERMIT APPLICATION

DOMESTIC TECHNICAL REPORT 1.0

The Following Is Required For All Applications

Renewal, New, And Amendment

Section 1. Permitted or Proposed Flows (Instructions Page 51)

A. Existing/Interim I Phase

Design Flow (MGD): 0.040

2-Hr Peak Flow (MGD): 0.120

Estimated construction start date: 10/1/24

Estimated waste disposal start date: 8/1/25

B. Interim II Phase

Design Flow (MGD): 0.100

2-Hr Peak Flow (MGD): 0.300

Estimated construction start date: 1/1/26

Estimated waste disposal start date: 8/1/2026

C. Final Phase

Design Flow (MGD): 0.150

2-Hr Peak Flow (MGD): 0.450

Estimated construction start date: 1/1/27

Estimated waste disposal start date: 8/1/27

D. Current operating phase: NA

Provide the startup date of the facility:

Section 2. Treatment Process (Instructions Page 51)

A. Treatment process description

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 in the permit, a description of *each phase* must be provided.** Process description:

For Phase 1, influent will be pumped to dual fine auger screens, then gravity flow to a membrane bioreactor, thence pumped through ultraviolet disinfection chambers, to an effluent storage tank, thence to Phase 1 drip irrigation system and drip fields. Phase 2 will add a second train for the membrane bioreactor (which brings the bioreactor capacity to 150,000 gpd), thence to effluent storage, thence to the Phase 2 drip fields. Phase 3 will add drip irrigation fields only. Waste sludge is pumped to a sludge holding tank for transport to a sludge processing facility (Wastewater Transport Services)

Port or pipe diameter at the discharge point, in inches: 8

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)
Phase 1 Membrane Bioreactor (designed for 50,000 gallons per day firm capacity) 50,000 gpd drip field capacity	1st Train 2 Membrane Racks (Treatment Capacity 50,000 gpd w/ one rack out of service.	Anoxic Basin 15' x 10' x 11' SWD Pre-aeration 15' x 8.5' x 10' SWD Membrane Basin 14' x 8.5' x 10' SWD 50,000 gpd Drip Fields (11.5 acres)

Treatment Unit Type	Number of Units	Dimensions (L x W x D)
Phase 2 Membrane Bioreactor (adds 100,000 gpd firm capacity) Total plant capacity 150,000 gpd Phase 2 (Continued) Add 50,000 gpd additional drip field capacity. Total drip field capacity 100,000 gpd	2nd Train 2 Membrane Racks EA. Total capacity 150,000 gpd with one rack out of service.	Anoxic Basin 15' x 10' x 11' SWD Pre-aeration 15' x 8.5' x 10' SWD Membrane Basin 14' x 8.5' x 10' SWD 50,000 gpd Drip Fields (11.5 acres)
Phase 3 Add 50,000 gpd additional drip field capacity. Total drip field capacity 150,000 gpd		50,000 gpd Drip Fields (11.5 acres)
Sludge Holding	1	22.75' x 8.25' x 13'
UV Disinfection	2	430 gpm ea.

C. Process flow diagrams

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

Attachment: 1

Section 3. Site Drawing (Instructions Page 52)

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: 2

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

Vista Municipal Utility District of Travis County, a 700 lot residential subdivision.

Section 4. Unbuilt Phases (Instructions Page 52)

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.

Development of the property was delayed due to changes in land ownership and market conditions for high end residential housing. The development is currently scheduled to have houses on the ground in 2025.

Section 5. Closure Plans (Instructions Page 53)

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 ☒ NA

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

Yes ☐ No ☒ NA

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

Section 6. Permit Specific Requirements (Instructions Page 53)

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: Phase 1 Only

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.

See Attachment 3 for the approval letter. This approval was for the wastewater plant.

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.

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.*

Facility not yet in service.

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.

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 512-239-0000. 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.

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 512-239-0000.

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

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 [ ] or TXRNE [ ]

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:

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.

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.

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.

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, a Sewage Sludge Solids Management Plan is required. See Example 5 in the instructions.

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

1. Acceptance of sludge from other WWTPs

Does the facility accept or will it 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 that the plant started accepting sludge 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.

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 a the date that the plant started accepting septic waste, 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.

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 the facility accepting or will it 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.

Section 7. Pollutant Analysis of Treated Effluent (Instructions Page 58)

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).

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

Table 1.0(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

Table 1.0(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					

Pollutant	Average Conc.	Max Conc.	No. of Samples	Sample Type	Sample Date/Time
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 60)

Facility Operator Name: William Abshire, Capital Area Utility Management, LLC

Facility Operator's License Classification and Level: A

Facility Operator's License Number: WW0014404

Section 9. Sewage Sludge Management and Disposal (Instructions Page 60)

A. Sludge disposal method

Identify the current or anticipated sludge disposal method or methods from the following list. Check all that apply.

- ☐ Permitted landfill
- ☐ Permitted or Registered land application site for beneficial use
- ☐ Land application for beneficial use authorized in the wastewater permit
- ☐ Permitted sludge processing facility
- ☐ Marketing and distribution as authorized in the wastewater permit
- ☐ Composting as authorized in the wastewater permit
- ☐ Permitted surface disposal site (sludge monofill)
- ☐ Surface disposal site (sludge monofill) authorized in the wastewater permit

☒ Transported to another permitted wastewater treatment plant or permitted sludge processing facility. If you selected this method, a written statement or contractual agreement from the wastewater treatment plant or permitted sludge processing facility accepting the sludge must be included with this application.

☐ Other:

B. Sludge disposal site

Disposal site name: COA Southwest Disposal Facility

TCEQ permit or registration number: 2384

County where disposal site is located: Travis

C. Sludge transportation method

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

Name of the hauler: Wastewater Transport Services

Hauler registration number: 24343

Sludge is transported as a:

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

Section 10. Permit Authorization for Sewage Sludge Disposal (Instructions Page 60)

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 61)

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:
- USDA Natural Resources Conservation Service Soil Map:

  Attachment:
- Federal Emergency Management Map:

  Attachment:
- Site map:

  Attachment:

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:

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:

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:

Total Kjeldahl Nitrogen, mg/kg:

Total Nitrogen (=nitrate nitrogen + TKN), mg/kg:

Phosphorus, mg/kg:

Potassium, mg/kg:

pH, standard units:

Ammonia Nitrogen mg/kg:

Arsenic:

Cadmium:

Chromium:

Copper:

Lead:

Mercury:

Molybdenum:

Nickel:

Selenium:

Zinc:

Total PCBs:

Provide the following information:

Volume and frequency of sludge to the lagoon(s):

Total dry tons stored in the lagoons(s) per 365-day period:

Total dry tons stored in the lagoons(s) over the life of the unit:

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.

D. Site development plan

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

Attach the following documents to the application.

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

  Attachment:
- Copy of the closure plan

  Attachment:
- Copy of deed recordation for the site

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

Attachment:

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

  Attachment:

- Procedures to prevent the occurrence of nuisance conditions

  Attachment:

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:

Section 12. Authorizations/Compliance/Enforcement (Instructions Page 63)

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:

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:

Section 13. RCRA/CERCLA Wastes (Instructions Page 63)

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:

Section 14. Laboratory Accreditation (Instructions Page 64)

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: Leisha Ehlert

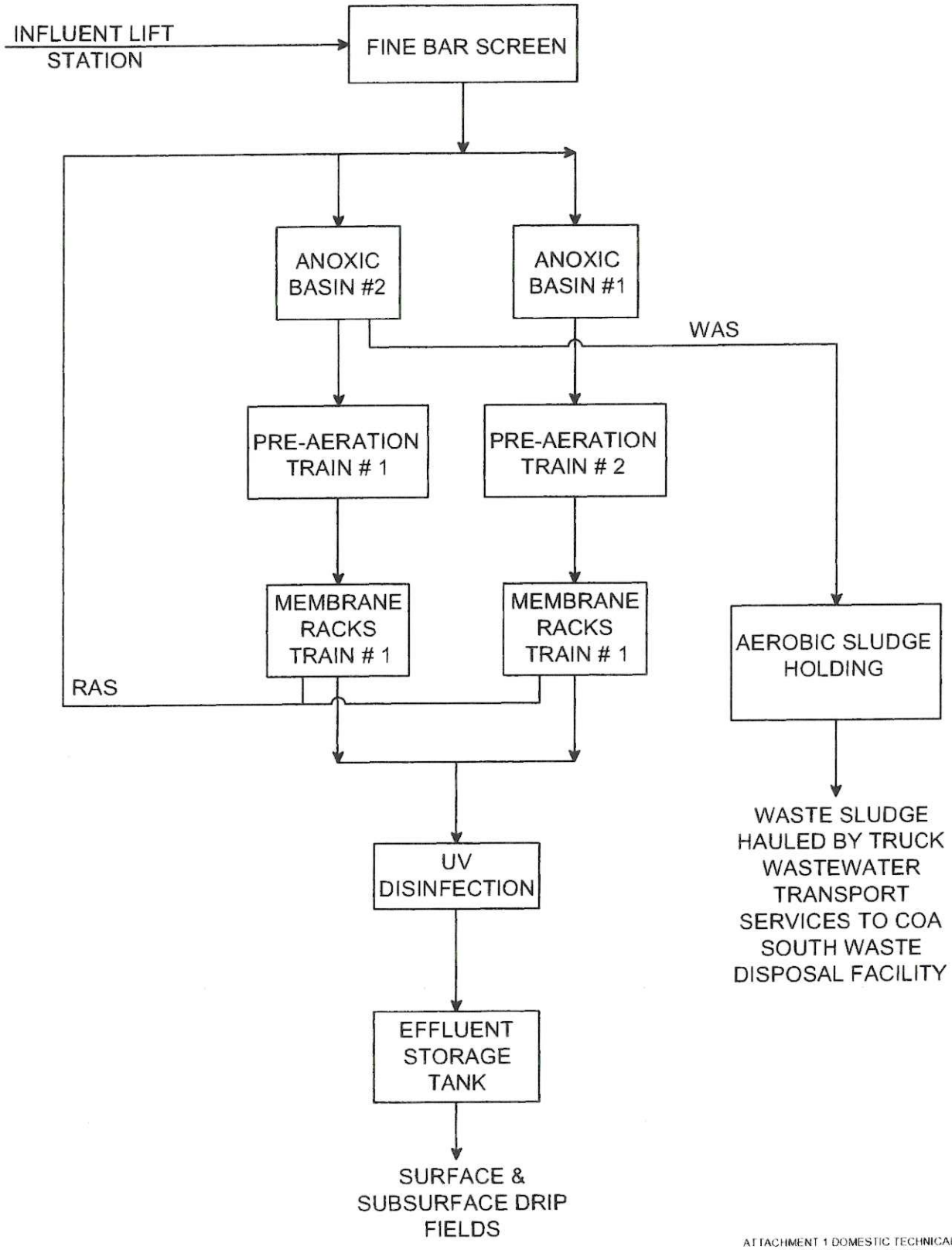
Title: Vice President

Signature: _____

Date: 10/12/23

ATTACHMENT 1 – DOMESTIC TECHNICAL REPORT 1.0 SECTION 2(C)
PROCESS FLOW DIAGRAM

VIZCAYA WWTP



ATTACHMENT 1 DOMESTIC TECHNICAL REPORT 1.0, SECTION 2(C)
PROCESS FLOW DIAGRAM

MEC
Murfee Engineering Company Texas Registered Engineering Firm F-353
1101 Capital of Texas Highway South, Building D, Suite 110, Austin, Texas 78746, (512) 327-9204

HH-CH-B BLUE LAKE LLC
TLAP RENEWAL/MAJOR AMENDMENT
PROCESS FLOW DIAGRAM

JOB NO 14009.10	SCALE. NTS	SHEET 1 OF 1	
DESIGNED BY DAA		DATE 10/31/2023	
DRAWN BY DAA		DATE 10/31/2023	

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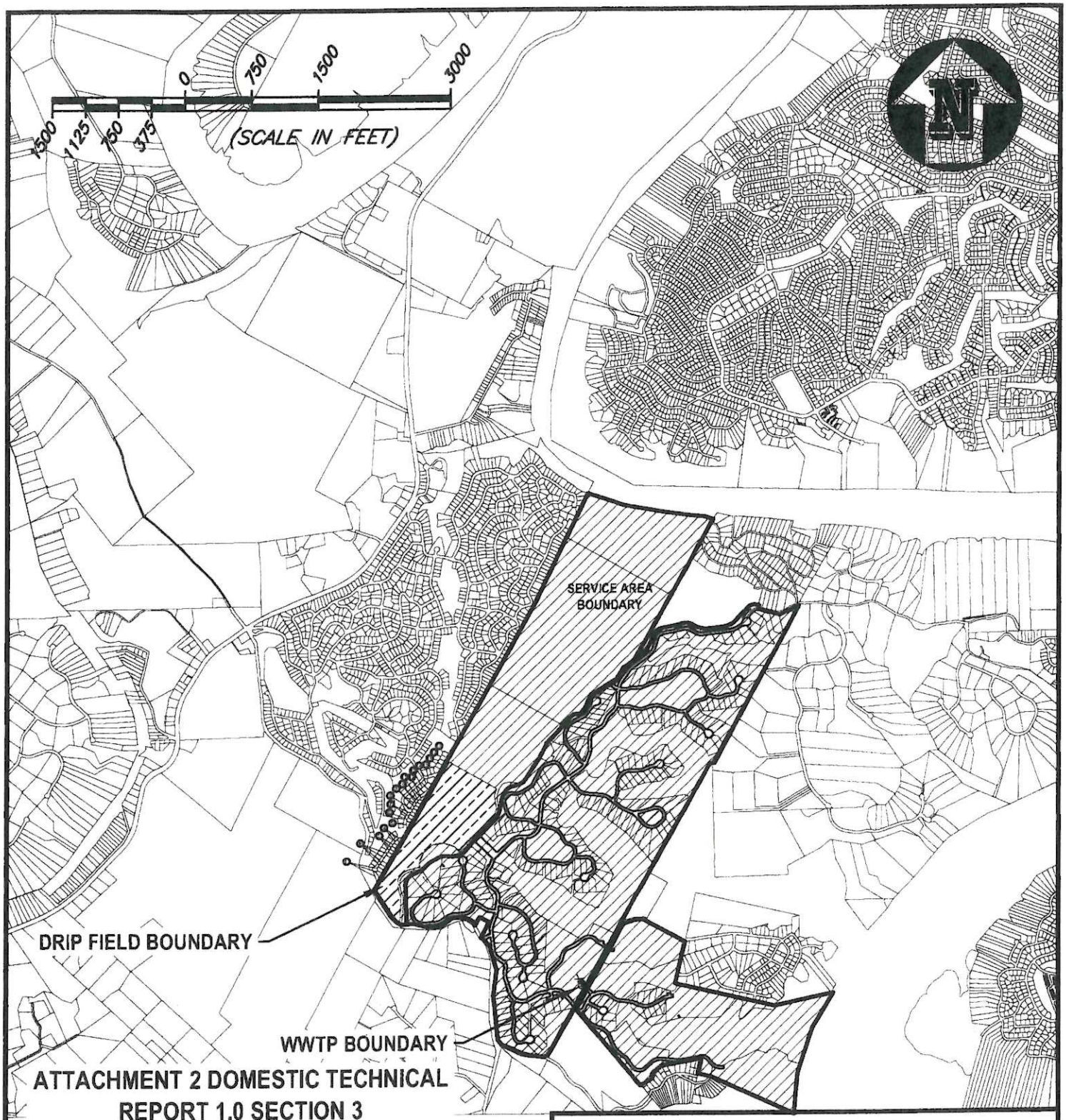
ATTACHMENT 2 – DOMESTIC TECHNICAL REPORT 1.0 SECTION 3
SITE DRAWING



ATTACHMENT 2 DOMESTIC TECHNICAL REPORT 1.0 SECTION 3

LEGEND

PROPOSED EFFLUENT DISPOSAL SITES

SERVICE AREA

Murfee Engineering Company

VIZCAYA WWTP

SITE DRAWING

1101 Capital of Texas Highway South, Building D, Suite 110, Austin, Texas 78746 (512) 327-9204

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ATTACHMENT 3 – DOMESTIC TECHNICAL REPORT 1.0 SECTION 6(A)
TCEQ APPROVAL LETTER

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

February 28, 2023

John K. Blake, P.E.
Murfee Engineering Company, Inc.
1101 Capitol of Texas Highway South, Bldg. D
Austin, Tx 78746

Re: Vizcaya WWTP
VISTA MUD
Permit No. WQ0014848-001
WWPR Log No. 1122/041
CN605227206, RN105337497
Travis County

Dear Mr. Blake:

We have received the project summary transmittal letter dated November 4, 2022. The rules which regulate the design, installation and testing of domestic wastewater projects are found in 30 TAC, Chapter 217, of the Texas Commission on Environmental Quality (TCEQ) rules titled, Design Criteria for Wastewater Systems.

The wastewater treatment plant is being design for Phase I of 50, 000 gallons per day (gpd) but part of the plant is being design for Phase III of 150,000 gpd. The plant will consist of influent lift station of 300 gpm; two Huber screen (2 mm opening; two anoxic/eq basin (11,725 gallons each); two pre-aeration basins (9500 gallons each); two membrane basins (8900 gallons); two uv units (rated at 640,000gpd each) sludge dewatering box and an emergency generator. The plant is design to meet the following effluent limits of 5 mg/l of BOD5 and TSS. Based on our review, the plant design is approved.

You must keep certain materials on file for the life of the project and provide them to TCEQ upon request. These materials include an engineering report, test results, a summary transmittal letter, and the final version of the project plans and specifications. These materials shall be prepared and sealed by a Professional Engineer licensed in the State of Texas and must show substantial compliance with Chapter 217. All plans and specifications must conform to any waste discharge requirements authorized in a permit by the TCEQ. Certain specific items which shall be addressed in the engineering report are discussed in §217.6(d). Additionally, the engineering report must include all constants, graphs, equations, and calculations needed to show substantial compliance with Chapter 217. The items which shall be included in the summary transmittal letter are addressed in §217.6(d)(1)-(9).

Within 60 days of the completion of construction, an appointed engineer shall notify both the Wastewater Permits Section of the TCEQ and the appropriate Region Office of the date of completion. The engineer shall also provide written certification that all construction, materials, and equipment were substantially in accordance with the approved project, the rules of the TCEQ, and any change orders filed with the TCEQ. All notifications, certifications, and change orders must include the signed and dated seal of a Professional Engineer licensed in the State of Texas.

Please be reminded of 30 TAC §217.7(a) of the rules which states, "Approval given by the executive director or other authorized review authority does not relieve an owner of any liability or responsibility with respect to designing, constructing, or operating a collection system or treatment facility in accordance with applicable commission rules and the associated wastewater permit".

If you have any questions or if we can be of any further assistance, please call me at (512) 239-4552.

Sincerely,

Louis C. Herrin, III, P.E.
Wastewater Permits Section (MC 148)
Water Quality Division
Texas Commission on Environmental Quality

LCHIII/tc

cc: TCEQ, Region 11 Office

ATTACHMENT 4 – DOMESTIC TECHNICAL REPORT 1.0, SECTION 7
SLUDGE MANAGEMENT PLAN

Sewage Sludge Management and Disposal

Currently, the mixed liquor suspended solids are wasted from the aeration portion of the aeration/membrane basin to an adjacent digester basin. The digester basin is aerated and also uses an MBR unit to "decant" the digester mixed liquor. The resulting, thickened, digester mixed liquor is periodically removed, in liquid form, and transported by Cap-Tex, Inc. (TCEQ sludge transportation registration No. 20745) to the Windermere WWTP (WQ 001193101) in Travis County. This procedure is expected to continue until the wastewater flow starts to exceed 0.5 MGD (the current permit is 0.84 MUD), at which time an onsite centrifuge will be constructed. The centrifuge cake is expected to be disposed of at the Williamson County Waste Management landfill.

The capacity of liquid sludge required to be hauled at the 0.5 MGD flow may be calculated as follows:

Assumptions: Overall Sludge Yield = 0.6 lbs TSS/lb BOD_5
Influent BOD_5 = 220 mg/l
Effluent BOD_5 = 5 mg/l
Sludge Solids % in aerobic digester = 2%
Specific Gravity of Sludge = 1.015

Pounds Dry Solids per day = $0.6 \frac{\text{lbs TSS}}{\text{lbs } BOD_5} \times (220-5)\ \text{mg/l} \times 8.34 \times 0.5\ \text{MGD}$

= 538 lbs dry solids/day

Gallons of Wet Sludge per day = $\dfrac{538\ \#\text{ dry} \times \dfrac{1\ \text{Gal}}{8.34 \times 1.015\ \#\text{ wet}}}{.02\ \#\text{ dry}/\ \#\text{wet}}$

= 3177 gallons per day

Table 1 presents the solids generated at 25%, 50%, 75% and 100% of the 0.5 MGD flow.

Table 1
Solids Generated

	Flow (MGD)			
	.125	.25	.375	.50
Pounds BOD_5/day Removed	112	224	336	896
Pounds Dry Solids/day Produced	134	269	403	538
Gallons Wet Sludge/day Produced	794	1589	2383	3177

Note that this production rate is based on a 2% solids assumption. Enviroquip believes the aerobic digesters in MBR plants may produce solids to 3% which would lower the per day production in gallons by one third.

Table 2 presents the days between sludge withdrawal. Sludge withdrawal is based on the capacity of the Cap-Tex haul trucks, which is between 6500 and 7300 gallons.

Table 2
Removal Schedule (Days)

0.125 MGD	8-9
0.25 MGD	4
0.375 MGD	2-3
0.50 MGD	2

The basins provided for aeration/membrane digestion are approximately 45,000 gallons, (24' x 18' x 14' SWD). The mixed liquor in the aeration /membrane process basin is moved to the aeration /membrane digester via airlift pumps. The solids in the aeration/membrane digester are removed from the basin via gravity flow and through a through-wall pipe.

DOMESTIC TECHNICAL REPORT 1.1

The following is required for new and amendment applications

Section 1. Justification for Permit (Instructions Page 66)

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.

Development of the property was delayed due to market conditions for high end residential housing and changes in land ownership. The development is currently scheduled to have houses on the ground in2025. There is no alternative resource for wastewater disposal.4

B. Regionalization of facilities

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:

If yes, attach correspondence from the city.

Attachment:

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:

2. Utility CCN areas

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

Yes ☐ No ☒

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:

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 ☐ NA. **The development has approved Phase 1 WWTP plans.**

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

Attachment:

If yes, attach copies of your certified letters to these facilities **and** their response letters concerning connection with their system.

Attachment:

Does a permitted domestic wastewater treatment facility or a collection system located within three (3) miles of the proposed facility currently have the capacity to accept or is willing to expand to accept the volume of wastewater proposed in this application?

Yes ☐ No ☒

If yes, attach an analysis of expenditures required to connect to a permitted wastewater treatment facility or collection system located within 3 miles versus the cost of the proposed facility or expansion.

Attachment:

Section 2. Organic Loading (Instructions Page 67)

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):

Average Influent Organic Strength or BOD_5 Concentration in mg/l:

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

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

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 BOD_5 Concentration (mg/l)
Municipality	0.150 mgd	330 mg/L
Subdivision		
Trailer park - transient		
Mobile home park		
School with cafeteria and showers		
School with cafeteria,		

Source	Total Average Flow (MGD)	Influent BOD_5 Concentration (mg/l)
no showers		
Recreational park, overnight use		
Recreational park, day use		
Office building or factory		
Motel		
Restaurant		
Hospital		
Nursing home		
Other		
TOTAL FLOW from all sources		
AVERAGE BOD_5 from all sources		

Section 3. Proposed Effluent Quality and Disinfection (Instructions Page 68)

A. Existing/Interim I Phase Design Effluent Quality

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

Total Suspended Solids, mg/l: 5

Ammonia Nitrogen, mg/l: 2

Total Phosphorus, mg/l:

Dissolved Oxygen, mg/l:

Other: E Coli < 126

B. Interim II Phase Design Effluent Quality

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

Total Suspended Solids, mg/l: 5

Ammonia Nitrogen, mg/l: 2

Total Phosphorus, mg/l:

Dissolved Oxygen, mg/l:

Other: E Coli < 126

C. Final Phase Design Effluent Quality

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

Total Suspended Solids, mg/l: 5

Ammonia Nitrogen, mg/l: 2

Total Phosphorus, mg/l:

Dissolved Oxygen, mg/l:

Other: E Coli < 126

D. Disinfection Method

Identify the proposed method of disinfection.

☐ Chlorine: mg/l after minutes detention time at peak flow

Dechlorination process:

☒ Ultraviolet Light: 45 seconds contact time at peak flow

☐ Other:

Section 4. Design Calculations (Instructions Page 68)

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

Attachment: NA The Phase 1 plans have already been approved.

Section 5. Facility Site (Instructions Page 68)

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.

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

FEMA Firm Map 48453CO195J, 1/22/20

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:

If no, provide the approximate date you anticipate submitting your application to the Corps:

B. Wind rose

Attach a wind rose. **Attachment**: Previously submitted but included on site plan.

Section 6. Permit Authorization for Sewage Sludge Disposal (Instructions Page 69)

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)

Attachment:

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 a completed DOMESTIC WASTEWATER PERMIT APPLICATION: SEWAGE SLUDGE TECHNICAL REPORT (TCEQ Form No. 10056).

Attachment:

Section 7. Sewage Sludge Solids Management Plan (Instructions Page 69)

Attach a solids management plan to the application.

Attachment: 4

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 WORKSHEET 3.0

LAND DISPOSAL OF EFFLUENT

The following is required for all permit applications

Renewal, New, and Amendments

Section 1. Type of Disposal System (Instructions Page 77)

Identify the method of land disposal:

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

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

For existing authorizations, provide Registration Number:

Section 2. Land Application Site(s) (Instructions Page 77)

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
Warm and Cool Season Grasses	34.5	150,000	Y

Crop Type & Land Use	Irrigation Area (acres)	Effluent Application (GPD)	Public Access? Y/N

Section 3. Storage and Evaporation Lagoons/Ponds (Instructions Page 77)

Table 3.0(2) - Storage and Evaporation Ponds

Pond Number	Surface Area (acres)	Storage Volume (acre-feet)	Dimensions	Liner Type
NA				

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

Attachment:

Section 4. Flood and Runoff Protection (Instructions Page 77)

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.

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

FEMA Firm Map 48453CO195J, 1/22/20

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

All the drip areas are outside of any floodplains or floodways. Berms will be installed as necessary to divert potential upstream runoff.

Section 5. Annual Cropping Plan (Instructions Page 77)

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: 1

- 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 78)

Attach a USGS map with the following information shown and labeled. If not applicable, provide a detailed explanation (on a separate page) indicating why.

Attachment: 2

- 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 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 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
5740903 5740806	Domestic	Yes	cased	Buffer
5740902 5740909	Domestic	Yes	cased	Buffer
5740911	Domestic	Yes	cased	Status of casing is unknown. Buffer
5740907 5740908	Domestic	Yes	cased	Buffer
5740901 5740910	Domestic	Yes	cased	Buffer

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

Attachment: 2

Section 7. Groundwater Quality (Instructions Page 79)

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: 3

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

Attachment:

Section 8. Soil Map and Soil Analyses (Instructions Page 79)

A. Soil map

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

Attachment: 4

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: 4.

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
Brackett: BID	0-10"	0.20-0.63 in/hr	0.1-0.12	73
Brackett: BoF	0-10"	0.20-0.63 in/hr	0.10-0.12	73
Purves: PuC	10-20"	0.20-0.63 in/hr	0.13-0.15	80
Volente: VoD	34-50"	0.20-0.63 in/hr	0.18-0.20	61

Soil Series	Depth from Surface	Permeability	Available Water Capacity	Curve Number

Section 9. Effluent Monitoring Data (Instructions Page 80)

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	BOD_5 mg/l	TSS mg/l	pH	Chlorine Residual mg/l	Acres irrigated

Date	30 Day Avg Flow MGD	BOD_5 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.

ATTACHMENT 1 – DOMESTIC WORKSHEET 3.0 SECTION 5
ANNUAL CROPPING PLAN

ANNUAL CROPPING PLAN

The intent of this amendment is to eliminate the existing permitted subsurface drip fields and replace them with subsurface drip fields. More area than necessary has been allocated for the fields to optimize their construction and allow for installation of supply and return piping and appurtenances. All existing vegetation will be removed.

The wastewater application areas will be leveled, dripper lines installed per permit requirements and seeded with Native American Seed Scorched Earth Recovery Mix, which contains a combination of warm and cool season grasses. The fields will be mowed regularly and as needed, and maintain a height of approximately 4 inches, to ensure that the grass will be actively growing at all times. No supplemental irrigation will be needed. The approximate seed mix composition is indicated below.

Name	% by wt	Test	Germination	Dormant	Total Germ
Plains Bristlegrass	7.39%	12/2022	8%	74%	82%
Prairie Wildrye	7.39%	12/2022	93%	0%	93%
Sideoats Grama	7.39%	2/2023	38%	30%	68%
Tall Dropseed	6.16%	2/2023	31%	57%	88%
Buffalograss	6.16%	1/2023	97%	2%	99%
Purple Prairie Clover	6.16%	8/2021	82%	14%	96%
Illinois Bundleflower	6.16%	4/2021	70%	19%	89%
Partridge Pea	6.16%	6/2021	14%	85%	99%

Virginia Wildrye 4.92%, Little Bluestem 4.92%, Indiangrass 3.08%, Indian Blanket 3.08%, Sand Dropseed 3.08%, Midway Mix 3.08%, Common Sunflower 2.52%, White Prairie Clover 2.46%, Texas Bluebonnet 2.22%, American Basketflower 1.85%, Plains Coreopsis 1.77%, Sand Lovegrass 1.54%, Lemon Mint 1.54%, Slim Tridens 1.23%, Texas Yellow Star 1.23%, Switchgrass 1.21%, Cane Bluestem 1.13%, Cutleaf Daisy 0.92%, White Rosinweed 0.34%, Hooded Windmill Grass 0.31%, Gayfeather 0.29%, Curly Mesquite 0.28%, Prairie Verbena 0.25%, Huisache Daisy 0.22%, Texas Cupgrass 0.18%, Red Lovegrass 0.15%, Arizona Cottontop 0.092%, Purple Three Awn 0.092%

There are no plans to fertilize the grasses after germination.

These grasses are very salt tolerant and this site is not expected to develop salinity problems.

The grass clippings will either be bagged and removed from the site or blown off of the fields and picked up after mowing.

ATTACHMENT 3 – DOMESTIC WORKSHEET 3, SECTION 7
GROUNDWATER QUALITY TECHNICAL REPORT

GROUNDWATER QUAULITY TECHNICAL REPORT

WELLS WITHIN 1.O MILES PROPOSED SUBSURFACE DRIP FIELDS

Wells within 1.0 mile of the disposal fields were obtained from Texas Water Development Board Groundwater Data Viewer as identified in the following table.

Number	Well ID	Owner	Address
1	87258	LAUREL HAVEN HOMES	TRACT 1 BEE CREEK RD SPICEWOOD, TX 78669
2	188765	RANDY STEPHENS	19959 SIESSTA SHORES DRIVE SPICEWOOD, TX 78669
3	141359	TROY MCCOWN	20401 SIIESTA SHORES DRIVE SPICEWOOD, TX 78669
4	57795	MIKE WORTHINGTON	1103 DEBCO ST SPICEWOOD, TX 78669
5	563195	CLINT BROWN	1006 DEBCO LANE SPICEWOOD, TX 78669
6	378957	MIKW FRITZLER	1000 DEBCO LANE SPICEWOOD, TX 78669
7	506322	ROBERT JOHNSON	20205 MOON DANCE SPICEWOOD, TX 78669
8	264305	BETSY JONES	20200 MOON DANCE LANE SPICEWOOD, TX 78669
9	448629	BLAKE & ANNA HOWE	923 DEBCO LANE SPICEWOOD, TX 78669
10	98287	LUKA ADI	20201 MOON DANCE LANE SPICEWOOD, TX 78669
11	187123	RONALD REED	1100 DEBCO AUSTIN, TX 78669
12	516961	HILLARY GARDINER	906 DEBCO LANE SPICEWOOD, TX 78669
13	572588	MARK SHELLENBEK	20200 SIESTA SHORES SPICEWOOD, TX 78669
14	20589	HAL SHUMATE	901 SIESTA SHORES SPICEWOOD, TX 78669
15	54974	DON ENGEL	2011 COLBY HILLS DR SPICEWOOD, TX 78669
16	282223	DAVID HOGE	20106 MOONDANCE LANE SPICEWOOD, TX 78669
17	352877	J LEDBETTER/ JENNIFER RUTH DORNEY	1016 WINDY SHORES AUSTIN, TX 78669
18	282433	STEVE RICHARDS	20009 MOON DANCE LANE SPICEWOOD, TX 78669
19	5740909	F. A. NORMAN	RT. 1 BOX 206 SPICEWOOD, TX 78669
20	5740911	W. E. TRAINER	RT. 3 BOX 848-0 SPICEWOOD, TX 78669
21	116534	CLAUDE GARRETT	19915 SIESTA SHORES DR SPICEWOOD, TX 78669
22	302844	HENRY GANDY	909 WINDY SHORES LOOP SPICEWOOD, TX 78669

23	175746	PAT GARRETT	917 WINDY SHORES LOOP SPICEWOOD, TX 78669
24	178045	HOMER LEONARD	913 WINDY SHORES LOOP SPICEWOOD, TX 78669
25	279588	JANET SIMS	905 WINDY SHORES LOOP SPICEWOOD, TX 78669
26	316946	STEVE HARTMANN	901 WINDY SHORES LOOP SPICEWOOD, TX 78669
27	177975	ROBERT BROWN	20001 MOON DANCE LANE SPICEWOOD, TX 78669
28	5740903	BOB MAUCK	SIESTA SHORES SUBD. ON LAKE TRAVIS AUSTIN, TX
29	5740901	J. H. WHEELER	
30	222897	TIM DIXON	11901 COLBY HILL DR SPICEWOOD, TX 78669
31	196127	BOB FREYTAG	19938 SIESTA SHORES SPICEWOOD, TX 78669
32	5740906	R.D. EVANS	SIESTA SHORES SUBD. ON LAKE TRAVIS AUSTIN, TX
33	5740910	M. E. DEALY	
34	194409	CLAUDE GARRETT	19923 SIESTA SHORES SPICEWOOD, TX 78669
35	319010	JIM ROSS	801 WINDY SHORE LOOP SPICEWOOD, TX 78669
36	11547	BILL HASKINS	ENCLAVE SUBDIVISION LOT #6 SPICEWOOD, TX 78669
37	100982	TOMMY REAGAN	836 WINDY SHORES LOOP SPICEWOOD, TX 78669
38	5940902	O. L. RIFFE	SIESTA SHORES SUBD. ON LAKE TRAVIS AUSTIN, TX
39	307829	JUDY MCCOWN	19962 SIESTA SHORES SPICEWOOD, TX 78669
40	343444	SIM MORENO	20200 THURMAN BEND RD SPICEWOOD, TX 78669
41	644824	TIMOTHY LAMBERT	19963 SIESTA SHORES SPICEWOOD, TX 78669
42	279585	TIM DIXON	11901 COLBY HILL DR SPICEWOOD, TX 78669
43	483316	ED STEPHENS	865 WINDY SHORES LOOP SPICEWOOD, TX 78669
44	494583	DONALD GENUNG	860 WINDY SHORES LOOP SPICEWOOD, TX 78669
45	5740907	J. D. DILLINGHAM	RT. 1 BOX 828 SPICEWOOD, TX 78669
46	11637	BRANDY LYONS	20007 SIESTA SHORES SPICEWOOD, TX 78669
47	346879	ENCINO HOMES	20014 COLBY HILL DR SPICEWOOD, TX 78669
48	153542	HAROLD HOES	20105 SIESTA SHORES SPICEWOOD, TX 78669
49	448944	WHITE OAK CONSTRUCTION	20009 SIESTA SHORES SPICEWOOD, TX 78669
50	503344	ALAN MORRIS	20112 SIESTA SHORES SPICEWOOD,TX 78669

51	5740908	JACK BAYLOR	RT. 1 BOX 825 AUSTIN, TX 78669
52	342784	JAY LEDBETTER	5859 WINDY SHORES LOOP SPICEWOOD, 78669
53	261799	BRIAN MILLER	832 WINDY SHORES LOOP SPICEWOOD, TX 78669
54	93229	KREG WHITESIDE	907 COLBY HILL SPICEWOOD, TX 78669
55	99821	ED STEPHEN	19951 SIESTA SHORES SPICEWOOD, TX 78669
56	93221	SUSAN CRUMPLEY	853 WINDY SHORES LOOP SPICEWOOD, TX 78669
ON MAP	10444	IAN GONZALEZ	19978 SIESTA SHORES
	42081	WILLIE NELSON	BEE CREEK ROAD
	63799	PLUGGED	
	64882	BRADLEY WARD	20118 ROD & GUN CLUB ROAD
	87992	OL RIFFE	
	99905	JGW INVESTMENTS	ROD & GUN CLUB DR.
	153337	HENRY GARCIA	1780 BEE CREEK ROAD
	160548	BOB SAVICKI	20206 ROD & GUN CLUB RD
	223703	JW HOLDINGS, LP	20122 ROD & GUND CLUB RD
	223703	JW HOLDINGS LP	20122 ROD & GUN CLUB DR
	249700	JODI WILLIAMSON	20105 ROD & GUN CLUB DR
	281198	JGW INVESTMENTS	ROD & GUN CLUB DR.
	421493	ALLEN DEVINO	20317 ROD & GUN CLUB RD
	426237	ALI MORTAZAVI	20035 ROD & GUN CLUB DR
	462283	FRED DENSON	ROD & GUN CLUB DR.
	477565	ALI MORTAZAVI	20009 ROD & GUN CLUB DR
	608844	BRENDA BARKER	20919 SIESTA SHORES
	642064	ANTHONGY GAGE	20130 ROD & GUN CLUB DR
	5740806	ROBERT JONES	NO ADDRESS
	28017	QUEEN OF ANGELS CHAPEL	20600 SIESTA SHORES
	276019	QUEEN OF ANGELS CHAPEL	20600 SIESTA SHORES

WATER QUALITY SUMMARY

Water quality in the Upper Glen Rose and the Lower Glen Rose ranges from good to poor because of the dissolved evaporite deposits. The table below shows a selection of wells from the area near the Vizcaya property and presents information on water quality. Water quality can be variable from location to location, even over short distances.

REPRESENTATIVE WATER QUALITY DATA FOR THE VIZCAYA DEVELOPMENT

Well No.	Formation	Depth	Dissolved Solids	Total Hardnes as $CaCO_3$	Bicarbonate	Sulfate
5740903	L. Glen Rose	200	476	387	377	102
5740906	Hosston	266	529	440	372	149
5740907	L. Glen Rose	184	382	369	416	13
5740908	L. Glen Rose	120	366	355	399	13
5047909	Hosston	275	1009	550	320	432
5740910	Hosston	279	422	399	429	25

POTENTIAL GROUNDWATER IMPACTS

Ground water in the upper Glen Rose formation and underlying units is not considered to be at risk from the applied irrigation water because the potential to recharge is limited by the topography and discontinuous lithologic character of the formations. Perched water is not documented for the property. The vegetative cover or warm and cool season grasses is sufficient to uptake the applied effluent application rate of 0.10 gpd/ft^2.

GROUNDWATER MONITORING PLAN

A ground water monitoring plan will not be necessary to monitor the deep Glen Rose aquifer because the area for recharge to that aquifer zone is west of the property. Applied water on the property will be absorbed by soils and vegetation.

DRILLERS LOGS/WATER QUALITY

Drillers logs and water quality data when available follow.

TEXAS WATER DEVELOPMENT BOARD

WELL SCHEDULE

Aquifer Kdk Kgl Kbu — Field No. — State Well No. 57-40-806

Owner's Well No. — County Travis

1. Location: 1/4, 1/4 Sec., Block, Survey

2. Owner: Roberts Jones — Address: Box 1292, Austin 78767

Tenant: — Address:

Driller: Thomas Arnold — Address: 616 W. Powell Lane, Austin

3. Elevation of is 1050 ft. above msl, determined by

4. Drilled: 10-4 19 71; Dug, Cable Tool, (Rotary)

5. Depth: Rept. ft. Meas. 510 ft.

6. Completion: (Open Hole) (Straight Wall) Underreamed, Gravel Packed

7. Pump: Mfgr. Type Turbine

No. Stages, Bowls Diam. in., Setting ft.

Column Diam. in., Length Tailpipe ft.

8. Motor: Fuel Elec. Make & Model HP.

9. Yield: Flow 12 gpm, Pump gpm, Meas. (Rept.) Est.

10. Performance Test: Date Length of Test Made by

Static Level ft. Pumping Level ft. Drawdown ft.

Production gpm Specific Capacity gpm/ft.

11. Water Level: 420 ft. (rept.) meas. 10-4 1971 (above) below which is ft. above (below) surface.

ft. rept. meas. 19 above below which is ft. above below surface.

ft. rept. meas. 19 above below which is ft. above below surface.

ft. rept. meas. 19 above below which is ft. above below surface.

12. Use: (Dom.), Stock, Public Supply, Ind., Irr., Waterflooding, Observation, Not Used,

13. Quality: (Remarks on taste, odor, color, etc.)

Temp. 72 °F, Date sampled for analysis 5-26-72 Laboratory SHD

Temp. °F, Date sampled for analysis Laboratory

Temp. °F, Date sampled for analysis Laboratory

14. Other data available as circled: Driller's Log, Radioactivity Log, Electric Log,

Formation Samples, Pumping Test,

15. Record by: Jo Bruce Date 5-12 1972

Source of Data W.W. Report

16. Remarks:

CASING & BLANK PIPE

Cemented From 0 ft. to 10 ft.

Diam. (in.)	Type	Setting, ft. from	to
4	Plastic	0	493

WELL SCREEN

Screen Openings

Diam. (in.)	Type	Setting, ft. from	to
5	Open hole	493	510

(Sketch)

57-40-806

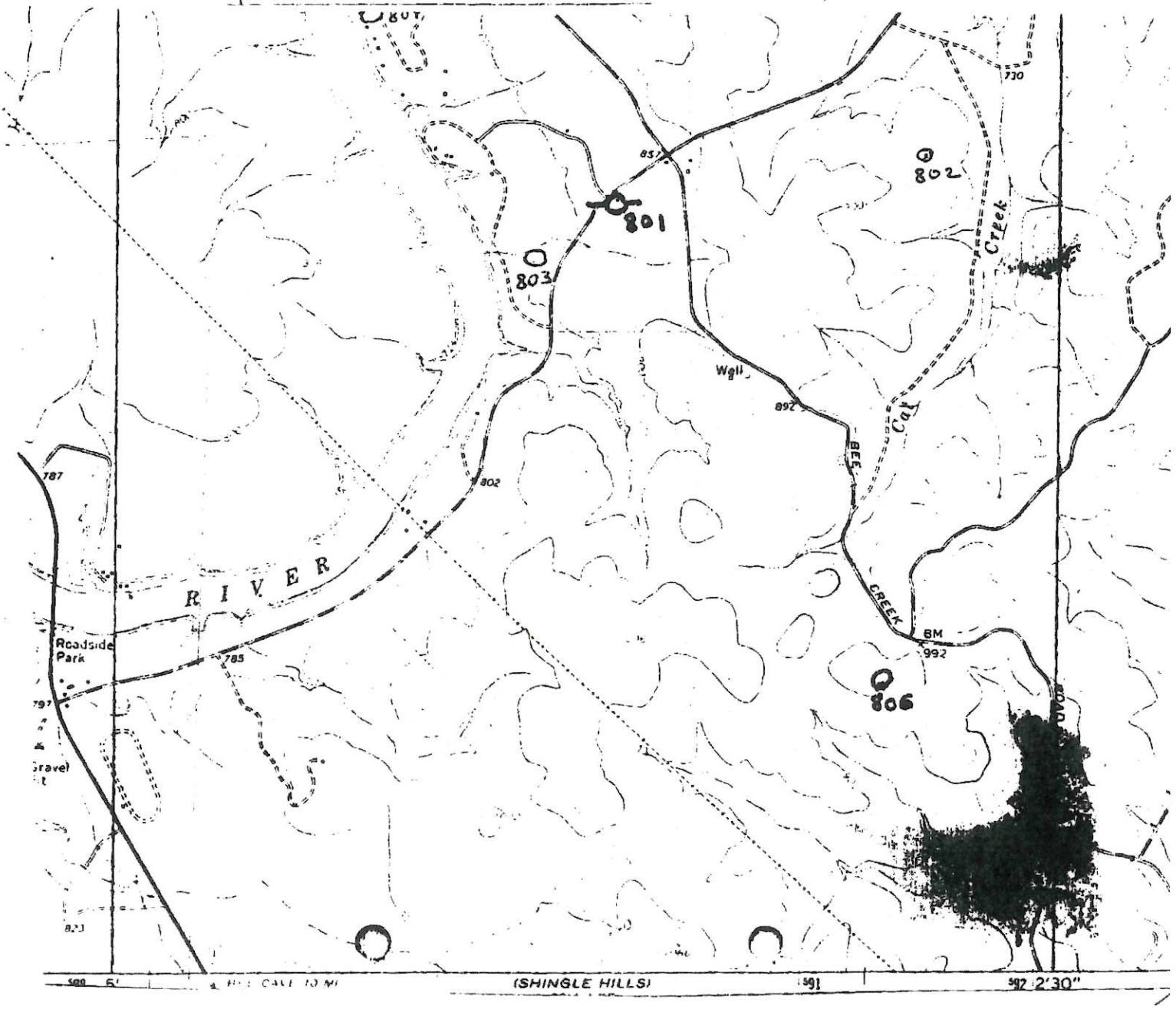
TWDBE-WD-2

YD - 57-40-806

From (ft.)	To (ft.)	Description and color of formation material
0	34	Caliche
34	43	Blue Shell
43	47	Brown Lime
47	70	Blue Lime
70	80	Brown Lime
80	92	Hard Lime
92	130	Brown Sandy Lime
130	360	Brown Lime Sand
360	365	Hard Lime
365	420	Blue Shell
420	430	Red Rock
430	490	Red Clay
490	502	Hard
502	505	Red Sand Stone
505	510	Gravel

9) Casing Type: Cement Diameter (inches)

10) SCREEN Type Perfo Diameter (inches)



Send original copy by certified mail to the Texas Water Development Board
P. O. Box 12386
Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No. 57-40-
Located on map yes
Received: [illegible]

1) OWNER:
Person having well drilled Robert Jones (Name) Address P.O. Box 1292 (Street or RFD) Austin (City) Texas 78767 (State)

Landowner Robert Jones (Name) Address ________ (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County Travis , 2½ miles in N (N.E., S.W., etc.) direction from Pale Face Ranch (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

North

(Use reverse side if necessary)

or Give legal location with distances and directions from adjacent sections or survey lines.

Labor ________ League ________
Block ________ Survey ________
Abstract No. ________
(NW¼ NE¼ SW¼ SE¼) of Section ________

3) TYPE OF WORK (Check): New Well ✓ Deepening Reconditioning Plugging

4) PROPOSED USE (Check): Domestic ✓ Industrial Municipal Irrigation Test Well Other

5) TYPE OF WELL (Check): Rotary ✓ Driven Dug Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6" in. Depth drilled 510 ft. Depth of completed well 510 ft. Date drilled [illegible]10-47

All measurements made from 1 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	34	Caliche
34	43	Blue Shell
43	47	Brown Lime
47	70	Blue Lime
70	80	Brown Lime
80	93	Gray Lime
93	130	Brown Sandy Lime
130	260	Brown Lime [illegible]
260	365	Gray Lime
365	430	Blue Shell
430	430	Red Sand
430	490	Red clay
490	502	Gravel
502	505	Red Sandstone
505	510	Gravel

(Use reverse side if necessary)

7) COMPLETION (Check): Straight wall Gravel packed Other Under reamed Open Hole ✓

8) WATER LEVEL:
Static level 430 ft. below land surface Date ________
Artesian pressure ____ lbs. per square inch Date ________
Depth to pump bowls, cylinder, jet, etc., ________ ft. below land surface.

9) Casing:
Type: Old New Steel Plastic ✓ Other
Cemented from 0 ft. to 10 ft

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4"	0	493	

10) SCREEN:
Type ________
Perforated Slotted

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size

11) WELL TESTS:
Was a pump test made? Yes No If yes, by whom?
Yield: ____ gpm with ____ ft. drawdown after ____ hrs
Bailer test ____ gpm with ____ ft. drawdown after ____ hrs
Artesian flow ____ gpm
Temperature of water ________

12) WATER QUALITY:
Was a chemical analysis made? Yes No
Did any strata contain undesirable water? Yes No
Type of water? ________ depth of strata ________

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Thomas Arnold (Type or Print) Water Well Drillers Registration No. 1319

ADDRESS 616 West Powell Lane (Street or RFD) Austin (City) Texas (State)

(Signed) Thomas Arnold (Water Well Driller) Tom Arnold Drilling (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available. YD 57-40-806

*Additional instructions on reverse side.

TWDBE-GW-53

TWDBE-GW ONLY

Program No. 110

Proj. No.

CHEMICAL WATER ANALYSIS REPORT

Typewrite (Black ribbon) or Print Plainly
(soft pencil or black ink)
Do not use ball point pen

Texas State Department of Health Laboratories
1100 West 49th Street
Austin 5, Texas

Send report to:

Ground Water Division
Texas Water Development Board
P.O. Box 13087
Austin, Texas 78711

County [redacted] Travis

State Well No. 57 - 40 - 806

Well No.

Date Collected May 26, 1972

By G. Brune

Location

Source (type of well) Owner Roberto Jones, Star Rt. 1, Box 58 K, Spicewood, Tex. 78669

Date Drilled Depth ft. WW

Producing intervals Water level ft.

Sampled after pumping hrs. Yield GPM meas. est. Temperature 72 °F °C

Point of collection Appearance
clear - turbid - colored

Use Remarks

FOR LABORATORY USE ONLY

CHEMICAL ANALYSIS

KEY PUNCHED

Laboratory No. 230618 Date Received MAY 30 1972 Date Reported JUN. - 9. 1972

	MG/L	ME/L		MG/L	ME/L
Silica	12		Carbonate		0
Calcium	243	12.14	Bicarbonate	234 (115)	3.84
Magnesium	144	11.85	Sulfate	1290	26.83
Sodium	386	16.80	Chloride	330	9.30
	Total	40.79	Fluoride	1.2	
☐ Potassium			Nitrate	<0.4	
☐ Manganese		%Na	pH 7.6	Total	39.97
☐ Boron		SAR	1/ Dissolved Solids (sum)		2520
☐ Total Iron		RSC	Phenolphthalein Alkalinity as C aCO_3		0
☐ (other)			Total Alkalinity as C aCO_3	(3.84)	192
Specific Conductance (micromhos/cm³)	3120		Total Hardness as C aCO_3	(23.99)	1200
Diluted Conductance (micromhos/cm³)	31 x 155 = 4805				

"☐" items will be analyzed if checked.

Analyst

Total Iron requires separate sample.

Checked by

1/ The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure is used in the computation of this sum.

TWDBE-GW-60

TEXAS WATER DEVELOPMENT BOARD

WELL SCHEDULE

Aquifer ~~Kep~~ ~~Ke~~ Kgrl | Field No. ______ | State Well No. 57-40-901
Weber salesman for treat Co in Austin | Owner's Well No. ______ | County TRAVIS

1. Location: ___1/4, ___1/4 Sec. ______, Block ______ Survey ______

2. Owner: J. H. WHEELER Address: BOX 13285 FORTWORTH, TEX.
   Tenant: SAME Address: ______
   Driller: CENTRAL TEXAS DRLG. CO. INC. Address: AUSTIN, TEXAS
3. Elevation of LSD is 710 ft. above msl, determined by 7½ topo
4. Drilled: 6/10 1967; Dug, (Cable Tool) Rotary, ______
5. Depth: Rept. 200 ft. Meas. ______ ft.
6. Completion: Open Hole, Straight Wall, Underreamed, (Gravel Packed) 8¼"
7. Pump: Mfgr. RED JACKET Type SUBM.
   No. Stages ______, Bowls Diam. ______ in., Setting 180 ft. 10 GPM
   Column Diam. ______ in., Length Tailpipe ______ ft.
8. Motor: Fuel ELEC Make & Model ______ HP. 3/4
9. Yield: Flow ______ gpm, Pump 20 gpm, Meas., (Rept), Est. ______
10. Performance Test: Date ______ Length of Test 1 HR. Made by Pudified ?
    Static Level ___ ft. Pumping Level ___ ft. Drawdown 40 ft.
    Production ______ gpm Specific Capacity ______ gpm/ft.

CASING & BLANK PIPE

Cemented From ______ ft. to ______ ft.

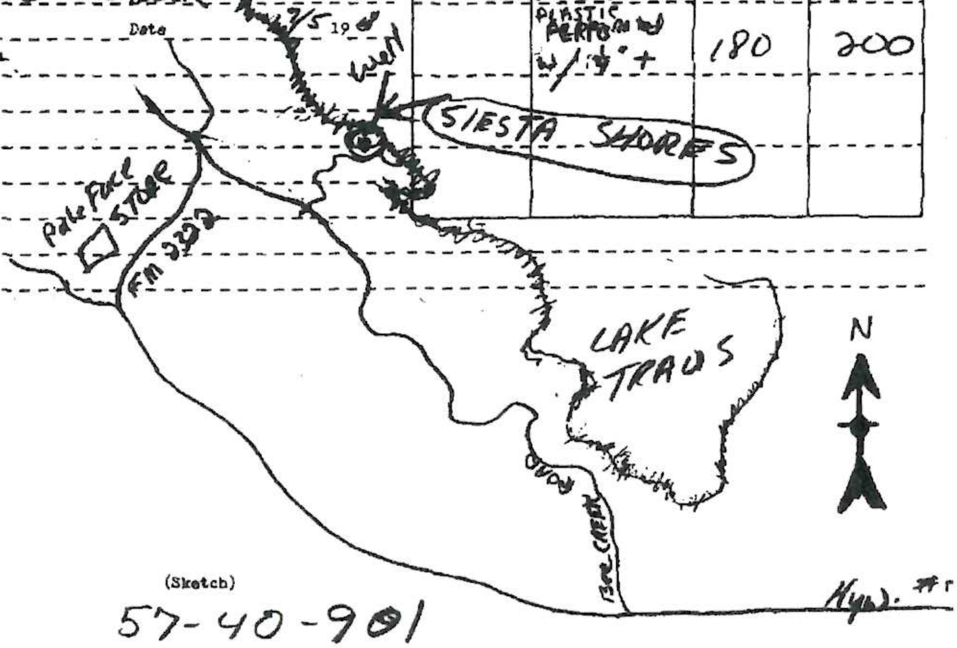
Diam. (in.)	Type	Setting, ft. from	to
5	NEW w/ 200 PLASTIC	0	200

11. Water Level: 50 ft. (rept.) 6/10 1967 above LSD which is ___ ft. above/below surface.
    33.4 ft. rept./meas. 2-11- 1967 (above) 1/2" Hole in Top of Steel which is 1.0 ft. (above) surface.
    ______ ft. rept./meas. ___ 19___ above/below PLATE-Remove PLUG which is ___ ft. above/below surface.
    ______ ft. rept./meas. ___ 19___ above/below ______ which is ___ ft. above/below surface.
12. Use: (Dom.), Stock, Public Supply, Ind., Irr., Waterflooding, Observation, Not Used, ______
13. Quality: (Remarks on taste, odor, color, etc.) ______
    Temp. ___ °F, Date sampled for analysis ______ Laboratory ______
    Temp. ___ °F, Date sampled for analysis ______ Laboratory ______
    Temp. ___ °F, Date sampled for analysis ______ Laboratory ______
14. Other data available as circled: (Driller's Log), Radioactivity Log, Electric Log,
    Formation Samples, Pumping Test, D-LOG See Back
15. Record by: H. NICHOLS Date 7/5 1968
    Source of Data D.W. REPT.
16. Remarks: ______

WELL SCREEN

Screen Openings

Diam. (in.)	Type	Setting, ft. from	to
5	PLASTIC PERFORATED	140	160
	PLASTIC PERFORATED w/ 1/8" +	180	200



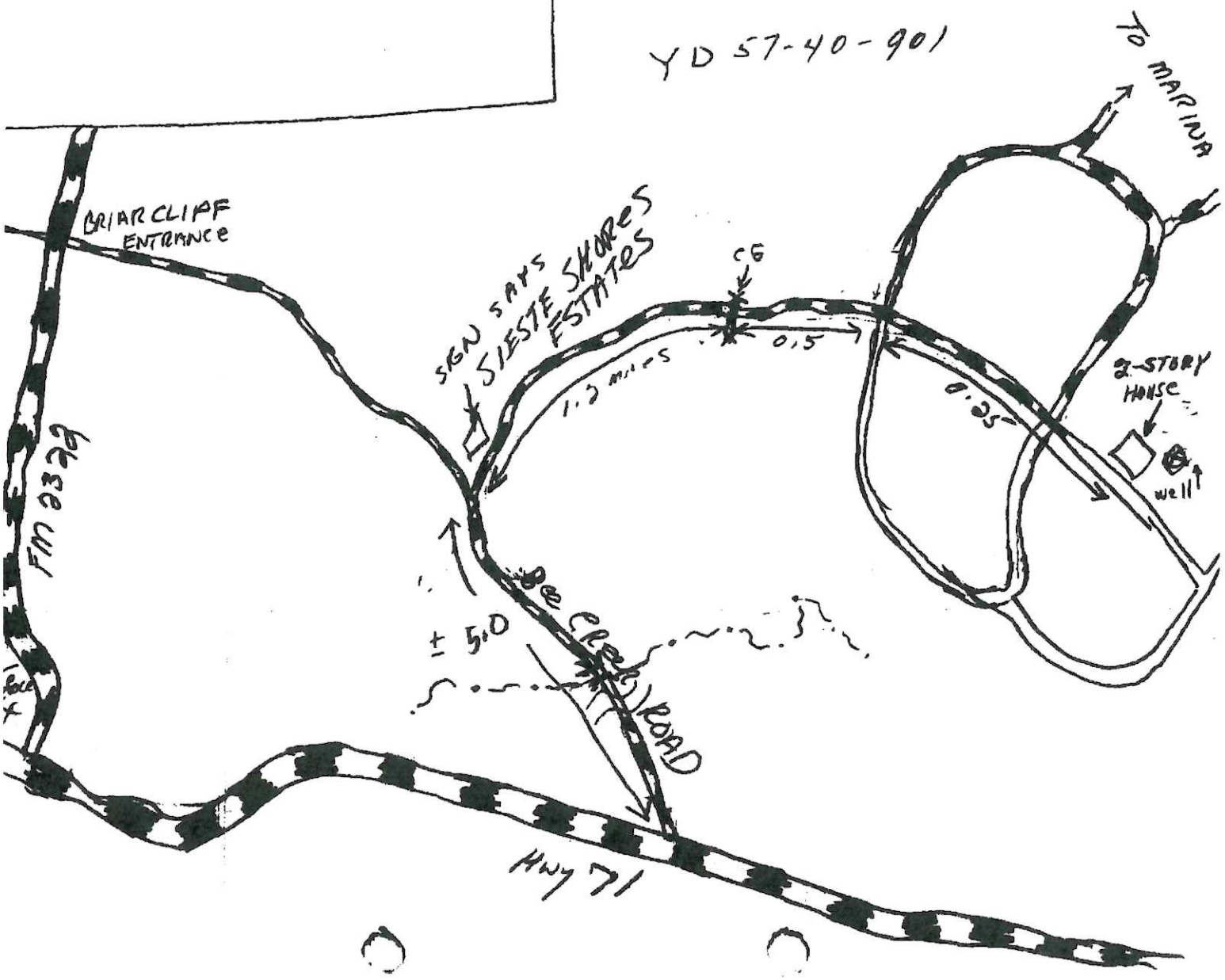
(Sketch)

57-40-901

14

0 - 2	SURFACE
2 - 60	GRAY LIMESTONE
60 - 70	WATER
70 - 100	BLUE LIMESTONE
100 - 140	BLUE CLAY
140 - 150	WATER
150 - 180	RED CLAY
180 - 190	WATER
190 - 200	RED CLAY

YD 57-40-901



Send original copy by certified mail to the Texas Water Development Board P. O. Box 12386 Austin, Texas 78711

State of Te

WATER WELL REPORT

For TWDB use only
Well No. 57-40-
Located on map
Received:
Form GW 8
Form GW 9

1) OWNER:
Person having well drilled J. H. Wheeler (Name) Address Box 1225 Fort Worth 2 (Street or RFD) (City) (State)

Landowner Same (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County Travis Labor League Abstract No.

NW¼ NE¼ SW¼ SE¼ of Section Block No. Survey
(Circle as many as are known)

miles in 10 (NE, SW, etc) direction from NW Austin (Town)

NORTH

over

Sketch map of well location with distances from adjacent section or survey lines, and to landmarks, roads, and creeks.

3) TYPE OF WORK (Check):
New Well ☛ Deepening ☐
Reconditioning ☐ Plugging ☐

4) PROPOSED USE (Check):
Domestic ☑ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

5) TYPE OF WELL (Check):
Rotary ☐ Driven ☐ Dug ☐
Cable ☛ Jetted ☐ Bored ☐

6) WELL LOG:
Diameter of hole 8 ¼ in. Depth drilled 200 ft. Depth of completed well 200 ft. Date drilled 6-10-6
All measurements made from ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	2	Surface
2	40	Dry Limestone
40	70	Water
70	100	Blue Limestone
100	140	Blue Clay
140	150	Water
150	180	Red Clay
180	200	Water

From (ft.)	To (ft.)	Description and color of formation material
180	200	Red Clay

(Use reverse side if necessary)

7) COMPLETION (Check):
Straight wall ☐ Gravel packed ☛ Other ☐
Under reamed ☐ Open hole ☐

8) WATER LEVEL:
Static level 50 ft. below land surface Date 6-10-6
Artesian pressure lbs. per square inch Date

9) CASING:
Type: Old ☐ New ☛ Steel ☐ Plastic ☛ Other ☐
Cemented from ft. to ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
5"	0	200'	.200

10) SCREEN:
Type 5" Plastic
Perforated ☛ Slotted ☐

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot size
5	140-160		
	180-200		¼ x 1

11) WELL TESTS:
Was a pump test made? ☐ Yes ☛ No If yes by whom?

Yield: gpm with ft. drawdown after hrs
Bailer test 20 gpm with 40 ft. drawdown after 1 hrs
Artesian flow gpm Date
Temperature of water
Was a chemical analysis made? ☐ Yes ☛ No
Did any strata contain undesirable water? ☐ Yes ☛ No
Type of water? depth of strata

12) PUMP DATA:
Manufacturer's Name Red Jacket
Type Lok H.P. 3/4
Designed pumping rate 10 gpm ☛ gph ☐
Type power unit
Depth to bowls, cylinder, jet, etc., 180 ft.
below land surface.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME FORREST S. TATUM (Type or Print) Water Well Drillers Registration No. 534

Address P.O. Box 517 (Street or RFD) Austin (City) Texas (State)

(Signed) Forrest S. Tatum (Water Well Driller) Central Texas Pump Co. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available. YD57-40-901

Xerox Back ✓

GW 1

TEXAS WATER DEVELOPMENT BOARD

WELL SCHEDULE

Aquifer ~~Kbp~~ ~~Kbe~~ Kgl   Field No. ____   State Well No. 57-40-902

Owner's Well No. ____   County TRAVIS

1. Location: ___ 1/4, ___ 1/4 Sec. ___, Block ___ Survey ___
AT SIESTA SHORES SUBD. ON LAKE TRAVIS
2. Owner: O.Lee Riffe   Address: AUSTIN, TEXAS
Tenant: LAKEHOUSE   Address: 1604 ALEMEDA, AUSTIN
Driller: BONNETT Wtr. Well Dslg. Co.   Address: Rt. 2, Box 44 Bertram, Texas
3. Elevation of 650 is 705 ft. above msl, determined by 7 1/2 TOPO
4. Drilled: 3 - 1970; Dug, Cable Tool, Rotary, ____
5. Depth: Rept. 166 ft. Meas. 136 ft.
6. Completion: Open Hole, Straight Well, Underreamed, Gravel Packed ____
7. Pump: Mfgr. ____ Type Subm
No. Stages ___, Bowls Diam. ___ in., Setting ___ ft.
Column Diam. ___ in., Length Tailpipe ___ ft.
8. Motor: Fuel Elec   Make & Model ____ HP. ___
9. Yield: Flow ___ gpm, Pump ___ gpm, Meas., Rept., Est. ___
10. Performance Test: Date 3/14/70 Length of Test 1 hr. Made by Driller - Bailer Test
Static Level ___ ft. Pumping Level ___ ft. Drawdown 0 ft.
Production 40 gpm   Specific Capacity ___ gpm/ft.
11. Water Level: 25 ft. meas. 4-22-1970 above/below Top Edge of 9 1/2" Casing which is 1.0 ft. above/below surface.
___ ft. rept./meas. ___ 19__ above/below ___ which is ___ ft. above/below surface.
___ ft. rept./meas. ___ 19__ above/below ___ which is ___ ft. above/below surface.
___ ft. rept./meas. ___ 19__ above/below ___ which is ___ ft. above/below surface.
12. Use: (Dom.), Stock, Public Supply, Ind., Irr., Waterflooding, Observation, Not Used, ____
13. Quality: (Remarks on taste, odor, color, etc.) ____
Temp. ___ °F, Date sampled for analysis ____ Laboratory ____
Temp. ___ °F, Date sampled for analysis ____ Laboratory ____
Temp. ___ °F, Date sampled for analysis ____ Laboratory ____
14. Other data available as circled: (Driller's Log), Radioactivity Log, (Electric Log), Formation Samples, Pumping Test, D-log (see Back) E-log - See Files
15. Record by: Howard Nichols & RLB   Date 4-22-1970
Source of Data OWNER - FIELD and Water Well Report
16. Remarks:
* Logged by TWDB - 4-22-70

CASING & BLANK PIPE

Cemented From ____ ft. to ____ ft.

Diam. (in.)	Type	Setting, ft. from	to
8 ID	Steel	0	18

WELL SCREEN

Screen Openings

Diam. (in.)	Type	Setting, ft. from	to
	OPEN Hole	18	166

Q-48

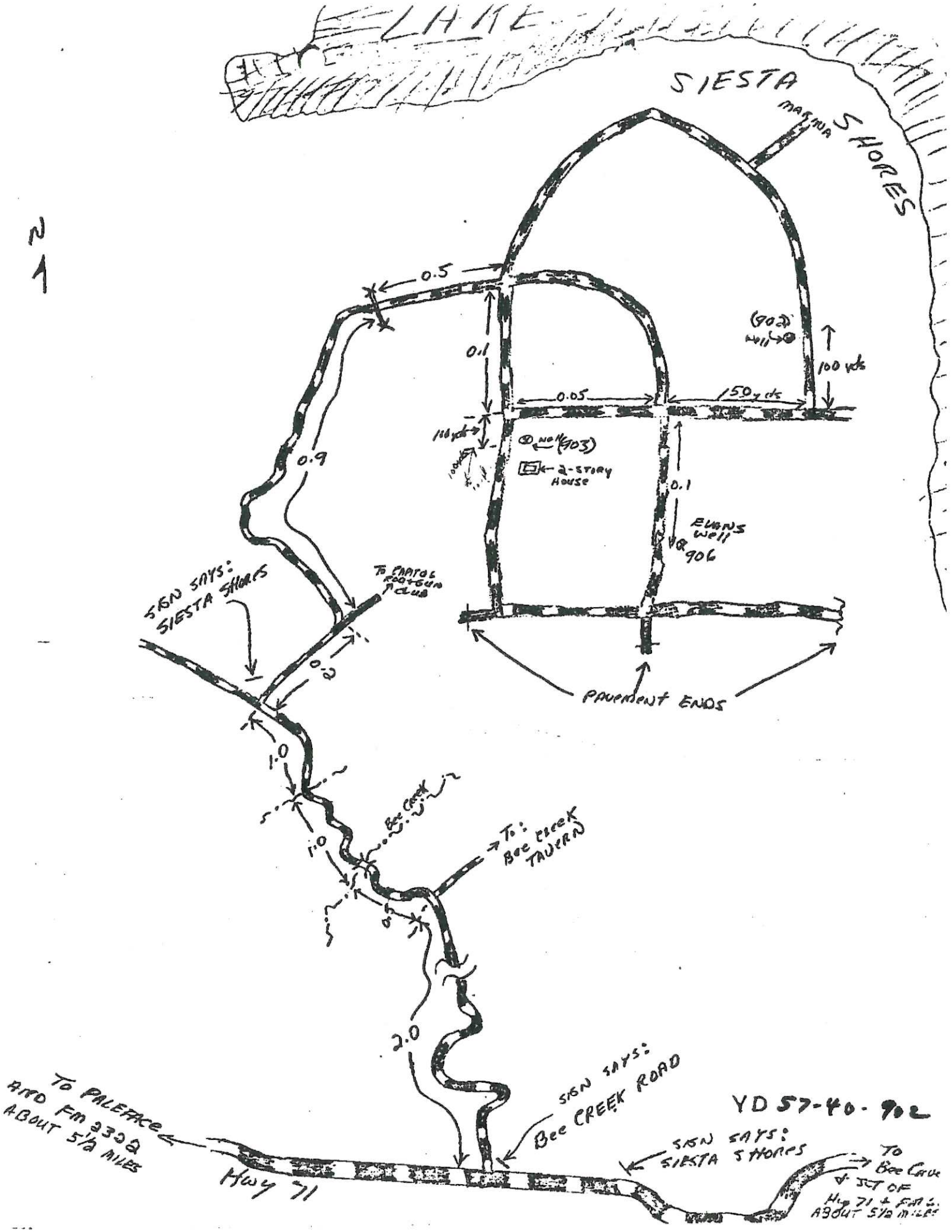
SEE: 57-40-903
FOR DETAIL SKETCH

TWDBE-GW-49   (Sketch)   57-40-902

YD-57-40-902

Drillers Log

0-2 Top soil
2-59 Alt. Limestone
59-63 Honey comb and sand
63-83 White Limestone
83-86 Glenrose sand
86-148 Blue Limestone
148-149 Blue clay
149-159 Hard caprock
159-162 Trinity Sand
162-166 Blue Limestone


LAKE
SIESTA SHORES
MAGNOLIA
0.5
0.1
0.05
150 yds
100 yds
(902) Well
0.9
110 yds
100 yds
(903) Well
2-story House
0.1
EVANS Well (906)
SIGN SAYS: SIESTA SHORES
To CAPITOL SHOTGUN CLUB
0.2
PAVEMENT ENDS
1.0
1.0
Bee Creek
To: Bee Creek TAVERN
2.0
TO PALEFACE AND FM 3398 ABOUT 5½ MILES
Hwy 71
SIGN SAYS: Bee CREEK ROAD
SIGN SAYS: SIESTA SHORES
To Bee Cave
JCT OF Hwy 71 & FM 6 ABOUT 5½ MILES
YD 57-40-902

Send original copy by certified mail to the Texas Water Development Board P. O. Box 12386 Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No. 57-40-9x
Located on map
Received:

1) OWNER:
Person having well drilled O. L. Riffe (Name) Address 1604 Alameda Dr. Austin Tx (Street or RFD) (City) (State)

Landowner Same (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County Travis, 11½ miles in NW. (N.E., S.W., etc.) direction from Bee Cave (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

North

(Use reverse side if necessary)

or Give legal location with distances and directions from adjacent sections or survey lines.

Labor League

Block Survey

Abstract No.

(NW¼ NW¼ SW¼ SE¼) of Section

3) TYPE OF WORK (Check):
(New Well) Deepening
Reconditioning Plugging

4) PROPOSED USE (Check):
(Domestic) Industrial Municipal
Irrigation Test Well Other

5) TYPE OF WELL (Check):
Rotary Driven Dug
(Cable) Jetted Bored

6) WELL LOG:
Diameter of hole 8 in. Depth drilled ft. Depth of completed well 166 ft. Date drilled [illegible] 14-7[illegible]

All measurements made from 1 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	2	Top Soil
2	59	Alt. Lime stone
59	63	Honey Comb + Sands
63	83	White Lime stone
83	86	Glenrose Sand
86	148	Blue Lime stone
148	149	Blue Clay
149	159	Hard Cap rock
159	162	Trinety Sand
162	166	Blue Lime stone

(Use reverse side if necessary)

7) COMPLETION (Check):
Straight wall Gravel packed Other
Under reamed (Open Hole)

8) WATER LEVEL:
Static level ft. below land surface Date
Artesian pressure lbs. per square inch Date
Depth to pump bowls, cylinder, jet, etc., ft.
below land surface.

9) Casing:
Type: (Old) New (Steel) Plastic Other
Cemented from ft. to ft.

Diameter (inches)	Setting From (ft.)	To (ft.)	Gage
8 ID	1	18	

10) SCREEN:
Type
Perforated Slotted

Diameter (inches)	Setting From (ft.)	To (ft.)	Slot Size

11) WELL TESTS:
Was a pump test made? Yes (No) If yes, by whom?
Yield: gpm with ft. drawdown after hrs.
Bailer test 40 gpm with NONE ft. drawdown after 1 hrs.
Artesian Flow [illegible] gpm
Temperature of water

12) WATER QUALITY:
Was a chemical analysis made? Yes No
Did any strata contain undesirable water? Yes No
Type of water? depth of strata

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME R.B. Bonnet (Type or Print) Water Well Drillers Registration No. 1075

ADDRESS Rt 2 Box 44 (Street or RFD) Bertram (City) Texas (State)

(Signed) R B Bonnet (Water Well Driller) Bonnets Water Well Drilling Co (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available. YD 57-40-902

*Additional instructions on reverse side.

TWDBE-GW-31

Xerox Back

TEXAS WATER DEVELOPMENT BOARD

WELL SCHEDULE

Aquifer ~~Ktfp~~ ~~Ktr~~ Kgl   Field No. ______   State Well No. 57-40-903

Owner's Well No. #1   County TRAVIS

1. Location: ___ 1/4, ___ 1/4 Sec. ___, Block ___ Survey ___
   AT SIESTA SHORES SUBDIVISION ON LAKE TRAVIS
2. Owner: BOB MAUCK   Address: AUSTIN TEXAS
   Tenant: SAME   Address: SIESTA SHORES
   Driller: McDONALD   Address: MARBLE FALLS
3. Elevation of ___ LSD ___ is 750 ft. above msl, determined by 7½ Topo
4. Drilled: 1-25 1970; Dug, Cable Tool, (Rotary)
5. Depth: Rept. 200 ft. Meas. ___ ft.
6. Completion: Open Hole, Straight Wall, Underreamed, Gravel Packed
7. Pump: Mfgr. ___ Type Subm
   No. Stages ___, Bowls Diam. ___ in., Setting ___ ft.
   Column Diam. ___ in., Length Tailpipe ___ ft.
8. Motor: Fuel Elec   Make & Model ___ HP. ___
9. Yield: Flow ___ gpm, Pump ___ gpm, Meas., Rept., Est. ___
10. Performance Test: Date ___ Length of Test ___ Made by ___
    Static Level ___ ft. Pumping Level ___ ft. Drawdown ___ ft.
    Production ___ gpm Specific Capacity ___ gpm/ft.

CASING & BLANK PIPE

Cemented From 40 ft. to 0 ft.

Diam. (in.)	Type	Setting, ft. from	to
5"	PLASTIC New 100 GAUGE	0	200

11. Water Level: 65 ft. (rept./meas.) 4-22 1970 above/below Top Edge OF Casing which is 2.1 ft. (above/below) surface.
    ___ ft. rept./meas. ___ 19__ above/below ___ which is ___ ft. above/below surface.
    ___ ft. rept./meas. ___ 19__ above/below ___ which is ___ ft. above/below surface.
    ___ ft. rept./meas. ___ 19__ above/below ___ which is ___ ft. above/below surface.
12. Use: (Dom), Stock, Public Supply, Ind., Irr., Waterflooding, Observation, Not Used,
13. Quality: (Remarks on taste, odor, color, etc.)
    Temp. 70 °F, Date sampled for analysis 2/22/71 Laboratory TSHD
    Temp. ___ °F, Date sampled for analysis ___ Laboratory ___
    Temp. ___ °F, Date sampled for analysis ___ Laboratory ___
14. Other data available as circled: (Driller's Log), Radioactivity Log, (Electric Log),
    Formation Samples, Pumping Test, ___ See Files
15. Record by: H. Nichols   Date 4-22 1970
    Source of Data OWNER + FIELD INVIGATION - DL
16. Remarks:
    * Logged 4-22-70 TWDB E-LOG

WELL SCREEN

Screen Openings ___

Diam. (in.)	Type	Setting, ft. from	to
5"	PERF. ¼ w	140	200

0-5 Top Soil
5-180 Crust Lime
180-200 Crust gravel + Clay (WAter)

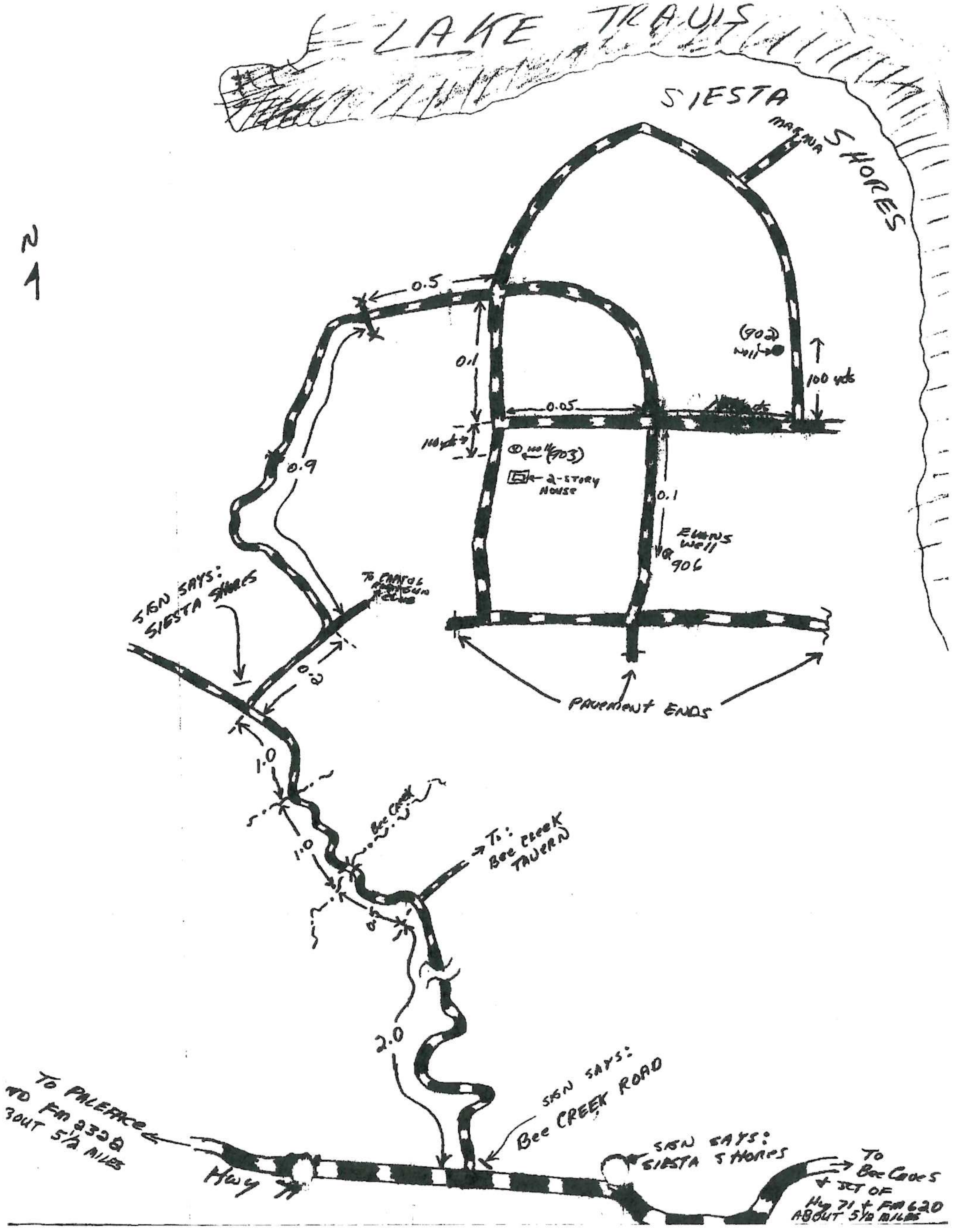
D-LOG
0-5 - Top Soil
5-180 - CRUST LIME
180-200 - CRUST GRAVEL + CLAY WATER
APPROX. 25 gpm's

G-48

TWDBE-GW-49

(Sketch)

57-40-903


LAKE TRAVIS
SIESTA SHORES
MARINA
N
0.5
0.1
0.05
(902) well
100 yds
0.1
EVANS WELL 906
2-STORY HOUSE
0.9
SIGN SAYS: SIESTA SHORES
0.2
PAVEMENT ENDS
1.0
1.0
Bee Creek
To: Bee Creek TAVERN
2.0
SIGN SAYS: Bee CREEK ROAD
TO PALEFACE
FM 2322
5½ MILES
Hwy
SIGN SAYS: SIESTA SHORES
To Bee Caves
+ JCT OF Hwy 71 + FM 620
ABOUT 5½ MILES

Send original copy by certified mail to the Texas Water Development Board
P. O. Box 12386
Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No. [illegible]
Located on map [illegible]
Received: [illegible]
Form GW 8 ____
Form GW 9 ____

1) OWNER:
Person having well drilled Robert A Mauck (Name) Address 1200 [illegible] austin Tex (Street or RFD) (City) (State)

Landowner Same (Name) Address ____ (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County Travis Labor ____ League ____ Abstract No. ____

NW¼ NE¼ SW¼ SE¼ of Section ____ Block No. E Survey ____
(Circle as many as are needed)

miles in 11 mile W. direction from Austin (NE, SW, etc.) (Town)

NORTH

10 ft E. of w line [Lot 14] 10 ft S. of N line

Sketch map of well location with distances from adjacent section or survey lines, and to landmarks, roads, and creeks.

3) TYPE OF WORK (Check):
New Well ☑ Deepening ☐
Reconditioning ☐ Plugging ☐

4) PROPOSED USE (Check):
Domestic ☑ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

5) TYPE OF WELL (Check):
Rotary ☑ Driven ☐ Dug ☐
Cable ☐ Jetted ☐ Bored ☐

6) WELL LOG:
Diameter of hole 6¼ in. Depth drilled 200 ft. Depth of completed well 200 ft. Date drilled 1-25-[illegible]

All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material	From (ft.)	To (ft.)	Description and color of formation material
0	5	Top Soil	5	190	Crust Lime
190	200	Crust Gravil & Clay water			
		APPO 25 GAls MIN			

(Use reverse side if necessary)

7) COMPLETION (Check):
Straight wall ☐ Gravel packed ☐ Other ☐
Under reamed ☐ Open hole ☐

8) WATER LEVEL:
Static level ____ ft. below land surface Date ____
Artesian pressure ____ lbs. per square inch Date ____

9) CASING:
Type: Old ☐ New ☑ Steel ☐ Plastic ☑ Other ☐
Cemented from 0 ft. to 40 ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
5in	0	200	100

10) SCREEN:
Type ____
Perforated ☑ Slotted ☐

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot size
5in	190	200	¼in

11) WELL TESTS:
Was a pump test made? ☐ Yes ☐ No If yes by whom?

Yield: ____ gpm with ____ ft. drawdown after ____ hrs
Bailer test ____ gpm with ____ ft. drawdown after ____ hrs
Artesian flow ____ gpm Date ____
Temperature of water ____
Was a chemical analysis made? ☐ Yes ☐ No
Did any strata contain undesirable water? ☐ Yes ☐ No
Type of water? ____ depth of strata ____

12) PUMP DATA:
Manufacturer's Name ____
Type ____ H.P. ____
Designed pumping rate ____ gpm ☐ gpb ☐
Type power unit ____
Depth to bowls, cylinder, jet, etc., ____ ft. below land surface.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Wilmer McDonald (Type or Print) Water Well Drillers Registration No. 149

Address RB Sherwood Shores (Street or RFD) Marble Falls (City) Tex (State)

(Signed) Wilmer McDonald (Water Well Driller) McDonald Drlg Co & SONS (Company Name)

YD57-40-903

Please attach electric log, chemical analysis, and other pertinent information, if available.

TWDBE-GW ONLY

Program No. 7421

Proj. No.

CHEMICAL WATER ANALYSIS REPORT

Typewrite (Black ribbon) or Print Plainly
(soft pencil or black ink)
Do not use ball point pen

Texas State Department of Health Laboratories
1100 West 49th Street
Austin 5, Texas

Send report to:

Ground Water Division
Texas Water Development Board
P.O. Box 13087
Austin, Texas 78711

County TRAVIS

State Well No. 57-40-903

Well No.

Date Collected 2/22/71

By John Deaton

Location Santa Shores

Source (type of well) Submersible Owner Robert A. Mauk

Date Drilled 1/25/70 Depth 200 ft. WBF

Producing intervals Water level 47M ft.

Sampled after pumping 5 MIN hrs. Yield GPM meas. est. Temperature 70 °F °C

Point of collection faucet at house Appearance (clear) turbid - colored

Use DOM Remarks Send a copy to: Robert A. Mauk
Rt 1 Box 831 Spicewood

FOR LABORATORY USE ONLY

CHEMICAL ANALYSIS

Laboratory No. 184886 W Date Received FEB 26 1971

KEY PUNCHED

Date Reported MAR 10 1971

	MG/L	ME/L
Silica	13	
Calcium	82	4.09
Magnesium	35	2.91
Sodium	5	0.22
Total		7.22
☐ Potassium		
☐ Manganese		%Na
☐ Boron		SAR
☐ Total Iron		RSC
☐ (other)		
Specific Conductance (micromhos/cm³)	601	
Diluted Conductance (micromhos/cm³)	4 x 169	
	676	

	MG/L	ME/L
Carbonate		0
Bicarbonate	384	6.36
Sulfate	20	0.41
Chloride	10	0.29
Fluoride	0.4	
Nitrate	3.5	
pH 7.4	Total	7.06
1/ Dissolved Solids (sum)		360
Phenolphthalein Alkalinity as C aCO_3		0
Total Alkalinity as C aCO_3	(6.36)	318
Total Hardness as C aCO_3	(7.00)	350

"☐" items will be analyzed if checked.

Analyst

Total Iron requires separate sample.

Checked by

1/ The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure is used in the computation of this sum.

TWDBE-GW-60

GW 1

TEXAS WATER DEVELOPMENT BOARD

WELL SCHEDULE

Aquifer ~~Kt~~ ~~Kto~~ Kgrl   Field No. ______   Owner's Well No. ______   State Well No. 57-40-907   County TRAVIS

1. Location: 1/4, 1/4 Sec., Block, Survey
Siesta Shores Lot 1, Blk G

2. Owner: J. D. Dillingham   Address: Rt 1 Box 828 Spicewood

Tenant: Address:

Driller: Wilmer McDonald   Address: Marble Falls

3. Elevation of LSD is 750 ft. above msl, determined by 7½ topo

4. Drilled: 1/25 1970; Dug, Cable Tool, (Rotary) 6⅛" hole

5. Depth: Rept. 184 ft. Meas. ______ ft.

6. Completion: (Open Hole), Straight Wall, Underreamed, Gravel Packed

7. Pump: Mfgr. ______ Type ______

No. Stages ___, Bowls Diam. ___ in., Setting ___ ft.

Column Diam. ___ in., Length Tailpipe ___ ft.

8. Motor: Fuel ______ Make & Model ______ HP. ___

9. Yield: Flow ___ gpm, Pump 35 gpm, Meas., Rept. (Est) Driller-Bailer test

10. Performance Test: Date ___ Length of Test ___ Made by ___

Static Level ___ ft. Pumping Level ___ ft. Drawdown ___ ft.

Production 35 gpm   Specific Capacity ___ gpm/ft.

11. Water Level: UTM ft. rept./meas. 2/22 1971 above/below Well sealed which is ___ ft. above/below surface.

___ ft. rept./meas. ___ 19__ above/below which is ___ ft. above/below surface.

___ ft. rept./meas. ___ 19__ above/below which is ___ ft. above/below surface.

___ ft. rept./meas. ___ 19__ above/below which is ___ ft. above/below surface.

12. Use: (Dom.) Stock, Public Supply, Ind., Irr., Waterflooding, Observation, Not Used,

13. Quality: (Remarks on taste, odor, color, etc.)

Temp. 66 °F, Date sampled for analysis 2/22/71 Laboratory TSHD

Temp. ___ °F, Date sampled for analysis ______ Laboratory ______

Temp. ___ °F, Date sampled for analysis ______ Laboratory ______

14. Other data available as circled: (Driller's Log), Radioactivity Log, Electric Log,

Formation Samples, Pumping Test,

15. Record by: John Dexton   Date 9/24 1970

Source of Data DL + WDR

16. Remarks:

CASING & BLANK PIPE

Cemented From 0 ft. to 8 ft.

Diam. (in.)	Type	Setting, ft. from	to
6	Steel Plastic	0	8

WELL SCREEN

Screen Openings

Diam. (in.)	Type	Setting, ft. from	to
	open hole	8	184

Seistr shores   See 909

TWDBE-GW-49 Dillingham   (Sketch)   57-40-907

Drillers Log

0-1 - Top soil

1-60 - white lime crust

60-62 - Blue Flint

62-135 - Crust lime

135-160 - Crust lime & water

160-184 - Crust lime Blue clay

Original copy by
[illegible]ed mail to the
Water Development Board
P. O. Box 12386
Austin, Texas 78711

State of Texas

WATER WELL

Well No. ____
Located on map ____
Received: ____
Page CW 8 ____
Form CW 9 ____

1) OWNER:
Person having well drilled J D Dillingham (Name) Address Rt 1 159 W. Sherewood (Street or RFD) (City)

Landowner Same (Name) Address ____ (Street or RFD) (City)

2) LOCATION OF WELL:
County Travis Labor ____ League ____ Abstract No. ____
NW¼ NE¼ SW¼ SE¼ of Section Lot 1 Block No. 6 Survey Seasta Shores
(Circle as many as are known)
miles in 16 miles N. (NE, SW, etc.) direction from Austin (Town)

10 ft E of W Line [Lot 1] 10 ft N of S. Line

Sketch map of well location with distances from adjacent section or survey lines, and to landmarks, roads, and creeks.

3) TYPE OF WORK (Check):
New Well ☑ Deepening ☐
Reconditioning ☐ Plugging ☐

4) PROPOSED USE (Check):
Domestic ☑ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

5) TYPE OF WELL (Check):
Rotary ☑ Driven ☐ Dug ☐
Cable ☐ Jetted ☐ Bored ☐

6) WELL LOG:
Diameter of hole 6¼ in. Depth drilled 184 ft. Depth of completed well 184 ft. Date drilled 1-8[illegible]

All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material	From (ft.)	To (ft.)	Description and color of formation material
0	1	Top soil	1	60	W. Lime ~~rock~~ crust
60	62	Blue flint	62	135	crust Lime
135	160	Crust lime & water	160	184	crust Lime Blue Clay
		APRO 35 gal MIN			
					(Use reverse side if necessary)

7) COMPLETION (Check):
Straight wall ☐ Gravel packed ☐ Other ☐
Under reamed ☐ Open hole ☐

8) WATER LEVEL:
Static level ____ ft. below land surface Date ____
Artesian pressure ____ lbs. per square inch Date ____

9) CASING:
Type: Old ☐ New ☑ Steel ☐ Plastic ☑ Other ☐
Cemented from 0 ft. to 8 ft ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
6 in	0	8	100

10) SCREEN:
Type ____
Perforated ☐ Slotted ☐

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot size

11) WELL TESTS:
Was a pump test made? ☐ Yes ☐ No If yes by whom? ____

Yield: ____ gpm with ____ ft. drawdown after ____ hrs
Bailer test ____ gpm with ____ ft. drawdown after ____ hrs
Artesian flow ____ gpm Date ____
Temperature of water ____
Was a chemical analysis made? ☐ Yes ☐ No
Did any strata contain undesirable water? ☐ Yes ☐ No
Type of water? ____ depth of strata ____

12) PUMP DATA:
Manufacturer's Name ____

Type ____ H.P. ____
Designed pumping rate ____ gpm ☐ gph
Type power unit ____
Depth to bowls, cylinder, jet, etc., ____ below land surface.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Wilmer McDonald (Type or Print) Water Well Drillers Registration No. 149

Address R B Sherewood Shores (Street or RFD) Marble Falls (City) Tex. (State)

(Signed) [signature] (Water Well Driller) McDonald Drlg Co & Son (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available. YD 57-40-90[illegible]

TWDBE-GW ONLY
Program No. 7421
Proj. No.

CHEMICAL WATER ANALYSIS REPORT

Typewrite (Black ribbon) or Print Plainly
(soft pencil or black ink)
Do not use ball point pen

Texas State Department of Health Laboratories
1100 West 49th Street
Austin 5, Texas

Send report to:

Ground Water Division
Texas Water Development Board
P.O. Box 13087
Austin, Texas 78711

County TRAVIS
State Well No. 57-40-907
Well No.
Date Collected 2/22/71
By John Deiton

Location Siesta Shores
Source (type of well) Submersible Owner J.D. Dillingham
Date Drilled 1/25/70 Depth ft. WBF
Producing intervals 8-124 Water level GT M ft.
Sampled after pumping 5 min hrs. Yield GPM meas. est. Temperature 66 °F °C
Point of collection faucet at well Appearance clear - turbid - colored
Use Dom Remarks Send a Copy to: J.D. Dillingham
Rt 1 Box 628 Spicewood

FOR LABORATORY USE ONLY

CHEMICAL ANALYSIS

Laboratory No. 184887 W Date Received FEB 26 1971 Date Reported KEY PUNCHED MAR 10 1971

	MG/L	ME/L		MG/L	ME/L
Silica	12		Carbonate		0
Calcium	102	5.09	Bicarbonate	416	6.82
Magnesium	28	2.28	Sulfate	13	0.27
Sodium	6	0.26	Chloride	12	0.34
	Total	7.63	Fluoride	0.2	
☐ Potassium			Nitrate	5	.08
☐ Manganese		Hdn	pH 7.3	Total	7.51
☐ Boron		SAR	1/ Dissolved Solids (sum)		382
☐ Total Iron		RSC	Phenolphthalein Alkalinity as C aCO_3		0
☐ (other)			Total Alkalinity as C aCO_3 (6.82)		341
Specific Conductance (micromhos/cm^3)		636	Total Hardness as C aCO_3 (7.37)		369
Diluted Conductance (micromhos/cm^3)		5 x 145 = 725			

"☐" items will be analyzed if checked.

Analyst

Total Iron requires separate sample.

Checked by

1/ The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure is used in the computation of this sum.

TWDBE-GW-50

TEXAS WATER DEVELOPMENT BOARD

WELL SCHEDULE

Aquifer ~~Kep~~ ~~Kee~~ Kgrl

Field No. ______

Owner's Well No. ______

State Well No. 57-46-908

County TRAVIS

1. Location: ___ 1/4, ___ 1/4 Sec. ___, Block ___ Survey ______
2. Owner: Jack Baylor Address: Rt 1 Box 825 Austin
   Tenant: ______ Address: Spicewood
   Driller: W. H. Glass Address: Austin
3. Elevation of LSD is 760 ft. above msl, determined by 7½ topo
4. Drilled: 3/30/ 1970; Dug, (Cable Tool), Rotary, New
5. Depth: Rept. 120 ft. Meas. ___ ft.
6. Completion: Open Hole, (Straight Wall), Underreamed, Gravel Packed
7. Pump: Mfgr. ______ Type ______
   No. Stages ___, Bowls Diam. ___ in., Setting ___ ft.
   Column Diam. ___ in., Length Tailpipe ___ ft.
8. Motor: Fuel ______ Make & Model ______ HP. ___
9. Yield: Flow ___ gpm, Pump ___ gpm, Meas., Rept., Est. ___
10. Performance Test: Date ___ Length of Test 30 min Made by Driller - Bailer Test
    Static Level 35 ft. Pumping Level ___ ft. Drawdown 0 ft.
    Production 20 gpm Specific Capacity ___ gpm/ft.
11. Water Level: 35 ft. rept. 19__ above/below ______ which is ___ ft. above/below surface.
    UTM ft. rept. 2/22 1971 above/below Well Sealed ______ which is ___ ft. above/below surface.
    ___ ft. rept./meas. 19__ above/below ______ which is ___ ft. above/below surface.
    ___ ft. rept./meas. 19__ above/below ______ which is ___ ft. above/below surface.
12. Use: (Dom.) Stock, Public Supply, Ind., Irr., Waterflooding, Observation, Not Used,
13. Quality: (Remarks on taste, odor, color, etc.)
    Temp. 66 °F, Date sampled for analysis 2/22/71 Laboratory TSHD
    Temp. ___ °F, Date sampled for analysis ______ Laboratory ______
    Temp. ___ °F, Date sampled for analysis ______ Laboratory ______
14. Other data available as circled: (Driller's Log), Radioactivity Log, Electric Log,
    Formation Samples, Pumping Test,
15. Record by: John Dexton Date 9/24 1970
    Source of Data DL + WDR
16. Remarks:

CASING & BLANK PIPE

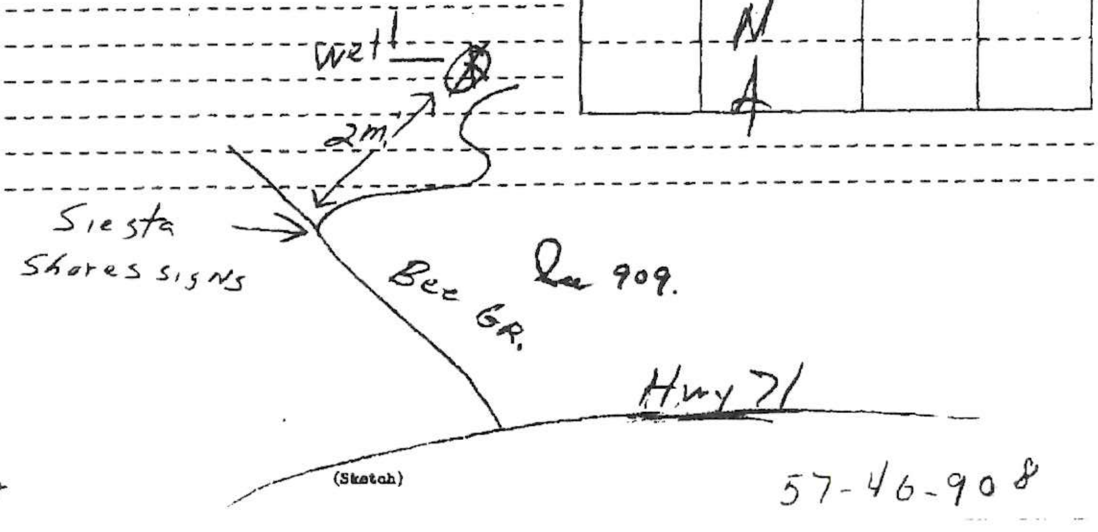
Cemented From 0 ft. to 26 ft.

Diam. (in.)	Type	Setting, ft. from	to
7 OD	steel	1 above	26

WELL SCREEN

Screen Openings

Diam. (in.)	Type	Setting, ft. from	to
	Open hole	26	120



(Sketch)

TWDBE-GW-49 Baylor

57-46-908

0-24	Hard white Lime
24-72	Blue Lime
72-91	SAND (water)
91-110	Grey Lime
110-120	PENN shale

Send original copy by certified mail to the Texas Water Development Board
P. O. Box 12386
Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No. 57-40-9H
Located on map yes
Received: 78
dir

spd. 128

1) OWNER:
Person having well drilled Mr. Jack Baylor (Name) Address 5005 Manor Rd. (Street or RFD) Austin (City) Texas (State)

Landowner SAME (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County Travis, 29 miles in W (N.E., S.W., etc.) direction from Austin (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

(on Back)

North

(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor ______ League ______
Block ______ Survey ______
Abstract No. ______
(NW¼ NE¼ SW¼ SE¼) of Section ______

3) TYPE OF WORK (Check):
New Well ✓ Deepening
Reconditioning Plugging

4) PROPOSED USE (Check):
Domestic ✓ Industrial Municipal
Irrigation Test Well Other

5) TYPE OF WELL (Check):
Rotary Driven Dug
Cable ✓ Jetted Bored

6) WELL LOG:
Diameter of hole 6¼ in. Depth drilled 120 ft. Depth of completed well 120 ft. Date drilled 3/30/70

All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	2 in.	Surface
2 in.	24	Hard White Lime
24	72	Blue Lime
72	91	Sand (water)
91	110	Gray Lime
110	120	Penn. Shale

(Use reverse side if necessary)

9) Casing:
Type: Old New Steel ✓ Plastic Other
Cemented from 0 ft. to 26 ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
7 O.D.	above	26	

10) SCREEN:
Type ______
Perforated Slotted

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size

7) COMPLETION (Check):
Straight wall ✓ Gravel packed Other
Under reamed Open Hole

8) WATER LEVEL:
Static level 35 ft. below land surface Date 3/30/70
Artesian pressure ______ lbs. per square inch Date ______
Depth to pump bowls, cylinder, jet, etc., 100 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No ✓ If yes, by whom?
Yield: ______ gpm with ______ ft. drawdown after ______ hrs.
Bailer test 20 gpm with 0 ft. drawdown after ½ hrs.
Artesian flow 20 gpm
Temperature of water ______

12) WATER QUALITY:
Was a chemical analysis made? Yes No ✓
Did any strata contain undesirable water? Yes No ✓
Type of water? good depth of strata 19 ft.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME W. Hugh GLASS (Type or Print) Water Well Drillers Registration No. 91

ADDRESS 2612 S. 3rd St. (Street or RFD) Austin (City) Texas (State)

(Signed) W. H. Glass (Water Well Driller) W. Hugh GLASS + SON (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

YD57-40-908

*Additional instructions on reverse side.

TWDBE-GW-53

Xerox Back

TWDBE-GW ONLY

Program No. 7421

Proj. No.

CHEMICAL WATER ANALYSIS REPORT

Typewrite (Black ribbon) or Print Plainly
(soft pencil or black ink)
Do not use ball point pen

Texas State Department of Health Laboratories
1100 West 49th Street
Austin 5, Texas

Send report to:

Ground Water Division
Texas Water Development Board
P.O. Box 13087
Austin, Texas 78711

County TRAVIS

State Well No. 57-40-908

Well No.

Date Collected 2/22/71

By John Dalton

Location Siesta Shores

Source (type of well) Subm Elec Owner Jack Baylor

Date Drilled 3/30/70 Depth ft. WLW

Producing intervals 26-? Water level 4TM ft.

Sampled after pumping hrs. Yield GPM meas. est. Temperature 66 °F °C

Point of collection faucet at well Appearance (clear) turbid - colored

Use Dom Remarks Send a Copy to: Jack Baylor
Rt 1 Box 625 Spicewood

FOR LABORATORY USE ONLY

KEY PUNCHED

CHEMICAL ANALYSIS

Laboratory No. 184883 W Date Received FEB 26 1971 Date Reported MAR 10 1971

	MG/L	ME/L		MG/L	ME/L
Silica	10		Carbonate		0
Calcium	101	5.05	Bicarbonate	399	6.54
Magnesium	28	2.04	Sulfate	13	0.27
Sodium	6	0.26	Chloride	13	0.34
Total		7.35	Fluoride	0.2	
☐ Potassium			Nitrate	3.5	
☐ Manganese		%Na	pH 7.8	Total	7.15
☐ Boron		SAR	1/ Dissolved Solids (sum)		367
☐ Total Iron		RSC	Phenolphthalein Alkalinity as C aCO_3		0
☐ (other)			Total Alkalinity as C aCO_3 (6.54)		327
Specific Conductance (micromhos/cm³)	612		Total Hardness as C aCO_3 (7.09)		355
Diluted Conductance (micromhos/cm³)	4 x 171				
	684				

"☐" items will be analyzed if checked.

Total Iron requires separate sample.

Analyst

Checked by

1/ The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure is used in the computation of this sum.

TWDBE-GW-50

TEXAS WATER DEVELOPMENT BOARD

WELL SCHEDULE

Aquifer: Ktp / Kho

Field No. ____ Owner's Well No. ____

State Well No. 57-40-909
County: TRAVIS

1. Location: ___ 1/4, ___ 1/4 Sec. ___, Block ___ Survey ___

2. Owner: ___ Address: Rt 1 Spicewood
   Tenant: F. A. Norman Address: ___
   Driller: A+A Drilling Co. Address: Rt. A Box 206
3. Elevation of LSD is 720 ft. above msl, determined by 7½ topo
4. Drilled: 7/20 1969; Dug, Cable Tool, Rotary, ___
5. Depth: Rept. 275 ft. Meas. ___ ft.
6. Completion: Open Hole, Straight Wall, Underreamed, Gravel Packed ___
7. Pump: Mfgr. ___ Type Subm
   No. Stages ___, Bowls Diam. ___ in., Setting ___ ft.
   Column Diam. ___ in., Length Tailpipe ___ ft.
8. Motor: Fuel Elec. Make & Model ___ HP. ___
9. Yield: Flow ___ gpm, Pump ___ gpm, Meas., Rept., Est. ___
10. Performance Test: Date 7/20/69 Length of Test 1 hrs Made by Pumped
    Static Level ___ ft. Pumping Level ___ ft. Drawdown 38 ft.
    Production 35 gpm Specific Capacity 1 gpm/ft.

CASING & BLANK PIPE

Cemented From ___ ft. to ___ ft.

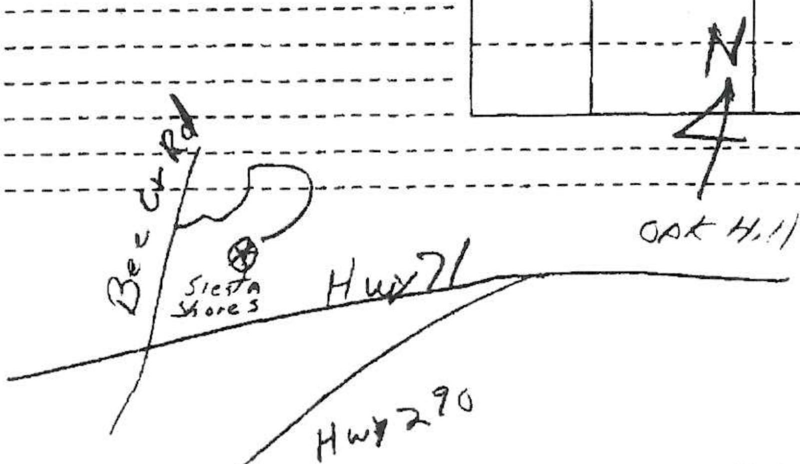
Diam. (in.)	Type	Setting, ft. from	to
5½ OD	old Plastic	0	275

11. Water Level: 150 ft. (rept.) meas. ___ 19__ above/below ___ which is ___ ft. above/below surface.
    UTM ft. rept. meas. 2/22 1971 above/below Well Sealed which is ___ ft. above/below surface.
    ___ ft. rept. meas. ___ 19__ above/below ___ which is ___ ft. above/below surface.
    ___ ft. rept. meas. ___ 19__ above/below ___ which is ___ ft. above/below surface.
12. Use: (Dom.), Stock, Public Supply, Ind., Irr., Waterflooding, Observation, Not Used, ___
13. Quality: (Remarks on taste, odor, color, etc.) ___
    Temp. 68 °F, Date sampled for analysis 2/22/71 Laboratory TSHD
    Temp. ___ °F, Date sampled for analysis ___ Laboratory ___
    Temp. ___ °F, Date sampled for analysis ___ Laboratory ___
14. Other data available as circled: (Driller's Log), Radioactivity Log, Electric Log, Formation Samples, Pumping Test, ___
15. Record by: John Dexton Date 9/21/1970
    Source of Data ___
16. Remarks: ___

WELL SCREEN

Screen Openings ___

Diam. (in.)	Type	Setting, ft. from	to

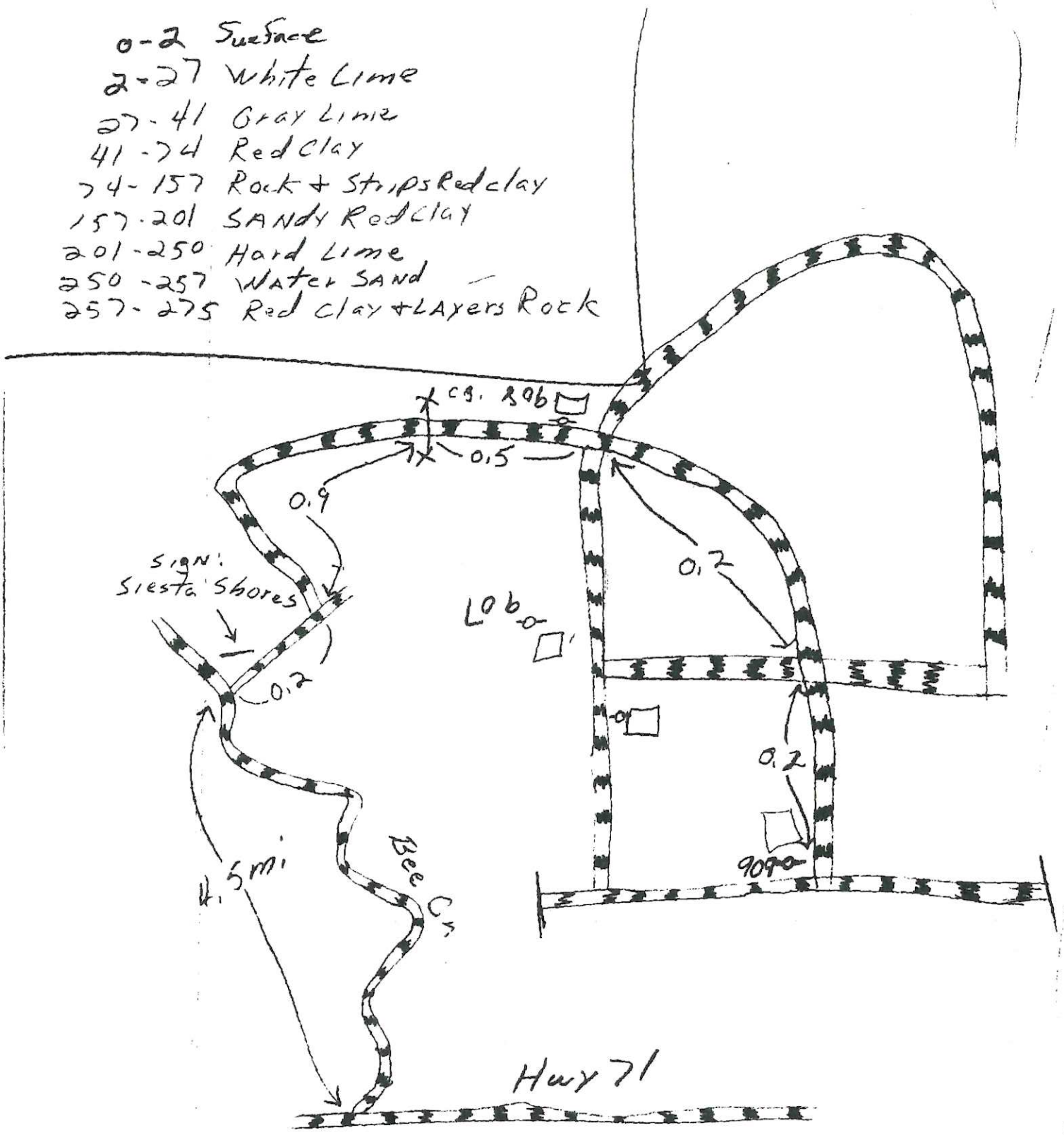


(Sketch)

Norman

57-40-909

0-2 Surface
2-27 White Lime
27-41 Gray Lime
41-74 Red Clay
74-157 Rock + Strips Red clay
157-201 SANDY Red clay
201-250 Hard Lime
250-257 Water SAND
257-275 Red Clay + LAYERS Rock



Send original copy by certified mail to the Texas Water Development Board P. O. Box 12386 Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No. 57-42-
Located on map
Received:
Form GW 8
Form GW 9

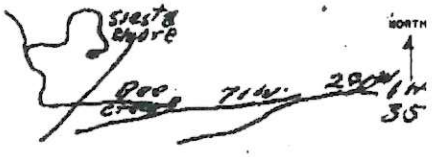
1) OWNER:
Person having well drilled E. A. NORMAN (Name) Address RT 1 Spicewood Texas (Street or RFD) (City) (State)

Landowner F. A. Norman (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County TRAVIS Labor League Abstract No.

NW¼ NE¼ SW¼ SE¼ of Section Block No. Survey
(Circle as many as are known)

miles in SW direction from Austin
(mi., SW, etc.) (Town)



Sketch map of well location with distances from adjacent section or survey lines, and to landmarks, roads, and creeks.

3) TYPE OF WORK (Check):
New Well ☐ Deepening ☐
Reconditioning ☐ Plugging ☐

4) PROPOSED USE (Check):
Domestic ☐ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

5) TYPE OF WELL (Check):
Rotary ☐ Driven ☐ Dug ☐
Cable ☐ Jetted ☐ Bored ☐

6) WELL LOG:
Diameter of hole 6¼ in. Depth drilled 275 ft. Depth of completed well 275 ft. Date drilled July

All measurements made from ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	2'	Surface
2	27'	White Lime
27	41'	Gray Lime
41	74'	Red Clay
74	157'	Rock + Strips Red Clay
157	201'	Sandy Red Clay
201	250'	Hard Lime
250	257'	Water Sand
257	275'	Red Clay + Layers Rock

From (ft.)	To (ft.)	Description and color of formation material

(Use reverse side if necessary)

7) COMPLETION (Check):
Straight wall ☐ Gravel packed ☐ Other ☐
Under reamed ☐ Open hole ☐

8) WATER LEVEL:
Static level 154 ft. below land surface Date July 5
Artesian pressure lbs. per square inch Date

9) CASING:
Type: Old ☐ New ☑ Steel ☑ Plastic ☐ Other ☐
Cemented from ft. to ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
6400 Top		225'	¼"

10) SCREEN:
Type
Perforated ☐ Slotted ☐

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot size

11) WELL TESTS:
Was a pump test made? ☐ Yes ☐ No If yes by whom?

Yield: 35 gpm with 28 ft. drawdown after 1 hrs
Bailer test 35 gpm with 28 ft. drawdown after 1 hrs
Artesian flow gpm Date
Temperature of water
Was a chemical analysis made? ☐ Yes ☐ No
Did any strata contain undesirable water? ☐ Yes ☐ No
Type of water? depth of strata

12) PUMP DATA:
Manufacturer's Name
Type H.P.
Designed pumping rate gpm ☐ gph ☐
Type power unit
Depth to bowls, cylinder, jet, etc., f
below land surface.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

Name A+A Drilling Co. (Type or Print) Water Well Drillers Registration No. # 488

Address Rt. A Box 206 (Street or RFD) Austin (City) TEXAS (State)

(Signed) [signature] (Water Well Driller) A+A Drilling Co. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

YD57-42-909

TWDBE-GW ONLY

Program No. 7421

Proj. No.

CHEMICAL WATER ANALYSIS REPORT

Typewrite (Black ribbon) or Print Plainly
(soft pencil or black ink)
Do not use ball point pen

Texas State Department of Health Laboratories
1100 West 49th Street
Austin 5, Texas

Send report to:

Ground Water Division
Texas Water Development Board
P.O. Box 13087
Austin, Texas 78711

County TRAVIS

State Well No. 57-40-909

Well No.

Date Collected 2/22/71

By John Dertan

Location Siesta Shores

Source (type of well) Sylvester Elec Owner E.A. NORMAN

Date Drilled 6/20/69 Depth 275 ft. WHF

Producing intervals Cased to bottom Water level UTM well Sealed ft.

Sampled after pumping hrs. Yield GPM meas. est. Temperature 66 °F °C

Point of collection faucet at house Appearance (clear - turbid - colored)

Use DOM Remarks

FOR LABORATORY USE ONLY

KEY PUNCHED

CHEMICAL ANALYSIS

Laboratory No. 184888 W Date Received FEB 26 1971 Date Reported MAR 10 1971

	MG/L	ME/L		MG/L	ME/L
Silica	13		Carbonate		0
Calcium	118	5.92	Bicarbonate	320	5.24
Magnesium	63	5.17	Sulfate	432	9.01
Sodium	133	5.78	Chloride	92	2.58
	Total	16.87	Fluoride	0.9	
☐ Potassium			Nitrate	<0.4	
☐ Manganese		%Na	pH 7.6	Total	16.83
☐ Boron		SAR	1/ Dissolved Solids (sum)		1010
☐ Total Iron		RSC	Phenolphthalein Alkalinity as C aCO_3		0
☐ (other)			Total Alkalinity as C aCO_3 (5.24)		262
Specific Conductance (micromhos/cm³)		1470	Total Hardness as C aCO_3 (11.09)		550
Diluted Conductance (micromhos/cm³)		21 x 63			

"☐" items will be analyzed if checked. 1953

Total Iron requires separate sample.

Analyst

Checked by

1/ The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure is used in the computation of this sum.

TWDBE-GW-50

GW 1

TEXAS WATER DEVELOPMENT BOARD

WELL SCHEDULE

Aquifer Ktp Kto Field No. State Well No. 57-40-910

Owner's Well No. County Travis

1. Location: 1/4, 1/4 Sec., Block, Survey

2. Owner: M. E. Dealy Address: 5504 Victorian, Houston, Tex.

Tenant: Address:

Driller: McDonald and Sons Address: Box 68, Marble Falls, Tex. 78654

3. Elevation of LSD is 715 ft. above msl, determined by

4. Drilled: 12-16 1971; Dug, Cable Tool, (Rotary,)

5. Depth: Rept. 279 ft. Meas. ft.

6. Completion: Open Hole, Straight Wall, Underreamed, Gravel Packed

7. Pump: Mfgr. Type Submers.

No. Stages, Bowls Diam. in., Setting ft.

Column Diam. in., Length Tailpipe ft.

8. Motor: Fuel Elec. Make & Model HP.

9. Yield: Flow gpm, Pump 50 gpm, Meas., Rept., (Est.)

10. Performance Test: Date Length of Test Made by

Static Level ft. Pumping Level ft. Drawdown ft.

Production gpm Specific Capacity gpm/ft.

CASING & BLANK PIPE

Cemented From 0 ft. to 20 ft.

Diam. (in.)	Type	Setting, ft. from	to
5	New Plastic	0	279

11. Water Level: 43.62 ft. rept. meas. 3-15 1972 above (below) top of casing which is 0.6 ft. (above) below surface.

ft. rept. meas. 19 above below which is ft. above below surface.

ft. rept. meas. 19 above below which is ft. above below surface.

ft. rept. meas. 19 above below which is ft. above below surface.

12. Use: (Dom.) Stock, Public Supply, Ind., Irr., Waterflooding, Observation, Not Used,

13. Quality: (Remarks on taste, odor, color, etc.)

Temp. 70 °F, Date sampled for analysis 3-15-72 Laboratory SHD

Temp. °F, Date sampled for analysis Laboratory

Temp. °F, Date sampled for analysis Laboratory

WELL SCREEN

Screen Openings 1/4"

Diam. (in.)	Type	Setting, ft. from	to
5	Perforated	2[illegible]	279

14. Other data available as circled: Driller's Log, Radioactivity Log, Electric Log, Formation Samples, Pumping Test,

15. Record by: Thomas Bruns Date 2-29 1972

Source of Data W. W. Report

16. Remarks:

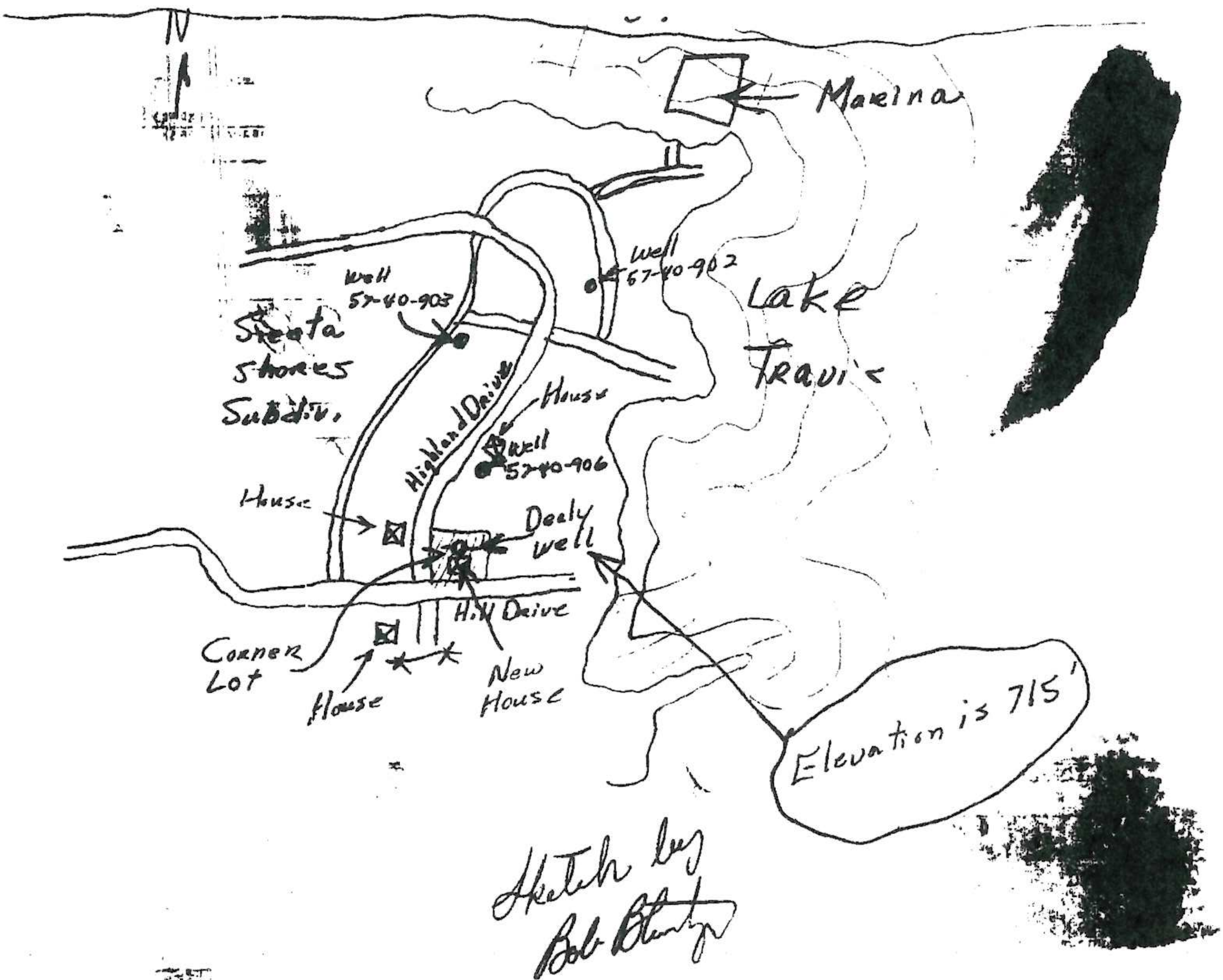
see 57-40-906 F/sketch

(Sketch)

57-40-910

[illegible]

0 - 20	Lime crust
20 - 80	Yellow clay
80 - 270	Red bed clay
270 - 279	Sandy formation, water



Send original copy by certified mail to the Texas Water Development Board P. O. Box 12386 Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No.
Located on map ___
Received: ___

1) OWNER:
Person having well drilled Mr M E Peaby (Name) Address 5504 Velerise (Street or RFD) Houston (City) Texas (State)

Landowner Same (Name) Address " (Street or RFD) " (City) " (State)

2) LOCATION OF WELL:
County Travis, 15 miles in N (N.E., S.W., etc.) direction from Austin (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.* Estates
Sista Shore
Highland Drive
, Hill Drive
6 S of N Line
22 E of W Line
North

(Use reverse side if necessary)

or Give legal location with distances and directions from adjacent sections or survey lines.
Labor ___ League ___
Block ___ Survey ___
Abstract No. ___
(NW¼ NE¼ SW¼ SE¼) of Section ___

3) TYPE OF WORK (Check): New Well, Deepening, Reconditioning, Plugging

4) PROPOSED USE (Check): Domestic, Industrial, Municipal, Irrigation, Test Well, Other

5) TYPE OF WELL (Check): Rotary, Driven, Dug, Cable, Jetted, Bored

6) WELL LOG:
Diameter of hole 6¼ in. Depth drilled 279 ft. Depth of completed well 279 ft. Date drilled 12-16-71

All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0 -	20	lime crust
20	80	yellow clay
80 -	270	Red Bed clay
270	279	sandy formation water
		ARRO 50 gals per min

(Use reverse side if necessary)

9) Casing:
Type: Old New Steel Plastic Other
Cemented from 0 ft. to 20 ft.

Diameter (inches)	Setting From (ft.)	To (ft.)	Gage
5	0	279	100

10) SCREEN:
Type ___
Perforated Slotted

Diameter (inches)	Setting From (ft.)	To (ft.)	Slot Size
¼	239	279	

7) COMPLETION (Check):
Straight wall Gravel packed Other
Under reamed Open Hole Cased

8) WATER LEVEL:
Static level ___ ft. below land surface Date ___
Artesian pressure ___ lbs. per square inch Date ___
Depth to pump bowls, cylinder, jet, etc., ___ ft.
below land surface.

11) WELL TESTS:
Was a pump test made? Yes No If yes, by whom?
Yield ___ gpm with ___ ft. drawdown after ___ hrs.
Bailer test ___ gpm with ___ ft. drawdown after ___ hrs.
Artesian flow ___ gpm
Temperature of water ___

12) WATER QUALITY:
Was a chemical analysis made? Yes No
Did any strata contain undesirable water? Yes No
Type of water? ___ depth of strata ___

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Wilmer McDonald (Type or Print) Water Well Drillers Registration No. 149

ADDRESS RR Box 68 (Street or RFD) (City) (State)

McDonald & Sons
SCR Box 68 Phone 598-5731
Marble Falls Texas 78654

(Signed) [signature] (Water Well Driller) (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available. YD 57-40-910

*Additional instructions on reverse side.

TWDB-WW-53

Send original copy by certified mail to the Texas Water Development Board P. O. Box 12386 Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No.____
Located on map____
Received:____

1) OWNER:
Person having well drilled Mr. M F Deal (Name) Address 6504 Velorise (Street or RFD) Houston (City) Tx (State)

Landowner None (Name) Address " / (Street or RFD) " (City) " (State)

2) LOCATION OF WELL:
County Travis, 15 miles in N (N.E., S.W., etc.) direction from Austin (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.* Sista Shore Estates
Highland Drive
Hillpride
6 50 of N Line
22 E of W Line North

(Use reverse side if necessary)

or Give legal location with distances and directions from adjacent sections or survey lines.
Labor____ League____
Block____ Survey____
Abstract No.____
(NW¼ NE¼ SW¼ SE¼) of Section____

3) TYPE OF WORK (Check): New Well, Deepening, Reconditioning, Plugging
4) PROPOSED USE (Check): Domestic, Industrial, Municipal, Irrigation, Test Well, Other
5) TYPE OF WELL (Check): Rotary, Driven, Dug, Cable, Jetted, Bored

6) WELL LOG:
Diameter of hole 6¼ in. Depth drilled 279 ft. Depth of completed well 279 ft. Date drilled 12-16
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
3	20	lime crust
20	80	yellow clay
80	270	Red Bed clay
270	279	sandy formation water

ARKO 50 gals permin

(Use reverse side if necessary)

9) Casing:
Type: Old, New, Steel, Plastic, Other
Cemented from 0 ft. to 20 ft.

Diameter (inches)	Setting From (ft.)	To (ft.)	Gage
5	0	279	

10) SCREEN:
Type____
Perforated, Slotted

Diameter (inches)	Setting From (ft.)	To (ft.)	Slot Size
1/4	239	279	

7) COMPLETION (Check):
Straight wall, Gravel packed, Other
Under reamed, Open Hole, Cased

8) WATER LEVEL:
Static level____ft. below land surface Date____
Artesian pressure____lbs. per square inch Date____
Depth to pump bowls, cylinder, jet, etc.,____ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No If yes, by whom?____
Yield:____gpm with____ft. drawdown after____hrs.
Bailer test____gpm with____ft. drawdown after____hrs.
Artesian flow____gpm
Temperature of water____

12) WATER QUALITY:
Was a chemical analysis made? Yes No
Did any strata contain undesirable water? Yes No
Type of water?____depth of strata____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Wilmer McDonald (Type or Print) Water Well Drillers Registration No. 149

ADDRESS RR Box 68 (Street or RFD) (City) (State)

McDonald & Sons
Box 68 Phone 693-5731
Marble Falls, Texas 78654
(Company Name)

(Signed) [signature] (Water Well Driller)

Please attach electric log, chemical analysis, and other pertinent information, if available. YD57-40-910

*Additional instructions on reverse side.

TWDBE-GW-53

TWDBE-GW-50

Program No. 110

Proj. No.

CHEMICAL WATER ANALYSIS REPORT

Typewrite (Black ribbon) or Print Plainly
(soft pencil or black ink)
Do not use ball point pen

Texas State Department of Health Laboratories
1100 West 49th Street
Austin 5, Texas

Send report to:

Ground Water Division
Texas Water Development Board
P.O. Box 13087
Austin, Texas 78711

County Travis

State Well No. 57-40-910

Well No.

Date Collected 3-15-72

By Brune & Nichols

Location Siesta Shores Subd. 7.1 Miles N.E of Hwy 71

Source (type of well) Subm. / ELEC Owner M.E. DEALY

Date Drilled 12-16-71 Depth 279 ft. WBF

Producing intervals Perf. 239-279 Water level 43.62 ft.

Sampled after pumping [illegible] hrs. Yield — GPM Meas. est. Temperature 70 °F °C

Point of collection Faucet in Yard Appearance CLEAR
clear - turbid - colored

Use Dom. Remarks

FOR LABORATORY USE ONLY

CHEMICAL ANALYSIS MAR 15 1972 KEY PUNCHED

Laboratory No. 222179 Date Received Date Reported APR. - 5. 1972

	MG/L	ME/L		MG/L	ME/L
Silica	12		Carbonate		0
Calcium	109	5.45	Bicarbonate	429	7.04
Magnesium	31	2.52	Sulfate	25	0.52
Sodium	8	0.35	Chloride	16	0.45
	Total	8.32	Fluoride	0.2	
☐ Potassium			Nitrate	10	0.16
☐ Manganese		%Na	pH 7.1	Total	8.17
☐ Boron		SAR	1/ Dissolved Solids (sum)		422
☐ Total Iron		RSC	Phenolphthalein Alkalinity as C aCO_3		0
☐ (other)			Total Alkalinity as C aCO_3	(7.04)	352
Specific Conductance (micromhos/cm3)	703		Total Hardness as C aCO_3	(7.91)	399
Diluted Conductance (micromhos/cm3)	5 x 160				
"☐" items will be analyzed if checked.	800		Analyst		

Total Iron requires separate sample.

Checked by

1/ The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure is used in the computation of this sum.

TWDBE-GW-50

TEXAS WATER DEVELOPMENT BOARD

WELL SCHEDULE

Aquifer(s) Travis Undiff. (480) Project No. _____ State Well No. 57-40-911

_____ Field No./Owner's Well No. _____ County Travis (227)

1. Location: ___ ¼, ___ ¼, Section ___, Block ___, Survey _____, Lat. 30-22-00 N, Long. 098-01-24W

2. Owner: W. E. Trainer Address: Rt. 3 Box 848-Q Spicewood, Tx. 78669

Tenant (other): do Address: do

Driller: E. A. Glass Address: _____

3. Land Surface Elevation: 730 ft. above msl determined by Topo

4. Drilled: DW / 14 / ___ 19 75; Dug, Cable Tool, Rotary, Air, _____

5. Depth: Rept. 330 ft. Meas. _____ ft.

6. Borehole Completion: Open Hole, Straight Wall, Underreamed, Gravel Packed

7. Pump: Mfr. _____ Type Sobm

No. Stages _____, Bowls Diam. ____ in., Setting _____ ft.

Column Diam. _____ in., Length Tailpipe _____ ft.

8. Motor: Mfr. _____ Fuel Elec HP. ____

9. Yield: Flow ____ gpm, Pump ____ gpm, Meas., Rept., Est. ____ Date ___

10. Performance Test: Date _____ Length of Test ____ Made by _____

Static Level ____ ft. Pumping Level ____ ft. Drawdown ____ ft.

Production _____ gpm Specific Capacity _____ gpm/ft.

11. Quality: (Remarks on taste, odor, color, etc.) _____

Analyses

74 Date 06/10/86 Laboratory TDH TDS ___ Sp Cond ____

Date _____ Laboratory _____ TDS ___ Sp Cond ____

CASING, BLANK PIPE & WELL SCREEN
Cemented From ____ ft. to ____ ft.

Diam. (in.)	Type	Setting (feet) From	to

** 12. Other data available (as circled): Pumping Test, Power & Yield Test, Drillers Log, Formation Samples, Geophysical Log(s) _____

13. Water Level(s): 145.0 ft. (rept. meas.) DW/13/ 19 75 (type) above below L.S.D. which is ___ ft. above below Land Surface

_____ ft. rept. meas. _____ 19 ___ above below _____ which is ___ ft. above below Land Surface

14. Use: (Dom.) Stock, Public Supply, Ind., Irr., Observation, Other (Test Hole, Oil Test, etc.) _____

15. Recorded by: D.A. Jones Source of data: _____ Date: 06/10/86

*16. Remarks: Pump put in by Ray Wisenant

** Could not find D. Log in Central Records. Info. same from owners D. Log.

17. Location or Sketch:

TWDB-0308 (Rev. 12-11-85)

W/L Obs. Well ___ W/Q Obs. Well ✓

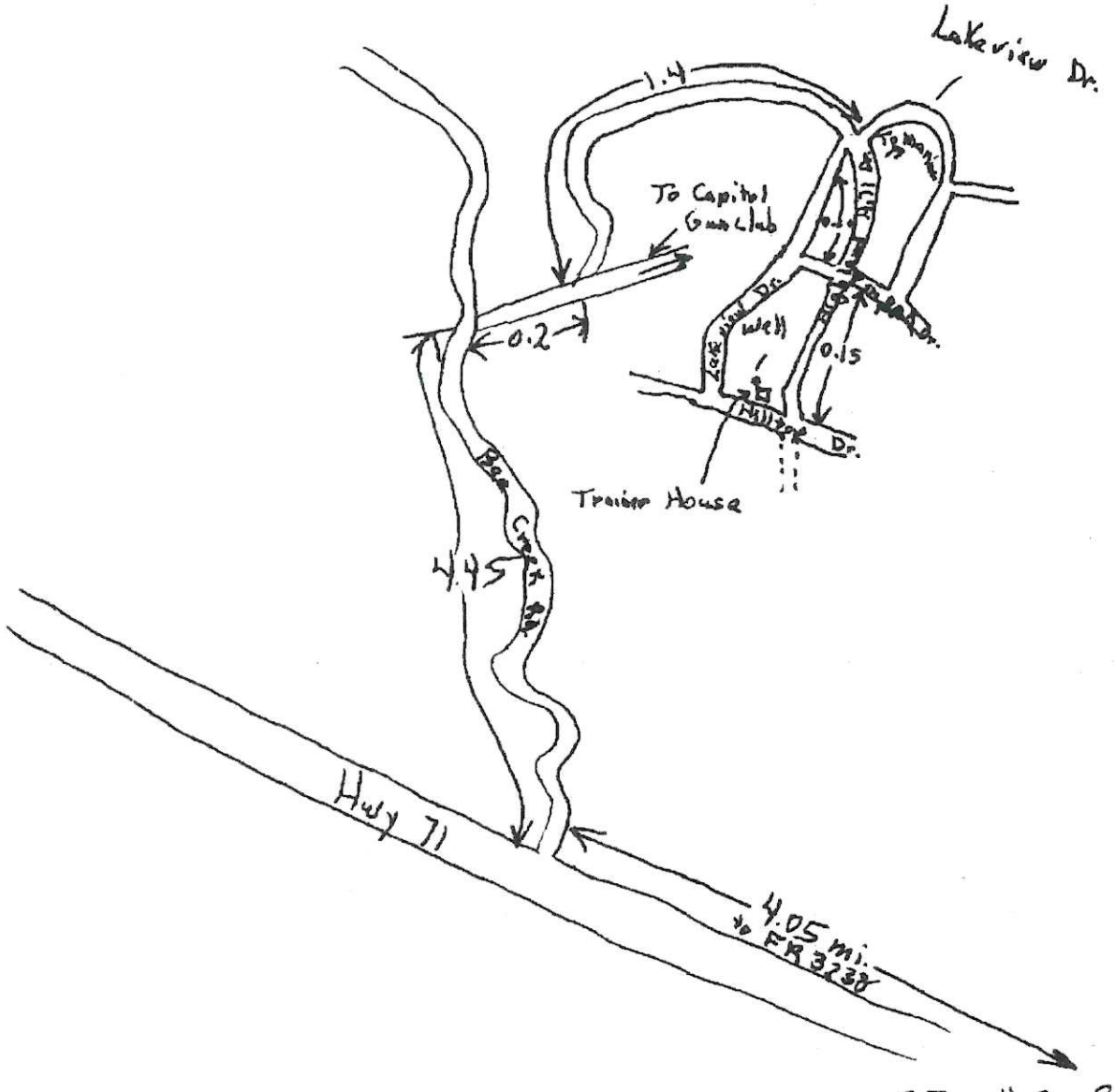
State Well No. 57-40-911

TEXAS WATER DEVELOPMENT B ..RD

BY Doc Jones DATE _____ DIVISION _____ SHEET NO. _____ OF _____

CHKD _____ DATE _____ JOB NAME W E Trainer

JOB NO. 57-40-9 PROG. CODE _____



57 40 911

TWDBS-SI-3

Typewrite (Black ribbon) or Print Plainly
(soft pencil or black ink)
Do not use ball point pen

Texas Department of Health Laboratories
1100 West 49th Street
Austin, Texas 78756

TWDB ONLY
Organization No. 914 Lab No. 01
Work No. 6042 IAC (86-87) 0838

CHEMICAL WATER ANALYSIS REPORT

Send Reply To:
Water Availability Data and Studies Section
Texas Water Development Board
Stephen F. Austin Building
1700 Congress Ave.
Austin, Texas 78711
Attn: D.R. Jones Rm. 439

County 227 Travis
State Well No. 57-40-911
Well No.
Date Collected 06-10-86

Owner W.E Trainer ✓ Send copy to owner Sample No. 1 By D.R. Jones & Z.S
Address Rt 3 Box 848-O Spicewood, Tx. 78669 Well Location
Date Drilled 4/14/75 Depth 330 ft. WBF Source (type of well) Swbm.
Producing intervals Water level ft. Sample depth ft.
Sampled after pumping 5 Min. hrs. Yield GPM meas. est. Temperature 074 °F °C
Point of collection Faucet at side of house Appearance ☑ clear ☐ turbid ☐ colored ☐ other
Use Domestic Remarks

(FOR LABORATORY USE ONLY)

Laboratory No. [redacted]

CHEMICAL ANALYSIS

Date Received JUN 11 '86 NET PURIFIED Date Reported JUN 25 '86

WATER ANALYSIS
Date: 062086
Sample No: FB6-894

State Well No: 57-40-9

	MG/L	ME/L		MG/L	ME/L
Silica: 00955:	12		Carbonate: 00445:	0	0
Calcium: 00910:	140	7.00	Bicarbonate: 00440:	290	4.76
Magnesium: 00920:	71	5.80	Sulfate: 00945:	776	16.17
Sodium: 00929:	332	14.43	Chloride: 00940:	255	7.19
Potassium: 00937:	17	.43	Fluoride: 00951:	1	.05
T. Cations		27.67	Nitrate as NO3: 71850:	.89	.01
Manganese: 01055:		%Na	T. Anions		28.18
			pH: 00403:	7.5	
Boron: 01022:		SAR			
			180 deg TDS: 70300:	1782	
Total Iron: 01045:		RSC	P. Alk.: 00415:	0	
			T. Alk.: 00410:	238	
Other			T. Hardness: 00900:	640	
(Specific Cond.: 00095:		1810			

Diluted Conductance (micromhos/cm3)
36 x92 =3312

__ items will be analyzed if checked.

Ammonia-N: 00610:
Nitrite-N: 00615:
Nitrate-N: 00620:
OrganicNitrogen: 00605:

Texas Water Development Board

Texas Water Development Board (TWDB) Groundwater Database (GWDB) Well Information Report for State Well Number 57-40-806

groundwater

GWDB Reports and Downloads

Well Basic Details

Scanned Documents

State Well Number	5740806	**Well Type**	Withdrawal of Water
County	Travis	**Well Use**	Domestic
River Basin	Colorado	**Water Level Observation**	Miscellaneous Measurements
Groundwater Management Area	9	**Water Quality Available**	Yes
Regional Water Planning Area	K - Lower Colorado	**Pump**	Submersible
Groundwater Conservation District	Southwestern Travis County GCD	**Pump Depth** (feet below land surface)	
Latitude (decimal degrees)	30.386667	**Power Type**	Electric Motor
Latitude (degrees minutes seconds)	30° 23' 12" N	**Annular Seal Method**	
Longitude (decimal degrees)	-98.049722	**Surface Completion**	
Longitude (degrees minutes seconds)	098° 02' 59" W	**Owner**	Robert Jones
Coordinate Source	+/- 1 Second	**Driller**	Thomas Arnold
Aquifer Code	218GLRSL - Glen Rose Limestone, Lower Member	**Other Data Available**	
Aquifer	Trinity	**Well Report Tracking Number**	
Aquifer Pick Method		**Plugging Report Tracking Number**	
Land Surface Elevation (feet above sea level)	975	**U.S. Geological Survey Site Number**	
Land Surface Elevation Method	Digital Elevation Model -DEM	**Texas Commission on Environmental Quality Source Id**	
Well Depth (feet below land surface)	510	**Groundwater Conservation District Well Number**	
Well Depth Source	Unknown	**Owner Well Number**	
Drilling Start Date		**Other Well Number**	
Drilling End Date	0/0/1971	**Previous State Well Number**	
Drilling Method		**Reporting Agency**	
Borehole Completion		**Created Date**	
		Last Update Date	3/4/2020

Remarks Reported yield 12 GPM.

Casing - No Data

Well Tests - No Data

Lithology - No Data

Annular Seal Range - No Data

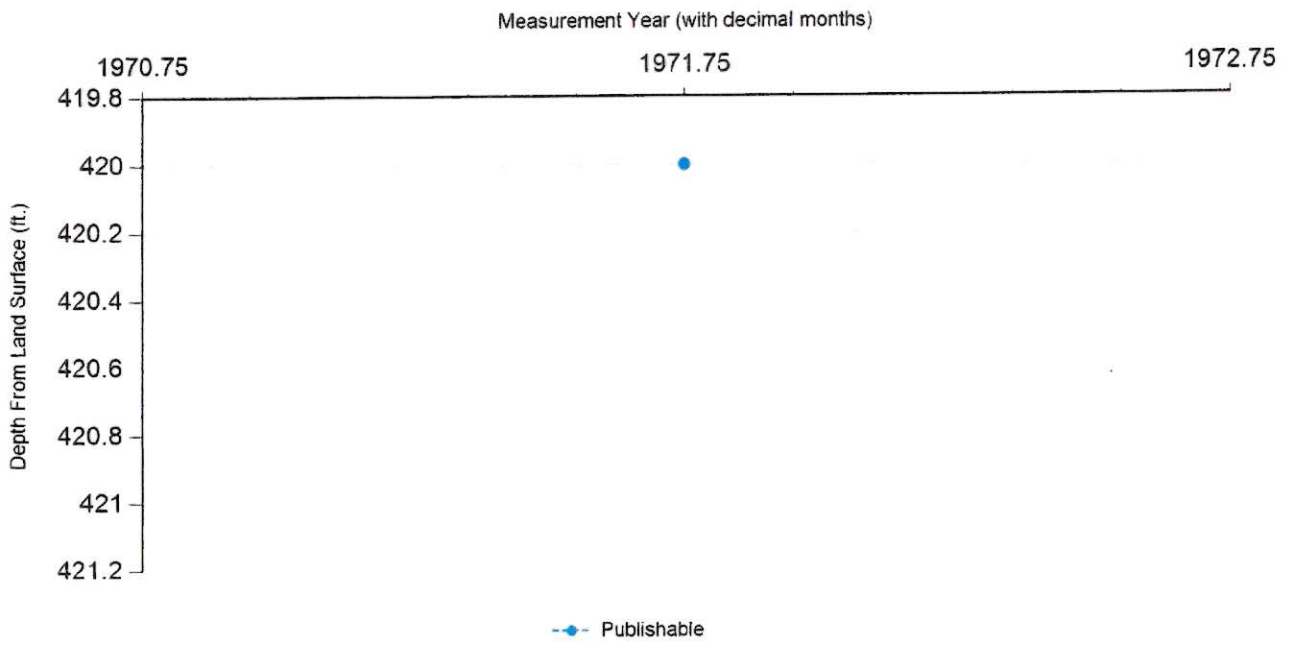
Borehole - No Data

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	10/4/1971		420		555	1	Other or Source of Measurement Unknown	Unknown		

Code Descriptions

Status Code	Status Description
P	Publishable

Texas Water Development Board

Texas Water Development Board (TWDB) Groundwater Database (GWDB) Well Information Report for State Well Number 57-40-806

groundwater

Water Quality Analysis

Sample Date: 5/26/1972 **Sample Time:** 0000 **Sample Number:** 1 **Collection Entity:** Texas Water Development Board

Sampled Aquifer: Glen Rose Limestone, Lower Member

Analyzed Lab: Texas Department of Health **Reliability:** From a report; unknown sample collection & preservation

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CACO3)		192	mg/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		234.31	mg/L	
00910	CALCIUM (MG/L)		243	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		330	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		1.2	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CACO3)		1198	mg/L	
00920	MAGNESIUM (MG/L)		144	mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)	<	0.4	mg/L	
00400	PH (STANDARD UNITS), FIELD		7.6	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
00955	SILICA, DISSOLVED (MG/L AS SI02)		12	mg/L	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		4.85		
00932	SODIUM, CALCULATED, PERCENT		41	PCT	
00929	SODIUM, TOTAL (MG/L AS NA)		386	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		4805	MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)		1290	mg/L	
00010	TEMPERATURE, WATER (CELSIUS)		22	C	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		2521	mg/L	

** Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..*

Texas Water Development Board

Texas Water Development Board (TWDB) Groundwater Database (GWDB) Well Information Report for State Well Number 57-40-901

groundwater

GWDB Reports and Downloads

Well Basic Details

Scanned Documents

State Well Number	5740901	**Well Type**	Withdrawal of Water
County	Travis	**Well Use**	Domestic
River Basin	Colorado	**Water Level Observation**	Miscellaneous Measurements
Groundwater Management Area	9	**Water Quality Available**	No
Regional Water Planning Area	K - Lower Colorado	**Pump**	Submersible
Groundwater Conservation District	Southwestern Travis County GCD	**Pump Depth** (feet below land surface)	
Latitude (decimal degrees)	30.384722	**Power Type**	Electric Motor
Latitude (degrees minutes seconds)	30° 23' 05" N	**Annular Seal Method**	
Longitude (decimal degrees)	-98.021389	**Surface Completion**	
Longitude (degrees minutes seconds)	098° 01' 17" W	**Owner**	J.H. Wheeler
Coordinate Source	+/- 10 Seconds	**Driller**	Central Texas Drilling Co.
Aquifer Code	218GLRSL - Glen Rose Limestone, Lower Member	**Other Data Available**	Drillers Log; Specific Capacity
Aquifer	Trinity	**Well Report Tracking Number**	
Aquifer Pick Method		**Plugging Report Tracking Number**	
Land Surface Elevation (feet above sea level)	710	**U.S. Geological Survey Site Number**	
Land Surface Elevation Method	Interpolated From Topo Map	**Texas Commission on Environmental Quality Source Id**	
Well Depth (feet below land surface)	200	**Groundwater Conservation District Well Number**	
Well Depth Source	Driller's Log	**Owner Well Number**	
Drilling Start Date		**Other Well Number**	
Drilling End Date	0/0/1967	**Previous State Well Number**	
Drilling Method	Cable Tool	**Reporting Agency**	Texas Water Development Board
Borehole Completion	Gravel Pack w/Perforations	**Created Date**	10/21/1998
		Last Update Date	3/4/2020

Remarks Reported yield 20 GPM with 40 feet drawdown after pumping 1 hour in 1967. Specific capacity 0.5.

Casing - No Data

Well Tests - No Data

Lithology - No Data

Annular Seal Range - No Data

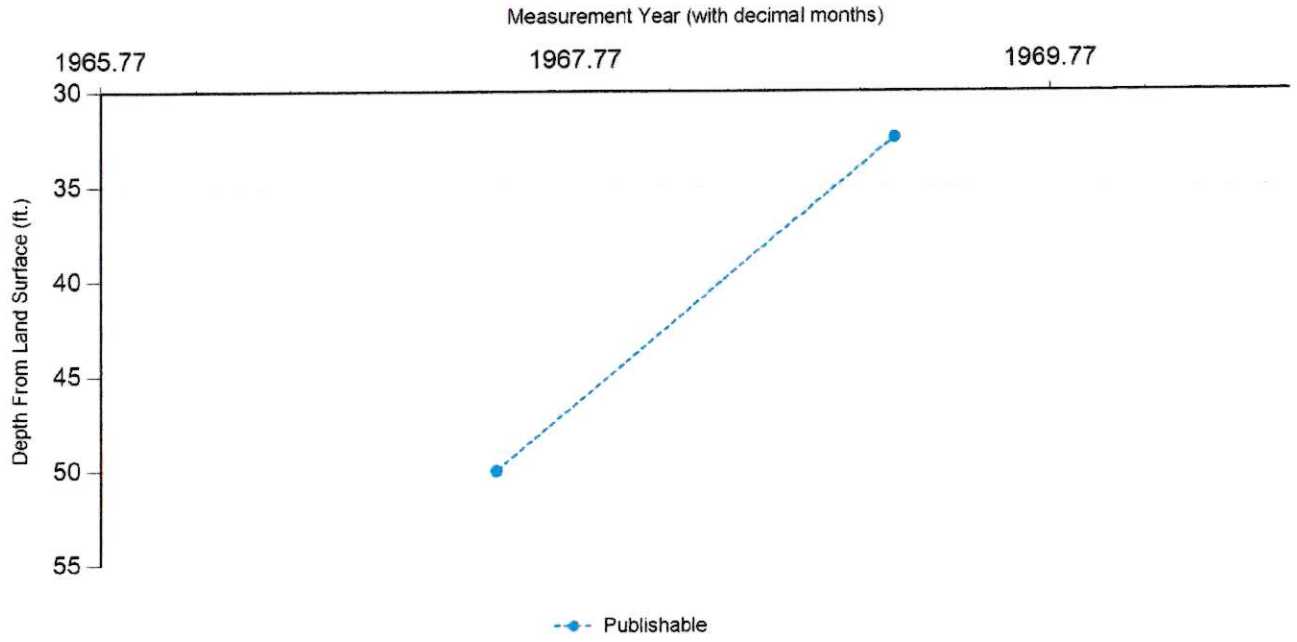
Borehole - No Data

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	6/10/1967		50		660	1	Other or Source of Measurement Unknown	Unknown		
P	2/10/1969		32.4	(17.60)	677.6	1	Other or Source of Measurement Unknown	Unknown		

Code Descriptions

Status Code	Status Description
P	Publishable

Texas Water Development Board

Texas Water Development Board (TWDB) Groundwater Database (GWDB) Well Information Report for State Well Number 57-40-901

groundwater

Water Quality Analysis - No Data Available

Texas Water Development Board

Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number 57-40-902

groundwater

GWDB Reports and Downloads

Well Basic Details

Scanned Documents

State Well Number	5740902	**Well Type**	Withdrawal of Water
County	Travis	**Well Use**	Domestic
River Basin	Colorado	**Water Level Observation**	Miscellaneous Measurements
Groundwater Management Area	9	**Water Quality Available**	No
Regional Water Planning Area	K - Lower Colorado	**Pump**	Submersible
Groundwater Conservation District	Southwestern Travis County GCD	**Pump Depth** (feet below land surface)	
Latitude (decimal degrees)	30.385556	**Power Type**	Electric Motor
Latitude (degrees minutes seconds)	30° 23' 08" N	**Annular Seal Method**	
Longitude (decimal degrees)	-98.02	**Surface Completion**	
Longitude (degrees minutes seconds)	098° 01' 12" W	**Owner**	O.L. Riffe
Coordinate Source	+/- 5 Seconds	**Driller**	William Bonnett
Aquifer Code	218GLRSL - Glen Rose Limestone, Lower Member	**Other Data Available**	Drillers Log
Aquifer	Trinity	**Well Report Tracking Number**	
Aquifer Pick Method		**Plugging Report Tracking Number**	
Land Surface Elevation (feet above sea level)	705	**U.S. Geological Survey Site Number**	
Land Surface Elevation Method	Interpolated From Topo Map	**Texas Commission on Environmental Quality Source Id**	
Well Depth (feet below land surface)	136	**Groundwater Conservation District Well Number**	
Well Depth Source	Driller's Log	**Owner Well Number**	
Drilling Start Date		**Other Well Number**	
Drilling End Date	0/0/1970	**Previous State Well Number**	
Drilling Method	Cable Tool	**Reporting Agency**	Texas Water Development Board
Borehole Completion	Open Hole	**Created Date**	10/21/1998
		Last Update Date	3/4/2020

Remarks Reported yield 40 GPM with 0 feet drawdown after pumping 1 hour in 1970.

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	4/22/1970		24		681	1	Other or Source of Measurement Unknown	Unknown		

Code Descriptions

Status Code	Status Description
P	Publishable

Texas Water Development Board

Texas Water Development Board (TWDB) Groundwater Database (GWDB) Well Information Report for State Well Number 57-40-902

groundwater

Water Quality Analysis - No Data Available

Texas Water Development Board

Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number 57-40-903

groundwater

GWDB Reports and Downloads

Well Basic Details

Scanned Documents

State Well Number	5740903	**Well Type**	Withdrawal of Water
County	Travis	**Well Use**	Domestic
River Basin	Colorado	**Water Level Observation**	Miscellaneous Measurements
Groundwater Management Area	9	**Water Quality Available**	Yes
Regional Water Planning Area	K - Lower Colorado	**Pump**	Submersible
Groundwater Conservation District	Southwestern Travis County GCD	**Pump Depth** (feet below land surface)	
Latitude (decimal degrees)	30.385278	**Power Type**	Electric Motor
Latitude (degrees minutes seconds)	30° 23' 07" N	**Annular Seal Method**	
Longitude (decimal degrees)	-98.021667	**Surface Completion**	
Longitude (degrees minutes seconds)	098° 01' 18" W	**Owner**	Bob Mauck
Coordinate Source	+/- 5 Seconds	**Driller**	Wilmer McDonald
Aquifer Code	218GLRSL - Glen Rose Limestone, Lower Member	**Other Data Available**	Drillers Log
Aquifer	Trinity	**Well Report Tracking Number**	
Aquifer Pick Method		**Plugging Report Tracking Number**	
Land Surface Elevation (feet above sea level)	750	**U.S. Geological Survey Site Number**	
Land Surface Elevation Method	Interpolated From Topo Map	**Texas Commission on Environmental Quality Source Id**	
Well Depth (feet below land surface)	200	**Groundwater Conservation District Well Number**	
Well Depth Source	Driller's Log	**Owner Well Number**	
Drilling Start Date		**Other Well Number**	
Drilling End Date	0/0/1970	**Previous State Well Number**	
Drilling Method	Mud (Hydraulic) Rotary	**Reporting Agency**	Texas Water Development Board
Borehole Completion	Gravel Pack w/Perforations	**Created Date**	10/21/1998
		Last Update Date	3/4/2020

Remarks Cemented from 0 to 40 feet.

Casing - No Data

Well Tests - No Data

Lithology - No Data

Annular Seal Range - No Data

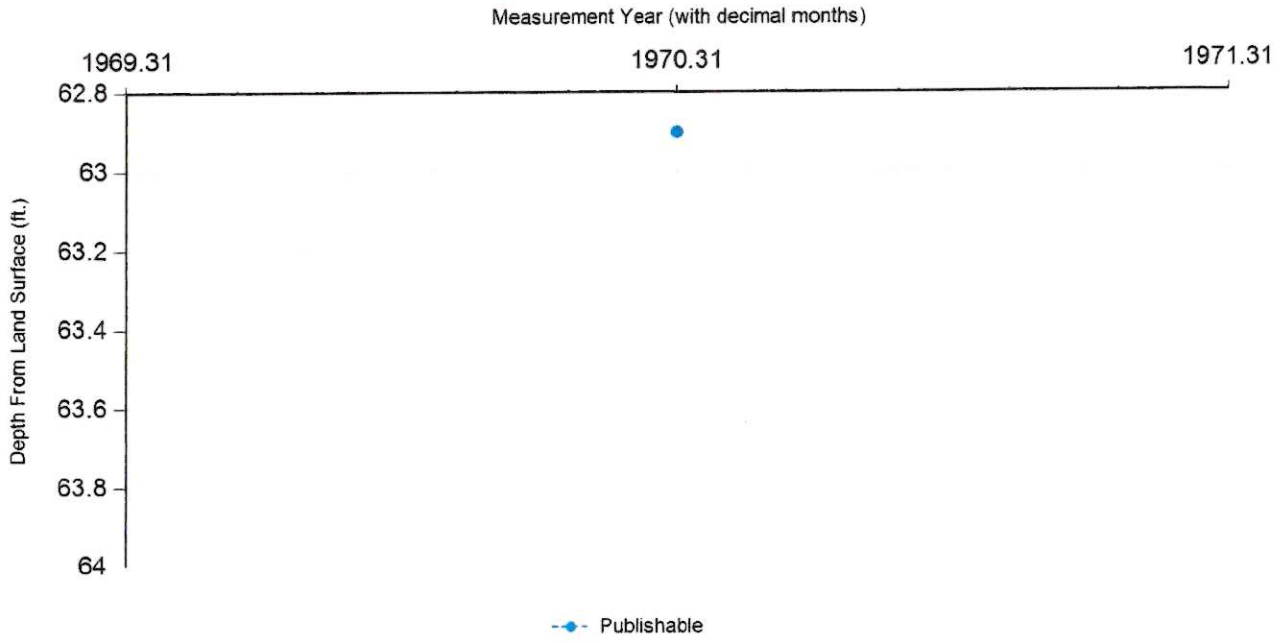
Borehole - No Data

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	4/22/1970		62.9		687.1	1	Other or Source of Measurement Unknown	Unknown		

Code Descriptions

Status Code	Status Description
P	Publishable

Texas Water Development Board

Texas Water Development Board (TWDB) Groundwater Database (GWDB) Well Information Report for State Well Number 57-40-903

groundwater

Water Quality Analysis

Sample Date: 2/22/1971 **Sample Time:** 0000 **Sample Number:** 1 **Collection Entity:** Texas Water Development Board

Sampled Aquifer: Glen Rose Limestone, Lower Member

Analyzed Lab: Texas Department of Health **Reliability:** From well not sufficiently pumped; not filtered or preserved

Collection Remarks: faucet at house - on 5 min.

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CACO3)		318	mg/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		388.07	mg/L	
00910	CALCIUM (MG/L)		82	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		10	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.4	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CACO3)		348	mg/L	
00920	MAGNESIUM (MG/L)		35	mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		3.5	mg/L	
00400	PH (STANDARD UNITS), FIELD		7.4	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
00955	SILICA, DISSOLVED (MG/L AS SI02)		13	mg/L	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		0.12		
00932	SODIUM, CALCULATED, PERCENT		3	PCT	
00929	SODIUM, TOTAL (MG/L AS NA)		5	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		676	MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)		20	mg/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		359	mg/L	

** Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..*

Texas Water Development Board

Texas Water Development Board (TWDB) Groundwater Database (GWDB) Well Information Report for State Well Number 57-40-907

groundwater

GWDB Reports and Downloads

Well Basic Details

Scanned Documents

State Well Number	5740907	**Well Type**	Withdrawal of Water
County	Travis	**Well Use**	Domestic
River Basin	Colorado	**Water Level Observation**	None
Groundwater Management Area	9	**Water Quality Available**	Yes
Regional Water Planning Area	K - Lower Colorado	**Pump**	
Groundwater Conservation District	Southwestern Travis County GCD	**Pump Depth** (feet below land surface)	
Latitude (decimal degrees)	30.386111	**Power Type**	
Latitude (degrees minutes seconds)	30° 23' 10" N	**Annular Seal Method**	
Longitude (decimal degrees)	-98.021944	**Surface Completion**	
Longitude (degrees minutes seconds)	098° 01' 19" W	**Owner**	J.D. Dillingham
Coordinate Source	+/- 5 Seconds	**Driller**	Wilmer McDonald
Aquifer Code	218GLRSL - Glen Rose Limestone, Lower Member	**Other Data Available**	
Aquifer	Trinity	**Well Report Tracking Number**	
Aquifer Pick Method		**Plugging Report Tracking Number**	
Land Surface Elevation (feet above sea level)	693	**U.S. Geological Survey Site Number**	
Land Surface Elevation Method	Digital Elevation Model -DEM	**Texas Commission on Environmental Quality Source Id**	
Well Depth (feet below land surface)	184	**Groundwater Conservation District Well Number**	
Well Depth Source	Owner	**Owner Well Number**	
Drilling Start Date		**Other Well Number**	
Drilling End Date	0/0/1970	**Previous State Well Number**	
Drilling Method	Mud (Hydraulic) Rotary	**Reporting Agency**	Texas Water Development Board
Borehole Completion	Open Hole	**Created Date**	10/21/1998
		Last Update Date	3/4/2020

Remarks Reported yield 35 GPM.

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

No Data Available

Texas Water Development Board

Texas Water Development Board (TWDB) Groundwater Database (GWDB) Well Information Report for State Well Number 57-40-907

groundwater

Water Quality Analysis

Sample Date: 2/22/1971 **Sample Time:** 0000 **Sample Number:** 1 **Collection Entity:** Texas Water Development Board

Sampled Aquifer: Glen Rose Limestone, Lower Member

Analyzed Lab: Texas Department of Health **Reliability:** Collected from pumped well, but not filtered or preserved

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CACO3)		341	mg/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		416.14	mg/L	
00910	CALCIUM (MG/L)		102	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		12	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.2	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CACO3)		369	mg/L	
00920	MAGNESIUM (MG/L)		28	mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		5	mg/L	
00400	PH (STANDARD UNITS), FIELD		7.3	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
00955	SILICA, DISSOLVED (MG/L AS SI02)		12	mg/L	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		0.14		
00932	SODIUM, CALCULATED, PERCENT		3	PCT	
00929	SODIUM, TOTAL (MG/L AS NA)		6	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		725	MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)		13	mg/L	
00010	TEMPERATURE, WATER (CELSIUS)		19	C	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		382	mg/L	

** Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..*

Texas Water Development Board

Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number 57-40-908

groundwater

GWDB Reports and Downloads

Well Basic Details

Scanned Documents

State Well Number	5740908	**Well Type**	Withdrawal of Water
County	Travis	**Well Use**	Domestic
River Basin	Colorado	**Water Level Observation**	Miscellaneous Measurements
Groundwater Management Area	9	**Water Quality Available**	Yes
Regional Water Planning Area	K - Lower Colorado	**Pump**	
Groundwater Conservation District	Southwestern Travis County GCD	**Pump Depth** (feet below land surface)	
Latitude (decimal degrees)	30.386945	**Power Type**	
Latitude (degrees minutes seconds)	30° 23' 13" N	**Annular Seal Method**	
Longitude (decimal degrees)	-98.021111	**Surface Completion**	
Longitude (degrees minutes seconds)	098° 01' 16" W	**Owner**	Jack Baylor
Coordinate Source	+/- 5 Seconds	**Driller**	W.H. Glass and Son
Aquifer Code	218GLRSL - Glen Rose Limestone, Lower Member	**Other Data Available**	Drillers Log
Aquifer	Trinity	**Well Report Tracking Number**	
Aquifer Pick Method		**Plugging Report Tracking Number**	
Land Surface Elevation (feet above sea level)	710	**U.S. Geological Survey Site Number**	
Land Surface Elevation Method	Interpolated From Topo Map	**Texas Commission on Environmental Quality Source Id**	
Well Depth (feet below land surface)	120	**Groundwater Conservation District Well Number**	
Well Depth Source	Driller's Log	**Owner Well Number**	
Drilling Start Date		**Other Well Number**	
Drilling End Date	3/30/1970	**Previous State Well Number**	
Drilling Method	Cable Tool	**Reporting Agency**	Texas Water Development Board
Borehole Completion	Open Hole	**Created Date**	10/21/1998
		Last Update Date	3/4/2020

Remarks Reported yield 20 GPM with 0 feet drawdown after pumping 1/2 hour.

Casing

Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
7	Blank	Steel			0	26
	Open Hole				26	120

Well Tests - No Data

Lithology - No Data

Annular Seal Range - No Data

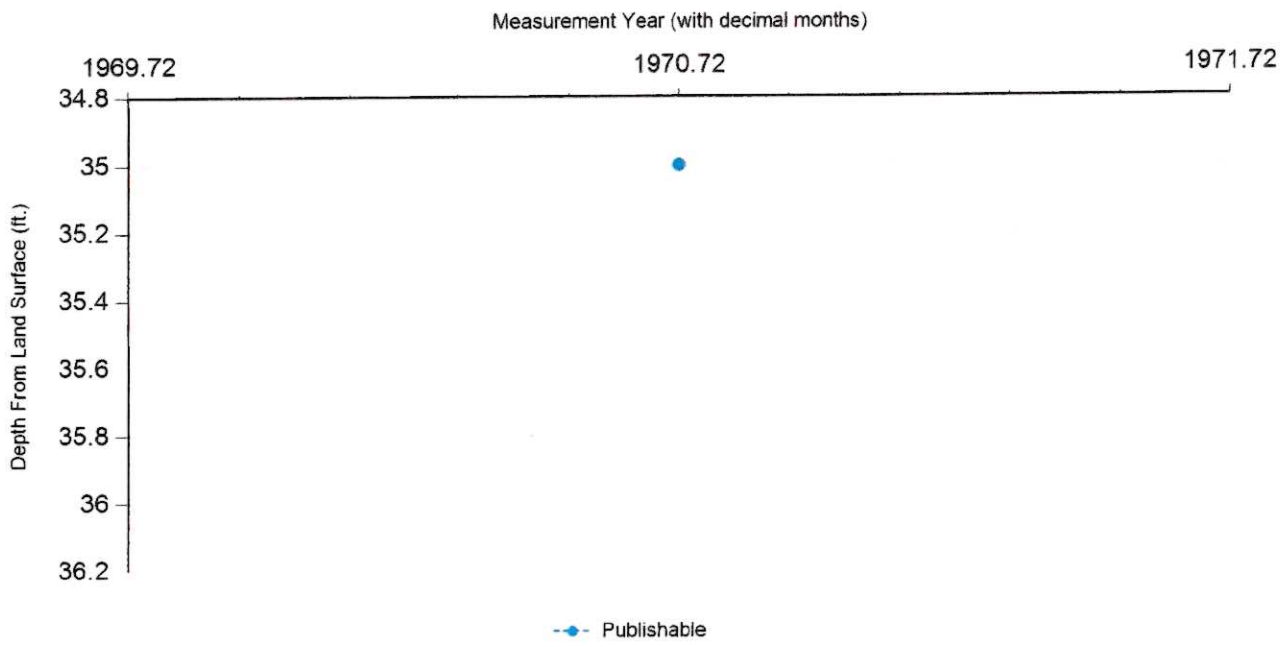
Borehole - No Data

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	9/24/1970		35		675	1	Other or Source of Measurement Unknown	Unknown		

Code Descriptions

Status Code	Status Description
P	Publishable

Water Quality Analysis

Sample Date: 2/22/1971 **Sample Time:** 0000 **Sample Number:** 1 **Collection Entity:** Texas Water Development Board

Sampled Aquifer: Glen Rose Limestone, Lower Member

Analyzed Lab: Texas Department of Health **Reliability:** Collected from pumped well, but not filtered or preserved

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CACO3)		327	mg/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		399.05	mg/L	
00910	CALCIUM (MG/L)		101	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		12	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.2	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CACO3)		354	mg/L	
00920	MAGNESIUM (MG/L)		25	mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		3.5	mg/L	
00400	PH (STANDARD UNITS), FIELD		7.3	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
00955	SILICA, DISSOLVED (MG/L AS SI02)		10	mg/L	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		0.14		
00932	SODIUM, CALCULATED, PERCENT		3	PCT	
00929	SODIUM, TOTAL (MG/L AS NA)		6	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		684	MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)		13	mg/L	
00010	TEMPERATURE, WATER (CELSIUS)		19	C	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		366	mg/L	

** Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..*

Texas Water Development Board

Texas Water Development Board (TWDB) Groundwater Database (GWDB) Well Information Report for State Well Number 57-40-909

groundwater

GWDB Reports and Downloads

Well Basic Details

Scanned Documents

State Well Number	5740909	**Well Type**	Withdrawal of Water
County	Travis	**Well Use**	Domestic
River Basin	Colorado	**Water Level Observation**	Miscellaneous Measurements
Groundwater Management Area	9	**Water Quality Available**	Yes
Regional Water Planning Area	K - Lower Colorado	**Pump**	Submersible
Groundwater Conservation District	Southwestern Travis County GCD	**Pump Depth** (feet below land surface)	
Latitude (decimal degrees)	30.383611	**Power Type**	Electric Motor
Latitude (degrees minutes seconds)	30° 23' 01" N	**Annular Seal Method**	
Longitude (decimal degrees)	-98.023333	**Surface Completion**	
Longitude (degrees minutes seconds)	098° 01' 24" W	**Owner**	F.A. Norman
Coordinate Source	+/- 5 Seconds	**Driller**	A and A
Aquifer Code	217HSTN - Hosston Formation	**Other Data Available**	Drillers Log; Specific Capacity
Aquifer	Trinity	**Well Report Tracking Number**	
Aquifer Pick Method		**Plugging Report Tracking Number**	
Land Surface Elevation (feet above sea level)	720	**U.S. Geological Survey Site Number**	
Land Surface Elevation Method	Interpolated From Topo Map	**Texas Commission on Environmental Quality Source Id**	
Well Depth (feet below land surface)	275	**Groundwater Conservation District Well Number**	
Well Depth Source	Driller's Log	**Owner Well Number**	
Drilling Start Date		**Other Well Number**	
Drilling End Date	0/0/1969	**Previous State Well Number**	
Drilling Method		**Reporting Agency**	Texas Water Development Board
Borehole Completion		**Created Date**	10/21/1998
		Last Update Date	3/4/2020

Remarks Reported yield 35 GPM with 38 feet drawdown after pumping 1 hour in 1969. Specific capacity 0.92.

Casing - No Data

Well Tests - No Data

Lithology - No Data

Annular Seal Range - No Data

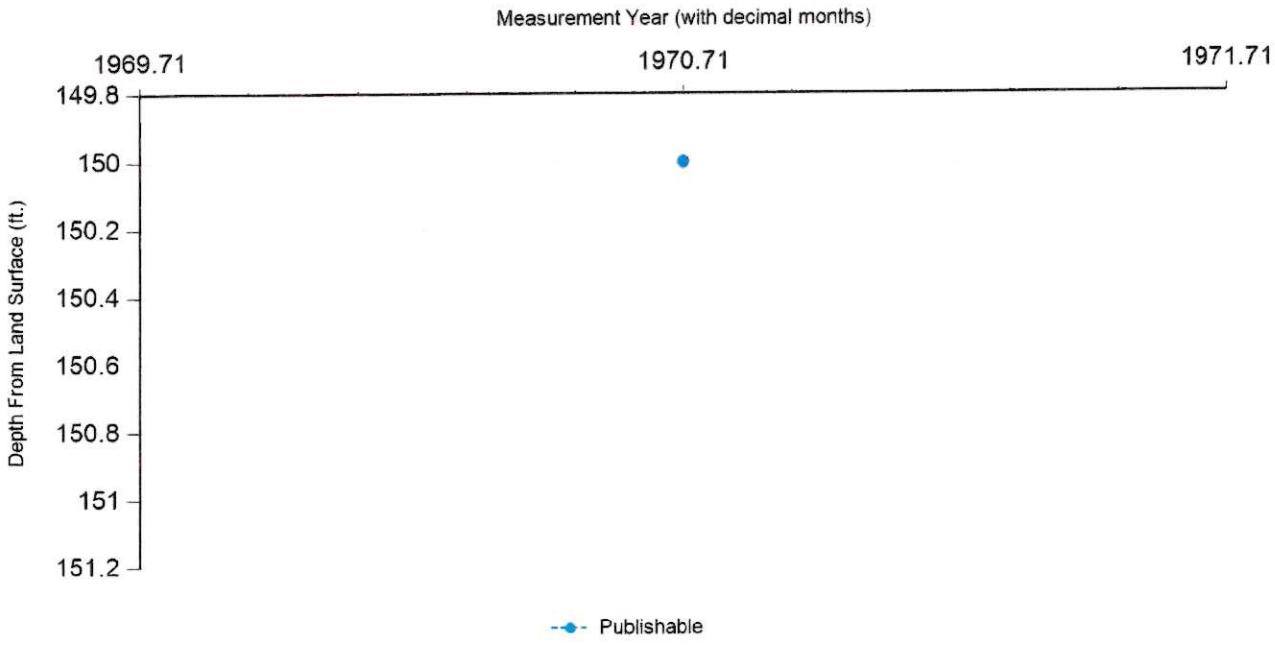
Borehole - No Data

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	9/21/1970		150		570	1	Other or Source of Measurement Unknown	Unknown		

Code Descriptions

Status Code	Status Description
P	Publishable

Texas Water Development Board

Texas Water Development Board (TWDB) Groundwater Database (GWDB) Well Information Report for State Well Number 57-40-909

groundwater

Water Quality Analysis

Sample Date: 2/22/1971 **Sample Time:** 0000 **Sample Number:** 1 **Collection Entity:** Texas Water Development Board

Sampled Aquifer: Hosston Formation

Analyzed Lab: Texas Department of Health **Reliability:** From well not sufficiently pumped; not filtered or preserved

Collection Remarks: faucet at house

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CACO3)		262	mg/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		319.73	mg/L	
00910	CALCIUM (MG/L)		118	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		92	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.9	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CACO3)		553	mg/L	
00920	MAGNESIUM (MG/L)		63	mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)	<	0.4	mg/L	
00400	PH (STANDARD UNITS), FIELD		7.6	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
00955	SILICA, DISSOLVED (MG/L AS SI02)		13	mg/L	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		2.46		
00932	SODIUM, CALCULATED, PERCENT		34	PCT	
00929	SODIUM, TOTAL (MG/L AS NA)		133	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		1953	MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)		432	mg/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		1009	mg/L	

** Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..*

Texas Water Development Board

Texas Water Development Board (TWDB) Groundwater Database (GWDB) Well Information Report for State Well Number 57-40-910

groundwater

GWDB Reports and Downloads

Well Basic Details

Scanned Documents

State Well Number	5740910
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)	30.384167
Latitude (degrees minutes seconds)	30° 23' 03" N
Longitude (decimal degrees)	-98.021944
Longitude (degrees minutes seconds)	098° 01' 19" W
Coordinate Source	+/- 5 Seconds
Aquifer Code	217HSTN - Hosston Formation
Aquifer	Trinity
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	715
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	279
Well Depth Source	Driller's Log
Drilling Start Date	
Drilling End Date	0/0/1971
Drilling Method	Mud (Hydraulic) Rotary
Borehole Completion	Gravel Pack w/Perforations

Well Type	Withdrawal of Water
Well Use	Domestic
Water Level Observation	Miscellaneous Measurements
Water Quality Available	Yes
Pump	Submersible
Pump Depth (feet below land surface)	
Power Type	Electric Motor
Annular Seal Method	
Surface Completion	
Owner	M.E. Dealy
Driller	McDonald and Sons
Other Data Available	Drillers Log
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	10/21/1998
Last Update Date	3/4/2020

Remarks Estimated yield 50 GPM.

Casing - No Data

Well Tests - No Data

Lithology - No Data

Annular Seal Range - No Data

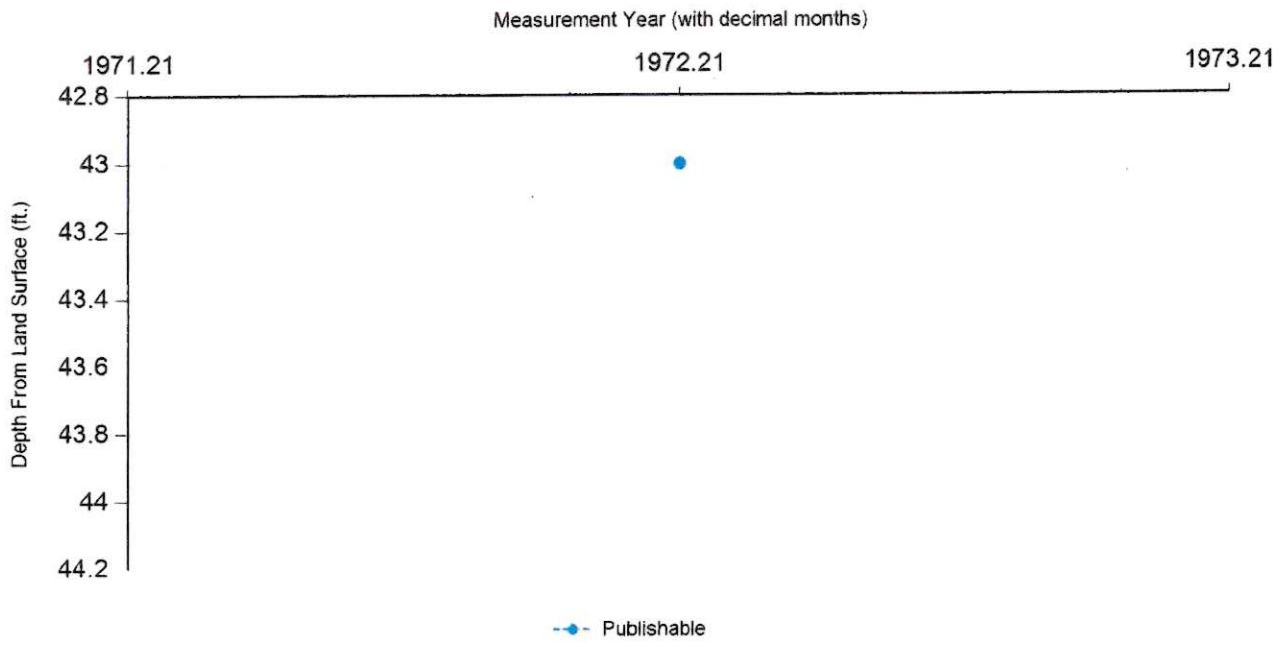
Borehole - No Data

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	3/15/1972		43		672	1	Other or Source of Measurement Unknown	Unknown		

Code Descriptions

Status Code	Status Description
P	Publishable

Water Quality Analysis

Sample Date: 3/15/1972 **Sample Time:** 0000 **Sample Number:** 1 **Collection Entity:** Texas Water Development Board

Sampled Aquifer: Hosston Formation

Analyzed Lab: Texas Department of Health **Reliability:** Collected from pumped well, but not filtered or preserved

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CACO3)		352	mg/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		429.56	mg/L	
00910	CALCIUM (MG/L)		109	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		16	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.2	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CACO3)		399	mg/L	
00920	MAGNESIUM (MG/L)		31	mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		10	mg/L	
00400	PH (STANDARD UNITS), FIELD		7.1	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
00955	SILICA, DISSOLVED (MG/L AS SI02)		12	mg/L	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		0.17		
00932	SODIUM, CALCULATED, PERCENT		4	PCT	
00929	SODIUM, TOTAL (MG/L AS NA)		8	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		800	MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)		25	mg/L	
00010	TEMPERATURE, WATER (CELSIUS)		21	C	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		422	mg/L	

** Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..*

Texas Water Development Board

Texas Water Development Board (TWDB) Groundwater Database (GWDB) Well Information Report for State Well Number 57-40-911

groundwater

GWDB Reports and Downloads

Well Basic Details

Scanned Documents

State Well Number	5740911	**Well Type**	Withdrawal of Water
County	Travis	**Well Use**	Domestic
River Basin	Colorado	**Water Level Observation**	None
Groundwater Management Area	9	**Water Quality Available**	Yes
Regional Water Planning Area	K - Lower Colorado	**Pump**	Submersible
Groundwater Conservation District	Southwestern Travis County GCD	**Pump Depth** (feet below land surface)	
Latitude (decimal degrees)	30.383889	**Power Type**	Electric Motor
Latitude (degrees minutes seconds)	30° 23' 02" N	**Annular Seal Method**	
Longitude (decimal degrees)	-98.023333	**Surface Completion**	
Longitude (degrees minutes seconds)	098° 01' 24" W	**Owner**	W. E. Trainer
Coordinate Source	+/- 1 Second	**Driller**	E.A. Glass
Aquifer Code	218TRNT - Trinity Group	**Other Data Available**	
Aquifer	Trinity	**Well Report Tracking Number**	
Aquifer Pick Method		**Plugging Report Tracking Number**	
Land Surface Elevation (feet above sea level)	730	**U.S. Geological Survey Site Number**	
Land Surface Elevation Method	Interpolated From Topo Map	**Texas Commission on Environmental Quality Source Id**	
Well Depth (feet below land surface)	330	**Groundwater Conservation District Well Number**	
Well Depth Source	Driller's Log	**Owner Well Number**	
Drilling Start Date		**Other Well Number**	
Drilling End Date	4/14/1975	**Previous State Well Number**	
Drilling Method		**Reporting Agency**	Texas Water Development Board
Borehole Completion		**Created Date**	10/21/1998
		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

No Data Available

Texas Water Development Board

Texas Water Development Board (TWDB) Groundwater Database (GWDB) Well Information Report for State Well Number 57-40-911

groundwater

Water Quality Analysis

Sample Date: 6/10/1986 **Sample Time:** 0000 **Sample Number:** 1 **Collection Entity:** Texas Water Development Board

Sampled Aquifer: Trinity Group

Analyzed Lab: Texas Department of Health **Reliability:** Collected from pumped well, but not filtered or preserved

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CACO3)		238	mg/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		290.44	mg/L	
00910	CALCIUM (MG/L)		140	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		255	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		1	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CACO3)		641	mg/L	
00920	MAGNESIUM (MG/L)		71	mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		0.89	mg/L	
00400	PH (STANDARD UNITS), FIELD		7.5	SU	
00937	POTASSIUM, TOTAL (MG/L AS K)		17	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
00955	SILICA, DISSOLVED (MG/L AS SI02)		12	mg/L	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		5.7		
00932	SODIUM, CALCULATED, PERCENT		52	PCT	
00929	SODIUM, TOTAL (MG/L AS NA)		332	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		3312	MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)		776	mg/L	
00010	TEMPERATURE, WATER (CELSIUS)		23	C	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		1747	mg/L	

** Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..*

ATTACHMENT 4 – DOMESTIC WORKSHEET 3.0 SECTION 8(B)
SOIL EVALUATION AND SOILS SAMPLING/TESTING

SOILS INVESTIGATION IN SUPPORT OF VICAYA MUD TLAP RENEWAL WITH MAJOR AMENDMENT

Prepared For:
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November 14, 2024

11.14.23

Prepared By:
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Firm No. F-7996

AEG

PREFACE

The Site Soils Investigation Report in support of the original 2007 permit application which is included as an attachment to this report. The proposed relocated drip fields requested for this amendment are located in two of the soil types identified in the 2007 report, BID and BoF. The relocated drip field locations are across Thurman Bend Road, just west of the existing permitted fields as shown Attachment 4 Domestic Worksheet 3(8), Soil and Map Analysis.

INTRODUCTION

Vizcaya MUD is renewing their Texas Land Application Permit with a Major Amendment. This report has been prepared to address the requirements of 30 TAC Chapters 217 and 222. The proposed disposal area is located in Brackett Series soils. Soil samples were collected from five locations representing Brackett soils, rolling (BID) and Brackett soils and rock outcrop (BoF) as identified in the Soil Survey of Travis County. Included in this report are brief descriptions of the geology and soil descriptions obtained from the Soil Survey of Travis County. The soil profiles observed did not always conform to the soil descriptions in the Soil Survey. In particular, bedrock was not observed in any of the pits.

Due to site characteristics, such as shallow soils, believed to be non-arable, and sloping topography, it is being proposed to utilize either surface or subsurface drip irrigation for the treated effluent disposal system. There are multiple areas where the site will be cleared, graded, and filled with suitable soil obtained from excavation of the roads and buried underground structures where steep slopes prevent installation of surface drip irrigation.

The areas are covered primarily with ashe juniper. Live oak is a minor component of the vegetation. Grasses are present on benched areas.

GEOLOGY

According to the Geologic Atlas of Texas, the site is located on the Glen Rose Formation. The official description is; composed of limestone, dolomite, and marl; 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 mega fossils include molluscan steinkerns, rudistids, oysters, and echinoids; upper part, relatively thinner bedded, more dolomitic, and less fossiliferous than the lower part; thickness of Glen Rose Formation 380± feet. USDA-Soil Survey.

CLIMATE

According to the USDA-SCS Soil Survey for Travis County, Texas, the climate is hui subtropical and is characterized by hot summers and relatively mild winters. Temperature and rainfall are the climatic factors that have the greatest influence on the formation of soils in the area. The pater of rainfall consists of interspersed wet and dry periods.

SOIL DESCRIPTIONS (From Soil Survey of Travis County, USDA, Soil Conservation Service in cooperation with the Texas Agricultural Experiment Station)

Soils at the proposed irrigation site consist of Brackett series rolling (BID) and Brackett soils and rock outcrop, steep slopes (BoF). Profiles from the test pits may differ from the descriptions in the soil survey due to normal variations in coverage.

Brackett soils, rolling (BID). - These soils occupy gently undulating to rolling topograhy, generally on benches 100 to 500 feet wide that are separated by outcrops of the underlying limestone and marl. Slope is dominantly 5 to 12 percent, but it ranges from 1 to 12 percent. These soils developed over interbedded limestone and marl. Individual areas are more than 1,000 acres in size.

These soils have the profile described as representative of the series. About 20 percent of the mapping unit consists of rock outcrop. Broken limestone fragments cover up to 75 percent of the surface. The texture of the surface layer is gravelly clay loam, gravelly loam, loam, or clay loam.

Included in mapping were soils less than 10 inches thick on the outer edges of the benches and some soils resting directly on indurated limestone. Also included, in narrow valleys, were deeper soils, such as those of the Volente, Altoga, and San Saba series. These included soils make up 10 to 15 percent of the mapping unit.
A large part of the annual rainfall is lost through runoff and seepage from the limestone outcrops. These soils are not suited to crops. They are better suited to range or wildlife. habitat. (Capability unit VIIs-2, Adobe range site, pasture and hayland group not assigned).

Brackett Soils and Rock outcrop, steep (BoF) - This mapping unit is on steep breaks along creeks and rivers. Individual areas are long and narrow or irregular in shape and up to 1,000 acres in size. In most areas about 75 percent of the surface is covered by 2- to 4-inch limestone fragments. The slope ranges from 15 to 30 percent.

The composition of this mapping unit is variable, but it consists of about 35 percent Brackett soils. 21 percent Rock outcrop, and 40 percent soils similar to the Brackett soils.

The Brackett soils are on benches 15 to 50 feet wide that are separated by outcrops. The surface layer is light brownish-gray gravelly clay loam or gravelly loam about 4 inches thick. About 60 percent of its surface is covered with coarse fragments. The next layer is pale-brown clay loam that extends to a depth of about 15 inches. The underlying material is interbedded limestone and marl.

The soils similar to the Brackett soils are less than 10 inches deep; they contain more than 35 percent limestone fragments or they rest directly on hard limestone. The percentage of Rock outcrop and very shallow soils increases as the slope increases.

Included in mapping were deeper soils, such as those of the Volente, Lewisville, or Altoga series, in long, narrow valleys. These included soils make up about 4 percent of the acreage.

These soils are not suited to crops. They are better suited to range or wildlife habitat. (Capability unit VI's-3, Steep Adobe range site, pasture and hayland group not assigned.)

Table 1 – Typical Soil Characteristics (from USDA)

Soil	Hydrologic Group	Depth (in)	USDA Texture	Permeability (in/hr.)
Brackett	C	0-6	Gravelly Clay Loam	0.20-0.60
		6-18	Clay Loam	0.20-0.63
		18-48	Interbedded Soft Limestone and Marl	

SITE INVESTIGATION

On October 23, 2023, a total of five test pits were excavated in the locations shown on Figures 1 through 3. Samples were collected from 0-12 inches, 12-24 inches. Chemical analyses were performed at Texas A&M Agricultural Extension Service. The site observations and analytical results are presented in the following section.

Soil Profile No. 1

Brackett Rolling

1 – 12 % Percent Slopes

The excavation was terminated at 37". The profile consisted of an A horizon, approximately 12" thick, and a B horizon approximately 12" thick, and a C horizon more than 15" thick. The A and B zones were a reddish brown in color with irregular boundaries. The boundary between the A and B horizons was wavy. The C horizon consisted of a clay loam with a blocky structure. Primary and secondary rooting depths were 6 and 18 inches, respectively.

The vegetation primarily consisted of open native grasses.

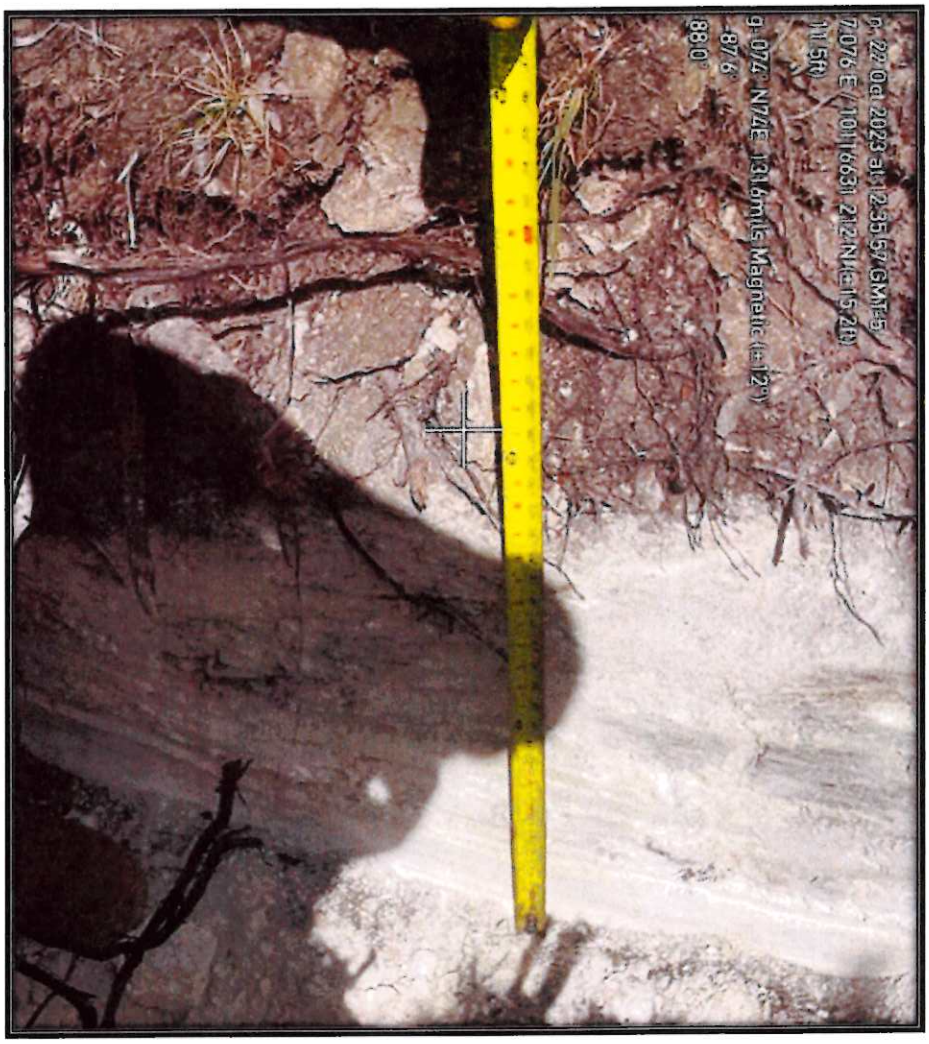
Soil Profile No. 1
Soil Classfication Brackett Rolling

Total Depth in	Primary Rooting Depth in	Secondary Rooting Depth in	Comments: Juniper stand with some live oak, approximately 80 % coverage.
37	6	24	

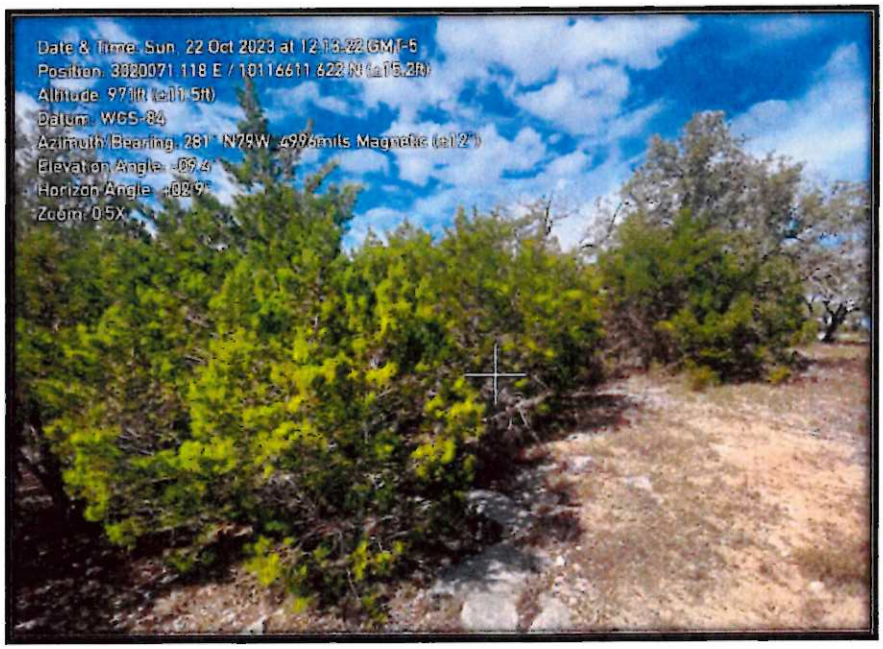
Horizon	Depth in	Boundary Description	Texture	Structure	Color	Mottling	% Coarse Fragments	Potential Water Bearing Zone	Active Water Bearing Zone
A	6	Irregular	Sandy Clay Loam	Granular	Gray Brown	None	< 5	None	None
B	9	Wavy	Sandy Clay Loam	Granular	Gray Brown	None	< 15	None	None
C			Chalk						

Refusal Depth	> 37

Soil Profile No. 1



Soil Profile No. 1



Soil Profile No. 2

Brackett Rolling

1 – 12 % Percent Slopes

The excavation was terminated at 35" terminating in excavatable chalk interspersed with marl. The profile consisted of an A horizon, approximately 6" thick, and a B horizon approximately 11" thick, and a C horizon more than 15" thick. Each of the zones were a reddish brown in color with irregular boundaries. The boundary between the A and B horizons was wavy. The C horizon consisted of a clay loam with a blocky structure. Primary and secondary rooting depths were 6 and 18 inches, respectively.

The vegetation primarily consisted of open native grasses in a benched area and ashe juniper along the edges.

Soil Profile No. 2
Soil Classfication Brackett Rolling

Total Depth in	Primary Rooting Depth in	Secondary Rooting Depth in	Comments: Juniper stands predominant coverage.
35	6	17	

Horizon	Depth in	Boundary Description	Texture	Structure	Color	Mottling	% Coarse Fragments	Potential Water Bearing Zone	Active Water Bearing Zone
A	8	Irregular	Clay	Granular	Tan	Absent	<5%	None	None
B	13	Irregular	Clay	Granular	Reddish Brown	Absent	10	None	None
C			Chalk Interspersed with Marl	Massive	White	Absent		None	None

Refusal Depth	>35"

Soil Profile No. 2

Soil Profile No. 2

Soil Profile No. 3

5 – 12 % Percent Slopes

The excavation was terminated at 22" terminating in limestone bedrock. The profile consisted of an A horizon, approximately 6" thick, and a B horizon approximately 14" thick. Each of the zones was a reddish brown in color with irregular boundaries. The boundary between the A and B horizons was wavy. Primary and secondary rooting depths were 6 and 14 inches, respectively. The C horizon was approximately 8" thick and consisted of platy limestone fragments.

The vegetation primarily consisted of open native grasses in a benched area and ashe juniper along the edges.

Soil Profile No. 3

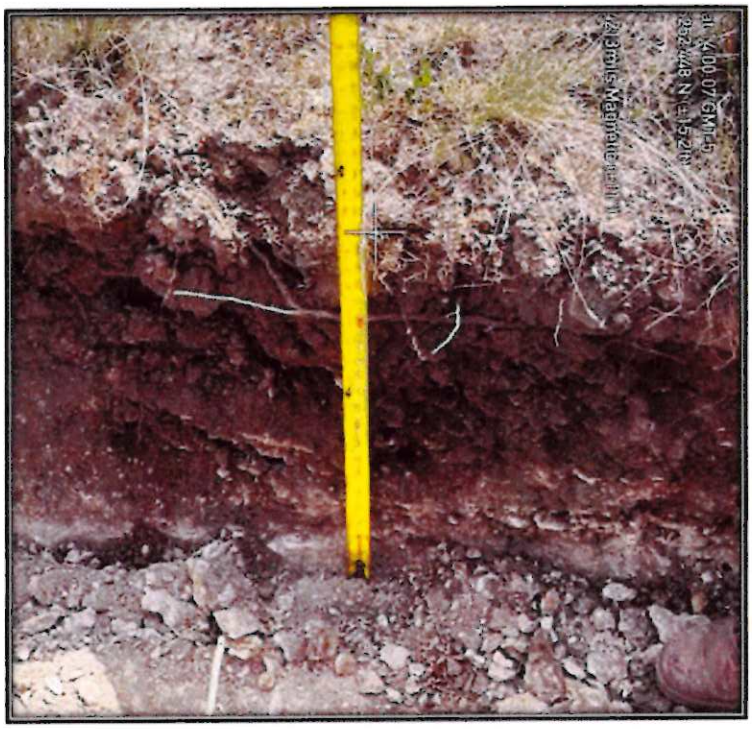
Soil Classfication Brackett Rolling

Total Depth in	Primary Rooting Depth in	Secondary Rooting Depth in	Comments: Ashe juniper was the primary tree species. Open areas had good coverage of grass and cactus. Some rocks present on the surface.
16	6	14	

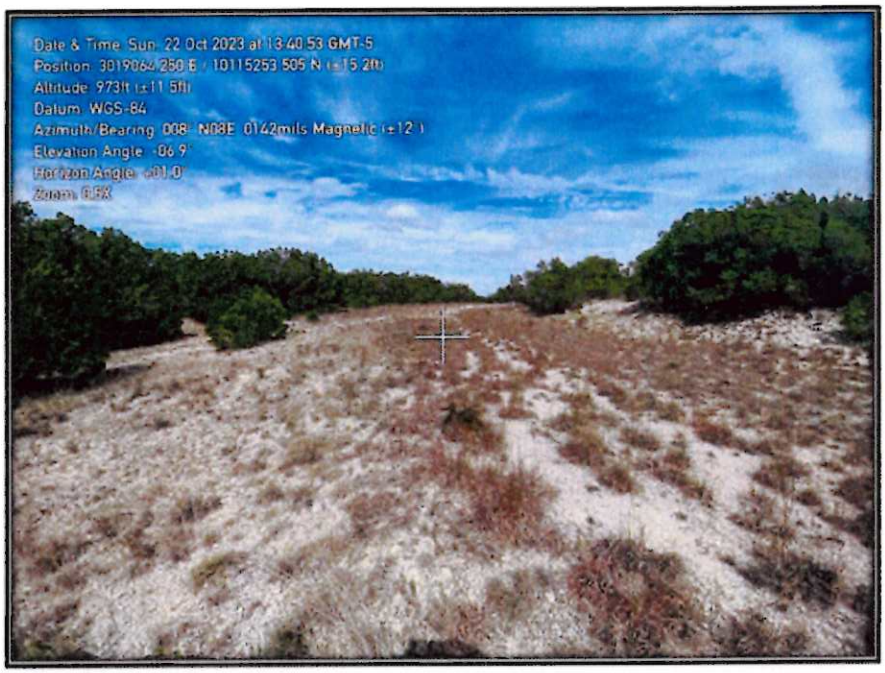
Horizon	Depth in	Boundary Description	Texture	Structure	Color	Mottling	% Coarse Fragments	Potential Water Bearing Zone	Active Water Bearing Zone
A	6	Wavy	Sandy Loam	Granular	Grayish Brown	None	0	None	None
B	8	Wavy	Sandy Loam	Granular	Grayish Broun	None	10	None	None
C			Fractured Rock Interspersed w/ Loamy Clay	Playty		None		None	None

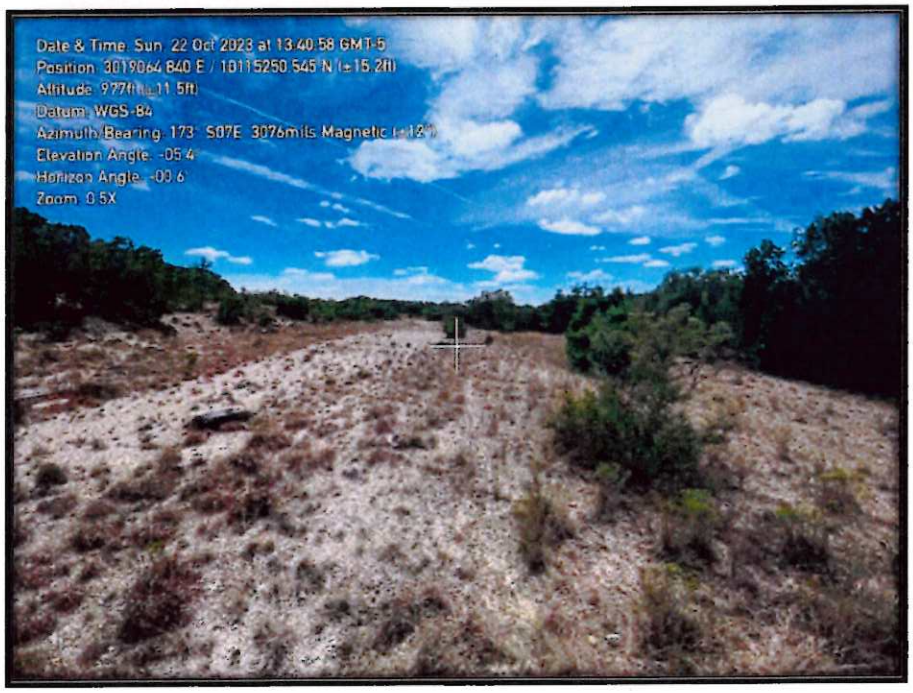
Refusal Depth	22"

Soil Profile No. 3



Soil Profile No. 3





Soil Profile No. 4

5 – 12 % Percent Slopes

The excavation was terminated at 27 in excavatable chalk interspersed with marl. The profile consisted of an A horizon, approximately 6" thick, and a B horizon approximately 11" thick, and a C horizon more than 15" thick. Each of the zones were reddish brown in color. The boundary between the A and B horizons was wavy. Primary and secondary rooting depths were 6 and 27 inches, respectively.

The vegetation downslope of the bench consisted primarily of ashe juniper. This slope was on the edge of the BID and BoF soils.

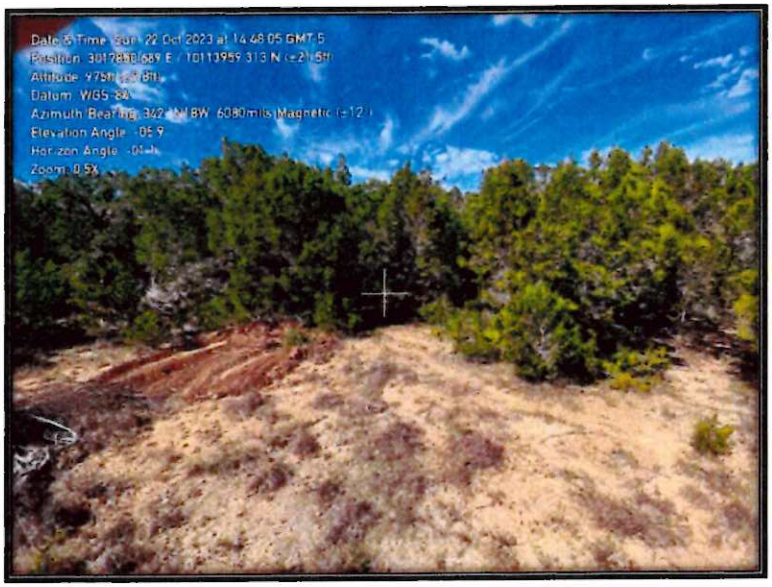
Soil Profile No. 4
Soil Classfication Brackett Rolling

Total Depth in	Primary Rooting Depth in	Secondary Rooting Depth in	Comments: This sample obtained next to juniper stands adjacent to benched area (soil profile 3).
27	12	27	

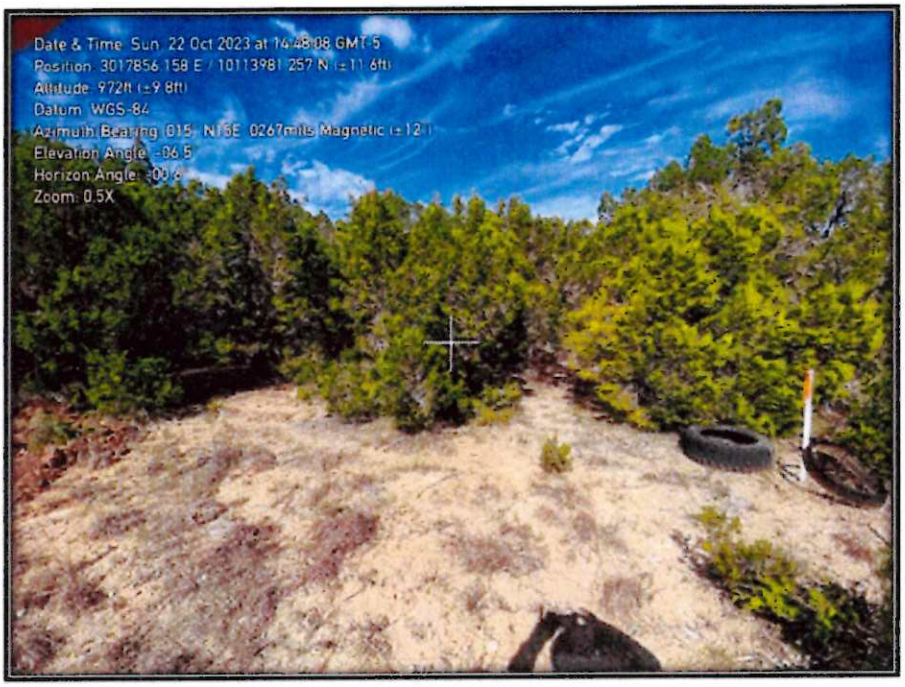
Horizon	Depth in	Boundary Description	Texture	Structure	Color	Mottling	% Coarse Fragments	Potential Water Bearing Zone	Active Water Bearing Zone
A	4	Wavey	Sandy Clay Loam	Granular	Brownish Gray	None	<3	None	None
B	23	Wavey	Sandy Clay Loam	Granular	Redish Brown	None	<4	None	None

Refusal Depth in	>27"

Soil Profile No. 4



Soil Profile No. 4



Soil Profile No. 5

5 – 12 % Percent Slopes

Refusal was reached at approximately 16". The profile consisted of an A horizon, approximately 4" thick, and a B horizon approximately 12" thick. The zones were light gray in color. The boundary between the A and B horizons was wavy. Primary and secondary rooting depths were 6 and 27 inches, respectively.

The vegetation downslope of the bench consisted primarily of ashe juniper.

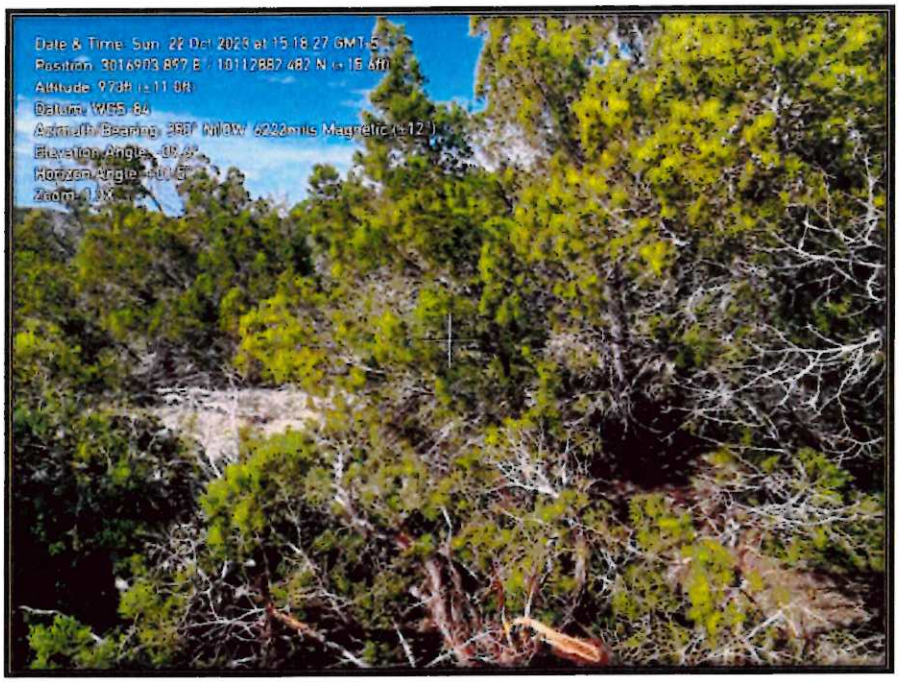
Soil Profile No. 5
Soil Classfication Bracket Rolling

Total Depth in	Primary Rooting Depth in	Secondary Rooting Depth in	Comments: Vegetation consists primarily of ashe juniper.
16	6	14	

Horizon	Depth in	Boundary Description	Texture	Structure	Color	Mottling	% Coarse Fragments	Potential Water Bearing Zone	Active Water Bearing Zone
A	4	Wavey	Sandy Loam	Granular	Light Gray	None	< 1	None	None
B	12		Sandy Loam	Granular	Light Gray	None	< 15	None	None

Refusal Depth	16"

Soil Profile No. 5



Soil Profile No. 5

ATTACHMENT

2023 SOIL TESTING RESULTS

TEXAS A&M AGRILIFE EXTENSION

Soil Analysis Report

Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
979-845-4816 (phone)
979-845-5958 (FAX)
Visit our website: http://soiltesting.tamu.edu

Report generated for:
AEG, Inc.
Covert Ranch
1101 S Capital of TX Hwy, Bldg. D110
AUSTIN, TX 78746

Sample received on: 10/27/2023
Printed on: 11/10/2023
Area Represented: 35 acres

Travis County
Laboratory Number: 642827
Customer Sample ID: Hole 1 0-12
Crop Grown: BLUESTEM (GRAZING OR HAY)

Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess.	
pH	7.7	(5.8)	-	Mod. Alkaline							
Conductivity	159	(-)	umho/cm	None			CL*				Fertilizer Recommended
Nitrate-N	5	(-)	ppm**								25 lbs N/acre
Phosphorus	3	(50)	ppm								50 lbs P2O5/acre
Potassium	125	(125)	ppm								0 lbs K20/acre
Calcium	24,642	(180)	ppm								0 lbs Ca/acre
Magnesium	89	(50)	ppm								0 lbs Mg/acre
Sulfur	173	(13)	ppm								0 lbs S/acre
Sodium	20	(-)	ppm								
Iron											
Zinc											
Manganese											
Copper											
Boron											
Limestone Requirement											0.00 tons 100ECCE/acre

Textural Analysis Test (hydrometer)		
Sand	57	%
Silt	12	%
Clay	31	%
Textural Class:	Sandy Clay Loam	

TKN	703	ppm
TN	3497	ppm
Ammonium-N	9.2	ppm

Detailed Salinity Test (Saturated Paste Extract)			
pH	6.7		
Conductivity	1.02	mmhos/cm	
Sodium	27	ppm	1.172 meq/L
Potassium	13	ppm	0.328 meq/L
Calcium	186	ppm	9.282 meq/L
Magnesium	6	ppm	0.484 meq/L
SAR	0.53		
SSP	10.40		

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Nitrogen: Apply an additional 30 lbs/A of nitrogen prior to each four to six week graze down..

New online fertilizer calculators have been placed on the laboratory's website to determine appropriate fertilizers to purchase and determine their application rates. http://soiltesting.tamu.edu/webpages/calculator.html

Methods: pH and conductivity/ 2:1, nitrate-N/Cd-red., P, K, Ca, Mg, Na, and S/Mehlich 3 by ICP; Fe, Zn, Mn, and Cu/DTPA by ICP, and B/hot water by ICP

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AUSTIN, TX 78746

Sample received on: 10/27/2023
Printed on: 11/10/2023
Area Represented: 35 acres

Travis County
Laboratory Number: 642828
Customer Sample ID: Hole 2 0-12
Crop Grown: BLUESTEM (GRAZING OR HAY)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	7.9	(5.8)	-	Mod. Alkaline	
Conductivity	233	(-)	umho/cm	None CL*	
Nitrate-N	1	(-)	ppm**		35 lbs N/acre
Phosphorus	0	(50)	ppm		55 lbs P2O5/acre
Potassium	228	(125)	ppm		0 lbs K20/acre
Calcium	20,381	(180)	ppm		0 lbs Ca/acre
Magnesium	111	(50)	ppm		0 lbs Mg/acre
Sulfur	130	(13)	ppm		0 lbs S/acre
Sodium	15	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre

Textural Analysis Test (hydrometer)			Detailed Salinity Test (Saturated Paste Extract)		
Sand	33	%	pH	7.1	
Silt	18	%	Conductivity	0.33 mmhos/cm	
Clay	49	%	Sodium	17 ppm	0.747 meq/L
Textural Class:	Clay		Potassium	3 ppm	0.085 meq/L
			Calcium	49 ppm	2.430 meq/L
TKN	261	ppm	Magnesium	1 ppm	0.121 meq/L
TN	1438	ppm	SAR	0.66	
Ammonium-N	3.9	ppm	SSP	22.07	

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Methods: pH and conductivity/ 2:1, nitrate-N/Cd-red.; P, K, Ca, Mg, Na, and S/Mehlich 3 by ICP; Fe, Zn, Mn, and Cu/DTPA by ICP; and B/hot water by ICP

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AUSTIN, TX 78746

Sample received on: 10/27/2023
Printed on: 11/10/2023
Area Represented: 35 acres

Travis County
Laboratory Number: 642829
Customer Sample ID: Hole 2 12-24
Crop Grown: BLUESTEM (GRAZING OR HAY)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	7.9	(5.8)	-	Mod. Alkaline	
Conductivity	108	(-)	umho/cm	None	
Nitrate-N	1	(-)	ppm**		35 lbs N/acre
Phosphorus	0	(50)	ppm		55 lbs P2O5/acre
Potassium	138	(125)	ppm		0 lbs K20/acre
Calcium	17,535	(180)	ppm		0 lbs Ca/acre
Magnesium	72	(50)	ppm		0 lbs Mg/acre
Sulfur	114	(13)	ppm		0 lbs S/acre
Sodium	14	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre

Textural Analysis Test (hydrometer)			Detailed Salinity Test (Saturated Paste Extract)		
Sand	55	%	pH	7.2	
Silt	12	%	Conductivity	0.29 mmhos/cm	
Clay	33	%	Sodium	15 ppm	0.670 meq/L
Textural Class:	Sandy Clay Loam		Potassium	2 ppm	0.062 meq/L
			Calcium	45 ppm	2.232 meq/L
TKN	740	ppm	Magnesium	1 ppm	0.089 meq/L
TN	958	ppm	SAR	0.62	
Ammonium-N	4.5	ppm	SSP	21.95	

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

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Methods: pH and conductivity/ 2:1, nitrate-N/Cd-red.; P, K, Ca, Mg, Na, and S/Mehlich 3 by ICP; Fe, Zn, Mn, and Cu/DTPA by ICP, and B/hot water by ICP

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AUSTIN, TX 78746

Sample received on: 10/27/2023
Printed on: 11/10/2023
Area Represented: 35 acres

Travis County
Laboratory Number: 642831
Customer Sample ID: Hole 3 0-12
Crop Grown: BLUESTEM (GRAZING OR HAY)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	7.9	(5.8)	-	Mod. Alkaline	
Conductivity	108	(-)	umho/cm	None CL*	
Nitrate-N	1	(-)	ppm**		35 lbs N/acre
Phosphorus	1	(50)	ppm		55 lbs P2O5/acre
Potassium	80	(125)	ppm		40 lbs K20/acre
Calcium	21,730	(180)	ppm		0 lbs Ca/acre
Magnesium	196	(50)	ppm		0 lbs Mg/acre
Sulfur	147	(13)	ppm		0 lbs S/acre
Sodium	12	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre

Textural Analysis Test (hydrometer)			Detailed Salinity Test (Saturated Paste Extract)		
Sand	69	%	pH	6.8	
Silt	14	%	Conductivity	0.59 mmhos/cm	
Clay	17	%	Sodium	17 ppm	0.758 meq/L
Textural Class:	Sandy Loam		Potassium	6 ppm	0.145 meq/L
			Calcium	97 ppm	4.862 meq/L
TKN	537	ppm	Magnesium	6 ppm	0.459 meq/L
TN	2291	ppm	SAR	0.46	
Ammonium-N	5.8	ppm	SSP	12.18	

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

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Methods: pH and conductivity/ 2:1, nitrate-N/Cd-red , P, K, Ca, Mg, Na, and S/Mehlich 3 by ICP; Fe, Zn, Mn, and Cu/DTPA by ICP, and B/hot water by ICP

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AUSTIN, TX 78746

Sample received on: 10/27/2023
Printed on: 11/10/2023
Area Represented: 35 acres

Travis County
Laboratory Number: 642832
Customer Sample ID: Hole 3 12-24
Crop Grown: BLUESTEM (GRAZING OR HAY)

Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess.	Fertilizer Recommended
pH	7.9	(5.8)	-	Mod. Alkaline							
Conductivity	95	(-)	umho/cm	None				CL*			
Nitrate-N	2	(-)	ppm**								35 lbs N/acre
Phosphorus	0	(50)	ppm								55 lbs P2O5/acre
Potassium	65	(125)	ppm								55 lbs K20/acre
Calcium	28,792	(180)	ppm								0 lbs Ca/acre
Magnesium	123	(50)	ppm								0 lbs Mg/acre
Sulfur	193	(13)	ppm								0 lbs S/acre
Sodium	12	(-)	ppm								
Iron											
Zinc											
Manganese											
Copper											
Boron											
Limestone Requirement											0.00 tons 100ECCE/acre

Textural Analysis Test (hydrometer)			Detailed Salinity Test (Saturated Paste Extract)			
Sand	79	%	pH	6.9		
Silt	8	%	Conductivity	0.47	mmhos/cm	
Clay	13	%	Sodium	21	ppm	0.899 meq/L
Textural Class:	Sandy Loam		Potassium	5	ppm	0.133 meq/L
			Calcium	45	ppm	2.248 meq/L
TKN	921	ppm	Magnesium	2	ppm	0.200 meq/L
TN	1076	ppm	SAR	0.81		
Ammonium-N	3.8	ppm	SSP	25.84		

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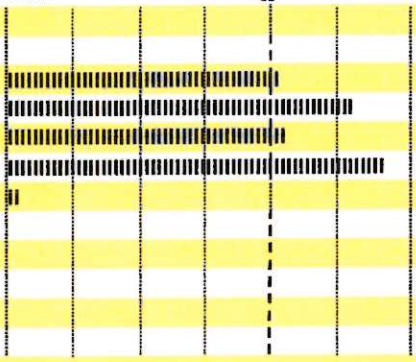
Covert Ranch
1101 S Capital of TX Hwy, Bldg. D110
AUSTIN, TX 78746

Sample received on: 10/27/2023
Printed on: 11/10/2023
Area Represented: 35 acres

Travis County
Laboratory Number: 642833
Customer Sample ID: Hole 4 1-12
Crop Grown: BLUESTEM (GRAZING OR HAY)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	7.9	(5.8)	-	Mod. Alkaline	
Conductivity	106	(-)	umho/cm	None	
Nitrate-N	0	(-)	ppm**		35 lbs N/acre
Phosphorus	0	(50)	ppm		55 lbs P2O5/acre
Potassium	149	(125)	ppm		0 lbs K20/acre
Calcium	15,649	(180)	ppm		0 lbs Ca/acre
Magnesium	76	(50)	ppm		0 lbs Mg/acre
Sulfur	102	(13)	ppm		0 lbs S/acre
Sodium	13	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre



Textural Analysis Test (hydrometer)			Detailed Salinity Test (Saturated Paste Extract)		
Sand	59	%	pH	6.8	
Silt	14	%	Conductivity	0.39 mmhos/cm	
Clay	27	%	Sodium	19 ppm	0.810 meq/L
Textural Class:	Sandy Clay Loam		Potassium	3 ppm	0.065 meq/L
			Calcium	62 ppm	3.095 meq/L
TKN	805	ppm	Magnesium	2 ppm	0.147 meq/L
TN	1432	ppm	SAR	0.64	
Ammonium-N	3.6	ppm	SSP	19.67	

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Methods: pH and conductivity/ 2:1, nitrate-N/Cd-red , P, K, Ca, Mg, Na, and S/Mehlich 3 by ICP; Fe, Zn, Mn, and Cu/DTPA by ICP, and B/hot water by ICP

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AEG, Inc.
Covert Ranch
1101 S Capital of TX Hwy, Bldg. D110
AUSTIN, TX 78746

Sample received on: 10/27/2023
Printed on: 11/10/2023
Area Represented: 35 acres

Travis County
Laboratory Number: 642834
Customer Sample ID: Hole 4 12-24
Crop Grown: BLUESTEM (GRAZING OR HAY)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	7.9	(5.8)	-	Mod. Alkaline	
Conductivity	188	(-)	umho/cm	None CL*	
Nitrate-N	0	(-)	ppm**		35 lbs N/acre
Phosphorus	0	(50)	ppm		55 lbs P2O5/acre
Potassium	207	(125)	ppm		0 lbs K20/acre
Calcium	19,890	(180)	ppm		0 lbs Ca/acre
Magnesium	82	(50)	ppm		0 lbs Mg/acre
Sulfur	129	(13)	ppm		0 lbs S/acre
Sodium	18	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre

Textural Analysis Test (hydrometer)			Detailed Salinity Test (Saturated Paste Extract)		
Sand	59	%	pH	7.1	
Silt	12	%	Conductivity	0.34 mmhos/cm	
Clay	29	%	Sodium	17 ppm	0.744 meq/L
Textural Class:	Sandy Clay Loam		Potassium	2 ppm	0.056 meq/L
			Calcium	50 ppm	2.485 meq/L
TKN	1096	ppm	Magnesium	1 ppm	0.111 meq/L
TN	1319	ppm	SAR	0.65	
Ammonium-N	4.7	ppm	SSP	21.90	

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AUSTIN, TX 78746

Sample received on: 10/27/2023
Printed on: 11/10/2023
Area Represented: 35 acres

Travis County
Laboratory Number: 642835
Customer Sample ID: Hole 5 1-12
Crop Grown: BLUESTEM (GRAZING OR HAY)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	7.7	(5.8)	-	Mod. Alkaline	
Conductivity	126	(-)	umho/cm	None	
Nitrate-N	0	(-)	ppm**		35 lbs N/acre
Phosphorus	0	(50)	ppm		55 lbs P2O5/acre
Potassium	142	(125)	ppm		0 lbs K20/acre
Calcium	22,065	(180)	ppm		0 lbs Ca/acre
Magnesium	191	(50)	ppm		0 lbs Mg/acre
Sulfur	150	(13)	ppm		0 lbs S/acre
Sodium	14	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre

Textural Analysis Test (hydrometer)			Detailed Salinity Test (Saturated Paste Extract)		
Sand	69	%	pH	6.5	
Silt	12	%	Conductivity	0.80 mmhos/cm	
Clay	19	%	Sodium	26 ppm	1.117 meq/L
Textural Class:	Sandy Loam		Potassium	17 ppm	0.424 meq/L
			Calcium	138 ppm	6.888 meq/L
TKN	1370	ppm	Magnesium	6 ppm	0.497 meq/L
TN	2472	ppm	SAR	0.58	
Ammonium-N	6.8	ppm	SSP	12.51	

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Methods: pH and conductivity/ 2:1, nitrate-N/Cd-red., P, K, Ca, Mg, Na, and S/Mehlich 3 by ICP; Fe, Zn, Mn, and Cu/DTPA by ICP; and B/hot water by ICP

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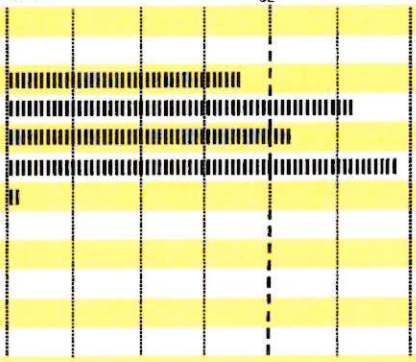
Sample received on: 10/27/2023
Printed on: 11/10/2023
Area Represented: 35 acres

Travis County
Laboratory Number: 642836
Customer Sample ID: Hole 5 12-24
Crop Grown: BLUESTEM (GRAZING OR HAY)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	7.8	(5.8)	-	Mod. Alkaline	
Conductivity	127	(-)	umho/cm	None	
Nitrate-N	1	(-)	ppm**		35 lbs N/acre
Phosphorus	0	(50)	ppm		55 lbs P2O5/acre
Potassium	107	(125)	ppm		15 lbs K20/acre
Calcium	26,471	(180)	ppm		0 lbs Ca/acre
Magnesium	123	(50)	ppm		0 lbs Mg/acre
Sulfur	180	(13)	ppm		0 lbs S/acre
Sodium	12	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre



Textural Analysis Test (hydrometer)			Detailed Salinity Test (Saturated Paste Extract)		
Sand	69	%	pH	6.6	
Silt	12	%	Conductivity	0.89 mmhos/cm	
Clay	19	%	Sodium	20 ppm	0.884 meq/L
Textural Class:	Sandy Loam		Potassium	8 ppm	0.198 meq/L
			Calcium	134 ppm	6.680 meq/L
TKN	1543	ppm	Magnesium	4 ppm	0.363 meq/L
TN	1739	ppm	SAR	0.47	
Ammonium-N	9.0	ppm	SSP	10.88	

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2478 TAMU
College Station, TX 77843-2478
979-845-4816 (phone)
979-845-5958 (FAX)
Visit our website: http://soiltesting.tamu.edu

Report generated for:
AEG, Inc.
Covert Ranch
1101 S Capital of TX Hwy, Bldg. D110
AUSTIN, TX 78746

Sample received on: 10/27/2023
Printed on: 11/10/2023
Area Represented: 35 acres

Travis County
Laboratory Number: 642837
Customer Sample ID: Hole 1 12-24
Crop Grown: BLUESTEM (GRAZING OR HAY)

Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess.	Fertilizer Recommended
pH	8.2	(5.8)	-	Mod. Alkaline							
Conductivity	55	(-)	umho/cm	None				CL*			
Nitrate-N	0	(-)	ppm**								35 lbs N/acre
Phosphorus	0	(50)	ppm								55 lbs P2O5/acre
Potassium	27	(125)	ppm								90 lbs K20/acre
Calcium	32,562	(180)	ppm								0 lbs Ca/acre
Magnesium	64	(50)	ppm								0 lbs Mg/acre
Sulfur	212	(13)	ppm								0 lbs S/acre
Sodium	10	(-)	ppm								
Iron											
Zinc											
Manganese											
Copper											
Boron											
Limestone Requirement											0.00 tons 100ECCE/acre

Textural Analysis Test (hydrometer)			Detailed Salinity Test (Saturated Paste Extract)		
Sand	71	%	pH	7.1	
Silt	16	%	Conductivity	0.38 mmhos/cm	
Clay	13	%	Sodium	21 ppm	0.914 meq/L
Textural Class:	Sandy Loam		Potassium	3 ppm	0.075 meq/L
			Calcium	48 ppm	2.413 meq/L
TKN	265	ppm	Magnesium	1 ppm	0.090 meq/L
TN	457	ppm	SAR	0.82	
Ammonium-N	3.7	ppm	SSP	26.19	

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Nitrogen: Apply an additional 30 lbs/A of nitrogen prior to each four to six week graze down..

Potassium: Split apply potassium fertilizer if recommendation is for more than 75 lbs K2O per acre.

New online fertilizer calculators have been placed on the laboratory's website to determine appropriate fertilizers to purchase and determine their application rates. http://soiltesting.tamu.edu/webpages/calculator.html

Methods: pH and conductivity/ 2 1, nitrate-N/Cd-red ; P, K, Ca, Mg, Na, and S/Mehlich 3 by ICP; Fe, Zn, Mn, and Cu/DTPA by ICP, and B/hot water by ICP

DOMESTIC WORKSHEET 3.3

SUBSURFACE AREA DRIP DISPERSAL SYSTEM (SADDS) LAND DISPOSAL OF EFFLUENT

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

NOTE: All applicants proposing new or 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 84)

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. 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.

C. Owner of the subsurface area drip dispersal system:

HH-CH-B Blue Lake 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.

E. Owner of the land where the subsurface area drip dispersal system is located:

HH-CH-B Blue Lake 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.

Section 2. Subsurface Area Drip Dispersal System (Instructions Page 84)

A. Type of system

☒ Subsurface Drip Irrigation

☐ Surface Drip Irrigation

☐ Other, specify:

B. Irrigation operations

Application area, in acres:

Infiltration Rate, in inches/hour:

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

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

Storage volume, in gallons:

Major soil series: BID, BoF

Depth to groundwater, in feet: See recharge report

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:

Nitrogen application rate, in lbs/gal/day:

D. Dosing information

Number of doses per day: 3

Dosing duration per area, in hours: 12.5 total

Rest period between doses, in hours: 8 hours

Dosing amount per area, in inches/day: 0.0134

Number of zones: 34

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:

Section 3. Required Plans (Instructions Page 84)

A. Recharge feature plan

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

Attachment: Domestic Worksheet 3.3 Attachment 1

B. Soil evaluation

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

Attachment: Attachment 2 Domestic Worksheet 3.3

C. Site preparation plan

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

Attachment: Attachment 3 Domestic Worksheet 3.3

D. Soil sampling/testing

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

Attachment: Attachment 2 Domestic Worksheet 3.3

Section 4. Floodway Designation (Instructions Page 85)

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: FEMA Firm Map 48453CO195J, 1/22/20

Section 5. Surface Waters in the State (Instructions Page 85)

A. Buffer Map

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

Attachment: Attachment 4 Domestic Worksheet 3.3

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:

Section 6. Edwards Aquifer (Instructions Page 85)

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

Yes ☐ No ☒

B. Is the SADDS located on the Edwards Aquifer Transition Zone as mapped by the 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.

ATTACHMENT 1 – DOMESTIC WORKSHEET 3.3 SECTION 3(A)
RECHARGE FEATURE PLAN

12.15.23

David A Allen

PREFACE

A comprehensive Recharge Feature Plan was prepared by Thornhill Group Inc. in 2007 and was included with our initial submittal. The proposed expansion of the drip fields is located west of the permitted fields, just across Thurman Bend Road (approximately 3,000 ft. west of one of the permitted drip field areas). The geology of the site is the same as that described in the previous plan. The following is an update the previous report based upon an on-site investigation conducted on December 8, 2023. Detailed descriptions of the geology and stratigraphy are provided in the original report previously submitted. The intent of this update is to demonstrate the expanded drip field location is located in the same geologic setting and to verify the presence or absence of recharge features.

Note, this amendment replaces the permitted surface drip fields with subsurface drip fields at the locations indicated in the renewal/amendment application.

GEOLOGIC SETTING

The location of the existing permitted drip fields and the proposed drip fields are overlayed on a cropped area of the "Geologic Atlas of Texas Llano Sheet", Bureau of Economic Geology, 1986 in Figure 1. The drip fields lie on the upper and lower Glenrose formations. The formation consists of limestone, dolomite, and marl in alternating resistant and recessive beds forming stairstep topography. Limestone is aphanitic to fine grained, hard to soft and marly, light gray to yellowish gray. Dolomite is fine grained, porous, yellowish-brown.

GROUNDWATER CONDITIONS

There are over 70 small capacity groundwater wells located within one mile of the proposed drip area. The well locations along with the drillers reports and addresses when available are included in the Worksheet 3, Groundwater Quality Plan. There are no well locations within 500 ft of the proposed drip fields.

PRESCENCE OR ABSENCE OF RECHARGE FEATURES

The proposed drip irrigation areas were walked on December 8th to identify any recharge features. The stairstep topography is typical of the Glen Rose formation with treads and risers. Each of the major treads and risers were physically walked over the course of the entire irrigation area. While certain horizons of the Glen Rose can be karstic and appear similar to the Edwards Recharge Zone, the area proposed for drip irrigation did not contain any karstic features. No recharge features were observed.

Glen Rose Limestone, Hensell Sand, and Travis Peak Formation

NTS

LEGEND

- PERMITTED EFFLUENT DISPOSAL SITES (SURFACE)
- PERMITTED EFFLUENT DISPOSAL SITES (SUBSURFACE)
- PROPOSED DRIP FIELDS (SUBSURFACE)

MEC
Munfee Engineering Company

FIGURE 1 - VIZCAYA WWTP
GEOLOGY

JOB NO. 08-056.10	SCALE: 1" = 2,000'	SHEET: 1 OF 2
DESIGNED BY: JEF		DATE: 12/13/2023
DRAWN BY: RWH		DATE: 12/13/2023

FILE(LAY OUT): Q:\08-056\3000-056.10-BASE DA 12.7.dwg(Geologic)

ATTACHMENT 2 – DOMESTIC WORKSHEET 3.3 SECTION 3(B) AND 3(D)
SOIL EVALUATION AND SOILS SAMPLING/TESTING

SOILS INVESTIGATION IN SUPPORT OF VICAYA MUD TLAP RENEWAL WITH MAJOR AMENDMENT

Prepared For:
Murfee Engineering Company, Inc.
1101 S. Capital of TX Hwy, Bldg. D110
Austin, Texas 78746

November 14, 2024

11.14.23

David A Allen

Prepared By:
Allen Engineering Group, Inc.
1101 S. Capital of TX Hwy, Bldg. D110
Austin, Texas 78746
Firm No. F-7996

AEG

PREFACE

The Site Soils Investigation Report in support of the original 2007 permit application which is included as an attachment to this report. The proposed relocated drip fields requested for this amendment are located in two of the soil types identified in the 2007 report, BID and BoF. The relocated drip field locations are across Thurman Bend Road, just west of the existing permitted fields.

INTRODUCTION

Vizcaya MUD is renewing their Texas Land Application Permit with a Major Amendment. This report has been prepared to address the requirements of 30 TAC Chapters 217 and 222. The proposed disposal area is located in Brackett Series soils. Soil samples were collected from five locations representing Brackett soils, rolling (BID) and Brackett soils and rock outcrop (BoF) as identified in the Soil Survey of Travis County. Included in this report are brief descriptions of the geology and soil descriptions obtained from the Soil Survey of Travis County. The soil profiles observed did not always conform to the soil descriptions in the Soil Survey. In particular, bedrock was not observed in any of the pits.

Due to site characteristics, such as shallow soils, believed to be non-arable, and sloping topography, it is being proposed to utilize either surface or subsurface drip irrigation for the treated effluent disposal system. There are multiple areas where the site will be cleared, graded, and filled with suitable soil obtained from excavation of the roads and buried underground structures where steep slopes prevent installation of surface drip irrigation.

The areas are covered primarily with ashe juniper. Live oak is a minor component of the vegetation. Grasses are present on benched areas.

GEOLOGY

According to the Geologic Atlas of Texas, the site is located on the Glen Rose Formation. The official description is; composed of limestone, dolomite, and marl; 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 mega fossils include molluscan steinkerns, rudistids, oysters, and echinoids; upper part, relatively thinner bedded, more dolomitic, and less fossiliferous than the lower part; thickness of Glen Rose Formation 380± feet. USDA-Soil Survey.

CLIMATE

According to the USDA-SCS Soil Survey for Travis County, Texas, the climate is hui subtropical and is characterized by hot summers and relatively mild winters. Temperature and rainfall are the climatic factors that have the greatest influence on the formation of soils in the area. The pater of rainfall consists of interspersed wet and dry periods.

SOIL DESCRIPTIONS (From Soil Survey of Travis County, USDA, Soil Conservation Service in cooperation with the Texas Agricultural Experiment Station)

Soils at the proposed irrigation site consist of Brackett series rolling (BID) and Brackett soils and rock outcrop, steep slopes (BoF). Profiles from the test pits may differ from the descriptions in the soil survey due to normal variations in coverage.

Brackett soils, rolling (BID). - These soils occupy gently undulating to rolling topograhy, generally on benches 100 to 500 feet wide that are separated by outcrops of the underlying limestone and marl. Slope is dominantly 5 to 12 percent, but it ranges from 1 to 12 percent. These soils developed over interbedded limestone and marl. Individual areas are more than 1,000 acres in size.

These soils have the profile described as representative of the series. About 20 percent of the mapping unit consists of rock outcrop. Broken limestone fragments cover up to 75 percent of the surface. The texture of the surface layer is gravelly clay loam, gravelly loam, loam, or clay loam.

Included in mapping were soils less than 10 inches thick on the outer edges of the benches and some soils resting directly on indurated limestone. Also included, in narrow valleys, were deeper soils, such as those of the Volente, Altoga, and San Saba series. These included soils make up 10 to 15 percent of the mapping unit.
A large part of the annual rainfall is lost through runoff and seepage from the limestone outcrops. These soils are not suited to crops. They are better suited to range or wildlife. habitat. (Capability unit VIIs-2, Adobe range site, pasture and hayland group not assigned).

Brackett Soils and Rock outcrop, steep (BoF) - This mapping unit is on steep breaks along creeks and rivers. Individual areas are long and narrow or irregular in shape and up to 1,000 acres in size. In most areas about 75 percent of the surface is covered by 2- to 4-inch limestone fragments. The slope ranges from 15 to 30 percent.

The composition of this mapping unit is variable, but it consists of about 35 percent Brackett soils. 21 percent Rock outcrop, and 40 percent soils similar to the Brackett soils.

The Brackett soils are on benches 15 to 50 feet wide that are separated by outcrops. The surface layer is light brownish-gray gravelly clay loam or gravelly loam about 4 inches thick. About 60 percent of its surface is covered with coarse fragments. The next layer is pale-brown clay loam that extends to a depth of about 15 inches. The underlying material is interbedded limestone and marl.

The soils similar to the Brackett soils are less than 10 inches deep; they contain more than 35 percent limestone fragments or they rest directly on hard limestone. The percentage of Rock outcrop and very shallow soils increases as the slope increases.

Included in mapping were deeper soils, such as those of the Volente, Lewisville, or Altoga series, in long, narrow valleys. These included soils make up about 4 percent of the acreage.

These soils are not suited to crops. They are better suited to range or wildlife habitat. (Capability unit VI's-3, Steep Adobe range site, pasture and hayland group not assigned.)

Table 1 – Typical Soil Characteristics (from USDA)

Soil	Hydrologic Group	Depth (in)	USDA Texture	Permeability (in/hr.)
Brackett	C	0-6	Gravelly Clay Loam	0.20-0.60
		6-18	Clay Loam	0.20-0.63
		18-48	Interbedded Soft Limestone and Marl	

SITE INVESTIGATION

On October 23, 2023, a total of five test pits were excavated in the locations shown on Figures 1 through 3. Samples were collected from 0-12 inches, 12-24 inches. Chemical analyses were performed at Texas A&M Agricultural Extension Service. The site observations and analytical results are presented in the following section.

Soil Profile No. 1

Brackett Rolling

1 – 12 % Percent Slopes

The excavation was terminated at 37". The profile consisted of an A horizon, approximately 12" thick, and a B horizon approximately 12" thick, and a C horizon more than 15" thick. The A and B zones were a reddish brown in color with irregular boundaries. The boundary between the A and B horizons was wavy. The C horizon consisted of a clay loam with a blocky structure. Primary and secondary rooting depths were 6 and 18 inches, respectively.

The vegetation primarily consisted of open native grasses.

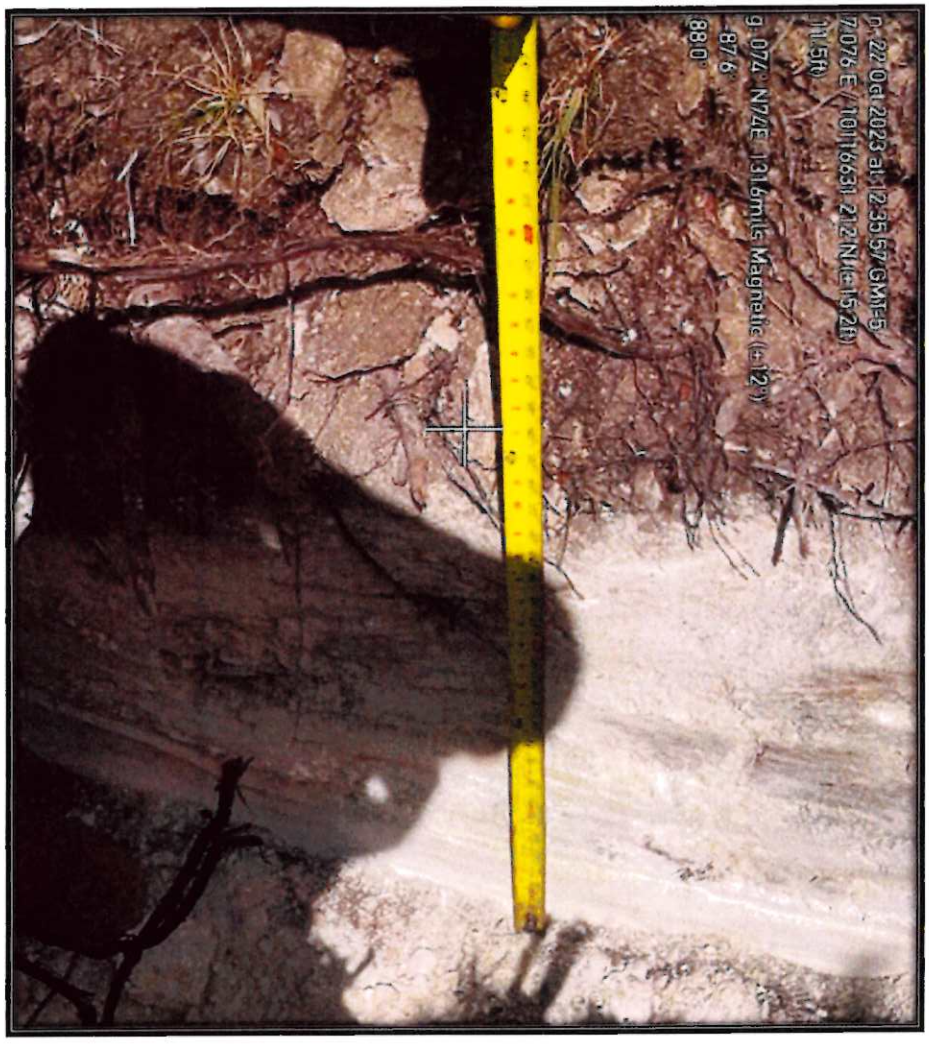
Soil Profile No. 1
Soil Classfication Brackett Rolling

Total Depth in	Primary Rooting Depth in	Secondary Rooting Depth in	Comments: Juniper stand with some live oak, approximately 80 % coverage.
37	6	24	

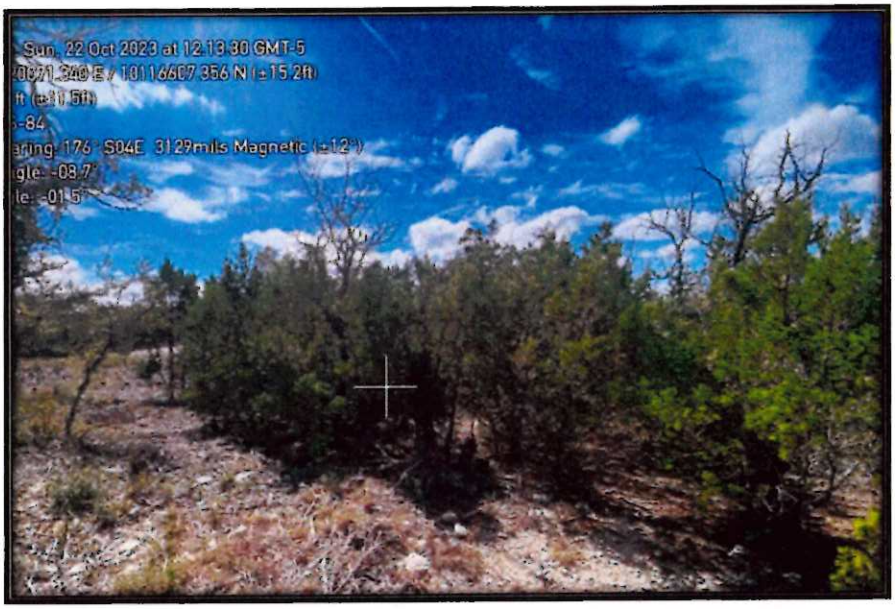
Horizon	Depth in	Boundary Description	Texture	Structure	Color	Mottling	% Coarse Fragments	Potential Water Bearing Zone	Active Water Bearing Zone
A	6	Irregular	Sandy Clay Loam	Granular	Gray Brown	None	< 5	None	None
B	9	Wavy	Sandy Clay Loam	Granular	Gray Brown	None	< 15	None	None
C			Chalk						

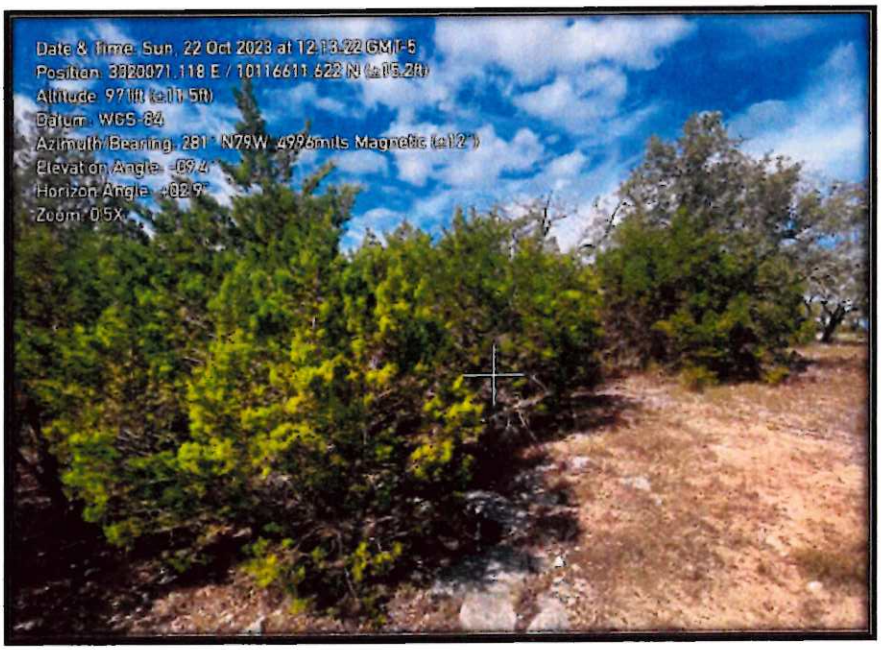
Refusal Depth	> 37

Soil Profile No. 1



Soil Profile No. 1





Soil Profile No. 2

Brackett Rolling

1 – 12 % Percent Slopes

The excavation was terminated at 35" terminating in excavatable chalk interspersed with marl. The profile consisted of an A horizon, approximately 6" thick, and a B horizon approximately 11" thick, and a C horizon more than 15" thick. Each of the zones were a reddish brown in color with irregular boundaries. The boundary between the A and B horizons was wavy. The C horizon consisted of a clay loam with a blocky structure. Primary and secondary rooting depths were 6 and 18 inches, respectively.

The vegetation primarily consisted of open native grasses in a benched area and ashe juniper along the edges.

Soil Profile No. 2
Soil Classfication Brackett Rolling

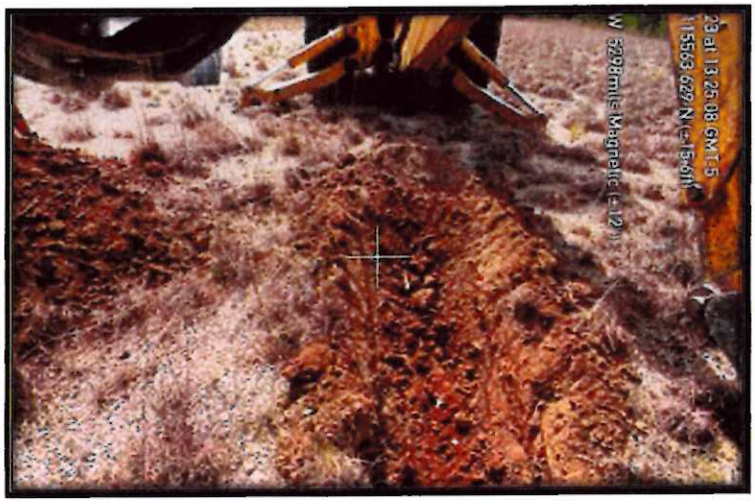
Total Depth in	Primary Rooting Depth in	Secondary Rooting Depth in	Comments: Juniper stands predominant coverage.
35	6	17	

Horizon	Depth in	Boundary Description	Texture	Structure	Color	Mottling	% Coarse Fragments	Potential Water Bearing Zone	Active Water Bearing Zone
A	8	Irregular	Clay	Granular	Tan	Absent	<5%	None	None
B	13	Irregular	Clay	Granular	Reddish Brown	Absent	10	None	None
C			Chalk Interspersed with Marl	Massive	White	Absent		None	None

Refusal Depth	>35"

Soil Profile No. 2

Soil Profile No. 2



Soil Profile No. 3

5 – 12 % Percent Slopes

The excavation was terminated at 22" terminating in limestone bedrock. The profile consisted of an A horizon, approximately 6" thick, and a B horizon approximately 14" thick. Each of the zones was a reddish brown in color with irregular boundaries. The boundary between the A and B horizons was wavy. Primary and secondary rooting depths were 6 and 14 inches, respectively. The C horizon was approximately 8" thick and consisted of platy limestone fragments.

The vegetation primarily consisted of open native grasses in a benched area and ashe juniper along the edges.

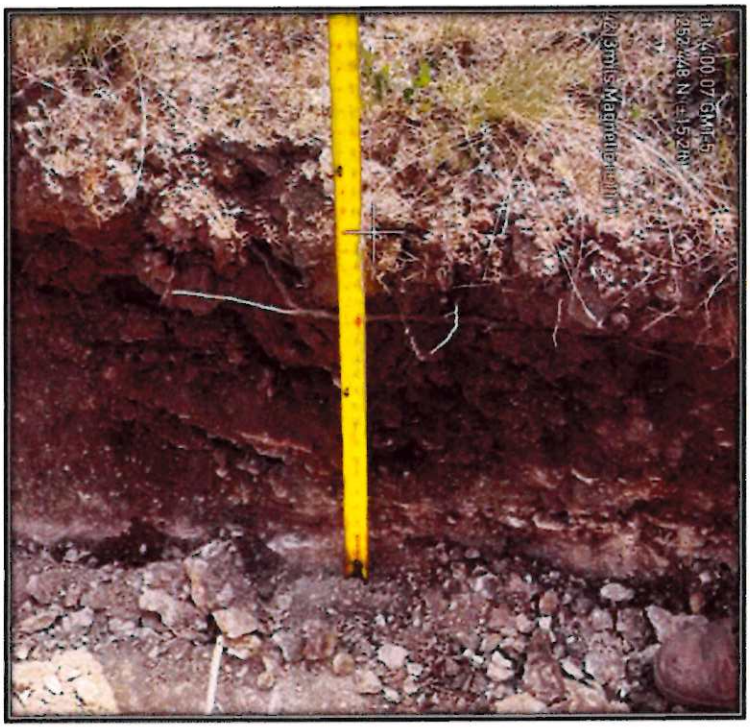
Soil Profile No. 3
Soil Classfication Brackett Rolling

Total Depth in	Primary Rooting Depth in	Secondary Rooting Depth in	Comments: Ashe juniper was the primary tree species. Open areas had good coverage of grass and cactus. Some rocks present on the surface.
16	6	14	

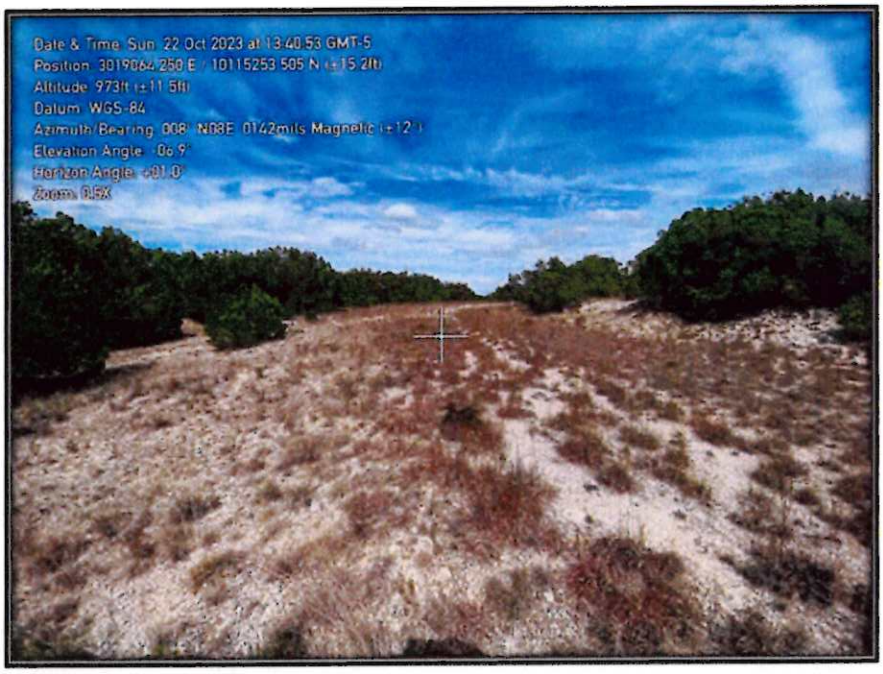
Horizon	Depth in	Boundary Description	Texture	Structure	Color	Mottling	% Coarse Fragments	Potential Water Bearing Zone	Active Water Bearing Zone
A	6	Wavy	Sandy Loam	Granular	Grayish Brown	None	0	None	None
B	8	Wavy	Sandy Loam	Granular	Grayish Broun	None	10	None	None
C			Fractured Rock Interspersed w/ Loamy Clay	Playty		None		None	None

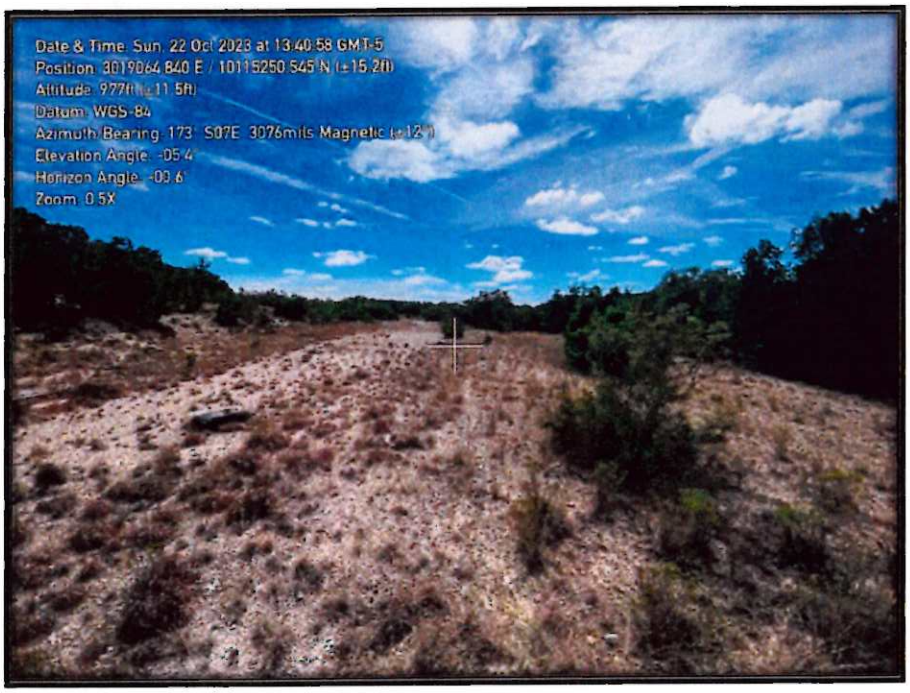
Refusal Depth	22"

Soil Profile No. 3



Soil Profile No. 3





Soil Profile No. 4

5 – 12 % Percent Slopes

The excavation was terminated at 27 in excavatable chalk interspersed with marl. The profile consisted of an A horizon, approximately 6" thick, and a B horizon approximately 11" thick, and a C horizon more than 15" thick. Each of the zones were reddish brown in color. The boundary between the A and B horizons was wavy. Primary and secondary rooting depths were 6 and 27 inches, respectively.

The vegetation downslope of the bench consisted primarily of ashe juniper. This slope was on the edge of the BID and BoF soils.

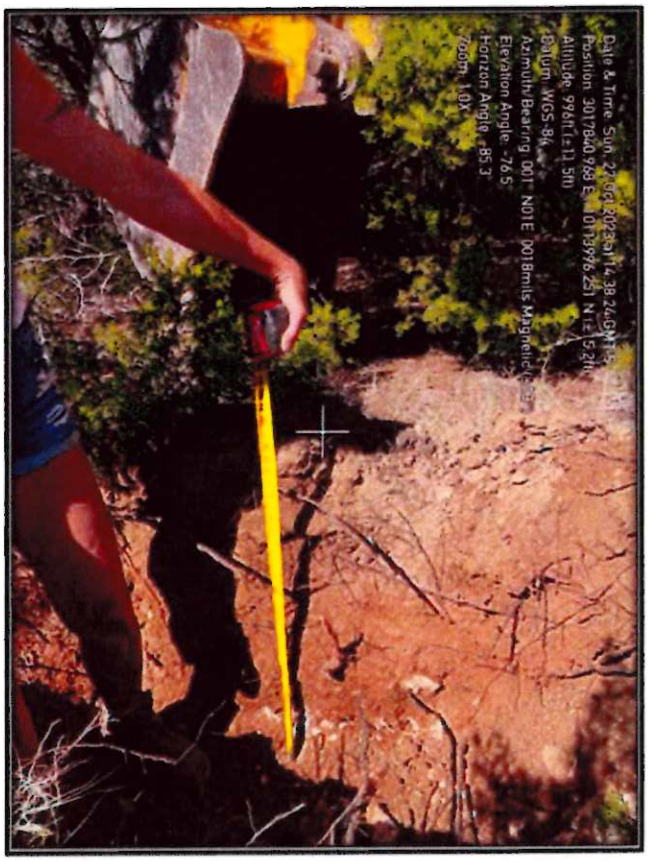
Soil Profile No. 4
Soil Classfication Brackett Rolling

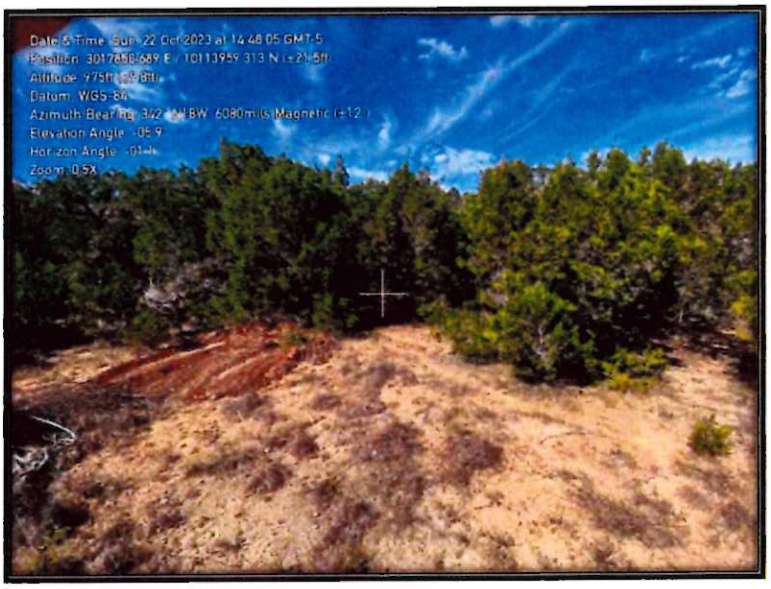
Total Depth in	Primary Rooting Depth in	Secondary Rooting Depth in	Comments: This sample obtained next to juniper stands adjacent to benched area (soil profile 3).
27	12	27	

Horizon	Depth in	Boundary Description	Texture	Structure	Color	Mottling	% Coarse Fragments	Potential Water Bearing Zone	Active Water Bearing Zone
A	4	Wavey	Sandy Clay Loam	Granular	Brownish Gray	None	< 3	None	None
B	23	Wavey	Sandy Clay Loam	Granular	Redish Brown	None	< 4	None	None

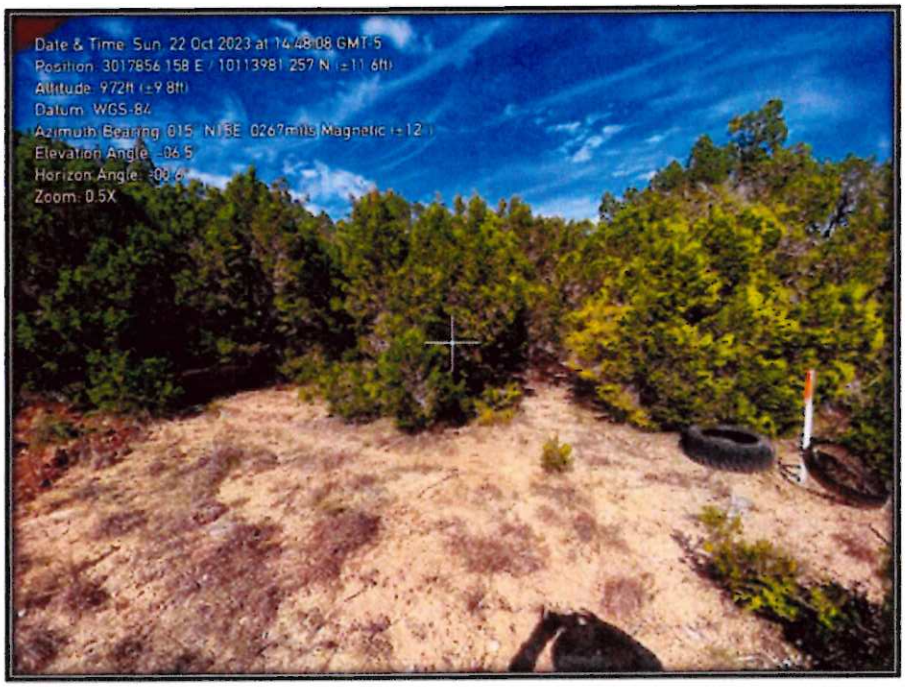
Refusal Depth in	> 27"

Soil Profile No. 4





Soil Profile No. 4



Soil Profile No. 5

5 – 12 % Percent Slopes

Refusal was reached at approximately 16". The profile consisted of an A horizon, approximately 4" thick, and a B horizon approximately 12" thick. The zones were light gray in color. The boundary between the A and B horizons was wavy. Primary and secondary rooting depths were 6 and 27 inches, respectively.

The vegetation downslope of the bench consisted primarily of ashe juniper.

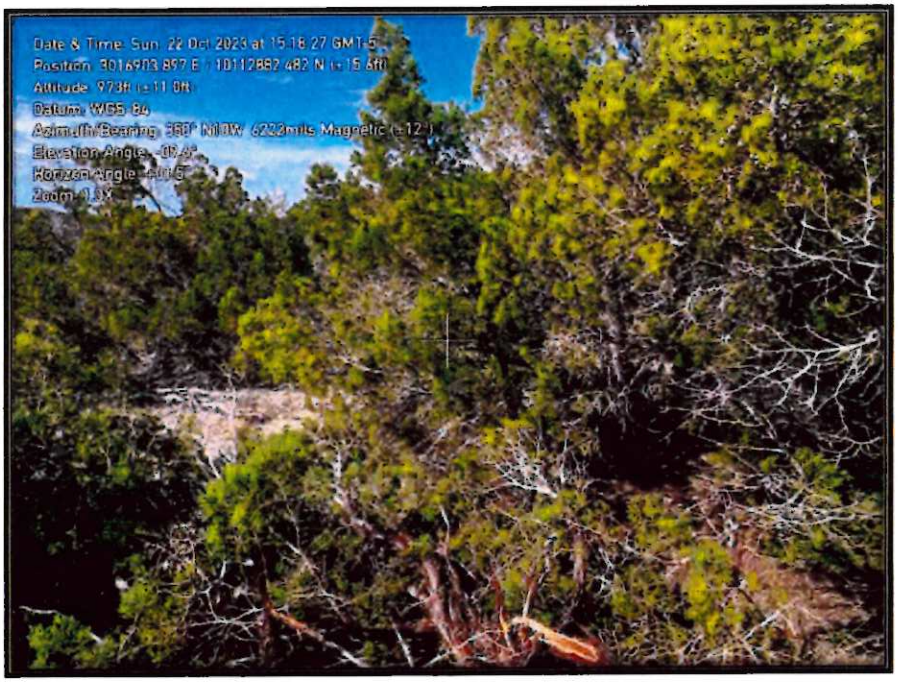
Soil Profile No. 5
Soil Classfication Bracket Rolling

Total Depth in	Primary Rooting Depth in	Secondary Rooting Depth in	Comments: Vegetation consists primarily of ashe juniper.
16	6	14	

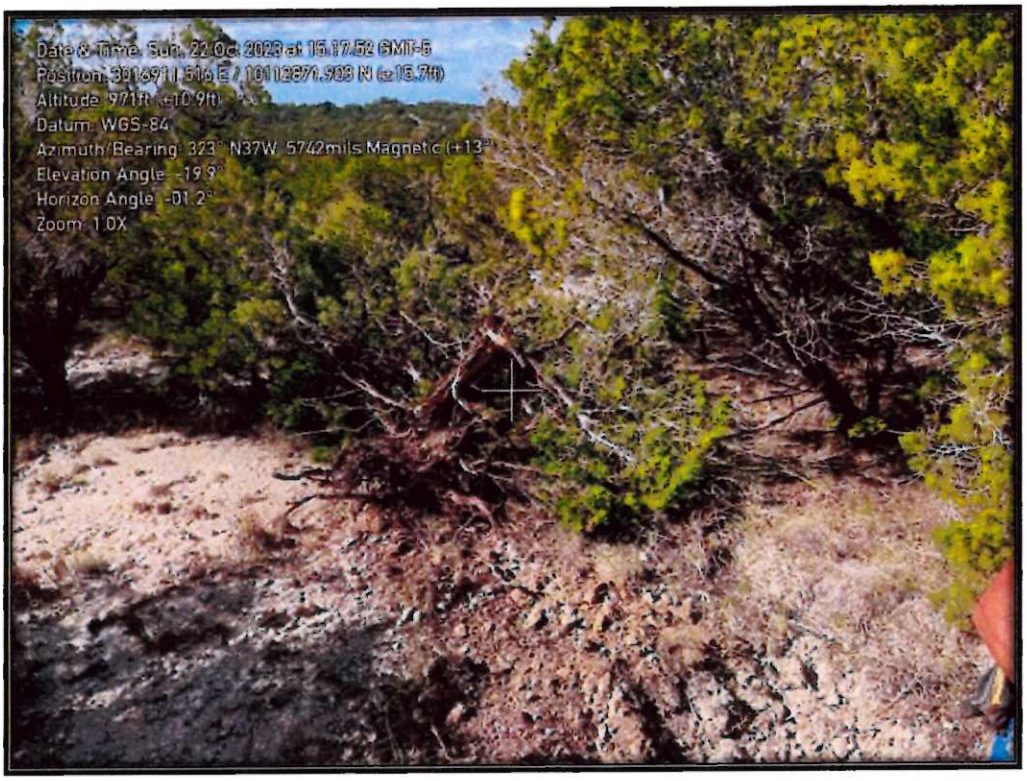
Horizon	Depth in	Boundary Description	Texture	Structure	Color	Mottling	% Coarse Fragments	Potential Water Bearing Zone	Active Water Bearing Zone
A	4	Wavey	Sandy Loam	Granular	Light Gray	None	< 1	None	None
B	12		Sandy Loam	Granular	Light Gray	None	< 15	None	None

Refusal Depth	16"

Soil Profile No. 5



Soil Profile No. 5



ATTACHMENT

2007 SOILS REPORT

TEXAS A&M AGRILIFE EXTENSION

Soil Analysis Report

Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
979-845-4816 (phone)
979-845-5958 (FAX)
Visit our website: http://soiltesting.tamu.edu

Report generated for:
AEG, Inc.
Covert Ranch
1101 S Capital of TX Hwy, Bldg. D110
AUSTIN, TX 78746

Sample received on: 10/27/2023
Printed on: 11/10/2023
Area Represented: 35 acres

Travis County
Laboratory Number: 642827
Customer Sample ID: Hole 1 0-12
Crop Grown: BLUESTEM (GRAZING OR HAY)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	7.7	(5.8)	-	Mod. Alkaline	
Conductivity	159	(-)	umho/cm	None	
Nitrate-N	5	(-)	ppm**		25 lbs N/acre
Phosphorus	3	(50)	ppm		50 lbs P2O5/acre
Potassium	125	(125)	ppm		0 lbs K20/acre
Calcium	24,642	(180)	ppm		0 lbs Ca/acre
Magnesium	89	(50)	ppm		0 lbs Mg/acre
Sulfur	173	(13)	ppm		0 lbs S/acre
Sodium	20	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre

Textural Analysis Test (hydrometer)		
Sand	57	%
Silt	12	%
Clay	31	%
Textural Class:	Sandy Clay Loam	
TKN	703	ppm
TN	3497	ppm
Ammonium-N	9.2	ppm

Detailed Salinity Test (Saturated Paste Extract)		
pH	6.7	
Conductivity	1.02 mmhos/cm	
Sodium	27 ppm	1.172 meq/L
Potassium	13 ppm	0.328 meq/L
Calcium	186 ppm	9.282 meq/L
Magnesium	6 ppm	0.484 meq/L
SAR	0.53	
SSP	10.40	

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Nitrogen: Apply an additional 30 lbs/A of nitrogen prior to each four to six week graze down..

New online fertilizer calculators have been placed on the laboratory's website to determine appropriate fertilizers to purchase and determine their application rates.
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Methods: pH and conductivity/ 2:1, nitrate-N/Cd-red ; P, K, Ca, Mg, Na, and S/Mehlich 3 by ICP; Fe, Zn, Mn, and Cu/DTPA by ICP; and B/hot water by ICP

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Sample received on: 10/27/2023
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Area Represented: 35 acres

Travis County
Laboratory Number: 642828
Customer Sample ID: Hole 2 0-12
Crop Grown: BLUESTEM (GRAZING OR HAY)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	7.9	(5.8)	-	Mod. Alkaline	
Conductivity	233	(-)	umho/cm	None	
Nitrate-N	1	(-)	ppm**		35 lbs N/acre
Phosphorus	0	(50)	ppm		55 lbs P2O5/acre
Potassium	228	(125)	ppm		0 lbs K20/acre
Calcium	20,381	(180)	ppm		0 lbs Ca/acre
Magnesium	111	(50)	ppm		0 lbs Mg/acre
Sulfur	130	(13)	ppm		0 lbs S/acre
Sodium	15	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre

Textural Analysis Test (hydrometer)			Detailed Salinity Test (Saturated Paste Extract)		
Sand	33	%	pH	7.1	
Silt	18	%	Conductivity	0.33 mmhos/cm	
Clay	49	%	Sodium	17 ppm	0.747 meq/L
Textural Class:	Clay		Potassium	3 ppm	0.085 meq/L
			Calcium	49 ppm	2.430 meq/L
TKN	261	ppm	Magnesium	1 ppm	0.121 meq/L
TN	1438	ppm	SAR	0.66	
Ammonium-N	3.9	ppm	SSP	22.07	

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Travis County
Laboratory Number: 642829
Customer Sample ID: Hole 2 12-24
Crop Grown: BLUESTEM (GRAZING OR HAY)

Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess.	Fertilizer Recommended
pH	7.9	(5.8)	-	Mod. Alkaline							
Conductivity	108	(-)	umho/cm	None			CL*				
Nitrate-N	1	(-)	ppm**								35 lbs N/acre
Phosphorus	0	(50)	ppm								55 lbs P2O5/acre
Potassium	138	(125)	ppm								0 lbs K20/acre
Calcium	17,535	(180)	ppm								0 lbs Ca/acre
Magnesium	72	(50)	ppm								0 lbs Mg/acre
Sulfur	114	(13)	ppm								0 lbs S/acre
Sodium	14	(-)	ppm								
Iron											
Zinc											
Manganese											
Copper											
Boron											
Limestone Requirement											0.00 tons 100ECCE/acre

Textural Analysis Test (hydrometer)			Detailed Salinity Test (Saturated Paste Extract)		
Sand	55	%	pH	7.2	
Silt	12	%	Conductivity	0.29 mmhos/cm	
Clay	33	%	Sodium	15 ppm	0.670 meq/L
Textural Class:	Sandy Clay Loam		Potassium	2 ppm	0.062 meq/L
			Calcium	45 ppm	2.232 meq/L
TKN	740	ppm	Magnesium	1 ppm	0.089 meq/L
TN	958	ppm	SAR	0.62	
Ammonium-N	4.5	ppm	SSP	21.95	

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Sample received on: 10/27/2023
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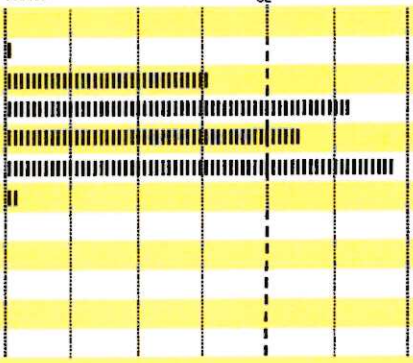
Area Represented: 35 acres

Travis County
Laboratory Number: 642831
Customer Sample ID: Hole 3 0-12
Crop Grown: BLUESTEM (GRAZING OR HAY)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	7.9	(5.8)	-	Mod. Alkaline	
Conductivity	108	(-)	umho/cm	None	
Nitrate-N	1	(-)	ppm**		35 lbs N/acre
Phosphorus	1	(50)	ppm		55 lbs P2O5/acre
Potassium	80	(125)	ppm		40 lbs K20/acre
Calcium	21,730	(180)	ppm		0 lbs Ca/acre
Magnesium	196	(50)	ppm		0 lbs Mg/acre
Sulfur	147	(13)	ppm		0 lbs S/acre
Sodium	12	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre



Textural Analysis Test (hydrometer)		
Sand	69	%
Silt	14	%
Clay	17	%
Textural Class:	Sandy Loam	
TKN	537	ppm
TN	2291	ppm
Ammonium-N	5.8	ppm

Detailed Salinity Test (Saturated Paste Extract)		
pH	6.8	
Conductivity	0.59 mmhos/cm	
Sodium	17 ppm	0.758 meq/L
Potassium	6 ppm	0.145 meq/L
Calcium	97 ppm	4.862 meq/L
Magnesium	6 ppm	0.459 meq/L
SAR	0.46	
SSP	12.18	

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AUSTIN, TX 78746

Sample received on: 10/27/2023
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Area Represented: 35 acres

Travis County
Laboratory Number: 642832
Customer Sample ID: Hole 3 12-24
Crop Grown: BLUESTEM (GRAZING OR HAY)

Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess.	Fertilizer Recommended
pH	7.9	(5.8)	-	Mod. Alkaline							
Conductivity	95	(-)	umho/cm	None			CL*				
Nitrate-N	2	(-)	ppm**								35 lbs N/acre
Phosphorus	0	(50)	ppm								55 lbs P2O5/acre
Potassium	65	(125)	ppm								55 lbs K20/acre
Calcium	28,792	(180)	ppm								0 lbs Ca/acre
Magnesium	123	(50)	ppm								0 lbs Mg/acre
Sulfur	193	(13)	ppm								0 lbs S/acre
Sodium	12	(-)	ppm								
Iron											
Zinc											
Manganese											
Copper											
Boron											
Limestone Requirement											0.00 tons 100ECCE/acre

Textural Analysis Test (hydrometer)			Detailed Salinity Test (Saturated Paste Extract)		
Sand	79	%	pH	6.9	
Silt	8	%	Conductivity	0.47 mmhos/cm	
Clay	13	%	Sodium	21 ppm	0.899 meq/L
Textural Class:	Sandy Loam		Potassium	5 ppm	0.133 meq/L
			Calcium	45 ppm	2.248 meq/L
TKN	921	ppm	Magnesium	2 ppm	0.200 meq/L
TN	1076	ppm	SAR	0.81	
Ammonium-N	3.8	ppm	SSP	25.84	

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Sample received on: 10/27/2023
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Area Represented: 35 acres

Travis County
Laboratory Number: 642833
Customer Sample ID: Hole 4 1-12
Crop Grown: BLUESTEM (GRAZING OR HAY)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	7.9	(5.8)	-	Mod. Alkaline	
Conductivity	106	(-)	umho/cm	None	
Nitrate-N	0	(-)	ppm**		35 lbs N/acre
Phosphorus	0	(50)	ppm		55 lbs P2O5/acre
Potassium	149	(125)	ppm		0 lbs K20/acre
Calcium	15,649	(180)	ppm		0 lbs Ca/acre
Magnesium	76	(50)	ppm		0 lbs Mg/acre
Sulfur	102	(13)	ppm		0 lbs S/acre
Sodium	13	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre

Textural Analysis Test (hydrometer)			Detailed Salinity Test (Saturated Paste Extract)		
Sand	59	%	pH	6.8	
Silt	14	%	Conductivity	0.39 mmhos/cm	
Clay	27	%	Sodium	19 ppm	0.810 meq/L
Textural Class:	Sandy Clay Loam		Potassium	3 ppm	0.065 meq/L
			Calcium	62 ppm	3.095 meq/L
TKN	805	ppm	Magnesium	2 ppm	0.147 meq/L
TN	1432	ppm	SAR	0.64	
Ammonium-N	3.6	ppm	SSP	19.67	

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Sample received on: 10/27/2023
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Area Represented: 35 acres

Travis County
Laboratory Number: 642834
Customer Sample ID: Hole 4 12-24
Crop Grown: BLUESTEM (GRAZING OR HAY)

Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess.	Fertilizer Recommended
pH	7.9	(5.8)	-	Mod. Alkaline							
Conductivity	188	(-)	umho/cm	None			CL*				
Nitrate-N	0	(-)	ppm**								35 lbs N/acre
Phosphorus	0	(50)	ppm								55 lbs P2O5/acre
Potassium	207	(125)	ppm								0 lbs K20/acre
Calcium	19,890	(180)	ppm								0 lbs Ca/acre
Magnesium	82	(50)	ppm								0 lbs Mg/acre
Sulfur	129	(13)	ppm								0 lbs S/acre
Sodium	18	(-)	ppm								
Iron											
Zinc											
Manganese											
Copper											
Boron											
Limestone Requirement											0.00 tons 100ECCE/acre

Textural Analysis Test (hydrometer)		
Sand	59	%
Silt	12	%
Clay	29	%
Textural Class:	Sandy Clay Loam	
TKN	1096	ppm
TN	1319	ppm
Ammonium-N	4.7	ppm

Detailed Salinity Test (Saturated Paste Extract)		
pH	7.1	
Conductivity	0.34 mmhos/cm	
Sodium	17 ppm	0.744 meq/L
Potassium	2 ppm	0.056 meq/L
Calcium	50 ppm	2.485 meq/L
Magnesium	1 ppm	0.111 meq/L
SAR	0.65	
SSP	21.90	

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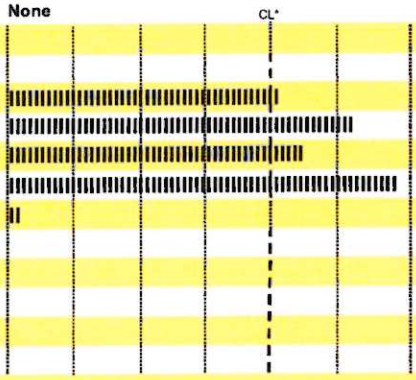
Travis County
Laboratory Number: 642835
Customer Sample ID: Hole 5 1-12
Crop Grown: BLUESTEM (GRAZING OR HAY)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	7.7	(5.8)	-	Mod. Alkaline	
Conductivity	126	(-)	umho/cm	None	
Nitrate-N	0	(-)	ppm**		35 lbs N/acre
Phosphorus	0	(50)	ppm		55 lbs P2O5/acre
Potassium	142	(125)	ppm		0 lbs K20/acre
Calcium	22,065	(180)	ppm		0 lbs Ca/acre
Magnesium	191	(50)	ppm		0 lbs Mg/acre
Sulfur	150	(13)	ppm		0 lbs S/acre
Sodium	14	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre



Textural Analysis Test (hydrometer)			Detailed Salinity Test (Saturated Paste Extract)		
Sand	69	%	pH	6.5	
Silt	12	%	Conductivity	0.80 mmhos/cm	
Clay	19	%	Sodium	26 ppm	1.117 meq/L
Textural Class:	Sandy Loam		Potassium	17 ppm	0.424 meq/L
			Calcium	138 ppm	6.888 meq/L
TKN	1370	ppm	Magnesium	6 ppm	0.497 meq/L
TN	2472	ppm	SAR	0.58	
Ammonium-N	6.8	ppm	SSP	12.51	

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Travis County
Laboratory Number: 642836
Customer Sample ID: Hole 5 12-24
Crop Grown: BLUESTEM (GRAZING OR HAY)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	7.8	(5.8)	-	Mod. Alkaline	
Conductivity	127	(-)	umho/cm	None	
Nitrate-N	1	(-)	ppm**		35 lbs N/acre
Phosphorus	0	(50)	ppm		55 lbs P2O5/acre
Potassium	107	(125)	ppm		15 lbs K20/acre
Calcium	26,471	(180)	ppm		0 lbs Ca/acre
Magnesium	123	(50)	ppm		0 lbs Mg/acre
Sulfur	180	(13)	ppm		0 lbs S/acre
Sodium	12	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre

Textural Analysis Test (hydrometer)		
Sand	69	%
Silt	12	%
Clay	19	%
Textural Class:	Sandy Loam	
TKN	1543	ppm
TN	1739	ppm
Ammonium-N	9.0	ppm

Detailed Salinity Test (Saturated Paste Extract)		
pH	6.6	
Conductivity	0.89 mmhos/cm	
Sodium	20 ppm	0.884 meq/L
Potassium	8 ppm	0.198 meq/L
Calcium	134 ppm	6.680 meq/L
Magnesium	4 ppm	0.363 meq/L
SAR	0.47	
SSP	10.88	

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Sample received on: 10/27/2023
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Area Represented: 35 acres

Travis County
Laboratory Number: 642837
Customer Sample ID: Hole 1 12-24
Crop Grown: BLUESTEM (GRAZING OR HAY)

Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess.	
pH	8.2	(5.8)	-	Mod. Alkaline							
Conductivity	55	(-)	umho/cm	None				CL*			Fertilizer Recommended
Nitrate-N	0	(-)	ppm**								35 lbs N/acre
Phosphorus	0	(50)	ppm								55 lbs P2O5/acre
Potassium	27	(125)	ppm								90 lbs K20/acre
Calcium	32,562	(180)	ppm								0 lbs Ca/acre
Magnesium	64	(50)	ppm								0 lbs Mg/acre
Sulfur	212	(13)	ppm								0 lbs S/acre
Sodium	10	(-)	ppm								
Iron											
Zinc											
Manganese											
Copper											
Boron											
Limestone Requirement											0.00 tons 100ECCE/acre

Textural Analysis Test (hydrometer)			Detailed Salinity Test (Saturated Paste Extract)		
Sand	71	%	pH	7.1	
Silt	16	%	Conductivity	0.38 mmhos/cm	
Clay	13	%	Sodium	21 ppm	0.914 meq/L
Textural Class:	Sandy Loam		Potassium	3 ppm	0.075 meq/L
			Calcium	48 ppm	2.413 meq/L
TKN	265	ppm	Magnesium	1 ppm	0.090 meq/L
TN	457	ppm	SAR	0.82	
Ammonium-N	3.7	ppm	SSP	26.19	

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Nitrogen: Apply an additional 30 lbs/A of nitrogen prior to each four to six week graze down..

Potassium: Split apply potassium fertilizer if recommendation is for more than 75 lbs K2O per acre.

New online fertilizer calculators have been placed on the laboratory's website to determine appropriate fertilizers to purchase and determine their application rates.
http://soiltesting.tamu.edu/webpages/calculator.html

Methods: pH and conductivity/ 2:1; nitrate-N/Cd-red ; P, K, Ca, Mg, Na, and S/Mehlich 3 by ICP, Fe, Zn, Mn, and Cu/DTPA by ICP; and B/hot water by ICP

ATTACHMENT 3 – DOMESTIC WORKSHEET 3.3 SECTION 3(C)
SITE PREPARATION PLAN

SITE PREPARATION PLAN

This is a renewal/amendment application. The purpose of the amendments is to permit additional subsurface drip irrigation field area. We are requesting approval of more area than necessary so that we can optimize the grading of the drip fields in design. The intent is to irrigate at an application rate of 0.1 gpd/ft^2.

The proposed subsurface drip fields area will be contoured (graded) to provide terraces for subsurface irrigation. The fields will be constructed on vertical slopes less than or equal to 10 % . Native soil excavated from road and development construction will be screened through a 2 inch sieve and stockpiled for use to provide 18 inches of soil for the subsurface drip fields. All surface vegetation will be removed as necessary to create the terracing. Check valves are to be provided on all return manifolds to prevent backflow.

The site preparation plan shall comply with all requirements of the existing permit including:

1. Drip irrigation lines shall be installed on contour with lateral slopes equal to or less than 1 percent.
2. Installation of moisture sensors in each zone placed 12 inches below the drip lines that will automatically shut off irrigation to the fields when the soil is saturated.