Administrative 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. Application materials

Portada de Paquete Administrativo

Este archivo contiene los siguientes documentos:

1. Resumen en lenguaje sencillo (PLS, por sus siglas en inglés) de la actividad propuesta
   - Inglés
   - Idioma alternativo (español)
2. Primer aviso (NORI, por sus siglas en inglés)
   - Inglés
   - Idioma alternativo (español)
3. Solicitud original

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

SUMMARY OF APPLICATION IN PLAIN LANGUAGE FOR TPDES OR TLAP PERMIT APPLICATIONS

Summary of Application (in plain language) Template and Instructions for Texas Pollutant Discharge Elimination System (TPDES) and Texas Land Application (TLAP) Permit Applications

Applicants should use this template to develop a plain language summary of your facility and application as required by Title 30, Texas Administrative Code (30 TAC), Chapter 39, Subchapter H. You may modify the template as necessary to accurately describe your facility as long as the summary includes the following information: (1) the function of the proposed plant or facility; (2) the expected output of the proposed plant or facility; (3) the expected pollutants that may be emitted or discharged by the proposed plant or facility; and (4) how you will control those pollutants, so that the proposed plant will not have an adverse impact on human health or the environment.

Fill in the highlighted areas below to describe your facility and application in plain language. Instructions and examples are provided below. Make any other edits necessary to improve readability or grammar and to comply with the rule requirements. After filling in the information for your facility delete these instructions.

If you are subject to the alternative language notice requirements in 30 TAC Section 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/STORMWATER

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 TAC Chapter 39. The information provided in this summary may change during the technical review of the application and is not a federal enforceable representation of the permit application.

Alto Picco Bastrop LLC (CN606413862); Hoffman Family Bastrop Trust (CN606413870); Woodrun Development Co., Ltd. (CN606413888) proposes to operate Sayers Ranch WWTP (RN12259965), a domestic wastewater treatment facility. The facility will be located at approximately 4,600 ft south of the intersection of Smith Road and Sayers Road, in Bastrop, Bastrop County, Texas 78602. The applicant is currently applying to the Texas Commission on Environmental Quality for a Texas Land Application Permit (TLAP) to utilize a maximum of 200,000 gallons per day of treated domestic wastewater from the proposed onsite Wastewater Treatment Facility for a subsurface area drip dispersal system (SADDS) with a minimum area of 18.4 acres. This permit will not authorize a discharge of pollutants into water in the state.

Discharges from the facility are expected to contain trace amounts of five-day carbonaceous biochemical oxygen demand ($CBOD_5$), total suspended solids (TSS), phosphorus (P), and

ammonia nitrogen (NH_3-N). Removal of bacteria and pathogens through the MBR process is 96% or greater, and E. Coli concentration is reduced to zero through the use of U.V. The effluent will meet the criteria for Type I reclaimed water per 30 TAC §210.33.. Domestic Wastewater will be treated by MBR (membrane bio-reactor) treatment technology. The facility includes an influent pump station, a fine screen, an anoxic tank, an aerobic tank, a membrane tank, ultraviolet disinfection and a sludge press.

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

AGUAS RESIDUALES DOMÉSTICAS /**AGUAS PLUVIALES**

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 es una representación ejecutiva fedérale de la solicitud de permiso.

Alto Picco Bastrop LLC (CN606413862); Hoffman Family Bastrop Trust (CN606413870); Woodrun Development Co., Ltd. (CN606413888) propone operar Sayers Ranch WWTP (RN112259965), una planta de tratamiento de aguas residuales domésticas. La instalación estará ubicada en aproximadamente a 4.600 pies al sur de la intersección de Smith Road y Sayers Road., en Bastrop , Condado de Bastrop, Texas 78602. El solicitante está actualmente solicitando a la Comisión de Calidad Ambiental de Texas un Permiso de Aplicación de Tierra de Texas (TLAP) para utilizar un máximo de 200.000 galones por día de aguas residuales domésticas tratadas de la propuesta instalación de tratamiento de aguas residuales en el sitio para un sistema de dispersión por goteo en área subsuperficial (SADDS) con un área mínima de 18,4 acres..Este permiso no autorizará una descarga de contaminantes en el agua en el estado.

Se espera que las descargas de la instalación contengan trazas de demanda bioquímica de oxígeno carbonosa en cinco días ($CBOD_5$), sólidos suspendidos totales (SST), fósforo (P) y nitrógeno amoniacal (NH_3-N). La eliminación de bacterias y patógenos mediante el proceso de biorreactor de membrana (MBR) es del 96% o más, y la concentración de E. Coli se reduce a cero mediante desinfección con luz ultravioleta (U.V.). El efluente cumplirá con los criterios para agua regenerada Tipo I a conforme a 30 TAC §210.33. Las aguas residuales domésticas. estará tratado por tecnología de tratamiento MBR (biorreactor de membrana). La instalación incluye una estación de bombeo de afluente, una criba fina, un tanque anóxico, un tanque aeróbico, un tanque de membrana, desinfección ultravioleta y una prensa de lodos. .

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

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

PROPOSED PERMIT NO. WQ0016856001

APPLICATION. Alto Picco Bastrop LLC, Hoffman Family Bastrop Trust, and Woodrun Development Co., Ltd., 1401 Lavaca Street, Private Mailbox 366, Austin, Texas 78701, has applied to the Texas Commission on Environmental Quality (TCEQ) for proposed Texas Land Application Permit (TLAP) No. WQ0016856001 to authorize wastewater at a volume not to exceed a daily average flow of 200,000 gallons per day via subsurface area drip dispersal system on 18.4 acres of land. The domestic wastewater treatment facility and disposal area will be located approximately 4,600 feet south of the intersection of Sayers Road and Smith Road, near the city of Bastrop, in Bastrop County, Texas 78602. TCEQ received this application on August 5, 2025. The permit application will be available for viewing and copying at Bastrop Public Library, Information Desk, 1100 Church Street, Bastrop, in Bastrop County, Texas prior to the date this notice is published in the newspaper. The application, including any updates, and associated notices are available electronically at the following webpage: https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tlap-applications. This link to an electronic map of the site or facility's general location is provided as a public courtesy and not part of the application or notice. For the exact location, refer to the application.
https://gisweb.tceq.texas.gov/LocationMapper/?marker=-97.329166,30.139444&level=18

ALTERNATIVE LANGUAGE NOTICE. Alternative language notice in Spanish is available at: https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tlap-applications.
El aviso de idioma alternativo en español está disponible en https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tlap-applications.

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

PUBLIC COMMENT / PUBLIC MEETING. You may submit public comments or request a public meeting on this application. The purpose of a public meeting is to provide the opportunity to submit comments or to ask questions about the application. TCEQ will hold a public meeting if the Executive Director determines that there is a significant degree of public

interest in the application or if requested by a local legislator. A public meeting is not a contested case hearing.

OPPORTUNITY FOR A CONTESTED CASE HEARING. After the deadline for submitting public comments, the Executive Director will consider all timely comments and prepare a response to all relevant and material, or significant public comments. **Unless the application is directly referred for a contested case hearing, the response to comments, and the Executive Director's decision on the application, will be mailed to everyone who submitted public comments and to those persons who are on the mailing list for this application. If comments are received, the mailing will also provide instructions for requesting reconsideration of the Executive Director's decision and for requesting a contested case hearing.** A contested case hearing is a legal proceeding similar to a civil trial in state district court.

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

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

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

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

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

AGENCY CONTACTS AND INFORMATION. All public comments and requests must be submitted either electronically at **https://www14.tceq.texas.gov/epic/eComment/**, or in writing to the Texas Commission on Environmental Quality, Office of the Chief Clerk, MC-105, P.O. Box 13087, Austin, Texas 78711-3087. Please be aware that any contact information you provide, including your name, phone number, email address and physical address will become part of the agency's public record. For more information about this permit application or the permitting process, please call the TCEQ Public Education Program, Toll Free, at 1-800-687-4040 or visit their website at www.tceq.texas.gov/goto/pep. Si desea información en Español, puede llamar al 1-800-687-4040.

Further information may also be obtained from Alto Picco Bastrop LLC, Hoffman Family Bastrop Trust, and Woodrun Development Co., Ltd. at the address stated above or by calling Ms. Lauren Wahl, P.E., ReUse Engineering Inc, at (512) 755-9962.

Issuance Date: September 4, 2025

Comisión de Calidad Ambiental del Estado de Texas

AVISO DE RECIBO DE LA SOLICITUD Y
EL INTENTO DE OBTENER PERMISO PARA LA CALIDAD DEL AGUA

PERMISO PROPUESTO NO. WQ0016856001

SOLICITUD. Alto Picco Bastrop LLC, Hoffman Family Bastrop Trust, and Woodrun Development Co., Ltd., 1401 Lavaca Street, Private Mailbox 366, Austin, Texas 78701, ha solicitado a la Comisión de Calidad Ambiental del Estado de Texas (TCEQ) para el propuesto Permiso No. WQ0016856001 de disposición de aguas residuales para autorizar la disposición de aguas residuales tratadas en un volumen que no sobrepasa un flujo promedio diario de 200,000 galones por día mediante a través de un sistema de dispersión por goteo subterráneo en un terreno de 18,4 acres. La planta y el área de disposición estarán ubicados aproximadamente 4.600 pies al sur de la intersección de Sayers Road y Smith Road en el Condado de Bastrop, Texas 78602. La TCEQ recibió esta solicitud el 5 de agosto de 2025. La solicitud para el permiso estará disponible para leerla y copiarla en Bastrop Public Library, el mostrador de información, 1100 Church Street, Bastrop, Condado de Bastrop, Texas antes de la fecha de publicación de este aviso en el periódico. La solicitud (cualquier actualización y aviso inclusive) está disponible electrónicamente en la siguiente página web: https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tlap-applications. Este enlace a un mapa electrónico de la ubicación general del sitio o de la instalación es proporcionado como una cortesía y no es parte de la solicitud o del aviso. Para la ubicación exacta, consulte la solicitud. https://gisweb.tceq.texas.gov/LocationMapper/?marker=-97.329166,30.139444&level=18

AVISO DE IDIOMA ALTERNATIVO. El aviso de idioma alternativo en español está disponible en https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tlap-applications.

AVISO ADICIONAL. El Director Ejecutivo de la TCEQ ha determinado que la solicitud es administrativamente completa y conducirá una revisión técnica de la solicitud. Después de completar la revisión técnica, el Director Ejecutivo puede preparar un borrador del permiso y emitirá una Decisión Preliminar sobre la solicitud. **El aviso de la solicitud y la decisión preliminar serán publicados y enviado a los que están en la lista de correo de las personas a lo largo del condado que desean recibir los avisos y los que están en la lista de correo que desean recibir avisos de esta solicitud. El aviso dará la fecha límite para someter comentarios públicos.**

COMENTARIO PUBLICO / REUNION PUBLICA. Usted puede presentar comentarios públicos o pedir una reunión pública sobre esta solicitud. El propósito de una reunión pública es dar la oportunidad de presentar comentarios o hacer preguntas acerca de la solicitud. La TCEQ

realiza una reunión pública si el Director Ejecutivo determina que hay un grado de interés público suficiente en la solicitud o si un legislador local lo pide. Una reunión pública no es una audiencia administrativa de lo contencioso.

OPORTUNIDAD DE UNA AUDIENCIA ADMINISTRATIVA DE LO CONTENCIOSO. Después del plazo para presentar comentarios públicos, el Director Ejecutivo considerará todos los comentarios apropiados y preparará una respuesta a todo los comentarios públicos esenciales, pertinentes, o significativos. **A menos que la solicitud haya sido referida directamente a una audiencia administrativa de lo contencioso, la respuesta a los comentarios y la decisión del Director Ejecutivo sobre la solicitud serán enviados por correo a todos los que presentaron un comentario público y a las personas que están en la lista para recibir avisos sobre esta solicitud. Si se reciben comentarios, el aviso también proveerá instrucciones para pedir una reconsideración de la decisión del Director Ejecutivo y para pedir una audiencia administrativa de lo contencioso.** Una audiencia administrativa de lo contencioso es un procedimiento legal similar a un procedimiento legal civil en un tribunal de distrito del estado.

PARA SOLICITAR UNA AUDIENCIA DE CASO IMPUGNADO, USTED DEBE INCLUIR EN SU SOLICITUD LOS SIGUIENTES DATOS: su nombre, dirección, y número de teléfono; el nombre del solicitante y número del permiso; la ubicación y distancia de su propiedad/actividad con respecto a la instalación; una descripción específica de la forma cómo usted sería afectado adversamente por el sitio de una manera no común al público en general; una lista de todas las cuestiones de hecho en disputa que usted presente durante el período de comentarios; y la declaración "[Yo/nosotros] solicito/solicitamos una audiencia de caso impugnado". Si presenta la petición para una audiencia de caso impugnado de parte de un grupo o asociación, debe identificar una persona que representa al grupo para recibir correspondencia en el futuro; identificar el nombre y la dirección de un miembro del grupo que sería afectado adversamente por la planta o la actividad propuesta; proveer la información indicada anteriormente con respecto a la ubicación del miembro afectado y su distancia de la planta o actividad propuesta; explicar cómo y porqué el miembro sería afectado; y explicar cómo los intereses que el grupo desea proteger son pertinentes al propósito del grupo.

Después del cierre de todos los períodos de comentarios y de petición que aplican, el Director Ejecutivo enviará la solicitud y cualquier petición para reconsideración o para una audiencia de caso impugnado a los Comisionados de la TCEQ para su consideración durante una reunión programada de la Comisión.

La Comisión sólo puede conceder una solicitud de una audiencia de caso impugnado sobre los temas que el solicitante haya presentado en sus comentarios oportunos que no fueron retirados posteriormente. **Si se concede una audiencia, el tema de la audiencia estará limitado a cuestiones de hecho en disputa o cuestiones mixtas de hecho y de derecho relacionadas a intereses pertinentes y materiales de calidad del agua que se hayan presentado durante el período de comentarios.**

LISTA DE CORREO. Si somete comentarios públicos, un pedido para una audiencia administrativa de lo contencioso o una reconsideración de la decisión del Director Ejecutivo, la Oficina del Secretario Principal enviará por correo los avisos públicos en relación con la solicitud. Además, puede pedir que la TCEQ ponga su nombre en una o más de las listas

correos siguientes (1) la lista de correo permanente para recibir los avisos del solicitante indicado por nombre y número del permiso específico y/o (2) la lista de correo de todas las solicitudes en un condado especifico. Si desea que se agrega su nombre en una de las listas designe cual lista(s) y envía por correo su pedido a la Oficina del Secretario Principal de la TCEQ.

INFORMACIÓN DISPONIBLE EN LÍNEA. Para detalles sobre el estado de la solicitud, favor de visitar la Base de Datos Integrada de los Comisionados en www.tceq.texas.gov/goto/cid. Para buscar en la base de datos, utilizar el número de permiso para esta solicitud que aparece en la parte superior de este aviso.

CONTACTOS E INFORMACIÓN A LA AGENCIA. Todos los comentarios públicos y solicitudes deben ser presentadas electrónicamente vía http://www14.tceq.texas.gov/epic/eComment/ o por escrito dirigidos a la Comisión de Texas de Calidad Ambiental, Oficial de la Secretaría (Office of Chief Clerk), MC-105, P.O. Box 13087, Austin, Texas 78711-3087. Tenga en cuenta que cualquier información personal que usted proporcione, incluyendo su nombre, número de teléfono, dirección de correo electrónico y dirección física pasarán a formar parte del registro público de la Agencia. Para obtener más información acerca de esta solicitud de permiso o el proceso de permisos, llame al programa de educación pública de la TCEQ, gratis, al 1-800-687-4040. Si desea información en Español, puede llamar al 1-800-687-4040.

También se puede obtener información adicional del Alto Picco Bastrop LLC, Hoffman Family Bastrop Trust, y Woodrun Development Co., Ltd. a la dirección indicada arriba o llamando a Sra. Lauren Wahl, P.E., ReUse Engineering, Inc al (512) 755-9962

Fecha de emisión: el 4 de septiembre de 2025

Brooke T. Paup, *Chairwoman*
Bobby Janecka, *Commissioner*
Catarina R. Gonzales, *Commissioner*
Kelly Keel, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

August 5, 2025

Re: Confirmation of Submission of the New Private Domestic Wastewater Individual Permit Application

Dear Applicant:

This is an acknowledgement that you have successfully completed Private Domestic Wastewater Individual Permit Application.

ER Account Number: ER106339
Application Reference Number: 804866
Authorization Number: WQ0016856001
Site Name: Sayers Ranch WWTP
Regulated Entity: RN112259965 - SAYERS RANCH WWTP
Customer(s): CN606413862 - Alto Picco Bastrop LLC, CN606413870 - Hoffman Family Bastrop Trust, CN606413888 - Woodrun Development Co., Ltd.

Please be aware that TCEQ staff may contact your designated contact for any additional information.

If you have any questions, you may contact the Applications Review and Processing Team by email at WQ-ARPTeam@tceq.texas.gov or by telephone at (512) 239-4671.

Sincerely,
Applications Review and Processing Team
Water Quality Division

Texas Commission on Environmental Quality

New Domestic or Industrial Individual Permit

Site Information (Regulated Entity)

What is the name of the site to be authorized?	Sayers Ranch WWTP
Does the site have a physical address?	No
Because there is no physical address, describe how to locate this site:	Appx 4,600 ft south of the intersection of Smith Road and Sayers Road
City	Bastrop
State	TX
ZIP	78602
County	BASTROP
Latitude (N) (##.######)	30.139347
Longitude (W) (-###.######)	-97.32912
Primary SIC Code	4952
Secondary SIC Code	
Primary NAICS Code	221320
Secondary NAICS Code	
Regulated Entity Site Information	
What is the Regulated Entity's Number (RN)?	
What is the name of the Regulated Entity (RE)?	Sayers Ranch WWTP
Does the RE site have a physical address?	No
Because there is no physical address, describe how to locate this site:	Appx 4,600 ft south of the intersection of Smith Road and Sayers Road
City	Bastrop
State	TX
ZIP	78602
County	BASTROP
Latitude (N) (##.######)	30.139347
Longitude (W) (-###.######)	-97.32912
Facility NAICS Code	221320
What is the primary business of this entity?	Wastewater Treatment

Alto Pi-Customer (Applicant) Information (Owner)

How is this applicant associated with this site?	Owner
What is the applicant's Customer Number (CN)?	
Type of Customer	Corporation
Full legal name of the applicant:	
Legal Name	Alto Picco Bastrop LLC
Texas SOS Filing Number	805764315
Federal Tax ID	331694425
State Franchise Tax ID	32097363470
State Sales Tax ID	
Local Tax ID	
DUNS Number	133983238
Number of Employees	0-20

Independently Owned and Operated?	Yes
I certify that the full legal name of the entity applying for this permit has been provided and is legally authorized to do business in Texas.	Yes
Responsible Authority Contact	
Organization Name	Alto Picco Bastrop LLC
Prefix	
First	Kacee
Middle	
Last	Jackson
Suffix	
Credentials	
Title	Manager
Responsible Authority Mailing Address	
Enter new address or copy one from list:	
Address Type	Domestic
Mailing Address (include Suite or Bldg. here, if applicable)	1401 LAVACA ST
Routing (such as Mail Code, Dept., or Attn:)	
City	AUSTIN
State	TX
ZIP	78701
Phone (###-###-####)	5127892833
Extension	
Alternate Phone (###-###-####)	
Fax (###-###-####)	
E-mail	kaceej@360company.biz

Hoffman-Customer (Applicant) Information (Owner)

How is this applicant associated with this site?	Owner
What is the applicant's Customer Number (CN)?	
Type of Customer	Trust
Full legal name of the applicant:	
Legal Name	Hoffman Family Bastrop Trust
Texas SOS Filing Number	
Federal Tax ID	337006301
State Franchise Tax ID	
State Sales Tax ID	
Local Tax ID	
DUNS Number	
Number of Employees	0-20
Independently Owned and Operated?	Yes
I certify that the full legal name of the entity applying for this permit has been provided and is legally authorized to do business in Texas.	Yes
Responsible Authority Contact	
Organization Name	Hoffman Family Bastrop Trust
Prefix	
First	Travis
Middle	Claude
Last	Hoffman

Suffix	JR
Credentials	
Title	Trustee
Responsible Authority Mailing Address	
Enter new address or copy one from list:	
Address Type	Domestic
Mailing Address (include Suite or Bldg. here, if applicable)	PO BOX 841
Routing (such as Mail Code, Dept., or Attn:)	
City	BASTROP
State	TX
ZIP	78602
Phone (###-###-####)	5128481827
Extension	
Alternate Phone (###-###-####)	
Fax (###-###-####)	
E-mail	claude.hoffman@yahoo.com

WOODRUN-Customer (Applicant) Information (Owner)

How is this applicant associated with this site?	Owner
What is the applicant's Customer Number (CN)?	
Type of Customer	Partnership
Full legal name of the applicant:	
Legal Name	WOODRUN DEVELOPMENT CO., LTD.
Texas SOS Filing Number	0011260410
Federal Tax ID	742873691
State Franchise Tax ID	32036259433
State Sales Tax ID	
Local Tax ID	
DUNS Number	088034912
Number of Employees	0-20
Independently Owned and Operated?	Yes
I certify that the full legal name of the entity applying for this permit has been provided and is legally authorized to do business in Texas.	Yes
Responsible Authority Contact	
Organization Name	WOODRUN DEVELOPMENT CO., LTD.
Prefix	
First	Sidney
Middle	E
Last	Lanier
Suffix	
Credentials	
Title	Owner
Responsible Authority Mailing Address	
Enter new address or copy one from list:	
Address Type	Domestic
Mailing Address (include Suite or Bldg. here, if applicable)	5510 SHOALWOOD AVE
Routing (such as Mail Code, Dept., or Attn:)	

City	AUSTIN
State	TX
ZIP	78756
Phone (###-###-####)	5129703086
Extension	
Alternate Phone (###-###-####)	
Fax (###-###-####)	
E-mail	selanier@gmail.com

Billing Contact

Responsible contact for receiving billing statements:	
Select the permittee that is responsible for payment of the annual fee.	Alto Picco Bastrop LLC
Organization Name	Alto Picco Bastrop LLC
Prefix	
First	Kacee
Middle	
Last	Jackson
Suffix	
Credentials	
Title	Manager
Enter new address or copy one from list:	Alto Picco Bastrop LLC
Mailing Address	
Address Type	Domestic
Mailing Address (include Suite or Bldg. here, if applicable)	1401 LAVACA ST
Routing (such as Mail Code, Dept., or Attn:)	
City	AUSTIN
State	TX
ZIP	78701
Phone (###-###-####)	5127892833
Extension	
Alternate Phone (###-###-####)	
Fax (###-###-####)	
E-mail	kaceej@360company.biz

Application Contact

Person TCEQ should contact for questions about this application:	
Same as another contact?	
Organization Name	reUse Engineering Inc
Prefix	MS
First	Hilary
Middle	
Last	Bond
Suffix	
Credentials	
Title	Director, Permitting and Entitlements
Enter new address or copy one from list:	
Mailing Address	

Address Type	Domestic
Mailing Address (include Suite or Bldg. here, if applicable)	4411 S INTERSTATE 35 STE 100
Routing (such as Mail Code, Dept., or Attn:)	
City	GEORGETOWN
State	TX
ZIP	78626
Phone (###-###-####)	5122850302
Extension	
Alternate Phone (###-###-####)	
Fax (###-###-####)	
E-mail	hilary@reuseeng.com

Technical Contact

Person TCEQ should contact for questions about this application:

Same as another contact?	Application Contact
Organization Name	reUse Engineering Inc
Prefix	MS
First	Lauren
Middle	
Last	Wahl
Suffix	
Credentials	PE
Title	Water Resource Engineer
Enter new address or copy one from list:	

Mailing Address

Address Type	Domestic
Mailing Address (include Suite or Bldg. here, if applicable)	4411 S INTERSTATE 35 STE 100
Routing (such as Mail Code, Dept., or Attn:)	
City	GEORGETOWN
State	TX
ZIP	78626
Phone (###-###-####)	5127559962
Extension	
Alternate Phone (###-###-####)	
Fax (###-###-####)	
E-mail	lauren@reuseeng.com

DMR Contact

Person responsible for submitting Discharge Monitoring Report Forms:

Same as another contact?	
Organization Name	Pathway Land Development
Prefix	
First	Rob
Middle	
Last	Archer
Suffix	

Credentials	
Title	Principal
Enter new address or copy one from list:	
Mailing Address:	
Address Type	Domestic
Mailing Address (include Suite or Bldg. here, if applicable)	7011 MAGENTA LN
Routing (such as Mail Code, Dept., or Attn:)	
City	AUSTIN
State	TX
ZIP	78739
Phone (###-###-####)	6783620532
Extension	
Alternate Phone (###-###-####)	
Fax (###-###-####)	
E-mail	RobWArcher@gmail.com

Section 1# Permit Contact

Permit Contact#: 1

Person TCEQ should contact throughout the permit term.

1) Same as another contact?	DMR Contact
2) Organization Name	Pathway Land Development
3) Prefix	MR
4) First	Rob
5) Middle	
6) Last	Archer
7) Suffix	
8) Credentials	
9) Title	Principal
Mailing Address	
10) Enter new address or copy one from list	
11) Address Type	Domestic
11.1) Mailing Address (include Suite or Bldg. here, if applicable)	7011 MAGENTA LN
11.2) Routing (such as Mail Code, Dept., or Attn:)	
11.3) City	AUSTIN
11.4) State	TX
11.5) ZIP	78739
12) Phone (###-###-####)	6783620532
13) Extension	
14) Alternate Phone (###-###-####)	
15) Fax (###-###-####)	
16) E-mail	RobWArcher@gmail.com

Section 2# Permit Contact

Permit Contact#: 2

Person TCEQ should contact throughout the permit term.

1) Same as another contact?	Technical Contact

2) Organization Name	reUse Engineering Inc
3) Prefix	MS
4) First	Lauren
5) Middle	
6) Last	Wahl
7) Suffix	
8) Credentials	PE
9) Title	Water Resource Engineer
Mailing Address	
10) Enter new address or copy one from list	Technical Contact
11) Address Type	Domestic
11.1) Mailing Address (include Suite or Bldg. here, if applicable)	4411 S INTERSTATE 35 STE 100
11.2) Routing (such as Mail Code, Dept., or Attn:)	
11.3) City	GEORGETOWN
11.4) State	TX
11.5) ZIP	78626
12) Phone (###-###-####)	5127559962
13) Extension	
14) Alternate Phone (###-###-####)	
15) Fax (###-###-####)	
16) E-mail	lauren@reuseeng.com

Public Notice Information

Individual Publishing the Notices	
1) Prefix	MS
2) First and Last Name	Hilary Bond
3) Credential	
4) Title	Director, Permitting and Entitlements
5) Organization Name	reUse Engineering Inc
6) Mailing Address	4411 S INTERSTATE 35
7) Address Line 2	Suite 100
8) City	GEORGETOWN
9) State	TX
10) Zip Code	78626
11) Phone (###-###-####)	5122850302
12) Extension	
13) Fax (###-###-####)	
14) Email	hilary@reuseeng.com
Contact person to be listed in the Notices	
15) Prefix	MS
16) First and Last Name	Lauren Wahl
17) Credential	PE
18) Title	Water Resources Engineer
19) Organization Name	reUse Engineering Inc
20) Phone (###-###-####)	5127559962
21) Fax (###-###-####)	
22) Email	lauren@reuseeng.com
Bilingual Notice Requirements	

23) 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
23.1) Are the students who attend either the elementary school or the middle school enrolled in a bilingual education program at that school?	Yes
23.2) Do the students at these schools attend a bilingual education program at another location?	No
23.3) 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)?	No
23.4) Which language is required by the bilingual program?	Spanish

Section 1# Public Viewing Information

County#: 1

1) County	BASTROP
2) Public building name	Bastrop County Library
3) Location within the building	Information Desk
4) Physical Address of Building	1100 Church St
5) City	Bastrop
6) Contact Name	
7) Phone (###-###-####)	5123328880
8) Extension	
9) Is the location open to the public?	Yes

Owner Information

Owner of Treatment Facility	
1) Prefix	
2) First and Last Name	
3) Organization Name	Alto Picco Bastrop LLC
4) Mailing Address	1401 Lavaca Street PMB 366
5) City	Austin
6) State	TX
7) Zip Code	78701
8) Phone (###-###-####)	5127892833
9) Extension	
10) Email	kaceej@360company.biz
11) What is ownership of the treatment facility?	Private
Owner of Land (where treatment facility is or will be)	
12) Prefix	
13) First and Last Name	
14) Organization Name	HOFFMAN FAMILY BASTROP TRUST
15) Mailing Address	PO Box 841
16) City	Bastrop
17) State	TX
18) Zip Code	78602
19) Phone (###-###-####)	5128481827
20) Extension	
21) Email	email@email.com

22) Is the landowner the same person as the facility owner or co-applicant?	Yes

Admin General Information

1) Is the facility located on or does the treated effluent cross American Indian Land?	No
2) What is the authorization type that you are seeking?	Private Domestic Wastewater
2.1) Is the facility previously authorized under a Water Quality individual permit?	No
2.2) What is the proposed total flow in MGD discharged at the facility?	0.2
2.3) Select the applicable fee	>=0.10 MGD but < 0.25 MGD - $850
3) What is your facility operational status?	Inactive
4) What is the classification for your authorization?	SADDS
4.1) City nearest the outfall(s):	Bastrop
4.2) County where the outfalls are located:	BASTROP
4.3) Provide an accurate description of the effluent disposal site location:	SADDS will be utilized for effluent disposal. Drip Lines will be located in non-residential green spaces in the southwestern region and a small portion of the central greenbelt.
4.4) City nearest the disposal site:	Bastrop
4.5) County in which the disposal site is located:	BASTROP
4.6) Describe the routing of effluent from the treatment facility to the disposal site:	Treated effluent will flow southwest from the WWTF via force main to a holding pond onsite, thence to the subsurface area drip dispersal system SADDS located in the southwestern portion of the site, as well as a small portion of greenspace located in the central portion of the site. See Attachment 2 of the Technical Report.
4.7) Identify the nearest watercourse to the disposal site to which rainfall runoff might flow if not contained:	Colorado River
Owner of Effluent TLAP Disposal Site	
4.8) First and Last Name	
4.9) Organization Name	Woodrun Development Co LTD
4.10) Mailing Address	5510 Shoalwood Ave
4.11) City	Austin
4.12) State	TX
4.13) Zip Code	78756
4.14) Phone (###-###-####)	5129703086
4.15) Extension	
4.16) Email	selanier@gmail.com
4.17) Is the landowner the same person as the facility owner or co-applicant?	Yes
5) Did any person formerly employed by the TCEQ represent your company and get paid for service regarding this application?	No

Plain Language

1) Plain Language	
[File Properties]	
File Name	LANG_10053 XB ADMIN PLS.docx

Hash	3487784C88BAC015FED355EBA2D9F6D846D1E5F442B957828427D67ABA96E6C2
MIME-Type	application/vnd.openxmlformats-officedocument.wordprocessingml.document

Domestic Attachments

1) Have you clearly outlined and labeled the required information on the original full size USGS Topographic Map?	Yes

1.1) I certify that I have clearly outlined and labeled the required information on the Topographic map and attached here.

[File Properties]

File Name	MAP_10053 XD1 Lake Bastrop Topo Map (A).pdf
Hash	99E399DEF526BAAD5E1A03B62A5F24E61E53140DC22DEFC7D25AF68086030C97
MIME-Type	application/pdf

[File Properties]

File Name	MAP_10053 XD2 Bastrop Topo Map (B).pdf
Hash	F5C14E3A0B42C60645DB4DC0E7F455E619E2AC1FE12B6688D48D2008FE2A6036
MIME-Type	application/pdf

[File Properties]

File Name	MAP_10054 X8a Lake Bastrop Topo Map (A).pdf
Hash	0EAF944F8A731454231DA9AD6DB448F6554D9D05F3D73F474A926BFD97684C46
MIME-Type	application/pdf

[File Properties]

File Name	MAP_10054 X8b Bastrop Topo Map (B).pdf
Hash	A045E7710FBF25132D641449F2DC660DD77F08C25D801427F0EF8098C59814BF
MIME-Type	application/pdf

2) Public Involvement Plan attachment (TCEQ Form 20960)

[File Properties]

File Name	PIP_10053 XC PIP Form.pdf
Hash	D6AFCFC8E0FF9BD3387CF4C99F983F35DC50196C8786B8AE3B0610D34BEBFCEE
MIME-Type	application/pdf

3) Administrative Report 1.1

[File Properties]

File Name	ARPT_10053 ADMIN.pdf
Hash	BAE7D4C2446C4C0A15B0450A84C99FD3B635443EA3E97F1E3D7D4E34FE7705B0
MIME-Type	application/pdf

4) I confirm that all required sections of Technical Report 1.0 are complete and will be included in the Technical Attachment.	Yes
4.1) I confirm that Technical Report 1.1 is complete and included in the Technical Attachment.	Yes
4.2) Are you planning to include Worksheet 2.1 (Stream Physical Characteristics) in the Technical Attachment?	No
4.3) I confirm that Worksheet 3.0 (Land Disposal of Effluent) is complete and included in the Technical Attachment.	Yes
4.4) I confirm that Worksheet 3.1 (Surface Land Disposal of Effluent) is complete and included in the Technical Attachment.	Yes

4.5) I confirm that Worksheet 3.2 (Subsurface Land Disposal of Effluent) is complete and included in the Technical Attachment.	Yes
4.6) I confirm that Worksheet 3.3 (Subsurface Area Drip Dispersal System (SADDS) Land Disposal of Effluent) is complete and included in the Technical Attachment.	Yes
4.7) Are you planning to include Worksheet 4.0 (Pollutant Analyses Requirements) in the Technical Attachment?	No
4.8) Are you planning to include Worksheet 5.0 (Toxicity Testing Requirements) in the Technical Attachment?	No
4.9) Are you planning to include Worksheet 7.0 (Class V Injection Well Inventory/Authorization Form) in the Technical Attachment?	Yes

4.10) Technical Attachment

[File Properties]

File Name	TECH_10054 TECH.pdf
Hash	E28F9DAC3BFBE646A576871F61109D7CC5EC2A117BA7CAFE451CAD9A98CB473F
MIME-Type	application/pdf

5) Affected Landowners Map

[File Properties]

File Name	LANDMP_10053 XE1 Landown Map.pdf
Hash	44E3408F60FE94BCD61A98775FCF18F542F8F7FE533F8730083F98341600347B
MIME-Type	application/pdf

6) Landowners Cross Reference List

[File Properties]

File Name	LANDCRL_10053 XE2 Landown List.docx
Hash	FBEAB60E9BEDF23E8B28CB25AFAB2F2DC676F0A54D2382B31408EF92B0512DEC
MIME-Type	application/vnd.openxmlformats-officedocument.wordprocessingml.document

7) Landowner Avery Template

[File Properties]

File Name	LANDAT_10053 XE3 Landown Labels Pg 1.doc
Hash	26DB0CD10016329005E0CE0C0583B7BB67A36EF4E888A0E90CBD23EF4B4E4864
MIME-Type	application/msword

[File Properties]

File Name	LANDAT_10053 XE3 Landown Labels Pg 2.doc
Hash	F4F57A4DF28BE4AA9931FB521BD70B8A07609B33FF0A0DFA18165A85AEC4B011
MIME-Type	application/msword

[File Properties]

File Name	LANDAT_10053 XE3 Landown Labels Pg 3.doc
Hash	D1226787DB226DCD4329F623F931129B717964D5B8197206A8E254A66520FEE3
MIME-Type	application/msword

8) Buffer Zone Map

[File Properties]

File Name	BUFF_ZM_10053 XG Buffer Map.pdf
Hash	5C7E503D014E47E3C0A00DB3C5DDB980400DCFD019105ABEBDEA1A654D16A57B
MIME-Type	application/pdf

9) Flow Diagram

[File Properties]

File Name	FLDIA_10054 X1 Process Flow.pdf
Hash	4BDA2D6C0871CE451F243DDC3A4A61EAFB8F6F7299E397D30966F06A0CEA24B2
MIME-Type	application/pdf

10) Site Drawing

[File Properties]

File Name	SITEDR_10054 X2 Site Dwg.pdf
Hash	76E866D90CEDBDFA7E7696007053413ABBB02DAFC49EF1C578D05053D9906389
MIME-Type	application/pdf

11) Original Photographs

[File Properties]

File Name	ORIGPH_10053 XF Orig Photos Map.pdf
Hash	A8F25739702CB29D13852473236E179BB4B813536D43EE83245A5F9AB2C28062
MIME-Type	application/pdf

12) Design Calculations

[File Properties]

File Name	DES_CAL_10054 X5 Calcs 200000 gpd.pdf
Hash	C96A9DA4A50E035C7B6A50790C941790F87C40EDF5D41E65BC2E228D4EB9EDB8
MIME-Type	application/pdf

13) Solids Management Plan

[File Properties]

File Name	SMP_10054 X7 Solids Mgmt Plan.pdf
Hash	077224DD3C22FB59FA2FEA7BF079F7AA13C2682D46D379399B8C90FD88DD7538
MIME-Type	application/pdf

14) Water Balance

[File Properties]

File Name	WB_PLACEHOLDER _ file not applicable.pdf
Hash	FA2DDFC9B749F6E5464E3174519C75CF24CFDCA9344AB3D17AC4DC2BEEAB0C7D
MIME-Type	application/pdf

15) Other Attachments

[File Properties]

File Name	OTHER_25.07.31 TLAP APP Sayers Ranch WWTP _ S&S Part-1.pdf
Hash	8E8D357D10A0DAD591537447A512E2B02718AB6C5FD5F0868ACE981AFA472034
MIME-Type	application/pdf

[File Properties]

File Name	OTHER_25.07.31 TLAP APP Sayers Ranch WWTP _ S&S Part-2.pdf
Hash	DCFD01D7E4547A10802C6D1EAFA066188C16D37DAF5E404533F50073794031AE
MIME-Type	application/pdf

[File Properties]

File Name	OTHER_10054 X15b Draft Geotech Rpt STEERS.pdf
Hash	78AA9630F9FA322B2452C40F1AA6F66FFD33BF8CC188E499E08CF0ED4D0B2B94
MIME-Type	application/pdf

Certification

I certify that I am authorized under 30 Texas Administrative Code 305.44 to sign this document and can provide documentation in proof of such authorization upon request.

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.

1. I am Hilary Bond, the owner of the STEERS account ER106339.
2. I have the authority to sign this data on behalf of the applicant named above.
3. I have personally examined the foregoing and am familiar with its content and the content of any attachments, and based upon my personal knowledge and/or inquiry of any individual responsible for information contained herein, that this information is true, accurate, and complete.
4. I further certify that I have not violated any term in my TCEQ STEERS participation agreement and that I have no reason to believe that the confidentiality or use of my password has been compromised at any time.
5. I understand that use of my password constitutes an electronic signature legally equivalent to my written signature.
6. I also understand that the attestations of fact contained herein pertain to the implementation, oversight and enforcement of a state and/or federal environmental program and must be true and complete to the best of my knowledge.
7. I am aware that criminal penalties may be imposed for statements or omissions that I know or have reason to believe are untrue or misleading.
8. I am knowingly and intentionally signing New Domestic or Industrial Individual Permit.
9. My signature indicates that I am in agreement with the information on this form, and authorize its submittal to the TCEQ.

OWNER Signature: Hilary Bond OWNER

Customer Number:	
Legal Name:	Alto Picco Bastrop LLC
Account Number:	ER106339
Signature IP Address:	97.131.149.213
Signature Date:	2025-08-05
Signature Hash:	2FDC25D57DCF37B328235E7C54604E798E067A045344D478C431A340ACBEE306
Form Hash Code at time of Signature:	69A86345417C3B231F87D3CB5F47BC921B754D09029457219613BEDB8B203479

Certification

I certify that I am authorized under 30 Texas Administrative Code 305.44 to sign this document and can provide documentation in proof of such authorization upon request.

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.

1. I am Hilary Bond, the owner of the STEERS account ER106339.
2. I have the authority to sign this data on behalf of the applicant named above.
3. I have personally examined the foregoing and am familiar with its content and the content of any attachments, and based upon my personal knowledge and/or inquiry of any individual responsible for information contained herein, that this information is true, accurate, and complete.
4. I further certify that I have not violated any term in my TCEQ STEERS participation agreement and that I have no reason to believe that the confidentiality or use of my password has been compromised at any time.
5. I understand that use of my password constitutes an electronic signature legally equivalent to my written signature.
6. I also understand that the attestations of fact contained herein pertain to the implementation, oversight and enforcement of a state and/or federal environmental program and must be true and complete to the best of my knowledge.

7. I am aware that criminal penalties may be imposed for statements or omissions that I know or have reason to believe are untrue or misleading.
8. I am knowingly and intentionally signing New Domestic or Industrial Individual Permit.
9. My signature indicates that I am in agreement with the information on this form, and authorize its submittal to the TCEQ.

OWNER Signature: Hilary Bond OWNER

Customer Number:	
Legal Name:	Hoffman Family Bastrop Trust
Account Number:	ER106339
Signature IP Address:	97.131.149.213
Signature Date:	2025-08-05
Signature Hash:	2FDC25D57DCF37B328235E7C54604E798E067A045344D478C431A340ACBEE306
Form Hash Code at time of Signature:	69A86345417C3B231F87D3CB5F47BC921B754D09029457219613BEDB8B203479

Certification

I certify that I am authorized under 30 Texas Administrative Code 305.44 to sign this document and can provide documentation in proof of such authorization upon request.

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.

1. I am Hilary Bond, the owner of the STEERS account ER106339.
2. I have the authority to sign this data on behalf of the applicant named above.
3. I have personally examined the foregoing and am familiar with its content and the content of any attachments, and based upon my personal knowledge and/or inquiry of any individual responsible for information contained herein, that this information is true, accurate, and complete.
4. I further certify that I have not violated any term in my TCEQ STEERS participation agreement and that I have no reason to believe that the confidentiality or use of my password has been compromised at any time.
5. I understand that use of my password constitutes an electronic signature legally equivalent to my written signature.
6. I also understand that the attestations of fact contained herein pertain to the implementation, oversight and enforcement of a state and/or federal environmental program and must be true and complete to the best of my knowledge.
7. I am aware that criminal penalties may be imposed for statements or omissions that I know or have reason to believe are untrue or misleading.
8. I am knowingly and intentionally signing New Domestic or Industrial Individual Permit.
9. My signature indicates that I am in agreement with the information on this form, and authorize its submittal to the TCEQ.

OWNER Signature: Hilary Bond OWNER

Customer Number:	
Legal Name:	WOODRUN DEVELOPMENT CO., LTD.
Account Number:	ER106339
Signature IP Address:	97.131.149.213
Signature Date:	2025-08-05
Signature Hash:	2FDC25D57DCF37B328235E7C54604E798E067A045344D478C431A340ACBEE306
Form Hash Code at time of Signature:	69A86345417C3B231F87D3CB5F47BC921B754D09029457219613BEDB8B203479

Fee Payment

Transaction by:	The application fee payment transaction was made by ER106339/Hilary Bond
Paid by:	The application fee was paid by HILARY BOND
Fee Amount:	$800.00
Paid Date:	The application fee was paid on 2025-08-05

Transaction/Voucher number:	The transaction number is 582EA000679469 and the voucher number is 777986

Submission

Reference Number:	The application reference number is 804866
Submitted by:	The application was submitted by ER106339/Hilary Bond
Submitted Timestamp:	The application was submitted on 2025-08-05 at 08:32:11 CDT
Submitted From:	The application was submitted from IP address 97.131.149.213
Confirmation Number:	The confirmation number is 669143
Steers Version:	The STEERS version is 6.92

Additional Information

Application Creator: This account was created by Hilary Bond

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

DOMESTIC WASTEWATER PERMIT APPLICATION CHECKLIST

Complete and submit this checklist with the application.

APPLICANT NAME: Alto Picco Bastrop, LLC

PERMIT NUMBER (If new, leave blank): WQ00Click to enter text.

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	☒	☐
Summary of Application (PLS)	☒	☐	Flow Diagram	☒	☐
Public Involvement Plan Form	☒	☐	Site Drawing	☒	☐
Technical Report 1.0	☒	☐	Original Photographs	☒	☐
Technical Report 1.1	☒	☐	Design Calculations	☒	☐
Worksheet 2.0	☐	☒	Solids Management Plan	☒	☐
Worksheet 2.1	☐	☒	Water Balance	☒	☐
Worksheet 3.0	☒	☐			
Worksheet 3.1	☐	☒			
Worksheet 3.2	☐	☒			
Worksheet 3.3	☒	☐			
Worksheet 4.0	☐	☒			
Worksheet 5.0	☐	☒			
Worksheet 6.0	☐	☒			
Worksheet 7.0	☒	☐			

For TCEQ Use Only

Segment Number _____County _____
Expiration Date _____Region_____
Permit Number _____

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

DOMESTIC WASTEWATER PERMIT APPLICATION ADMINISTRATIVE REPORT 1.0

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

Section 1. Application Fees (Instructions Page 26)

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

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

Minor Amendment (for any flow) $150.00 ☐

Payment Information:

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

Check/Money Order Amount: Click to enter text.

Name Printed on Check: Click to enter text.

EPAY Voucher Number: Click to enter text.

Copy of Payment Voucher enclosed? Yes ☒

Section 2. Type of Application (Instructions Page 26)

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

☐ Publicly Owned Domestic Wastewater

☒ Privately-Owned Domestic Wastewater

☐ Conventional Water Treatment

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

☐ Active ☐ Inactive

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

- ☐ TPDES Permit
- ☒ TLAP
- ☐ TPDES Permit with TLAP component
- ☒ Subsurface Area Drip Dispersal System (SADDS)

d. Check the box next to the appropriate application type

- ☒ New
- ☐ Major Amendment *with* Renewal
- ☐ Major Amendment *without* Renewal
- ☐ Renewal without changes
- ☐ Minor Amendment *with* Renewal
- ☐ Minor Amendment *without* Renewal
- ☐ Minor Modification of permit

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

f. For existing permits:

Permit Number: WQ00 Click to enter text.

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

Expiration Date: Click to enter text.

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

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

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

Alto Picco Bastrop 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:

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

Prefix: Mr. Last Name, First Name: Jackson, Kacee

Title: Manager Credential:

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?

Woodrun Development Co., Ltd.

(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: Click to enter text. Last Name, First Name: Lanier, Sidney E.

Title: Owner/President Credential: Click to enter text.

Provide a brief description of the need for a co-permittee: Landowner of proposed effluent disposal site.

Co-applicant information (#2). 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?

Hoffman Family Bastrop Trust

(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: Click to enter text. Last Name, First Name: Hoffman, Jr.; Travis Claude

Title: Trustee Credential: Click to enter text.

Provide a brief description of the need for a co-permittee: Landowner of the proposed WWTF site and effluent disposal site

C. Core Data Form

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

Section 4. Application Contact Information (Instructions Page 27)

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

A. Prefix: Ms. Last Name, First Name: Wahl, Lauren

Title: Water Resources Engineer Credential: P.E.

Organization Name: reUse Engineering, Inc.

Mailing Address: 4411 S IH-35 Suite 100 City, State, Zip Code: Georgetown, TX 78626

Phone No.: 512-755-9962 E-mail Address: Lauren@reUseEng.com

Check one or both: ☒ Administrative Contact ☒ Technical Contact

B. Prefix: Ms. Last Name, First Name: Bond, Hilary

Title: Director, Permitting & Entitlements Credential:

Organization Name: reUse Engineering, Inc.

Mailing Address: 4411 S IH-35 Suite 100 City, State, Zip Code: Georgetown, TX 78626

Phone No.: (512)285-0302 E-mail Address: Hilary@reUseEng.com

Check one or both: ☒ Administrative Contact ☐ Technical Contact

Section 5. Permit Contact Information (Instructions Page 27)

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

A. Prefix: Mr. Last Name, First Name: Archer, Rob

Title: Principal Credential:

Organization Name: Pathway Land Development, LLC

Mailing Address: 7011 Magenta Lane City, State, Zip Code: Austin, TX 78739-2084

Phone No.: (678) 362-0532 E-mail Address: RobWArcher@gmail.com

B. Prefix: Ms. Last Name, First Name: Wahl, Lauren

Title: Water Resources Engineer Credential: P.E.

Organization Name: reUse Engineering, Inc.

Mailing Address: 4411 S IH-35 Suite 100 City, State, Zip Code: Georgetown, TX 78626

Phone No.: 512-755-9962 E-mail Address: Lauren@reUseEng.com

Section 6. Billing Contact Information (Instructions Page 27)

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

Prefix: Mr. Last Name, First Name: Jackson, Kacee

Title: Manager Credential:

Organization Name: Alto Picco Bastrop LLC

Mailing Address: 1401 Lavaca Street PMB 366 City, State, Zip Code: Austin, Texas 78701

Phone No.: (512) 789-2833 E-mail Address: kaceej@360company.biz

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

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

Prefix: Mr. Last Name, First Name: Archer, Rob

Title: Principal Credential:

Organization Name: Pathway Land Development

Mailing Address: 7011 Magenta Lane City, State, Zip Code: Austin, TX 78739

Phone No.: (678) 362-0532 E-mail Address: RobWArcher@gmail.com

Section 8. Public Notice Information (Instructions Page 27)

A. Individual Publishing the Notices

Prefix: Ms. Last Name, First Name: Bond, Hilary

Title: Director, Permitting & Entitlements Credential:

Organization Name: reUse Engineering, Inc

Mailing Address: 4411 S IH-35 Suite 100 City, State, Zip Code: Georgetown, TX 78626

Phone No.: 512-285-0302 E-mail Address: hilary@reUseEng.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 permit to be listed in the Notices

Prefix: Ms. Last Name, First Name: Wahl, Lauren

Title: Water Resource Engineer Credential: P.E.

Organization Name: reUse Engineering, Inc.

Mailing Address: 4411 S IH-35 Suite 100 City, State, Zip Code: Georgetown, TX 78626

Phone No.: 512-755-9962 E-mail Address: lauren@reuseEng.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: Bastrop Public Library

Location within the building: Information Desk

Physical Address of Building: 1100 Church St

City: Bastrop County: Bastrop

Contact (Last Name, First Name):

Phone No.: (512)332-8880 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? Spanish

F. Summary of Application in Plain Language Template

Complete the F. Summary of Application in Plain Language Template (TCEQ Form 20972), also known as the plain language summary or PLS, and include as an attachment.

Attachment: See Table of Contents

G. Public Involvement Plan Form

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

Attachment: See Table of Contents

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

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

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):

Sayers Ranch

C. Owner of treatment facility: Alto Picco Bastrop LLC

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

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

Prefix: Last Name, First Name:

Title: Credential:

Organization Name: Hoffman Family Bastrop Trust

Mailing Address: PO Box 841 City, State, Zip Code: Bastrop, Texas 78602

Phone No.: (512)848-1827 E-mail Address: N/A

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:

E. **Owner 1** of effluent disposal site:

Prefix: Last Name, First Name:

Title: Credential:

Organization Name: Hoffman Family Bastrop Trust

Mailing Address: PO Box 841 City, State, Zip Code: Bastrop, Texas 78602

Phone No.: (512)848-1827 E-mail Address: N/A

Owner 2 of effluent disposal site:

Prefix: Last Name, First Name:

Title: Credential:

Organization Name: Woodrun Development Co., LTD

Mailing Address: 5510 Shoalwood Ave City, State, Zip Code: Austin, TX 78756

Phone No.: (512)970-3086 E-mail Address: selanier@gmail.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: N/A

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

Prefix: Last Name, First Name:

Title: Credential:

Organization 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 31)

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

☐ Yes ☐ No

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

N/A

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:

N/A

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

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

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

☐ Yes ☒ No

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

☐ Authorization granted ☐ Authorization pending

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

Attachment: Click to enter text.

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: Click to enter text.

Section 11. TLAP Disposal Information (Instructions Page 32)

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

☐ Yes ☐ No

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

SADDS will be utilized for effluent disposal. Drip Lines will be located in non-residential green spaces in the southwestern region and a small portion of the central greenbelt.

B. City nearest the disposal site: Bastrop, TX

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

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

Treated effluent will flow southwest from the WWTF via force main to a holding tank onsite, thence to the subsurface area drip dispersal system (SADDS) located in the southwestern portion of the site, as well as a small portion of greenspace located in the central portion of the site. See Attachment 2 of the Technical Report.

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

Section 12. Miscellaneous Information (Instructions Page 32)

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

☐ Yes ☒ No

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

☐ Yes ☐ No ☒ Not Applicable

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

Click to enter text.

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

☐ Yes ☒ No

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

D. Do you owe any fees to the TCEQ?

☐ Yes ☒ No

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

Account number: Click to enter text.

Amount past due: Click to enter text.

E. Do you owe any penalties to the TCEQ?

☐ Yes ☒ No

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

Enforcement order number: Click to enter text.

Amount past due: Click to enter text.

Section 13. Attachments (Instructions Page 33)

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

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

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

- Applicant's property boundary
- 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: See Table of Contents

Section 14. Signature Page (Instructions Page 34)

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

Permit Number:

Applicant:

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):

Signatory title:

Signature:_____ Date:_____

(Use blue ink)

Subscribed and Sworn to before me by the said_____

on this_____ day of_____, 20_____.

My commission expires on the_____ day of_____, 20_____.

_____

Notary Public *[SEAL]*

_____

County, Texas

DOMESTIC WASTEWATER PERMIT APPLICATION ADMINISTRATIVE REPORT 1.0

The following information is required for new and amendment applications.

Section 1. Affected Landowner Information (Instructions Page 36)

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

- ☒ 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 that the landowners list has also been provided as mailing labels in electronic format (Avery 5160).

D. Provide the source of the landowners' names and mailing addresses: https://bastropcad.org/

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

☐ Yes ☒ No

If **yes**, provide the location and foreseeable impacts and effects this application has on the land(s):

Click to enter text.

Section 2. Original Photographs (Instructions Page 38)

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

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

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

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

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

Section 3. Buffer Zone Map (Instructions Page 38)

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

- The applicant's property boundary;
- 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

DOMESTIC WASTEWATER PERMIT APPLICATION

SUPPLEMENTAL PERMIT INFORMATION FORM (SPIF)

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

Attachment: N/A

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:** N/A

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

   Name of Project or Site: Click to enter text.

   Physical Address of Project or Site: Click to enter text.

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

Staple Check or Money Order in This Space

ATTACHMENT 1

INDIVIDUAL INFORMATION

Section 1. Individual Information (Instructions Page 41)

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

Prefix (Mr., Ms., Miss): Click to enter text.

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

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

Date of Birth: Click to enter text.

Mailing Address: Click to enter text.

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

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

E-mail Address: Click to enter text.

CN: Click to enter text.

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

DOMESTIC WASTEWATER PERMIT APPLICATION CHECKLIST OF COMMON DEFICIENCIES

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

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

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

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

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

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

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

Things to Know:

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

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

Electronic Application Submittal ☒ Yes
(See application submittal requirements on page 23 of the instructions.)

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)

Summary of Application (in Plain Language) ☒ Yes

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

SUMMARY OF APPLICATION IN PLAIN LANGUAGE FOR TPDES OR TLAP PERMIT APPLICATIONS

Summary of Application (in plain language) Template and Instructions for Texas Pollutant Discharge Elimination System (TPDES) and Texas Land Application (TLAP) Permit Applications

Applicants should use this template to develop a plain language summary of your facility and application as required by Title 30, Texas Administrative Code (30 TAC), Chapter 39, Subchapter H. You may modify the template as necessary to accurately describe your facility as long as the summary includes the following information: (1) the function of the proposed plant or facility; (2) the expected output of the proposed plant or facility; (3) the expected pollutants that may be emitted or discharged by the proposed plant or facility; and (4) how you will control those pollutants, so that the proposed plant will not have an adverse impact on human health or the environment.

Fill in the highlighted areas below to describe your facility and application in plain language. Instructions and examples are provided below. Make any other edits necessary to improve readability or grammar and to comply with the rule requirements. After filling in the information for your facility delete these instructions.

If you are subject to the alternative language notice requirements in 30 TAC Section 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/STORMWATER

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 TAC Chapter 39. The information provided in this summary may change during the technical review of the application and is not a federal enforceable representation of the permit application.

Alto Picco Bastrop LLC (_) proposes to operate Sayers Ranch WWTP (_), a domestic wastewater treatment facility. The facility will be located at approximately 4,600 ft south of the intersection of Smith Road and Sayers Road, in Bastrop, Bastrop County, Texas 78602. The applicant is currently applying to the Texas Commission on Environmental Quality for a Texas Land Application Permit (TLAP) to utilize a maximum of 200,000 gallons per day of treated domestic wastewater from the proposed onsite Wastewater Treatment Facility for a subsurface area drip dispersal system (SADDS) with a minimum area of 18.4 acres. This permit will not authorize a discharge of pollutants into water in the state.

Discharges from the facility are expected to contain trace amounts of five-day carbonaceous biochemical oxygen demand ($CBOD_5$), total suspended solids (TSS), phosphorus (P), and ammonia nitrogen (NH_3-N). Removal of bacteria and pathogens through the MBR process is 96% or greater, and E. Coli concentration is reduced to zero through the use of U.V. The

effluent will meet the criteria for Type I reclaimed water per 30 TAC §210.33.. Domestic Wastewater will be treated by MBR (membrane bio-reactor) treatment technology. The facility includes an influent pump station, a fine screen, an anoxic tank, an aerobic tank, a membrane tank, ultraviolet disinfection and a sludge press.

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

AGUAS RESIDUALES DOMÉSTICAS **/AGUAS PLUVIALES**

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 es una representación ejecutiva fedérale de la solicitud de permiso.

Alto Picco Bastrop LLC (_) propone operar Sayers Ranch WWTP _, una planta de tratamiento de aguas residuales domésticas. La instalación estará ubicada en aproximadamente a 4.600 pies al sur de la intersección de Smith Road y Sayers Road., en Bastrop , Condado de Bastrop, Texas 78602. El solicitante está actualmente solicitando a la Comisión de Calidad Ambiental de Texas un Permiso de Aplicación de Tierra de Texas (TLAP) para utilizar un máximo de 200.000 galones por día de aguas residuales domésticas tratadas de la propuesta instalación de tratamiento de aguas residuales en el sitio para un sistema de dispersión por goteo en área subsuperficial (SADDS) con un área mínima de 18,4 acres..Este permiso no autorizará una descarga de contaminantes en el agua en el estado.

Se espera que las descargas de la instalación contengan trazas de demanda bioquímica de oxígeno carbonosa en cinco días ($CBOD_5$), sólidos suspendidos totales (SST), fósforo (P) y nitrógeno amoniacal (NH_3-N). La eliminación de bacterias y patógenos mediante el proceso de biorreactor de membrana (MBR) es del 96% o más, y la concentración de E. Coli se reduce a cero mediante desinfección con luz ultravioleta (U.V.). El efluente cumplirá con los criterios para agua regenerada Tipo I a conforme a 30 TAC §210.33. Las aguas residuales domésticas. estará tratado por tecnología de tratamiento MBR (biorreactor de membrana). La instalación incluye una estación de bombeo de afluente, una criba fina, un tanque anóxico, un tanque aeróbico, un tanque de membrana, desinfección ultravioleta y una prensa de lodos. .

INSTRUCTIONS

1. Enter the name of applicant in this section. The applicant name should match the name associated with the customer number.
2. Enter the Customer Number in this section. Each Individual or Organization is issued a unique 11-digit identification number called a CN (e.g. CN123456789).
3. Choose “operates” in this section for existing facility applications or choose “proposes to operate” for new facility applications.
4. Enter the name of the facility in this section. The facility name should match the name associated with the regulated entity number.
5. Enter the Regulated Entity number in this section. Each site location is issued a unique 11-digit identification number called an RN (e.g. RN123456789).
6. Choose the appropriate article (a or an) to complete the sentence.
7. Enter a description of the facility in this section. For example: steam electric generating facility, nitrogenous fertilizer manufacturing facility, etc.
8. Choose “is” for an existing facility or “will be” for a new facility.
9. Enter the location of the facility in this section.
10. Enter the City nearest the facility in this section.
11. Enter the County nearest the facility in this section.
12. Enter the zip code for the facility address in this section.
13. Enter a summary of the application request in this section. For example: renewal to discharge 25,000 gallons per day of treated domestic wastewater, new application to discharge process wastewater and stormwater on an intermittent and flow-variable basis, or major amendment to reduce monitoring frequency for pH, etc. If more than one outfall is included in the application, provide applicable information for each individual outfall.
14. List all pollutants expected in the discharge from this facility in this section. If applicable, refer to the pollutants from any federal numeric effluent limitations that apply to your facility.
15. Enter the discharge types from your facility in this section (e.g., stormwater, process wastewater, once through cooling water, etc.)
16. Choose the appropriate verb tense to complete the sentence.
17. Enter a description of the wastewater treatment used at your facility. Include a description of each process, starting with initial treatment and finishing with the outfall/point of disposal. Use additional lines for individual discharge types if necessary.

Questions or comments concerning this form may be directed to the Water Quality Division’s Application Review and Processing Team by email at WQ-ARPTeam@tceq.texas.gov or by phone at (512) 239-4671.

Example 1: Industrial Wastewater TPDES Application (ENGLISH)

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 TAC 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.

ABC Corporation (CN600000000) operates the Starr Power Station (RN10000000000), a two-unit gas-fired electric generating facility. Unit 1 has a generating capacity of 393 megawatts (MWs) and Unit 2 has a generating capacity of 528 MWs. The facility is located at 1356 Starr Street, near the City of Austin, Travis County, Texas 78753.

This application is for a renewal to discharge 870,000,000 gallons per day of once through cooling water, auxiliary cooling water, and also authorizes the following waste streams monitored inside the facility (internal outfalls) before it is mixed with the other wastewaters authorized for discharge via main Outfall 001, referred to as "previously monitored effluents" (low-volume wastewater, metal-cleaning waste, and stormwater (from diked oil storage area yards and storm drains)) via Outfall 001. Low-volume waste sources, metal-cleaning waste, and stormwater drains on a continuous and flow-variable basis via internal Outfall 101.

The discharge of once through cooling water via Outfall 001 and low-volume waste and metal-cleaning waste via Outfall 101 from this facility is subject to federal effluent limitation guidelines at 40 CFR Part 423. The pollutants expected from these discharges based on 40 CFR Part 423 are: free available chlorine, total residual chlorine, total suspended solids, oil and grease, total iron, total copper, and pH. Temperature is also expected from these discharges. Additional potential pollutants are included in the Industrial Wastewater Application Technical Report, Worksheet 2.0.

Cooling water and boiler make-up water are supplied by Lake Starr Reservoir. The City of Austin municipal water plant (CN600000000, PWS 00000) supplies the facility's potable water and serves as an alternate source of boiler make-up water. Water from the Lake Starr Reservoir is withdrawn at the intake structure and treated with sodium hypochlorite to prevent biofouling and sodium bromide as a chlorine enhancer to improve efficacy and then passed through condensers and auxiliary equipment on a once-through basis to cool equipment and condense exhaust steam.

Low-volume wastewater from blowdown of boiler Units 1 and 2 and metal-cleaning wastes receive no treatment prior to discharge via Outfall 101. Plant floor and equipment drains and stormwater runoff from diked oil storage areas, yards, and storm drains are routed through an oil and water separator prior to discharge via Outfall 101. Domestic wastewater, blowdown, and backwash water from the service water filter, clarifier, and sand filter are routed to the Starr Creek Domestic Sewage Treatment Plant, TPDES Permit No. WQ0010000001, for treatment and disposal. Metal-cleaning waste from equipment cleaning is generally disposed of off-site.

Example 2: Domestic Wastewater TPDES Renewal application

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.

The City of Texas (CN000000000) operates the City of Texas wastewater treatment plant (RN000000000), an activated sludge process plant operated in the complete mix mode. The facility is located at 123 Texas Street, near the City of More Texas, Texas County, Texas 71234.

This application is for a renewal to discharge at an annual average flow of 1,200,000 gallons per day of treated domestic wastewater via Outfalls 001 and 002.

Discharges from the facility are expected to contain five-day carbonaceous biochemical oxygen demand ($CBOD_5$), total suspended solids (TSS), ammonia nitrogen (NH_3-N), and *Escherichia coli*. Additional potential pollutants are included in the Domestic Technical Report 1.0, Section 7. Pollutant Analysis of Treated Effluent and Domestic Worksheet 4.0 in the permit application package. Domestic wastewater is treated by an activated sludge process plant and the treatment units include a bar screen, a grit chamber, aeration basins, final clarifiers, sludge digesters, a belt filter press, chlorine contact chambers and a dechlorination chamber.

Example 3: Domestic Wastewater TPDES New Application

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.

The City of Texas (CN000000000) proposes to operate the City of Texas wastewater treatment plant (RN000000000), an activated sludge process plant operated in the extended aeration mode. The facility will be located at 123 Texas Street, in the City of More Texas, Texas County, Texas 71234.

This application is for a new application to discharge at a daily average flow of 200,000 gallons per day of treated domestic wastewater.

Discharges from the facility are expected to contain five-day carbonaceous biochemical oxygen demand ($CBOD_5$), total suspended solids (TSS), ammonia nitrogen (NH_3-N), and *Escherichia coli*. Additional potential pollutants are included in the Domestic Technical Report 1.0, Section 7. Pollutant Analysis of Treated Effluent in the permit application package. Domestic wastewater will be treated by an activated sludge process plant and the treatment units will include a bar screen, a grit chamber, aeration basins, final clarifiers, sludge digesters, a belt filter press, chlorine contact chambers and a dechlorination chamber.

Example 4: Domestic Wastewater TLAP Renewal application

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.

The City of Texas (CN000000000) operates the City of Texas wastewater treatment plant (RN000000000), an activated sludge process plant operated in the complete mix mode. The facility is located at 123 Texas Street, near the City of More Texas, Texas County, Texas 71234.

This application is for a renewal to dispose a daily average flow not to exceed 76,500 gallons per day of treated domestic wastewater via public access subsurface drip irrigation system with a minimum area of 32 acres. This permit will not authorize a discharge of pollutants into water in the state.

Land application of domestic wastewater from the facility are expected to contain five-day biochemical oxygen demand (BOD_5), total suspended solids (TSS), and *Escherichia coli*. Additional potential pollutants are included in the Domestic Technical Report 1.0, Section 7. Pollutant Analysis of Treated Effluent in the permit application package. Domestic wastewater is treated by an activated sludge process plant and the treatment units include a bar screen, an equalization basin, an aeration basin, a final clarifier, an aerobic sludge digester, tertiary filters, and a chlorine contact chamber. In addition, the facility includes a temporary storage that equals to at least three days of the daily average flow.

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.

Alto Picco Bastrop LLC proposes to operate Sayers Ranch WWTP, a domestic wastewater treatment facility. The facility will be located at approximately 4,600 ft south of the intersection of Smith Road and Sayers Road, in Bastrop, Bastrop County, Texas 78602. The applicant is currently applying to the Texas Commission on Environmental Quality for a Texas Land Application Permit (TLAP) to utilize a maximum of 200,000 gallons per day of treated domestic wastewater from the proposed onsite Wastewater Treatment Facility for a subsurface area drip dispersal system (SADDS) with a minimum area of 18.4 acres. This permit will not authorize a discharge of pollutants into water in the state. Discharges from the facility are expected to contain trace amounts of five-day carbonaceous biochemical oxygen demand (CBOD5), total suspended solids (TSS), phosphorus (P), and ammonia nitrogen (NH3-N). Removal of bacteria and pathogens through the MBR process is 96% or greater, and E. Coli concentration is reduced to zero through the use of U.V. The effluent will meet the criteria for Type I reclaimed water per 30 TAC §210.33. Domestic Wastewater will be treated by MBR (membrane bio-reactor) treatment technology. The facility includes an influent pump station, a fine screen, an anoxic tank, an aerobic tank, a membrane tank, ultraviolet disinfection and a sludge press.

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.

Bastrop

(City)

Bastrop

(County)

Census Tract 9504.01

(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

89.5%

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

$45,142 (±$13,949)

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

Total Minority (42.39%); Hispanic or Latino (24.9%); Black or African American (10.0%); Other (unspecified) (4.7%); American Indian and Alaska Native (0.36%); Asian (2.4%); Native Hawaiian and Other Pacific Islander (0.15%);

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

0%

(e) Languages commonly spoken in area by percentage

English only (81.6%); Spanish (15.55%); Asian and Pacific Island languages (2.55%); Other Indo-European (0.3%);

(f) Community and/or Stakeholder Groups

Bastrop Chamber of Commerce; Bastrop County Historical Society

(g) Historic public interest or involvement

N/A

Section 6. Planned Public Outreach Activities

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

☐ Yes ☐ No

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

☐ Yes ☐ No

If Yes, please describe.

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

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

☐ Yes ☐ No

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

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

☐ Publish in alternative language newspaper

☐ Posted on Commissioner's Integrated Database Website

☐ Mailed by TCEQ's Office of the Chief Clerk

☐ Other (specify)

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

☐ Yes ☐ No

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

☐ Yes ☐ No

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

☐ TCEQ Regional Office ☐ TCEQ Central Office

☐ Public Place (specify)

Section 7. Voluntary Submittal

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

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

☐ Yes ☐ No

What types of notice will be provided?

☐ Publish in alternative language newspaper

☐ Posted on Commissioner's Integrated Database Website

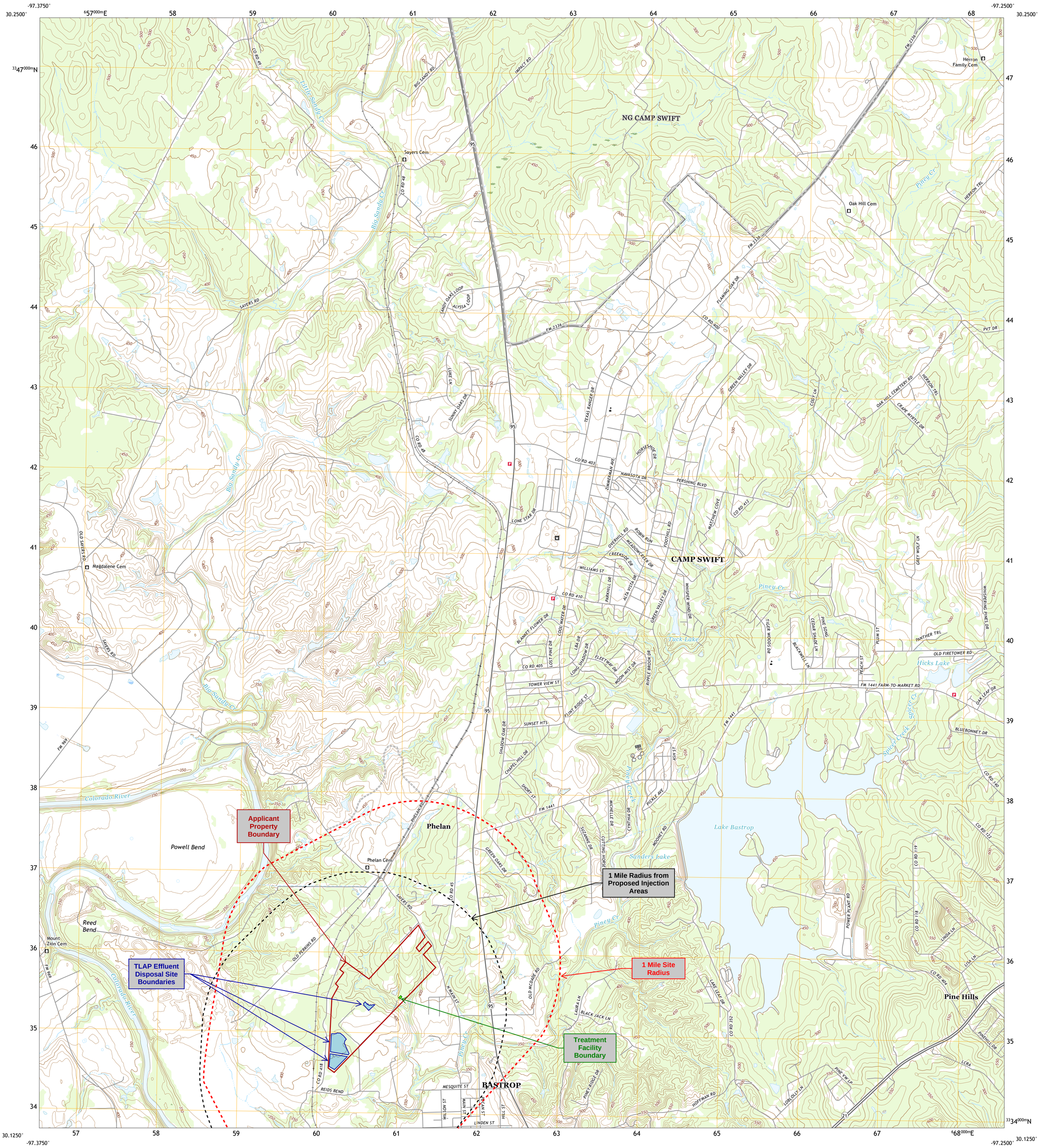
☐ Mailed by TCEQ's Office of the Chief Clerk

☐ Other (specify)

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

The National Map US Topo

LAKE BASTROP QUADRANGLE
TEXAS - BASTROP COUNTY
7.5-MINUTE SERIES



REUSE ENGINEERING TBPE F-21880
STATE OF TEXAS
LAUREN B. WAHL
141050
LICENSED
PROFESSIONAL ENGINEER
30 JUL 2025

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

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

Imagery.....NAIP, September 2016 - November 2016
Roads..... U.S. Census Bureau, 2015 - 2019
Names.....GNIS, 1979 - 2022
Hydrography.....National Hydrography Dataset, 2000 - 2018
Contours.....National Elevation Dataset, 2019
Boundaries.....Multiple sources; see metadata file 2019 - 2021

Wetlands.....FWS National Wetlands Inventory Not Available

MN
GN
3°29'
62 MILS
0°51'
15 MILS
UTM GRID AND 2019 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

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

SCALE 1:24 000
1 0.5 0 KILOMETERS 1 2
1000 500 0 METERS 1000 2000
1 0.5 0 1
MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET
1,000.0 ft

CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the National Geospatial Program US Topo Product Standard.

TEXAS
QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

ADJOINING QUADRANGLES
1 Elgin West
2 Elgin East
3 McDade
4 Utley
5 Smithville NW
6 Bastrop SW
7 Bastrop
8 Smithville

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

reUse ENGINEERING
4411 SH 35, Suite 100
Georgetown, TX 78626
TX Firm No. 21880

ALTO PICCO BASTROP LLC
SAYERS RANCH WWTP
BASTROP COUNTY, TEXAS

USGS TOPOGRAPHIC MAP
Attachment E-1

LAKE BASTROP, TX
2022

NSN. 7643016396887
NGA REF NO. USGSX24K24339

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

The National Map US Topo

BASTROP QUADRANGLE
TEXAS - BASTROP COUNTY
7.5-MINUTE SERIES

1 Mile Radius from Proposed Injection Areas

1 Mile Site Radius

Domestic Supply Well

Produced by the United States Geological Survey
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Contours.....National Elevation Dataset, 2019
Boundaries.....Multiple sources; see metadata file 2019 - 2021

Wetlands.....FWS National Wetlands Inventory Not Available

REUSE ENGINEERING TBPE F-21860
STATE OF TEXAS
LAUREN B. WAHL
141050
LICENSED
PROFESSIONAL ENGINEER
30 JUL 2025

MN
GN
3°29′
62 MILS
0°51′
15 MILS
UTM GRID AND 2019 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid
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CONTOUR INTERVAL 10 FEET
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TEXAS
QUADRANGLE LOCATION

1 Utley
2 Lake Bastrop
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7 Rosanky
8 Togo
ADJOINING QUADRANGLES

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

reUse ENGINEERING
4411 SH 35, Suite 100
Georgetown, TX 78626
TX Firm No. 21880

ALTO PICCO BASTROP LLC
SAYERS RANCH WWTP
BASTROP COUNTY, TEXAS

USGS TOPOGRAPHIC MAP
Attachment D-2

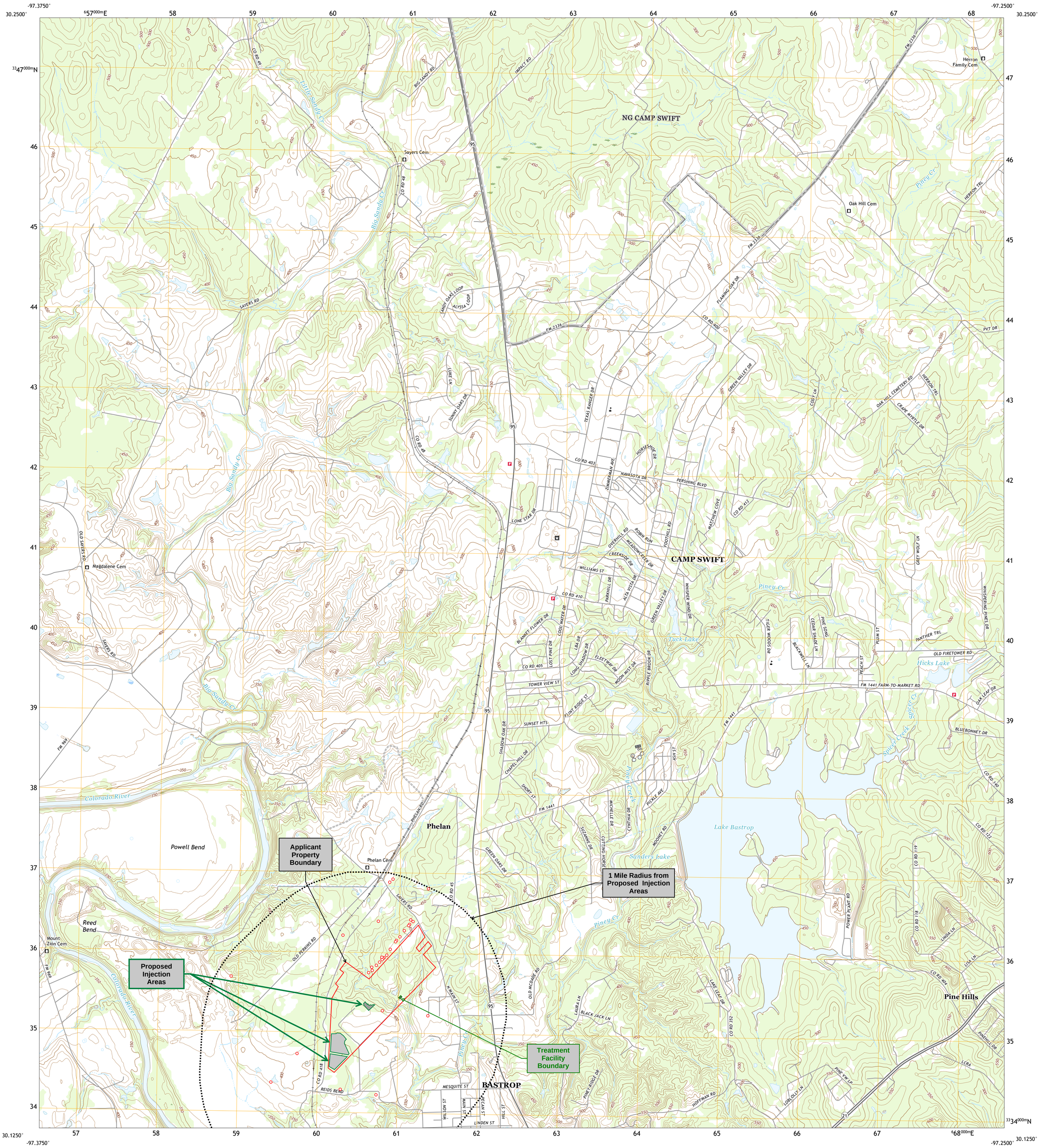
BASTROP, TX
2022

NSN 7643016394994
NGA REF NO. USGSX24K2591

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

The National Map US Topo

LAKE BASTROP QUADRANGLE
TEXAS - BASTROP COUNTY
7.5-MINUTE SERIES



REUSE ENGINEERING TBPE F-21880
STATE OF TEXAS
LAUREN B. WAHL
141050
LICENSED PROFESSIONAL ENGINEER
30 JUL 2025

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TX Firm No. 21880

ALTO PICCO BASTROP LLC
SAYERS RANCH WWTP
BASTROP COUNTY, TEXAS
USGS TOPOGRAPHIC MAP
Attachment 8-A

LAKE BASTROP, TX
2022

NSN 7643016396887
NGA REF NO. USGSX24K24339

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

The National Map US Topo

BASTROP QUADRANGLE
TEXAS - BASTROP COUNTY
7.5-MINUTE SERIES

1 Mile Radius from Proposed Injection Areas

Domestic Supply Well

REUSE ENGINEERING TBPE F-21880
STATE OF TEXAS
LAUREN B. WAHL
141050
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30 JUL 2025

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7 Rosanky
8 Togo
ADJOINING QUADRANGLES

ROAD CLASSIFICATION
Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
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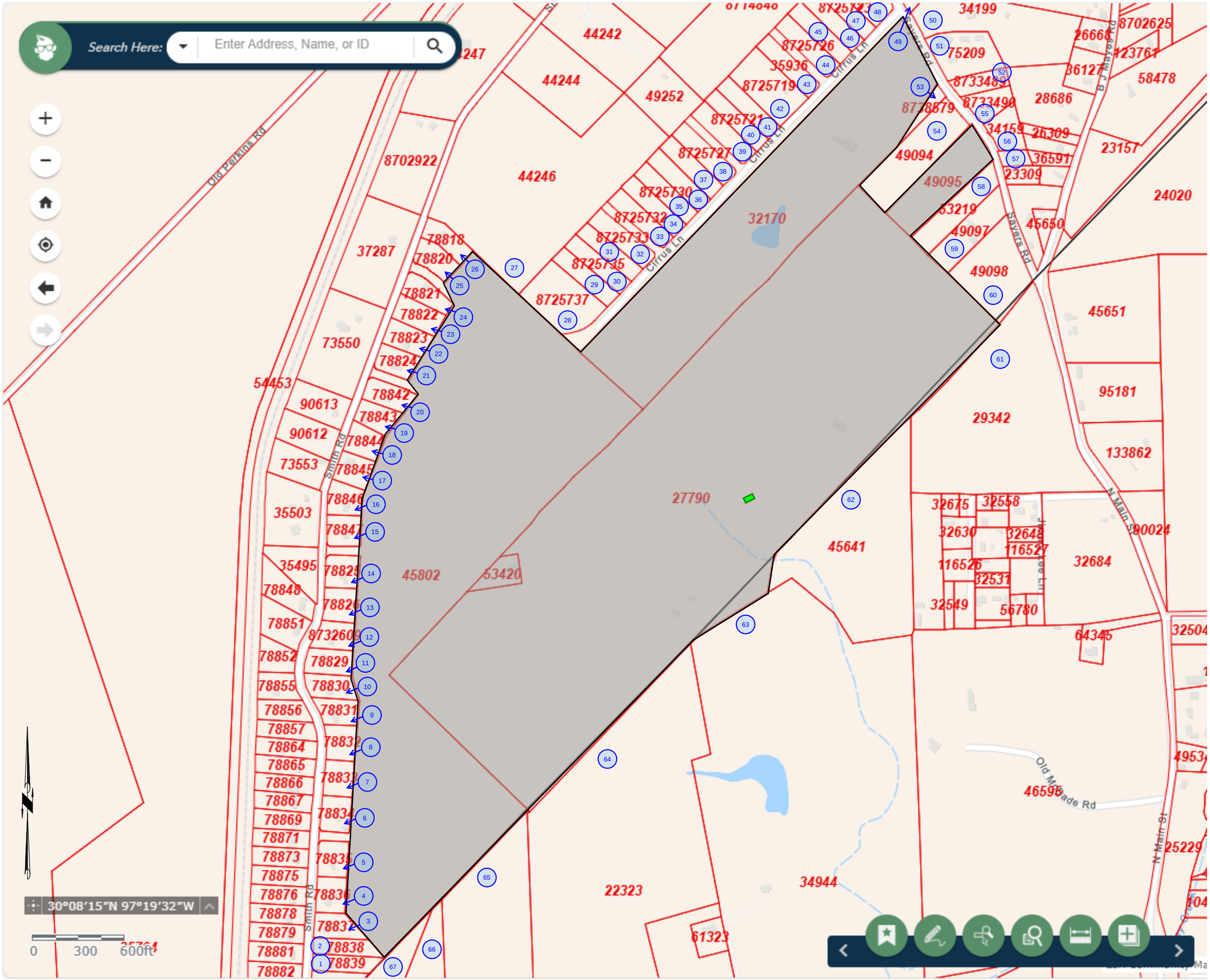
Interstate Route
US Route
State Route

reUse ENGINEERING
4411 SH 35, Suite 100
Georgetown, TX 78626
TX Firm No. 21880

ALTO PICCO BASTROP LLC
SAYERS RANCH WWTP
BASTROP COUNTY, TEXAS
USGS TOPOGRAPHIC MAP
Attachment 8-B

NSN. 7643016394994
NGA REF NO. USGSX24K2591

BASTROP, TX
2022



Applicant's Property Boundary

Treatment Facility Boundary

Landowner's Cross Reference List provided on next page

Information compiled on 28 JUN 2025

reUse ENGINEERING
4411 SIH 35, Suite 100
Georgetown, TX 78626
TX Firm No. 21880

ALTO PICCO BASTROP LLC

SAYERS RANCH WWTP

BASTROP COUNTY, TEXAS

LANDOWNERS MAP

Attachment E

LANDOWNER'S CROSS REFERENCE LIST

1. AUBIN, MARK D & KAREN R
   139 SMITH RD
   BASTROP TX 78602

2. REINA, LOUIE & CRYSTAL R
   143 SMITH RD
   BASTROP TX 78602

3. HERNANDEZ, EFREN
   145 SMITH RD
   BASTROP TX 78602

4. MUNZER, ROBERT ALFRED & MURLYNN
   157 SMITH ROAD
   BASTROP TX 78602

5. KETCHERSID, LAURA
   PO BOX 1243
   BASTROP TX 78602

6. FLEMING, REBECCA G
   JOHN T OSBORN
   175 SMITH RD
   BASTROP TX 78602

7. CRUZ, RAFAEL
   185 SMITH RD
   BASTROP TX 78602

8. ENRIQUEZ, JUAN CARLOS
   195 SMITH RD
   BASTROP TX 78602

9. CHAPA, JOSE G & MYRA
   197 SMITH RD
   BASTROP TX 78602

10. CARBAJAL ORTIZ, ROCIO

LANDOWNER'S CROSS REFERENCE LIST

207 SMITH RD
BASTROP TX 78602

11. BARRON, MARTIN A
    FRANCES L AGUILAR
    213 SMITH RD
    BASTROP TX 78602

12. CASAS GONZALEZ, FRANCISCO
    221 SMITH RD
    BASTROP TX 78602

13. VELEZ, MARIO URBINA & HORTENCIA RAMIREZ ALVARADO
    229 SMITH RD
    BASTROP TX 78602

14. NELSON, MARK
    235 SMITH RD
    BASTROP TX 78602

15. CHERRY, JOHNATHAN & JENNIFER ANN
    243 SMITH RD
    BASTROP TX 78602

16. BOEISCHE, CLINTON LOUIS & JAN LOUISE RUEB
    251 SMITH RD
    BASTROP TX 78602

17. ARMENTA, RICARDO ARMANDO ALONSO
    259 SMITH RD
    BASTROP TX 78602

18. HORTON, SHANNON R
    JESSICA M ALVARADO
    271 SMITH RD
    BASTROP TX 78602

19. LAURENCE, KAREN LEA

LANDOWNER'S CROSS REFERENCE LIST

273 SMITH RD
BASTROP TX 78602

20. MONROY, MARIA G & ADIRAN ORTIZ GRANADOS
    283 SMITH RD
    BASTROP TX 78602

21. CASTRO, LEONARDO R JR
    12524 SKY HARBOR DR
    DEL VALLE TX 78617

22. CARWELL, TERRY M
    295 SMITH RD
    BASTROP TX 78602

23. MINERVA MAUR LIVING TRUST 2/16/2021
    P O BOX 763
    LITTLETON CO 80160

24. SMITH, DAVID EARL & MARY KATHLEEN SMITH
    121 LONESOME OAK DR
    BEEVILLE TX 78102

25. REYES, CLAUDIA & LAURA J ORTIZ
    315 SMITH RD
    BASTROP TX 78602

26. BAUGHMAN, TIM
    201 HUNTERS CROSSING BLVD STE 10-224
    BASTROP TX 78602

27. STEVENSON, SAMUEL J & CHRISTIANE M
    120 LANMAN RD
    NICEVILLE FL 32578

28. BASTROPS BEST PORK LLC
    200 E JANIS DR
    GEORGETOWN TX 78628

LANDOWNER'S CROSS REFERENCE LIST

29. GARCIA, ADRIAN
    201 CIRRUS LN
    BASTROP TX 78602

30. GUZMAN, LUIS
    142 SHADOW WOOD TRL
    CEDAR CREEK TX 78612

31. BALDERAS BALDERAS, MARGARITA
    5704 NETLEAF RD
    AUSTIN TX 78724

32. BALDERAS BALDERAS MARGARITA & ARTURO ROMERO MONTALVO
    5704 NETLEAF RD
    AUSTIN TX 78724

33. LOZA, ADALBERTO AVILES & MARIA JESUS GRANADOS DE NOVA
    KARLA JAMILET GONZALES
    183 CIRRUS LN
    BASTROP TX 78602

34. STIVERS, BRADLEY & MARK W STIVERS
    177 CIRRUS LANE
    BASTROP TX 78602

35. PEREZ, EMILIO & LILIANA
    12041 DESSAU RD
    AUSTIN TX 78754

36. CMH HOMES INC
    5000 CLAYTON RD
    MARYVILLE TN 37804

37. RANGEL, JOSE SAENZ & MARIA LOPEZ SAENZ
    165 CIRRUS LN
    BASTROP TX 78602

LANDOWNER'S CROSS REFERENCE LIST

38. FRAUSTO, RODRIGUEZ ALBERTO &
    MELISSA MARIE YBARRA
    161 CIRRUS LANE
    BASTROP TX 78602

39. LLANOS, JON & VALERI
    13021 DESSAU RD
    AUSTIN TX 78754

40. LUVIANO, MARTIN ANJEL & PAULA
    7008 CRYSTALBROOK DR
    AUSTIN TX 78744

41. ALTES, LYLE & SHERI
    7619 HOLLY OAK CIR
    AUSTIN TX 78744

42. DE HERNANDEZ, BAUDELIA FLORES
    1277 COUNTY ROAD 142
    GEORGETOWN TX 78626

43. RODRIGUEZ, LOURDES M
    OWNWELL LLC
    131 CIRRUS LN
    BASTROP TX 78602

44. GONZALEZ, FERNANDO MEZA &
    SAMANTHA BELMAREZ MONTOYA
    230 LA SELVA DR
    ELGIN TX 78621

45. RUBIO, MARIANO PONCE & CLAUDIA LOVATON
    117 CIRRUS LN
    BASTROP TX 78621

46. ALLEN, REMA
    1098 RED TOWN RD
    ELGIN TX 78621

LANDOWNER'S CROSS REFERENCE LIST

47. CHAIREZ, ISAI GOMEZ
    11320 MENCHACA RD
    AUSTIN TX 78748

48. SECRETARY OF HOUSING AND URBAN DEVELOPMENT
    C/O ISN CORPORATION
    2401 NW 23RD ST STE 1D
    OKLAHOMA CITY OK 73107

49. SMITH, CHERYL BARKER & WILBORN H
    175 SAYERS RD
    BASTROP TX 78602

50. PELLMAN, JOHN B & MARIE A
    169 SAYERS RD
    BASTROP TX 78602

51. PEREZ, NAZARIO & JANIE
    165 SAYERS RD
    BASTROP TX 78602

52. GONZALEZ-BELLO, ESTEBAN
    4900 FONTENAY DR
    AUSTIN TX 78744

53. DALY, JOSEPH (ETAL)
    C/O ARMBRUST & BROWN PLLC
    100 CONGRESS AVENUE SUITE 1300
    AUSTIN TX 78701

54. HERNANDEZ GOMEZ, SAMUEL & LIDIA AMAYA RODRIGUEZ (ETAL)
    2104 OLD WEST PLACE UNIT B
    ROUND ROCK TX 78681

55. PATTERSON, CHELSEA S
    145 SAYERS RD
    BASTROP TX 78602

LANDOWNER'S CROSS REFERENCE LIST

56. CUNNINGHAM, RICK & TANYA
    137 SAYERS RD
    BASTROP TX 78602

57. GUERREO, JAIME RODRIGUEZ
    133 SAYERS RD
    BASTROP TX 78602

58. ANDERSON, LESLIE L & REBECCA
    116 SAYERS RD
    BASTROP TX 78602

59. ANDERSON, LESLIE L & REBECCA
    116 SAYERS RD
    BASTROP TX 78602

60. LIBERTY HILL TRUCK SERVICE LLC
    12830 W STATE HIGHWAY 29
    LIBERTY HILL TX 78642

61. MAINSTREET BASTROP LLC
    6001 W WILLIAM CANNON DR
    AUSTIN TX 78749

62. STATON, JANET LYNN
    PO BOX 103
    BASTROP TX 78602

63. ODOM, GLENN & DONNA CASSEL
    P O BOX 541
    BASTROP TX 78602

64. FURRY, DONALD L
    272 REIDS BEND
    BASTROP TX 78602

65. GLENN D SYNNOTT REVOCABLE LIVING TRUST

P O BOX 17066
AUSTIN TX 78760

66. CAOUETTE, JAMES C
    210 REIDS BEND
    BASTROP TX 78602

67. ALVARADO ROSAS, ALEJANDRO
    194 REIDS BEND
    BASTROP TX 78602

MARK AND KAREN AUBIN
139 SMITH RD
BASTROP TX 78602

LOUIE AND CRYSTAL REINA
143 SMITH RD
BASTROP TX 78602

EFREN HERNANDEZ
145 SMITH RD
BASTROP TX 78602

ROBERT AND MURLYNN MUNZER
157 SMITH RD
BASTROP TX 78602

LAURA KETCHERSID
PO BOX 1243
BASTROP TX 78602

REBECCA G FLEMING
JOHN T OSBORN
175 SMITH RD
BASTROP TX 78602

RAFAEL CRUZ
185 SMITH RD
BASTROP TX 78602

JUAN CARLOS ENRIQUEZ
195 SMITH RD
BASTROP TX 78602

JOSE AND MYRA CHAPA
197 SMITH RD
BASTROP TX 78602

ROCIO CARBAJAL ORTIZ
207 SMITH RD
BASTROP TX 78602

MARTIN A BARRON
FRANCES L AGUILAR
213 SMITH RD
BASTROP TX 78602

FRANCISCO CASAS GONZALEZ
221 SMITH RD
BASTROP TX 78602

MARIO URBINA VELEZ AND
HORTENCIA RAMIREZ ALVARADO
229 SMITH RD
BASTROP TX 78602

MARK NELSON
235 SMITH RD
BASTROP TX 78602

JOHNATHAN AND JENNIFER CHERRY
243 SMITH RD
BASTROP TX 78602

CLINTON LOUIS BOEISCHE AND
JAN LOUISE RUEB
251 SMITH RD
BASTROP TX 78602

RICARDO ARMANDO ALONSO
ARMENTA
259 SMITH RD
BASTROP TX 78602

SHANNON R HORTON
JESSICA M ALVARADO
271 SMITH RD
BASTROP TX 78602

KAREN LEA LAURENCE
273 SMITH RD
BASTROP TX 78602

MARIA G MONROY AND
ADIRAN ORTIZ GRANADOS
283 SMITH RD
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MARIA JESUS GRANADOS DE NOVA
KARLA JAMILET GONZALES
113 MICHOACAN LN
DALE, TX 78616

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7008 CRYSTALBROOK DR
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7619 HOLLY OAK CIR
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BASTROP TX 78602

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SAMANTHA BELMAREZ MONTOYA
230 LA SELVA DR
ELGIN TX 78621

MARIANO PONCE AND
CLAUDIA LOVATON RUBIO
117 CIRRUS LN
BASTROP TX 78621

REMA ALLEN
1098 RED TOWN RD
ELGIN TX 78621

ISAI GOMEZ CHAIREZ
11320 MENCHACA RD
AUSTIN TX 78748

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11320 MENCHACA RD
AUSTIN TX 78748

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169 SAYERS RD
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165 SAYERS RD
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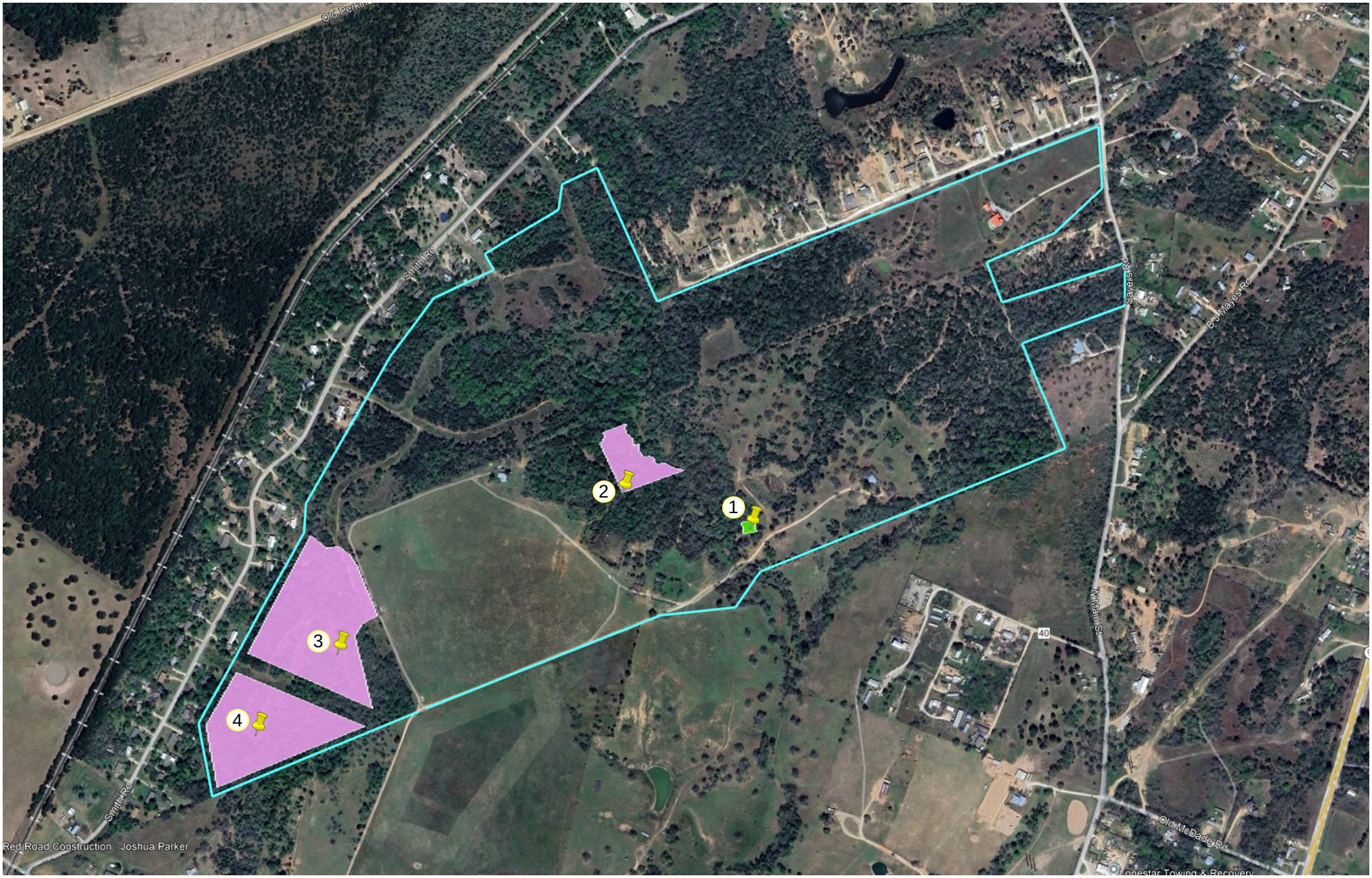
133 SAYERS RD
BASTROP TX 78602

LESLIE AND REBECCA ANDERSON
116 SAYERS RD
BASTROP TX 78602

	LIBERTY HILL TRUCK SERVICE LLC 12830 W STATE HIGHWAY 29 LIBERTY HILL TX 78642	MAINSTREET BASTROP LLC 6001 W WILLIAM CANNON DR AUSTIN TX 78749
JANET LYNN STATON PO BOX 103 BASTROP TX 78602	GLENN AND DONNA CASSEL ODOM PO BOX 541 BASTROP TX 78602	DONALD L FURRY 272 REIDS BEND BASTROP TX 78602
GLENN D SYNNOTT REVOCABLE LIVING TRUST PO BOX 17066 AUSTIN TX 78760	JAMES C CAOUETTE 210 REIDS BEND BASTROP TX 78602	ALEJANDRO ALVARADO ROSAS 194 REIDS BEND BASTROP TX 78602



Applicant's Property Boundary

Treatment Facility Boundary

Effluent Disposal Sites

Photo Locations

reUse ENGINEERING
4411 SIH 35, Suite 100
Georgetown, TX 78626
TX Firm No. 21880

ALTO PICCO BASTROP LLC

SAYERS RANCH WWTP

BASTROP COUNTY, TEXAS

ORIGINAL PHOTOGRAPHS MAP

Attachment F

WWTF





EFFLUENT DISPOSAL SITES





EFFLUENT DISPOSAL SITES



N

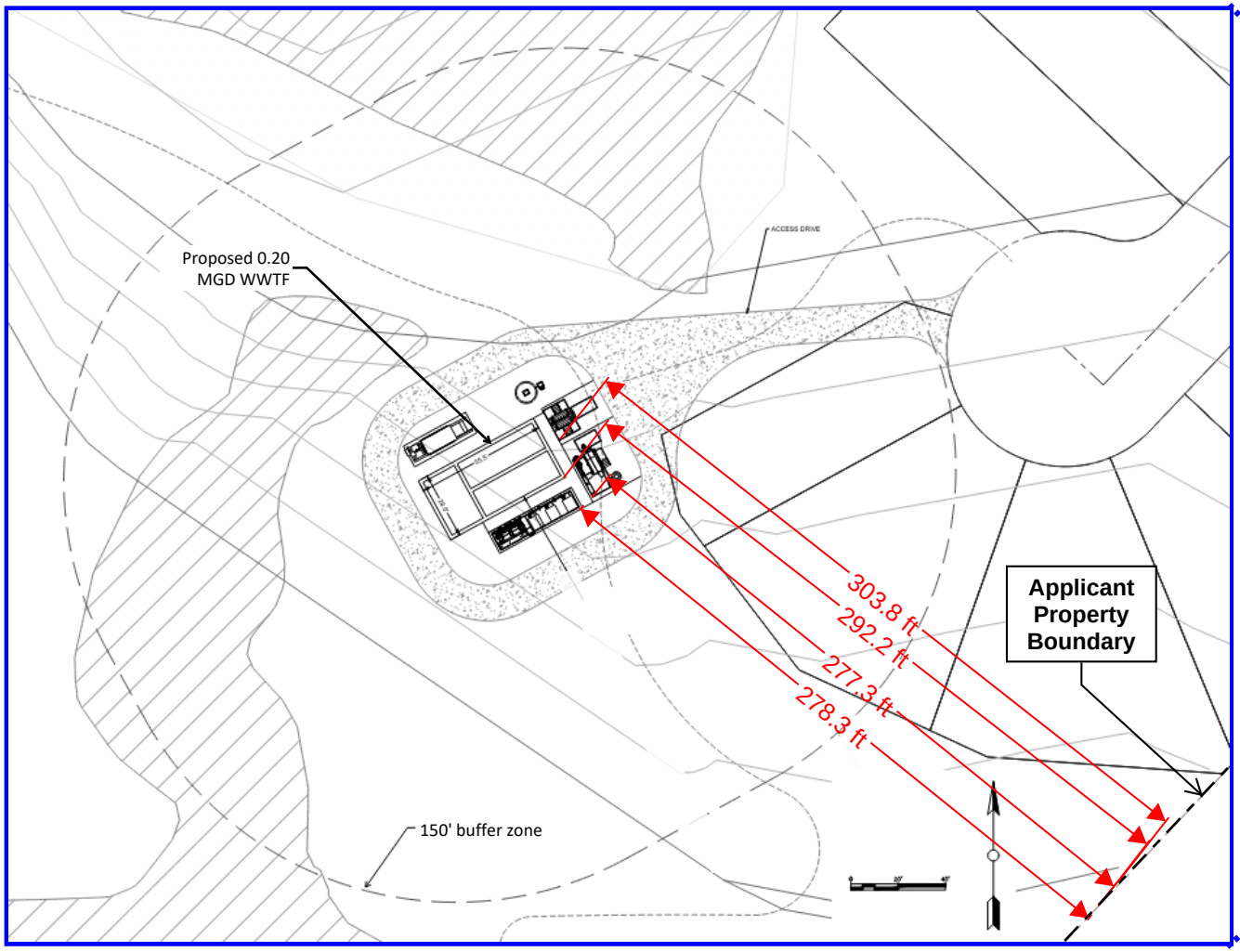


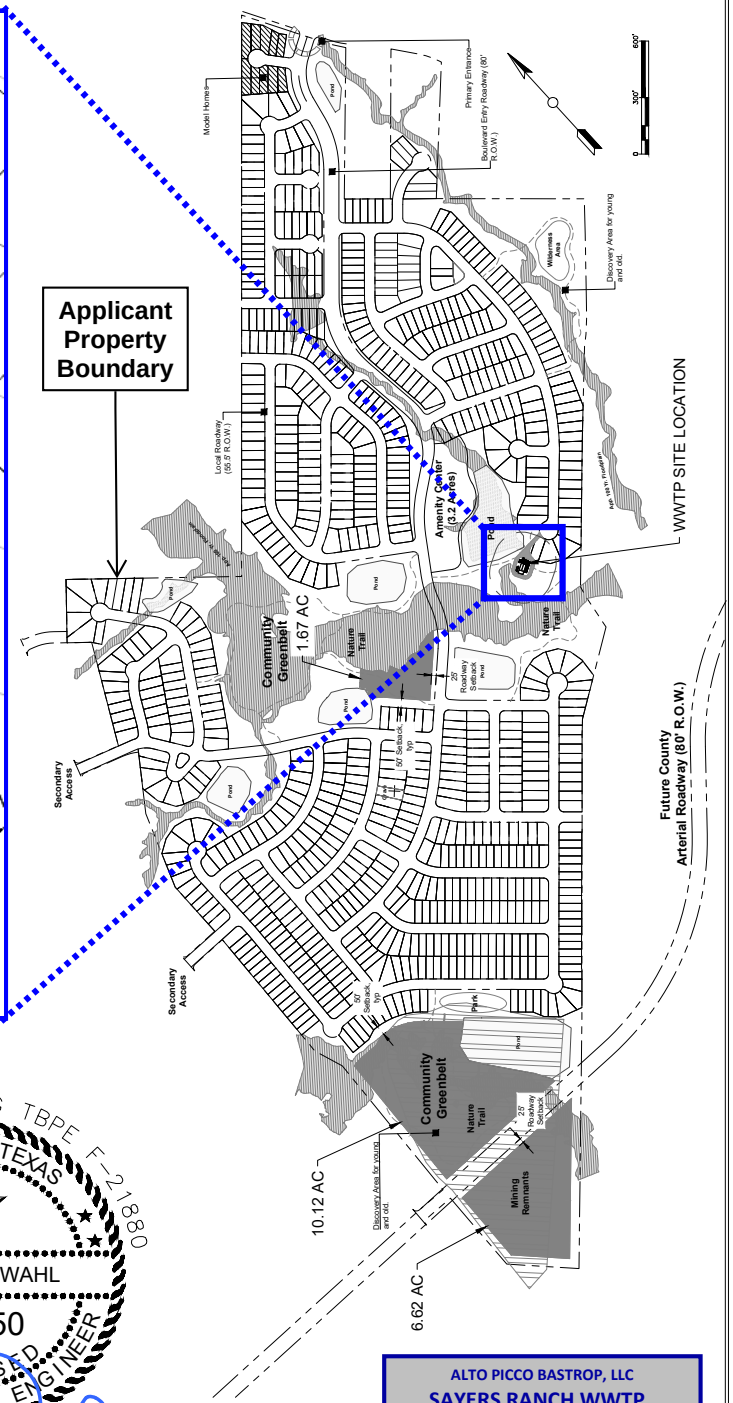
EFFLUENT DISPOSAL SITES

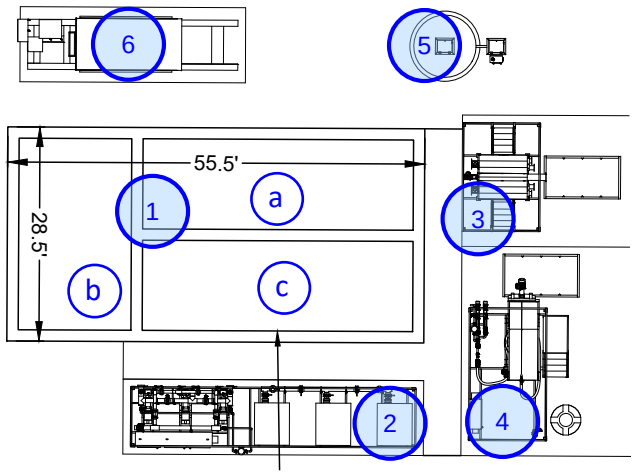
N











1. Process Tank
   a. Anoxic Tank
   b. Aerobic Tank
   c. Membranes Tank
2. Permeate and Blower Skid
3. Fine Screens Skid
4. Sludge Press Skid
5. Influent Lift Station
6. Generator

REUSE ENGINEERING TBPE F-21880
STATE OF TEXAS
LAUREN B. WAHL
141050
LICENSED PROFESSIONAL ENGINEER
30 JUL 2025

reUse ENGINEERING
4411 SH 35, Suite 100
Georgetown, TX 78626
TX Firm No. 21880

ALTO PICCO BASTROP, LLC
SAYERS RANCH WWTP
BASTROP COUNTY, TEXAS

BUFFER MAP

Attachment G

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

DOMESTIC WASTEWATER PERMIT APPLICATION TECHNICAL REPORT 1.0

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

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

Section 1. Permitted or Proposed Flows (Instructions Page 42)

A. Existing/Interim I Phase

Design Flow (MGD): Click to enter text.

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

Estimated construction start date: Click to enter text.

Estimated waste disposal start date: Click to enter text.

B. Interim II Phase

Design Flow (MGD): Click to enter text.

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

Estimated construction start date: Click to enter text.

Estimated waste disposal start date: Click to enter text.

C. Final Phase

Design Flow (MGD): 0.20

2-Hr Peak Flow (MGD): 0.80

Estimated construction start date: April 2026

Estimated waste disposal start date: April 2027

D. Current Operating Phase

Provide the startup date of the facility: Calendar Year 2027

Section 2. Treatment Process (Instructions Page 42)

A. Current Operating Phase

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

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

The plant is an MBR (membrane bio-reactor) facility, including influent pump station, fine screen, anoxic tank, aerobic tank, and membrane cells with ultraviolet disinfection and a sludge press. The facility includes one 200,000 gallons per day (gpd) treatment train for a total of 0.20 MGD treated effluent to be discharged in the final phase.

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)
Fine Screen	3	N/A
Anoxic	1	12'x35'x17.5'
Aerobic	1	11'x35'x17.5'
Membranes	1	25'x15'x17.5'
UV Disinfection	1	N/A
Sludge Press	1	N/A

C. Process Flow Diagram

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

Attachment: 1. Process Flow Diagram

Section 3. Site Information and Drawing (Instructions Page 43)

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

- Latitude: N/A
- Longitude: N/A

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

- Latitude: 30.133885 and 30.139066
- Longitude: -97.336013 and -97.331654

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. Concept Site Plan

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

Sayers Ranch WWTP will serve a residential development, Sayers Ranch, with proposed 885 lots.

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

Collection System Information

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

Section 4. Unbuilt Phases (Instructions Page 44)

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**.

Click to enter text.

Section 5. Closure Plans (Instructions Page 44)

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

☐ Yes ☒ No

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

☐ Yes ☐ No

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

Click to enter text.

Section 6. Permit Specific Requirements (Instructions Page 44)

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

A. Summary transmittal

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

☐ Yes ☒ No

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

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

Click to enter text.

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.

Buffer Zone requirements will be met by ownership. Please see Attachment G of the 10053 Administrative Report.

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*.

Click to enter text.

D. Grit and grease treatment

1. Acceptance of grit and grease waste

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

☐ Yes ☒ No

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

2. Grit and grease processing

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

Click to enter text.

3. Grit disposal

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

☐ Yes ☐ No

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

Describe the method of grit disposal.

Click to enter text.

4. *Grease and decanted liquid disposal*

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

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

Click to enter text.

E. Stormwater management

1. *Applicability*

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

☐ Yes ☒ No

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

☐ Yes ☒ No

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

2. *MSGP coverage*

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

☐ Yes ☐ No

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

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

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

☐ Yes ☐ No

3. *Conditional exclusion*

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

☐ Yes ☐ No

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

Click to enter text.

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

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

☐ Yes ☐ No

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

Click to enter text.

5. ***Zero stormwater discharge***

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

☐ Yes ☐ No

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

Click to enter text.

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

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

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

☐ Yes ☐ No

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

intend to divert stormwater to the treatment plant headworks and indirectly discharge it to water in the state.

Click to enter text.

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

F. Discharges to the Lake Houston Watershed

Does the facility discharge in the Lake Houston watershed?

☐ Yes ☒ No

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

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

1. Acceptance of sludge from other WWTPs

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

☐ Yes ☒ No

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

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

Click to enter text.

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

2. Acceptance of septic waste

Is the facility accepting or will it accept septic waste?

☐ Yes ☒ No

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

☐ Yes ☐ No

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

☐ Yes ☐ No

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

Click to enter text.

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

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

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

☐ Yes ☒ No

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

Click to enter text.

Section 7. Pollutant Analysis of Treated Effluent (Instructions Page 49)

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). **W*ater treatment facilities*** discharging filter backwash water, complete Table 1.0(3). Provide copies of the laboratory results sheets. **These tables are not applicable for a minor amendment without renewal.** See the instructions for guidance.

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

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

Pollutant	Average Conc.	Max Conc.	No. of Samples	Sample Type	Sample Date/Time
$CBOD_5$, mg/l					
Total Suspended Solids, mg/l					
Ammonia Nitrogen, mg/l					
Nitrate Nitrogen, mg/l					
Total Kjeldahl Nitrogen, mg/l					
Sulfate, mg/l					
Chloride, mg/l					
Total Phosphorus, mg/l					
pH, standard units					
Dissolved Oxygen*, mg/l					
Chlorine Residual, mg/l					
E.coli (CFU/100ml) freshwater					
Entercocci (CFU/100ml) saltwater					
Total Dissolved Solids, mg/l					
Electrical Conductivity, µmohs/cm, †					
Oil & Grease, mg/l					
Alkalinity ($CaCO_3$)*, mg/l					

*TPDES permits only
†TLAP permits only

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

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

Section 8. Facility Operator (Instructions Page 49)

Facility Operator Name: Operator has not yet been identified.

Facility Operator's License Classification and Level: Click to enter text.

Facility Operator's License Number: Click to enter text.

Section 9. Sludge and Biosolids Management and Disposal (Instructions Page 50)

A. WWTP's Sewage Sludge or Biosolids Management Facility Type

Check all that apply. See instructions for guidance

- ☐ Design flow>= 1 MGD
- ☐ Serves >= 10,000 people
- ☐ Class I Sludge Management Facility (per 40 CFR § 503.9)
- ☐ Biosolids generator
- ☐ Biosolids end user – land application (onsite)
- ☐ Biosolids end user – surface disposal (onsite)
- ☐ Biosolids end user – incinerator (onsite)

B. WWTP's Sewage Sludge or Biosolids Treatment Process

Check all that apply. See instructions for guidance.

- ☐ Aerobic Digestion
- ☐ Air Drying (or sludge drying beds)
- ☐ Lower Temperature Composting
- ☐ Lime Stabilization
- ☐ Higher Temperature Composting
- ☐ Heat Drying
- ☐ Thermophilic Aerobic Digestion
- ☐ Beta Ray Irradiation
- ☐ Gamma Ray Irradiation
- ☐ Pasteurization
- ☐ Preliminary Operation (e.g. grinding, de-gritting, blending)
- ☐ Thickening (e.g. gravity thickening, centrifugation, filter press, vacuum filter)
- ☐ Sludge Lagoon
- ☐ Temporary Storage (< 2 years)
- ☐ Long Term Storage (>= 2 years)
- ☐ Methane or Biogas Recovery
- ☐ Other Treatment Process: Click to enter text.

C. Sewage Sludge or Biosolids Management

Provide information on the *intended* sewage sludge or biosolids management practice. Do not enter every management practice that you want authorized in the permit, as the

permit will authorize all sewage sludge or biosolids management practices listed in the instructions. Rather indicate the management practice the facility plans to use.

Biosolids Management

Management Practice	Handler or Preparer Type	Bulk or Bag Container	Amount (dry metric tons)	Pathogen Reduction Options	Vector Attraction Reduction Option
Disposal in Landfill	Off-site Third-Party Handler or Preparer	Bulk		Choose an item.	Choose an item.
Choose an item.	Choose an item.	Choose an item.		Choose an item.	Choose an item.
Choose an item.	Choose an item.	Choose an item.		Choose an item.	Choose an item.

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

D. Disposal site

Disposal site name: Texas Disposal Systems Landfill

TCEQ permit or registration number: ID: 2123 RN102016698

County where disposal site is located: Travis

E. Transportation method

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

Name of the hauler: Texas Disposal Systems

Hauler registration number: ID: 22419 RN108484742

Sludge is transported as a:

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

Section 10. Permit Authorization for Sewage Sludge Disposal (Instructions Page 52)

A. Beneficial use authorization

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

☐ Yes ☒ No

If yes, are you requesting to continue this authorization to land apply biosolids 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 Biosolids	☐ Yes	☒ No
Sludge Surface Disposal or Sludge Monofill	☐ Yes	☒ No
Temporary storage in sludge lagoons	☐ Yes	☒ No

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

☐ Yes ☐ No

Section 11. Sewage Sludge Lagoons (Instructions Page 53)

Does this facility include sewage sludge lagoons?

☐ Yes ☒ No

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

A. Location information

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

- Original General Highway (County) Map:

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

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

  Attachment: Click to enter text.
- Site map:

  Attachment: Click to enter text.

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

☐ Overlap a designated 100-year frequency flood plain

☐ Soils with flooding classification

☐ Overlap an unstable area

☐ Wetlands

☐ Located less than 60 meters from a fault

☐ None of the above

Attachment: Click to enter text.

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

Click to enter text.

B. Temporary storage information

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

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

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

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

Phosphorus, mg/kg: Click to enter text.

Potassium, mg/kg: Click to enter text.

pH, standard units: Click to enter text.

Ammonia Nitrogen mg/kg: Click to enter text.

Arsenic: Click to enter text.

Cadmium: Click to enter text.

Chromium: Click to enter text.

Copper: Click to enter text.

Lead: Click to enter text.

Mercury: Click to enter text.

Molybdenum: Click to enter text.

Nickel: Click to enter text.

Selenium: Click to enter text.

Zinc: Click to enter text.

Total PCBs: Click to enter text.

Provide the following information:

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

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

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

C. Liner information

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

☐ Yes ☐ No

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

Click to enter text.

D. Site development plan

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

Click to enter text.

Attach the following documents to the application.

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

  Attachment: Click to enter text.
- Copy of the closure plan

  Attachment: Click to enter text.
- Copy of deed recordation for the site

  Attachment: Click to enter text.
- Size of the sludge lagoon(s) in surface acres and capacity in cubic feet and gallons

  Attachment: Click to enter text.
- Description of the method of controlling infiltration of groundwater and surface water from entering the site

  Attachment: Click to enter text.
- Procedures to prevent the occurrence of nuisance conditions

  Attachment: Click to enter text.

E. Groundwater monitoring

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

☐ Yes ☒ No

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

Attachment: Click to enter text.

Section 12. Authorizations/Compliance/Enforcement (Instructions Page 54)

A. Additional authorizations

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

☐ Yes ☒ No

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

Click to enter text.

B. Permittee enforcement status

Is the permittee currently under enforcement for this facility?

☐ Yes ☒ No

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

☐ Yes ☒ No

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

Click to enter text.

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

A. RCRA hazardous wastes

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

☐ Yes ☒ No

B. Remediation activity wastewater

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

☐ Yes ☒ No

C. Details about wastes received

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

Attachment: Click to enter text.

Section 14. Laboratory Accreditation (Instructions Page 55)

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: N/A, not required for new applications

Title: Click to enter text.

Signature: _____

Date: _____

DOMESTIC WASTEWATER PERMIT APPLICATION TECHNICAL REPORT 1.1

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

Section 1. Justification for Permit (Instructions Page 56)

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.

Connecting to a nearby collection system was determined to be financially infeasible and sewer treatment per individual lot is not practical. In support of regionalization efforts, the applicant contacted every CCN holder and permitted wastewater outfall within a 3-mile radius to request service. Two of the three parcels within the development have been released from CCN No. 20466 (City of Bastrop). The release of the remaining parcel is currently in progress. All either declined to provide service or did not respond. See Attachment 4. For the Projection of LUEs & Wastewater Flow to WWTF Capacity Over Time of Development see Attachment 3. The plot shows that the WWTF capacity will increase prior to development and occupation of LUEs (Living Unit Equivalents). Year 0 represents the start of operation, when LUEs are occupied and wastewater flow begins.

B. Regionalization of facilities

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

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

1. Municipally incorporated areas

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

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

☐ Yes ☒ No ☐ Not Applicable

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

If yes, attach correspondence from the city.

Attachment: Click to enter text.

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

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

Attachment: Click to enter text.

2. ***Utility CCN areas***

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

☒ Yes ☐ No

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: N/A, nearby CCNs have denied service. See Attachment 4.

3. ***Nearby WWTPs or collection systems***

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

☒ Yes ☐ No

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

Attachment: 4. Regionalization of Facilities

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

Attachment: 4. Regionalization of Facilities

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

Attachment: Click to enter text.

Section 2. Proposed Organic Loading (Instructions Page 58)

Is this facility in operation?

☐ Yes ☒ No

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

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

A. Current organic loading

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

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

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

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

Click to enter text.

B. Proposed organic loading

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

Table 1.1(1) – Design Organic Loading

Source	Total Average Flow (MGD)	Influent BOD5 Concentration (mg/l)
Municipality	0.20	325
Subdivision		
Trailer park – transient		
Mobile home park		
School with cafeteria and showers		
School with cafeteria, no showers		
Recreational park, overnight use		
Recreational park, day use		
Office building or factory		
Motel		
Restaurant		
Hospital		
Nursing home		
Other		
TOTAL FLOW from all sources	0.20	
AVERAGE BOD_5 from all sources		325

Section 3. Proposed Effluent Quality and Disinfection (Instructions Page 58)

A. Existing/Interim I Phase Design Effluent Quality

Biochemical Oxygen Demand (5-day), mg/l: Click to enter text.

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

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

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

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

Other: Click to enter text.

B. Interim II Phase Design Effluent Quality

Biochemical Oxygen Demand (5-day), mg/l: Click to enter text.

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

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

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

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

Other: Click to enter text.

C. Final Phase Design Effluent Quality

Biochemical Oxygen Demand (5-day), mg/l: 10.0

Total Suspended Solids, mg/l: 10.0

Ammonia Nitrogen, mg/l: 5.0

Total Phosphorus, mg/l: 1.0

Dissolved Oxygen, mg/l: 5.0

Other: Click to enter text.

D. Disinfection Method

Identify the proposed method of disinfection.

☐ Chlorine: Click to enter text. mg/l after Click to enter text. minutes detention time at peak flow

Dechlorination process: Click to enter text.

☒ Ultraviolet Light: 1.0 seconds contact time at peak flow

☐ Other: Click to enter text.

Section 4. Design Calculations (Instructions Page 58)

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

Attachment: 5. Design Calculations

Section 5. Facility Site (Instructions Page 59)

A. 100-year floodplain

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

☒ Yes ☐ No

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

Click to enter text.

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

https://msc.fema.gov/portal/home

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

☐ Yes ☒ No

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

☐ Yes ☐ No

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

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

B. Wind rose

Attach a wind rose: 6. Wind Rose

Section 6. Permit Authorization for Sewage Sludge Disposal (Instructions Page 59)

A. Beneficial use authorization

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

☐ Yes ☒ No

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

B. Sludge processing authorization

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

☐ Sludge Composting

☐ Marketing and Distribution of sludge

☐ Sludge Surface Disposal or Sludge Monofill

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

Section 7. Sewage Sludge Solids Management Plan (Instructions Page 60)

Attach a solids management plan to the application.

Attachment: 7. Solids Management Plan

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

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

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

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 2.0: RECEIVING WATERS

The following information is required for all TPDES permit applications.

Section 1. Domestic Drinking Water Supply (Instructions Page 63)

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

☐ Yes ☐ No

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

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

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

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

Attachment: Click to enter text.

Section 2. Discharge into Tidally Affected Waters (Instructions Page 63)

Does the facility discharge into tidally affected waters?

☐ Yes ☐ No

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

A. Receiving water outfall

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

B. Oyster waters

Are there oyster waters in the vicinity of the discharge?

☐ Yes ☐ No

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

Click to enter text.

C. Sea grasses

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

☐ Yes ☐ No

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

Click to enter text.

Section 3. Classified Segments (Instructions Page 63)

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

☐ Yes ☐ No

If yes, this Worksheet is complete.

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

Section 4. Description of Immediate Receiving Waters (Instructions Page 63)

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

A. Receiving water type

Identify the appropriate description of the receiving waters.

☐ Stream

☐ Freshwater Swamp or Marsh

☐ Lake or Pond

Surface area, in acres: Click to enter text.

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

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

☐ Man-made Channel or Ditch

☐ Open Bay

☐ Tidal Stream, Bayou, or Marsh

☐ Other, specify: Click to enter text.

B. Flow characteristics

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

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

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

☐ Perennial - normally flowing

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

☐ USGS flow records

☐ Historical observation by adjacent landowners

☐ Personal observation

☐ Other, specify: Click to enter text.

C. Downstream perennial confluences

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

Click to enter text.

D. Downstream characteristics

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

☐ Yes ☐ No

If yes, discuss how.

Click to enter text.

E. Normal dry weather characteristics

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

Click to enter text.

Date and time of observation: Click to enter text.

Was the water body influenced by stormwater runoff during observations?

☐ Yes ☐ No

Section 5. General Characteristics of the Waterbody (Instructions Page 65)

A. Upstream influences

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

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

B. Waterbody uses

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

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

C. Waterbody aesthetics

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

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

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 2.1: STREAM PHYSICAL CHARACTERISTICS

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

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

Section 1. General Information (Instructions Page 65)

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

Stream name: Click to enter text.

Location: Click to enter text.

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

☐ Perennial ☐ Intermittent with perennial pools

Section 2. Data Collection (Instructions Page 65)

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

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

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

Number of riffles: Click to enter text.

Evidence of flow fluctuations (check one):

☐ Minor ☐ moderate ☐ severe

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

Click to enter text.

Stream transects

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

Table 2.1(1) - Stream Transect Records

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

Section 3. Summarize Measurements (Instructions Page 65)

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

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

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

Number of lateral transects made: Click to enter text.

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

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

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

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

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

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

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

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 3.0: LAND DISPOSAL OF EFFLUENT

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

Section 1. Type of Disposal System (Instructions Page 67)

Identify the method of land disposal:

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

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

For existing authorizations, provide Registration Number: N/A

Section 2. Land Application Site(s) (Instructions Page 67)

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
Native Grasses	18.4	200,000	Y

Section 3. Storage and Evaporation Lagoons/Ponds (Instructions Page 67)

Table 3.0(2) – Storage and Evaporation Ponds

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

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

Attachment: N/A, storage tanks will be used in lieu of ponds.

Section 4. Flood and Runoff Protection (Instructions Page 67)

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

☐ Yes ☒ No

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

Click to enter text.

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

https://msc.fema.gov/portal/home

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

Earthen berms, no greater than two (2) feet in height will be constructed around the upgradient and downgradient sides of the proposed application areas and will parallel topography to control rainfall run-on and run-off. Cutoff ditches will be constructed on uphill locations.

Section 5. Annual Cropping Plan (Instructions Page 67)

Attach an Annual Cropping Plan which includes a discussion of each of the following items. If not applicable, provide a detailed explanation indicating why. **Attachment**: N/A; no harvestable crops. Native grasses will be overseeded with cool-season grass during the winter months. See Attachment 11 for a Soils Map.

- 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 68)

Attach a USGS map with the following information shown and labeled. If not applicable, provide a detailed explanation indicating why. **Attachment**: 8. TLAP USGS Maps and Attachment 9. TWDB Water Well Map

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

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

Table 3.0(3) – Water Well Data

Well ID	Well Use	Producing? Y/N	Open, cased, capped, or plugged?	Proposed Best Management Practice
See Table 3.0(3) in Attachment 9.			Choose an item.	
			Choose an item.	
			Choose an item.	

Well ID	Well Use	Producing? Y/N	Open, cased, capped, or plugged?	Proposed Best Management Practice
			Choose an item.	
			Choose an item.	

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

Attachment: 9. Water Quality & Well Log Data

Section 7. Groundwater Quality (Instructions Page 68)

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: 10. Groundwater Quality Technical Report

Are groundwater monitoring wells available onsite? ☐ Yes ☒ No

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

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

Attachment: Click to enter text.

Section 8. Soil Map and Soil Analyses (Instructions Page 69)

A. Soil map

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

Attachment: 11. Soils Map

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: 12. Soil Analysis

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
AfC – Edge fine sandy loam, 1 to 5 percent slopes	8 inches	1.4 gpd/sf	8.7	74
	18 inches	0.112 gpd/sf	8.7	74

Soil Series	Depth from Surface	Permeability	Available Water Capacity	Curve Number
	31 to 35 inches	0.08 gpd/sf	8.7	74
AfE2 – Edge fine sandy loam, 5 to 12 percent slopes, eroded	10 to 12 inches	2.52 gpd/sf	8.7	74
	31 inches	3.499 gpd/sf	8.7	74
	61 inches	0.630 gpd/sf	8.7	74
Amoozemeter test data is included in Attachment 15: Soil Evaluation				

Section 9. Effluent Monitoring Data (Instructions Page 70)

Is the facility in operation?

☐ Yes ☒ No

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

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

Table 3.0(5) – Effluent Monitoring Data

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

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

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

Click to enter text.

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

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

Section 1. Surface Disposal (Instructions Page 71)

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

A. Irrigation

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

Design application frequency:

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

Land grade (slope):

average percent (%): Click to enter text.

maximum percent (%): Click to enter text.

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

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

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

Method of application: Click to enter text.

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

Attachment: Click to enter text.

B. Evaporation ponds

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

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

Attachment: Click to enter text.

C. Evapotranspiration beds

Number of beds: Click to enter text.

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

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

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

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

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

Attachment: Click to enter text.

D. Overland flow

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

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

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

Slope length, in feet: Click to enter text.

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

Design application frequency:

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

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

Attachment: Click to enter text.

Section 2. Edwards Aquifer (Instructions Page 72)

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

☐ Yes ☐ No

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

☐ Yes ☐ No

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

Attachment: Click to enter text.

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

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

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

Section 1. Subsurface Application (Instructions Page 73)

Identify the type of system:

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

Application area, in acres: Click to enter text.

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

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

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

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

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

Number of beds: Click to enter text.

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

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

Storage volume, in gallons: Click to enter text.

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

Soil Classification: Click to enter text.

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

Attachment: Click to enter text.

Section 2. Edwards Aquifer (Instructions Page 73)

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

☐ Yes ☒ No

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

☐ Yes ☒ No

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

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

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

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

Section 1. Administrative Information (Instructions Page 74)

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. N/A Is the owner of the land where the treatment facility is located the same as the owner of the treatment facility?

☒ Yes ☐ No

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

Click to enter text.

C. Owner of the subsurface area drip dispersal system: Alto Picco Bastrop LLC

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

☒ Yes ☐ No

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

Click to enter text.

E. Owner of the land where the subsurface area drip dispersal system is located: Woodrun Development Co Ltd & Hoffman Family Bastrop Trust

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

☒ Yes ☐ No

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

Click to enter text.

Section 2. Subsurface Area Drip Dispersal System (Instructions Page 74)

A. Type of system

☒ Subsurface Drip Irrigation

☐ Surface Drip Irrigation

☐ Other, specify: Click to enter text.

B. Irrigation operations

Application area, in acres: 18.4

Infiltration Rate, in inches/hour: 0.017

Average slope of the application area, percent (%): Area A: 1.88% and Area B: 6.83%

Maximum slope of the application area, percent (%): Area A: 2.07% and Area B: 8.97%

Storage volume, in gallons: 600,000 gallons

Major soil series: Edge fine sandy loam, 1 to 6 percent slopes

Depth to groundwater, in feet: 27

C. Application rate

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

☒ Yes ☐ No

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

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

☐ Yes ☒ No

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

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

☒ Yes ☐ No

Hydraulic application rate, in gal/square foot/day: 0.25 gpd/SF, see Attachment 13.

Nitrogen application rate, in lbs/gal/day: 3.50 lb/day

D. Dosing information

Number of doses per day: TBD per the drip irrigation manufacturer's recommendation upon further evaluation of site/system.

Dosing duration per area, in hours: TBD

Rest period between doses, in hours: TBD

Dosing amount per area, in inches/day: TBD

Number of zones: TBD

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

☐ Yes ☒ No

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

Attachment: Click to enter text.

Section 3. Required Plans (Instructions Page 74)

A. Recharge feature plan

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

Attachment: 14. Recharge Feature Plan

B. Soil evaluation

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

Attachment: 15. Soil Evaluation

C. Site preparation plan

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

Attachment: 16. Site Preparation Plan

D. Soil sampling/testing

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

Attachment: Please refer to Attachment 12. Soil Analyses

Section 4. Floodway Designation (Instructions Page 75)

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: 17. FEMA Flood Map

Section 5. Surface Waters in the State (Instructions Page 75)

A. Buffer Map

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

Attachment: 18. Surface & Groundwater Buffer Map

B. Buffer variance request

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

☐ Yes ☒ No

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

Attachment: Click to enter text.

Section 6. Edwards Aquifer (Instructions Page 75)

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

☐ Yes ☒ No

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

☐ Yes ☒ No

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

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 4.0: POLLUTANT ANALYSIS REQUIREMENTS

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

This worksheet is not required minor amendments without renewal.

Section 1. Toxic Pollutants (Instructions Page 76)

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

Grab ☐ Composite ☐

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

Table 4.0(1) – Toxics Analysis

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

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

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Endosulfan II (beta)				0.02
Endosulfan Sulfate				0.1
Endrin				0.02
Epichlorohydrin				---
Ethylbenzene				10
Ethylene Glycol				---
Fluoride				500
Guthion				0.1
Heptachlor				0.01
Heptachlor Epoxide				0.01
Hexachlorobenzene				5
Hexachlorobutadiene				10
Hexachlorocyclohexane (alpha)				0.05
Hexachlorocyclohexane (beta)				0.05
gamma-Hexachlorocyclohexane (Lindane)				0.05
Hexachlorocyclopentadiene				10
Hexachloroethane				20
Hexachlorophene				10
4,4'-Isopropylidenediphenol				1
Lead				0.5
Malathion				0.1
Mercury				0.005
Methoxychlor				2
Methyl Ethyl Ketone				50
Methyl tert-butyl ether				---
Mirex				0.02
Nickel				2
Nitrate-Nitrogen				100
Nitrobenzene				10
N-Nitrosodiethylamine				20
N-Nitroso-di-n-Butylamine				20
Nonylphenol				333

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Parathion (ethyl)				0.1
Pentachlorobenzene				20
Pentachlorophenol				5
Phenanthrene				10
Polychlorinated Biphenyls (PCB's) **(*3)**				0.2
Pyridine				20
Selenium				5
Silver				0.5
1,2,4,5-Tetrachlorobenzene				20
1,1,2,2-Tetrachloroethane				10
Tetrachloroethylene				10
Thallium				0.5
Toluene				10
Toxaphene				0.3
2,4,5-TP (Silvex)				0.3
Tributyltin (see instructions for explanation)				0.01
1,1,1-Trichloroethane				10
1,1,2-Trichloroethane				10
Trichloroethylene				10
2,4,5-Trichlorophenol				50
TTHM (Total Trihalomethanes)				10
Vinyl Chloride				10
Zinc				5

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

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

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

Section 2. Priority Pollutants

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

Grab ☐ Composite ☐

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

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

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

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

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

Table 4.0(2)B – Volatile Compounds

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

Table 4.0(2)C – Acid Compounds

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

Table 4.0(2)D – Base/Neutral Compounds

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

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

Table 4.0(2)E - Pesticides

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

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

Section 3. Dioxin/Furan Compounds

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

☐ 2,4,5-trichlorophenoxy acetic acid

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

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

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

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

Common Name Erbon, CASRN 136-25-4

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

Common Name Ronnel, CASRN 299-84-3

☐ 2,4,5-trichlorophenol

Common Name TCP, CASRN 95-95-4

☐ hexachlorophene

Common Name HCP, CASRN 70-30-4

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

Click to enter text.

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

☐ Yes ☐ No

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

Click to enter text.

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

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

Grab ☐ Composite ☐

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

Table 4.0(2)F – Dioxin/Furan Compounds

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

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 5.0: TOXICITY TESTING REQUIREMENTS

The following **is required** for facilities with a current operating design flow of**1.0 MGD or greater**, with an EPA-approved **pretreatment** program (or those required to have one under 40 CFR Part 403), or are required to perform Whole Effluent Toxicity testing. See Page 86 of the instructions for further details.

This worksheet is not required minor amendments without renewal.

Section 1. Required Tests

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

7-day Chronic: Click to enter text.

48-hour Acute: Click to enter text.

Section 2. Toxicity Reduction Evaluations (TREs)

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

☐ Yes ☐ No

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

Click to enter text.

Section 3. Summary of WET Tests

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

Table 5.0(1) Summary of WET Tests

Test Date	Test Species	NOEC Survival	NOEC Sub-lethal

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 6.0: INDUSTRIAL WASTE CONTRIBUTION

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

Section 1. All POTWs (Instructions Page 87)

A. Industrial users (IUs)

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

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

Categorical IUs:

Number of IUs: Click to enter text.

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

Significant IUs – non-categorical:

Number of IUs: Click to enter text.

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

Other IUs:

Number of IUs: Click to enter text.

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

B. Treatment plant interference

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

☐ Yes ☐ No

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

Click to enter text.

C. Treatment plant pass through

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

☐ Yes ☐ No

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

Click to enter text.

D. Pretreatment program

Does your POTW have an approved pretreatment program?

☐ Yes ☐ No

If yes, complete Section 2 only of this Worksheet.

Is your POTW required to develop an approved pretreatment program?

☐ Yes ☐ No

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

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

Section 2. POTWs with Approved Programs or Those Required to Develop a Program (Instructions Page 87)

A. Substantial modifications

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

☐ Yes ☐ No

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

Click to enter text.

B. Non-substantial modifications

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

☐ Yes ☐ No

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

Click to enter text.

C. Effluent parameters above the MAL

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

Table 6.0(1) – Parameters Above the MAL

Pollutant	Concentration	MAL	Units	Date

D. Industrial user interruptions

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

☐ Yes ☐ No

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

Click to enter text.

Section 3. Significant Industrial User (SIU) Information and Categorical Industrial User (CIU) (Instructions Page 88)

A. General information

Company Name: Click to enter text.

SIC Code: Click to enter text.

Contact name: Click to enter text.

Address: Click to enter text.

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

Telephone number: Click to enter text.

Email address: Click to enter text.

B. Process information

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

Click to enter text.

C. Product and service information

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

Click to enter text.

D. Flow rate information

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

Process Wastewater:

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

Discharge Type: ☐ Continuous ☐ Batch ☐ Intermittent

Non-Process Wastewater:

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

Discharge Type: ☐ Continuous ☐ Batch ☐ Intermittent

E. Pretreatment standards

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

☐ Yes ☐ No

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

☐ Yes ☐ No

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

Category: Subcategories: Click to enter text.

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

Category: Click to enter text.

Subcategories: Click to enter text.

Category: Click to enter text.

Subcategories: Click to enter text.

Category: Click to enter text.

Subcategories: Click to enter text.

Category: Click to enter text.

Subcategories: Click to enter text.

F. Industrial user interruptions

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

☐ Yes ☐ No

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

Click to enter text.

WORKSHEET 7.0

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

CLASS V INJECTION WELL INVENTORY/AUTHORIZATION FORM

Submit the completed form to:

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

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

Section 1. General Information (Instructions Page 90)

1. TCEQ Program Area

Program Area (PST, VCP, IHW, etc.): Click to enter text.

Program ID: Click to enter text.

Contact Name: Click to enter text.

Phone Number: Click to enter text.

2. Agent/Consultant Contact Information

Contact Name: Lauren Wahl, PE

Address: 4411 S IH-35 Ste 100

City, State, and Zip Code: Georgetown, TX 78626

Phone Number: 5127559962

3. Owner/Operator Contact Information

☒ Owner ☐ Operator

Owner/Operator Name: Alto Picco Bastrop LLC

Contact Name: Mr. Kacee Jackson

Address: 210 Lavaca St #2312

City, State, and Zip Code: Austin, TX 78701

Phone Number: 5127892833

4. Facility Contact Information

Facility Name: Sayers Ranch WWTP

Address: N/A

City, State, and Zip Code: N/A

Location description (if no address is available): ~4,600-ft S of Smith Rd and Sayers Ranch Rd intersection in Bastrop, TX

Facility Contact Person: Mr. Kacee Jackson

Phone Number: 5127892833

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

Latitude: 30.139347

Longitude: -97.329120

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

Attach topographic quadrangle map as attachment A.

6. **Well Information**

Type of Well Construction, select one:

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

Number of Injection Wells: Click to enter text.

7. **Purpose**

Detailed Description regarding purpose of Injection System:

Disposal of treated effluent from MBR WWTF via SADDS. Effluent will be Type 1 reclaimed water.

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

8. **Water Well Driller/Installer**

Water Well Driller/Installer Name: American Manufacturing Company Inc. will install the proposed SADDS, see Attachment 7-D.

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

Phone Number: Click to enter text.

License Number: Click to enter text.

Section 2. Proposed Down Hole Design

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

Table 7.0(1) – Down Hole Design Table

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

Section 3. Proposed Trench System, Subsurface Fluid Distribution System, or Infiltration Gallery

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

System(s) Dimensions: See Attachment 7-D

System(s) Construction: See Attachment 7-D

Section 4. Site Hydrogeological and Injection Zone Data

1. Name of Contaminated Aquifer: N/A

2. Receiving Formation Name of Injection Zone: Fluvial terrace deposits, Calvert Bluff Formation

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

4. Surface Elevation: 400 to 423 ft

5. Depth to Ground Water: 27 ft bgs

6. Injection Zone Depth: 48" or shallower

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

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

Name: N/A

Thickness: Click to enter text.

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

Attach as Attachment E.

9. Horizontal and Vertical extent of contamination and injection plume

Attach as Attachment F.

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

Attach as Attachment G.

11. Injection Fluid Chemistry in PPM at point of injection

Attach as Attachment H.

12. Lowest Known Depth of Ground Water with < 10,000 PPM TDS: N/A

13. Maximum injection Rate/Volume/Pressure: 0.25 gpd/SF hydraulic application rate, see Attachment 13.

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

15. Injection wells within 1/4 mile radius (attach map as Attachment J): N/A, no injection wells within ¼ mi

16. Monitor wells within 1/4 mile radius (attach drillers logs and map as Attachment K): N/A, no monitoring wells within ¼ mi

17. Sampling frequency: Click to enter text.

18. Known hazardous components in injection fluid: N/A, injectate will be type I reclaimed water

Section 5. Site History

1. Type of Facility: MBR WWTF to serve residential development
2. Contamination Dates: N/A
3. Original Contamination (VOCs, TPH, BTEX, etc.) and Concentrations (attach as Attachment L): N/A, no contamination identified
4. Previous Remediation (attach results of any previous remediation as attachment M): N/A

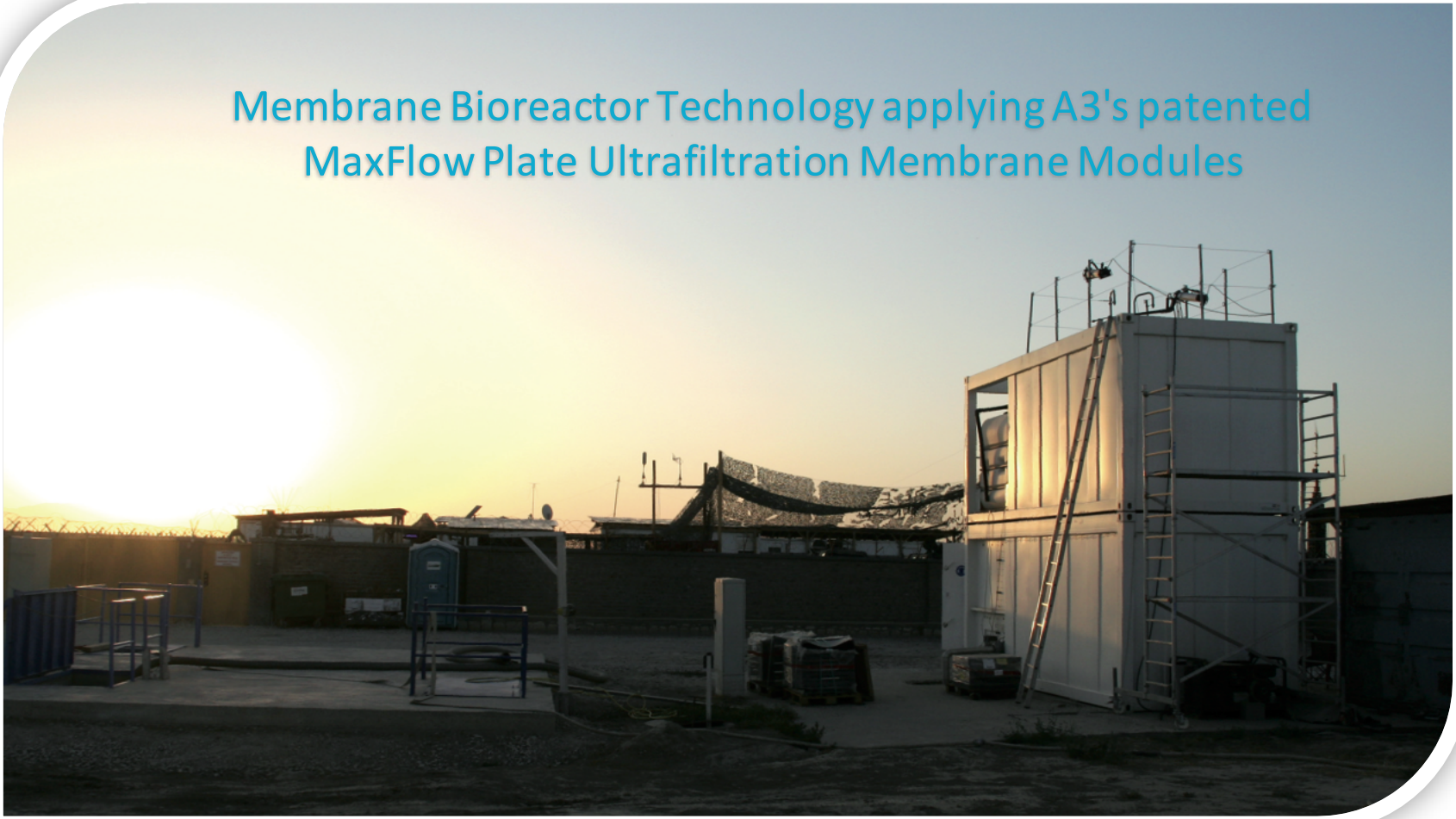
NOTE: Authorization Form should be completed in detail and authorization given by the TCEQ before construction, operation, and/or conversion can begin. Attach additional pages as necessary.

Class V Injection Well Designations

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

MODERN WASTEWATER SOLUTIONS

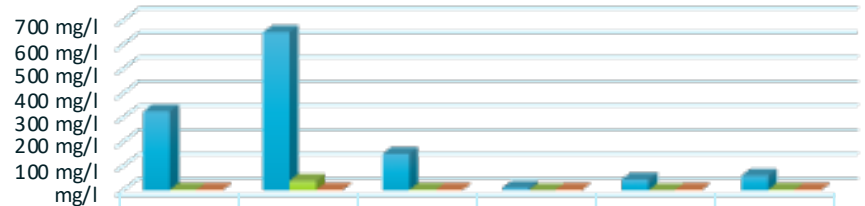
Budget Proposal # 1012



A3-USA, Inc 1674 Fountaintown Road Chinquapin, NC 28521

Process Summary

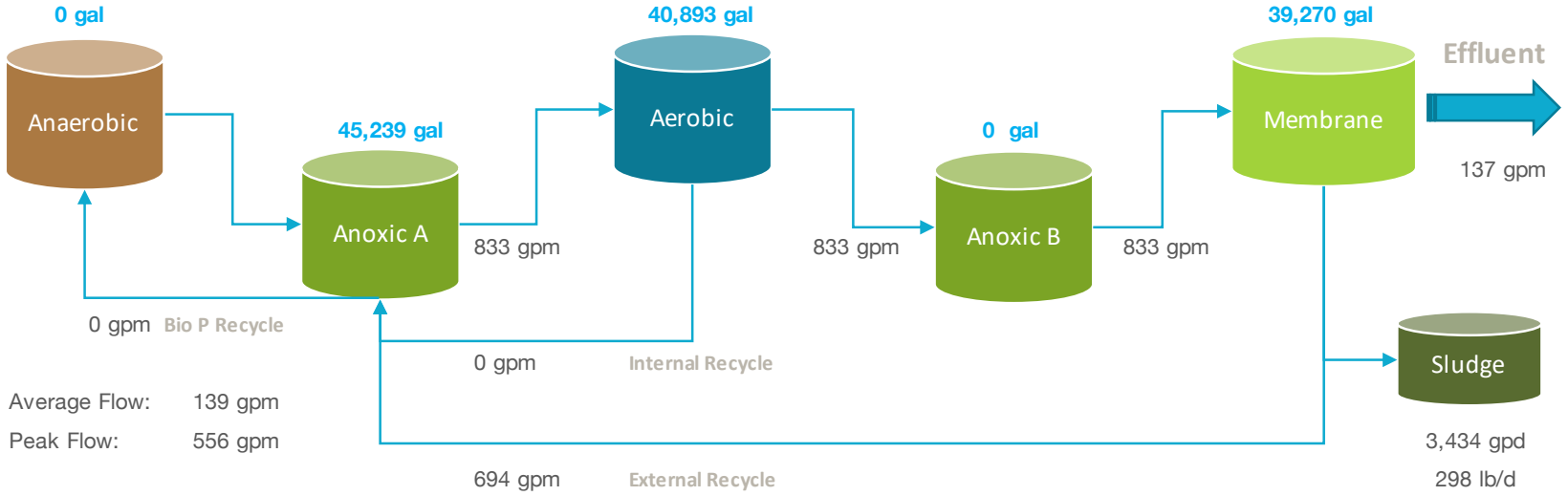
Influent & Effluent Parameters



	BOD	COD	TSS	P	NH4	TN
Influent	325 mg/l	650 mg/l	150 mg/l	10 mg/l	45 mg/l	60 mg/l
Effluent	2.0 mg/l	39.0 mg/l	1.0 mg/l	0.4 mg/l	0.2 mg/l	2.1 mg/l
Removal	99.4%	94.0%	99.3%	96.0%	99.6%	96.6%

PROCESS PARAMETERS

Sludge Age	35 d
Total Reactor Volume	125,402 gal
Total SOR	1,178 kgO2/d
MLSS in Anoxic / Aerobic Tank	10,352 mg/l
MLSS in Membrane Tank	12,557 mg/l
HRT	15 h
F/M RATIO (BOD)	0.052
F/M RATIO (COD)	0.103
Total Membrane Surface	56,672 sf



Aeration	Flow	Pressure
EQ	0 scfm	0.0 psi
Sludge	0 scfm	0.0 psi
Aerobic	403 scfm	8.0 psi
Membrane	641 scfm	8.0 psi

Applied Options:

NO DAF

NO RO

6/4/25

Biological Process Calculation

Influent Charateristics	Symbol	Value	Units
Type of wastewater		municipal	
Temperature	T	12	°C
pH	-	7.5	-
H_2CO_3 alkalinity	Alk_i	7	mg/l as $CaCO_3$
Site pressure / elevation	$p_{a,i}$	14.5	psi
Average daily flow	Q_i	200,000	gpd
Peak daily flow	$Q_{i,\ max,d}$	500,000	gpd
Hourly peak flow	$Q_{i,\ max,p}$	556	gpm
Peak factor	-	4.0	-
Average daily flow	Q_i	757	m^3/d
Max. monthly average daily flow	$Q_{i,\ max,d}$	1,893	m^3/d
Hourly peak flow	$Q_{i,\ max,h}$	126.2	m^3/h
Total BOD	$S_{BOD,i}$	325	mgBOD/l
Total COD	$S_{COD,i}$	650	mgCOD/l
COD/BOD ratio	-	2.00	-
Rapidly biodegradable COD	$S_{s,i}$	163	mgCOD/l
Volitale fatty acids (VFA)	$S_{VFA,i}$	25	mgCOD/l
Fermentable COD	$S_{F,i}$	138	mgCOD/l
Slowly biodegradable COD	$S_{ss,i}$	351	mgCOD/l
Biodegradable COD	$S_{bio,i}$	514	mgCOD/l
Soluble inert COD	$S_{SIN,i}$	39	mgCOD/l
Particulate inert COD	$S_{PIN,i}$	98	mgCOD/l

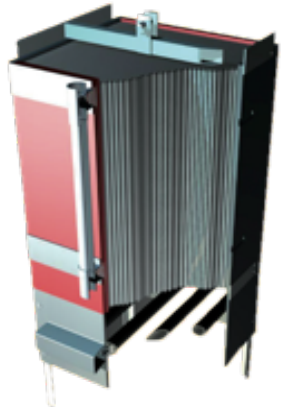
Influent Charateristics	Symbol	Value	Units
NO_3	$N_{NO3,i}$	0.0	mg/l
NH_4	$N_{a,i}$	45.0	mg/l
TKN	$N_{TKN,i}$	60.0	mg/l
TP	P_i	10.0	mg/l
Dissolved Oxygen	$S_{O2,i}$	0.0	mg/l
FSA fraction	$f_{a/TKN,i}$	0.8	-
Fixed (inorganic) suspended solids	$X_{FSS,i}$	47.5	mgISS/l
TSS concentration	$S_{TSS,i}$	150.0	mgTSS/l
Total BOD mass	$FS_{BOD,i}$	246.0	kgBOD/d
Total COD mass	$FS_{COD,i}$	492.1	kgCOD/d
Total NH_4 mass	$FS_{a,i}$	34.1	kgNH_4/d
Total TKN mass	$FS_{TKN,i}$	45.4	kgTKN/d
Total P mass	$FS_{P,i}$	7.6	kgP/d

Effluent Characteristics	Symbol	Value	Units
Waste Sludge	FX_t	298	lb/d
Waste Sludge	Q_w	3,434	gpd
Effluent BOD	$S_{BOD,e}$	< 3	mgBOD/l
Effluent COD	$S_{COD,e}$	39	mgCOD/l
Effluent TSS	$S_{TSS,e}$	1.0	mgTSS/l
Effluent P	P_e	0.4	mgP/l
Effluent NH_4	$N_{a,e}$	0.2	mgN/l
Effluent NO_3	$N_{NO3,e}$	0.4	mgN/l
Effluent TN (N_{ne} + N_{te})	$N_{t,e}$	2.1	mgN/l
Fecal/E.coli		ND	

Bioreactor Characteristics	Symbol	Value	Units
Temperature	T_{bio}	12	°C
Sludge retention time / Sludge age	SRT	35	d
Reactor volume	$V_{P,chosen}$	125,402	gallons
Reactor volume	$V_{P,chosen}$	475	m^3
Reactor volume	$V_{P,calc}$	120,173	gallons
Average MLSS concentration	X_{TSS}	10,500	mgTSS/l
Food to microorganism ratio	$F/M_{BOD,used}$	0.052	kgBOD/kgMLSS
Food to microorganism ratio	$F/M_{COD,used}$	0.103	kgCOD/kgMLSS
Membrane tank MLSS concentration	X_M	12,557	mgTSS/l
Aerobic/Anoxic tank MLSS concentration	X_{Bio}	10,352	mgTSS/l
Number of anaerobic zones	$\#_{AN}$	0	-
Number of anoxic zones	$\#_{AO}$	1	-
Number of aerobic zones	$\#_{AE}$	1	-
External recycle ratio	m	5	-
Internal recycle ratio	a	0	-
DO in m recycle	O_m	1	mgO_2/l
DO in a recycle	O_a	0	mgO_2/l
Recycle ratio to anaerobic tank (PAO)	s	0	-
DO in s recycle	$S_{O2,s}$	0	mgO_2/l
Nitrate on s recycle	$S_{NO3,s}$	0	mg/l
TKN/COD ratio	$f_{TKN/COD}$	0.092	mgTKN/mgCOD
Carbon source addition (Micro C)	B_{MicroC}	0.0	lb/d
Carbon source addition (Micro C)	S_{MicroC}	0.00	gpd
Nominal hydraulic retention time	HRT_n	15.0	h
Actual hydraulic retention time	HRT_a	2.5	h

Biological Oxygen Demand	Symbol	Value	Units
OD for synth & endo respiration (PAO)	FO_{PAO}	0	kgO_2/d
OD for synth & endo respiration (OHO)	FO_{OHO}	318	kgO_2/d
Mass carbonaceous oxygen demand	FO_C	318	kgO_2/d
Carbonaceous oxygen utilization rate	O_c	67%	-
Nitrification oxygen demand	FO_n	148	kgO_2/d
Total oxygen demand	FO_t	467	kgO_2/d
Oxygen recovered by denitrification	FO_d	92	kgO_2/d
Net total oxygen demand (AOR)	FO_{td}	374	kgO_2/d
Oxygen saturation @ operating temp.	c_s	10.9	mg/l
Desired oxygen level	c_x	2.0	mg/l
Transfer coefficient	α	0.40	-
Diffuser water depth	DWD	13	feet
Oxygen transfer efficiency	OTE	2	%
Standard total oxygen demand (SOR)	SOR	1,178	kgO_2/d
Required air flow	Q_{air}	**395**	scfm
Oxygen requir. per volume & depth	OS	18.5	$gO_2/(Nm_3*m_D)$

Membrane Module Design	Symbol	Value	Units
Permeate on cycle	T_o	8	minute
Permeate off cycle (relaxation)	T_s	2	minute
Effective membrane module surface	$A_{m,eff}$	87.8	m^2
Effective membrane module surface	$A_{m,eff}$	945	ft^2
Total number of membrane modules	N_M	60	-
Total membrane module surface	A_{total}	5,265	m^2
Total membrane module surface	A_{total}	56,672	ft^2
Nominal average daily flux	$Q_{ave,n}$	7.5	lmh
Nominal max. daily flux	$Q_{ave,n,max,mo}$	18.7	lmh
Nominal peak hourly flux	$Q_{peak,n}$	30.0	lmh
Average daily flux (excluding rest cycle)	$Q_{ave,n}$	**3.5**	gfd
Max. Daily flux (ex. rest cycle)	$Q_{ave,n,max,mo}$	**8.8**	gfd
Peak hourly flux (ex. rest cycle)	$Q_{peak,n}$	**14.1**	gfd
Total membrane module displacement vol.	$V_{modules}$	660	ft^3
Total membrane module displacement vol.	$V_{modules}$	4,937	gallons
Aeration modules	A#	20	-
Membrane module aeration requirement	Q_{am}	28.5	acfm
Total membrane modules aeration	$Q_{am,total}$	570	acfm
Membrane diffuser water depth	DWD_m	12.8	feet
Oxygen requirement per volume & depth	OS	14	$gO_2/(Nm_3*m_D)$
Standard oxygen rate, membrane aeration	SOR_m	2,729	lbO_2/d
Standard oxygen rate, membrane aeration	SOR_m	1,250	kgO_2/d



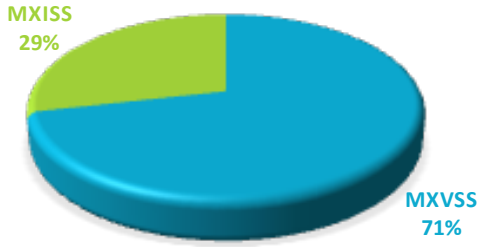
- ✓ Patented, innovative A3's MaxFlow™ membrane filtration modules manufactured in USA.
- ✓ The MaxFlow™ module "open channel design" provides optimal biofilm control, minimizes the quantity of chemical cleaning procedures and avoids module clogging.
- ✓ The compact module design enables dual-stack and triple-stack installations. It allows for a high membrane packing density resulting in a small footprint and high energy efficiency.
- ✓ Most existing conventional treatment plants can be retrofitted with MaxFlow™ membranes due to the

Kinetic Constants	Symbol	Value	Units
Yield coefficient OHO	Y_{OHO}	0.40	mgVSS/mgCOD
Yield coefficient OHO,OBS	$Y_{OHO,obs}$	0.05	mgVSS/mgCOD
Fermentation rate at 20°C	$k_{F,20}$	0.06	m3/gVSSd
Temperature coefficient for $k_{F,T}$	Θ_{kF}	1.029	-
Fermentation rate at T	$k_{F,T}$	0.05	m3/gVSSd
Endogenous respiration rate (decay)	$b_{OHO,20}$	0.24	gVSS/gVSSd
Endogenous respiration rate T	$b_{OHO,T}$	0.19	gVSS/gVSSd
Yield coefficient FSA	Y_A	0.10	mgVSS/mgFSA
Nitri. pH sensitivity coefficient	K_I	1.13	-
Nitri. pH sensitivity coefficient	K_{max}	9.50	-
Nitri. pH sensitivity coefficient	K_{II}	0.30	-
Max. specific growth rate at 20°C	μ_{Am}	0.45	1/d
Max. spec. growth rate - Temp/pH	μ_{AmTpH}	0.17	1/d
Half saturation coefficient	K_n	0.75	mgFSA/l
Half saturation coefficient - Temp	K_{nT}	0.30	mgFSA/l
Endogenous respiration rate (decay)	b_A	0.04	1/d
Temperature coefficient for $k_{F,T}$	θ_n	1.123	-
Endogenous respiration rate T	b_{AT}	0.016	1/d
Temperature sensitivity coefficient	Θ_{nk1}	1.20	-
Temperature sensitivity coefficient	Θ_{nk2}	1.05	-
Temperature sensitivity coefficient	Θ_{nk3}	1.03	-
Denitrification rates at 20°C	k_1	0.70	-
Denitrification rates at 20°C	k_2	0.10	-
Denitrification rates at 20°C	k_3	0.08	-
Denitrification rates	k_{1T}	0.163	-
Denitrification rates	k_{2T}	0.068	-
Denitrification rates	k_{3T}	0.064	-
Yield coefficient PAO	Y_{PAO}	0.45	gAVSS/gCOD
Yield coefficient PAO	$Y_{PAO,obs}$	0.19	gAVSS/gCOD
Endogenous respiration rate (decay)	b_{PAO_20}	0.04	gEVSS/gCOD
Temperature coefficient for $k_{F,T}$	$\Theta_{b,PAO}$	1.029	-
Endogenous respiration rate T	$b_{PAO,T}$	0.03	gEVSS/gVSSd

Stoichiometric Constants	Symbol	Value	Units
COD/BOD ratio	-	2.00	-
Readily biodeg. org. fraction (RBCOD)	$f_{s,COD}$	0.25	g/gTCOD
Non-biodegradable particulate COD	$f_{PNb,COD}$	0.15	g/gTCOD
Non-biodegradable soluble COD	$f_{SNb,COD}$	0.06	g/gTCOD
SVFA fraction of RBCOD	$f_{SVFA,SSi}$	0.15	$g/gCOD_{SS}$
VSS/TSS of activated sludge	f_{VT}	0.71	mgVSS/mgTSS
COD/VSS of activated sludge	f_{cv}	1.48	kgCOD/kgVSS
True synthesis fraction	f_s^0	0.57	-
Endogenous residue fraction	$f_{H/E,OHO}$	0.2	-
ISS content of OHOs	$f_{ISS,OHO}$	0.15	-
Active fraction - VSS	f_{avOHO}	21%	-
Active fraction - TSS	f_{at}	15%	-
Influent FSA fraction	$f_{FSA,i}$	0.75	-
Non-bio. soluble orgN fraction (inerts)	$f_{SNb,N}$	0.025	-
Non-bio. particulate orgN fraction	f_n	0.12	-
Permissible unaer. sludge mass fraction	f_{xm}	0.70	-
Design unaerated sludge mass fraction	f_{xt}	0.36	-
Minimum primary anoxic mass fraction	f_{x1min}	0.12	-
Primary anoxic mass fraction	f_{x1}	0.36	-
Secondary anoxic mass fraction	f_{x2}	0.00	-
Anaerobic mass fraction	f_{AN}	0.00	-
Non-bio. particulate orgP fraction	$f_{P,XE,OHO}$	0.05	mgP/mgVSS
Endogenous residue fraction	$f_{XE,PAO}$	0.25	gEVSS/gAVSS
P fraction in active PAO mass	$f_{P,PAO}$	0.38	gP/gAVSS
VSS/TSS ratio for PAO active mass	$f_{VT,PAO}$	0.46	gVSS/gTSS
Ratio of P release /VFA uptake	$f_{PO4,REL}$	0.5	gP/gCOD
Frac. of fixed inorganic s. solids of PAO	$f_{FSS,PAO}$	1.3	gFSS/gAVSS
P content of TSS	$f_{P,TSS}$	0.038	gP/gTSS
P content of VSS	$f_{P,FSS,i}$	0.02	gP/gVSS
TKN/COD ratio	f_{ns}	0.09	mgTKN/mgCOD
Nitrogen content of active biomass	$f_{N,VSS}$	0.10	gN/gAVSS

Biological Mass Balance	Symbol	Value	Units
Sludge age	SRT	35	d
Mixed liquor suspended solids	X_{TSS}	10,500	mgTSS/l
Readiable biodegradabe COD flux	$FS_{S,i}$	123	kgCOD/d
Daily flux of VFAs	$FS_{VFA,i}$	19	kgCOD/d
Daily flux of fermentable COD	$FS_{F,i}$	104	kgCOD/d
Daily flux of biodegradable COD	$FS_{bio,i}$	389	kgCOD/d
Daily flux of particulate inert COD	$FS_{PIN,i}$	74	kgCOD/d
Daily flux of fixed inorganic sus. solids	$FS_{ISS,i}$	36	kgISS/d
Influent particulate non-bio. COD	$FX_{VSS,i}$	50	kgVSS/d
Mass nitrogen into sludge prod.	FN_{Sludge}	12	kgN/d
Mass of nitrate generated per day	FN_{NO3}	32	kgN/d
VFAs stored by PAOs	$FS_{S,PAO}$	0	kgCOD/d
Remaining biodegradable COD	$FCOD_{b,OHO}$	389	kgCOD/d
Mass nitrifiers	MX_A	73	kgVSS
Active biomass PAO	MX_{PAO}	0	KgAVSS
Endogenous active biomass PAO	$MX_{E,PAO}$	0	kgEVSS
Bio mass	MX_{bio}	713	kgVSS
Active organism mass	MX_{OHO}	713	kgVSS
Endogenous residue mass	$MX_{E,OHO}$	952	kgVSS
Non-biodegradable particulate mass	MX_{Iv}	1,745	kgVSS
Volatile suspended solids mass	MX_{VSS}	3,411	kgVSS
Inorganic suspended solid mass	MX_{ISS}	1,365	kgISS
Total suspended solids mass	MX_{TSS}	4,776	kgTSS
Mass/Sludge TSS wasted	FX_t	136	KgTSS/d
Mass/Sludge VSS wasted	FX_V	97	kgVSS/d
Effluent COD	$S_{COD,e}$	39	mgCOD/l
COD mass out (effluent and waste)	$FS_{COD,e}$	30	kgCOD/d
Mass/Sludge COD wasted	$FX_{COD,s}$	144	kgCOD/d

Alkalinity	Symbol	Value	Units
Alkalinity Nitrification as CaCO3 (consumed)	Alk_{Nitri}	306	mg/l as $CaCO_3$
Alkalinity Denitrification as CaCO3 (recovered)	$Alk_{Denitri}$	155	mg/l as $CaCO_3$
Alkalinity ef	Alk_e	100	mg/l as $CaCO_3$
Alkalinity inf	Alk_i	7	mg/l as $CaCO_3$
Alkalinity Alum (consumed)	Alk_{Alum}	0.0	mg/l as $CaCO_3$
Alkalinity Total	Alk_{total}	-144	mg/l as $CaCO_3$
Alkalinity Added	Alk_{added}	244	mg/l as $CaCO_3$
Alkalinity Added	$XAlk_{added}$	403	lb/d
Density caustic solution (50%)	-	12.76	lb/gal
Alkalinity recovered	$Alk_{recovered}$	0.4	lb$CaCO_3$/lb
Caustic needed	-	161.3	lb/d
Caustic needed	-	12.6	gpd



$$V_P = \frac{MX_{TSS}}{X_{TSS}}$$

$$FX_t = \frac{MX_{TSS}}{SRT}$$

$$MX_{TSS} = MX_{ISS} + MX_{VSS}$$

N Removal	Symbol	Value	Units
Factor of safety	S_f	1.2	-
Nitrogen requirements	FN_{synth}	10	kgN/d
Nitrogen requirements	$TKN_{i,synth}$	12.87	gN/m3
Influent non-bio. soluble organic N	$N_{nbios,i}$	1.5	mgN/l
Influent non-bio. particulate org. N	$N_{nbiop,i}$	7.9	mgN/l
Influent biodegradable organic N	$N_{bio,i}$	13.5	mgN/l
Effluent non-bio. soluble organic N	$N_{nbios,e}$	1.5	mgN/l
NH4 concentration avail. for nitri.	N_{an}	43.1	mgN/l
Effluent ammonia	$N_{a,e}$	0.2	mgN/l
Effluent TKN	$N_{TKN,e}$	1.7	mgN/l
N concentration into sludge prod.	N_s	15.4	mgN/l
Nitrification capacity	N_c	42.9	mgN/l
Denitrification potential RBCOD	$D_{p1RBCOD}$	23.0	$mgNO_3$-N/l
Denitrification potential SBCOD	$D_{p1SBCOD}$	23.2	$mgNO_3$-N/l
Denitrification potential RBCOD	$D_{p3RBCOD}$	0.0	$mgNO_3$-N/l
Denitrification potential SBCOD	$D_{p3SBCOD}$	0.0	$mgNO_3$-N/l
Minimum sludge age for nitri.	SRT_m	10.4	d
Denitrification potential primary tank	D_{p1}	46.2	mgN/l
Denitrification potential secondary tank	D_{p3}	0.0	mgN/l
Denitri. potential recycle rate ($f_{xm} = f_{xdm}$)	D_{p^*}	37.5	mgN/l
Effluent nitrate	$N_{NO3,e}$	0.4	mgN/l
Effluent nitrate @ f_{xdm} & recycle rate	N_{NO3,e^*}	7.1	mgN/l

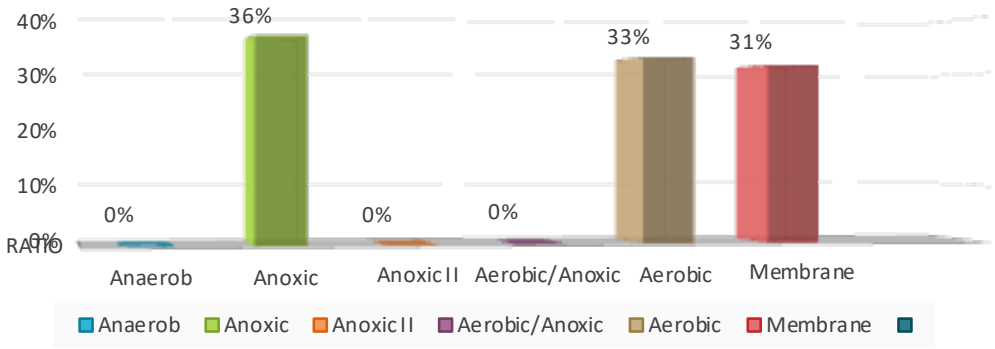
P Removal	Symbol	Value	Units
COD lost in anaerobic reatcor	$S_{F,ANn}$	0.0	$gCOD/m^3$
COD lost in anaerobic reatcor	S_{F,ANn^*}	0.0	$gCOD/m^3$
Fermentable COD for AN reactor	$S_{F,I,conv}$	0.0	$gCOD/m^3$
DO in influent	$S_{O2,i}$	0.0	mgO_2/l
PO_4 release AN reactor	$S_{PO4,rel}$	0.0	gP/m^3
P removal by PAOs	ΔP_{PAO}	0.0	gP/m^3
P removal by OHOs	ΔP_{OHO}	0.7	gP/m^3
P removal by endgeneous biomass	ΔP_{XE}	1.8	gP/m^3
P removal by influent inert mass	ΔP_{XI}	3.3	gP/m^3
P into sludge production	P_s	4.9	gP/m^3
Potential P removal by system	$\Delta P_{SYS,POT}$	10.6	gP/m^3
Actual P removal by system	$\Delta P_{SYS,ACT}$	10.0	gP/m^3
Effluent particulate P from TSS	$X_{P,e}$	0.0	gP/m^3
Influent total P	P_i	10.0	gP/m^3
Effluent total P	P_{e^*}	0.0	gP/m^3
P precipitated	P_{prec}	0.0	mgP/l
Precipitation chemical	B_{Alum}	0.0	lb/d
Precipitation chemical	Solution	0.0	gal/d
Density Alum	z_{AL}^{3+}	0.100	lb_{AL}/lb_{prec}
Density Iron	z_{FE}^{3+}	0.077	lb_{FE}/lb_{prec}
Alum efficiency	-	40.0	g/kg
Chemical precipitation sludge	-	0.0	lb/d

Mechanical Process Calculation

Tank Dimensions	Trains	Length	Width	Dia.	Degree	Height	Liquid level	Volume per train	Volume Total	Volume Total
Anaerobic	0	.00 ft	.00 ft	.00 ft	0.0	.00 ft	.00 ft	gal	gal	0.0 m3
Anoxic I	1	12.00 ft	35.00 ft	.00 ft	0.0	17.50 ft	14.40 ft	45,239 gal	45,239 gal	171.2 m3
Aerobic	1	11.00 ft	35.00 ft	.00 ft	0.0	17.50 ft	14.20 ft	40,893 gal	40,893 gal	154.8 m3
Anoxic II	0	.00 ft	.00 ft	.00 ft	0.0	.00 ft	.00 ft	gal	gal	0.0 m3
Anoxic Buffer	0	.00 ft	.00 ft	.00 ft	0.0	.00 ft	.00 ft	gal	gal	0.0 m3
Membrane	1	25.00 ft	15.00 ft	.00 ft	0.0	17.50 ft	14.00 ft	39,270 gal	39,270 gal	148.6 m3
Sludge	0	.00 ft	.00 ft	.00 ft	0.0	.00 ft	.00 ft	gal	gal	0.0 m3
Transfer Basin	0	.00 ft	.00 ft	.00 ft	0.0	.00 ft	.00 ft	gal	gal	0.0 m3

Tank Design	Symbol	Value	Units
Total process tank volume		125,402	gallons
Total process tank volume$_{calc}$		**120,173**	gallons
Unaerated tank percentage		36	%
Total tank volume		**125,402**	gallons
Membrane modules volume		4,937	gallons
F/M$_{used,BOD}$		0.052	kgBOD/kgMLSS
F/M$_{used,COD}$		0.103	kgCOD/kgMLSS

Weir level	1.3	inches
Weir length	13.0	ft
Velocity	1.08	fps
Vertical tank	0	
Horz. Tank	0	
Diameter	0	ft



Process Volume Distribution

Air Flow Design	Symbol	Membrane per train	Aerobic per train	Sludge	EQ	Unit
Minimum air flow	$Q_{A,re}$	570	395	0	0	acfm / scfm
Chosen air flow - actual	$Q_{A,\ chosen}$	571	367	0	0	acfm
Chosen air flow - inlet	$Q_{A,chosen}$	1,089	685	0	0	m^3/h
Chosen air flow - inlet	$Q_{A,chosen}$	**641**	**403**	**0**	**0**	scfm
Chosen air flow - piping	$Q_{A,chosen}$	413	260	0	0	acfm
Pipe pressure	p_b	8.0	8.0	0.0	0.0	psi
Pipe losses	H	0.13	0.42	0.00	0.00	psi
Equivalent length in pipe looses	L_p	600	600	400	400	feet
Pipe diameter	d	6.0	4.0	4.0	3.0	inches
Internal pipe diameter	d_i	6.36	4.26	4.26	3.26	inches
Standard temperature	T_1	293	293	293	293	K
Pipe temperature	T_2	332	332	293	293	K
Constant	f	0.02	0.02	0.09	0.06	-
Air velocity	v	**31.2**	**43.8**	**0.0**	**0.0**	fps
Atmospheric pressure	$p_{a,l}$	14.5	14.5	14.5	14.5	psi
Absolute pressure	p_2	22.5	22.5	14.5	14.5	psi
Pressure due to tank liquid level	$p_{DWD,m}$	5.6	6.0	0.0	0.0	psi
Pressure due to aeration device	p_{DWD}	0.7	0.5	0.5	0.5	psi
Pressure due to pipe losses & elev.	$p_{DWD,S}$	0.5	0.8	0.4	0.4	psi
Total pipe losses	p_t	6.8	7.3	0.9	0.9	psi
Total pipe losses	p_t	467.9	502.3	62.1	62.1	mbar

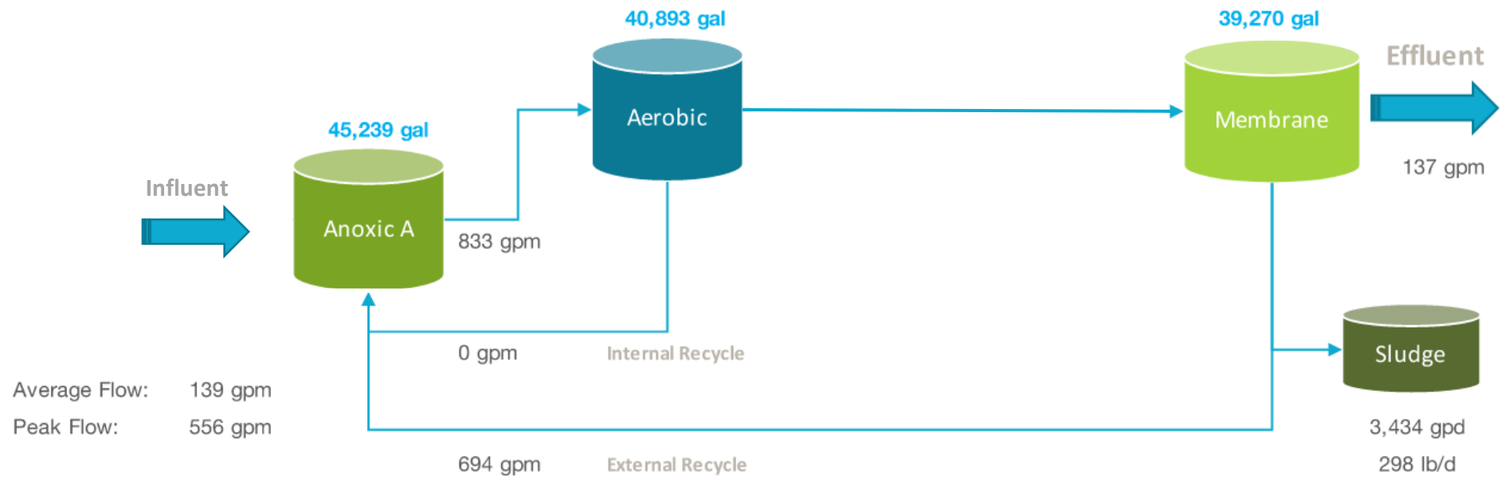
$$H = 9.82 \cdot 10^{-8} \cdot \frac{\left(f \cdot L_p T_2 Q_{A,chosen}\right)}{\left(p_2 d_i\right)^5}$$

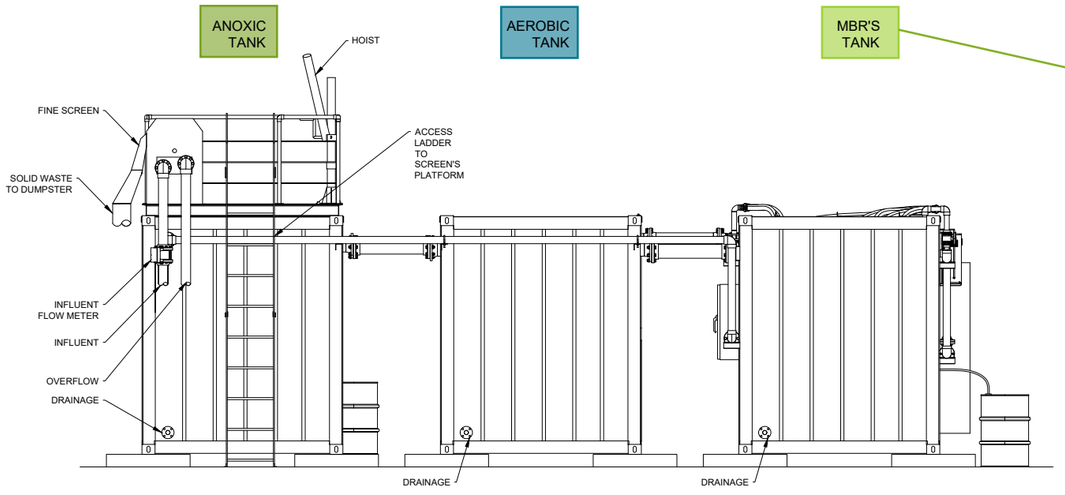
$$f = \frac{\left(0.029 \cdot d_i^{0.027}\right)}{Q_{A,chosen}^{0.148}} \qquad T_2 = T_1 \left(\frac{p_2}{p_{a,1}}\right)^{0.283}$$

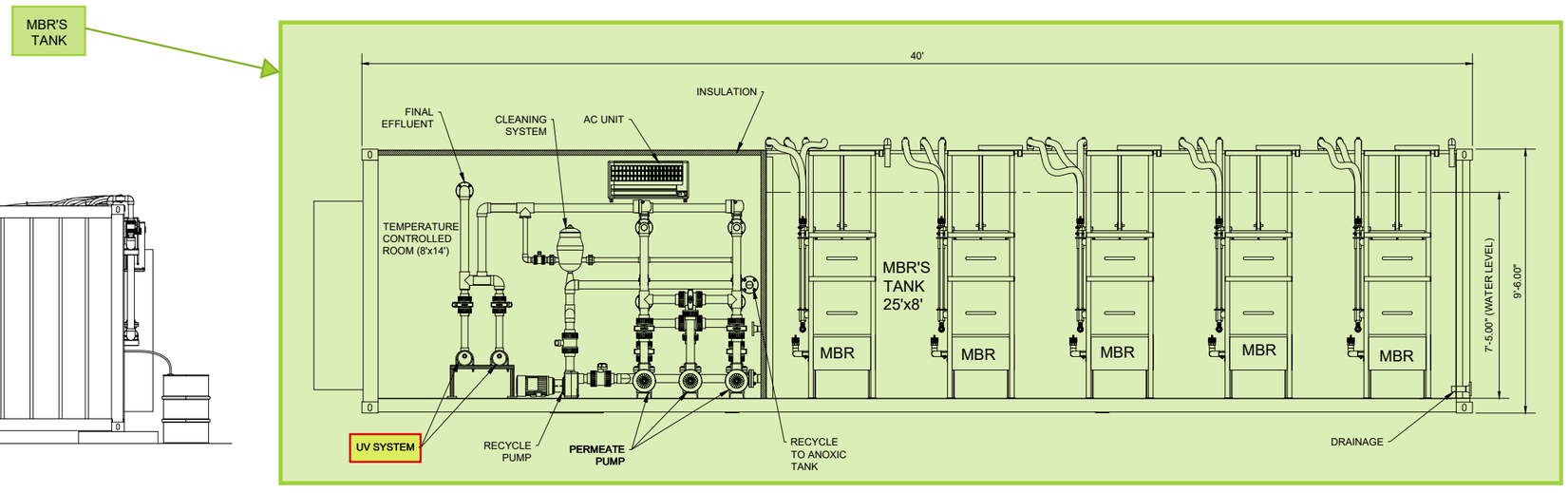


The 0.20 MGD (200,000 GPD) Treatment Facility will be comprised of one (1) treatment train at 200,000 GPD

200,000 GPD Treatment: See 10054 Technical Report Attachment 5- Design Calculations







Example of Process Flow/Treatment Process (provided from design for 80,000 gpd Treatment Plant)

Disclaimer
This drawing was created by A3-USA for a separate project. It is presented here for illustrative purposes only. Sizes and dimensions will vary.

REUSE ENGINEERING TBPE F-21880
STATE OF TEXAS
LAUREN B. WAHL
141050
LICENSED PROFESSIONAL ENGINEER
30 JUL 2025

reUse ENGINEERING
4411 SIH 35, Suite 100
Georgetown, TX 78626
TX Firm No. 21880

ALTO PICCO BASTROP LLC
SAYERS RANCH WWTP
BASTROP COUNTY, TEXAS

PROCESS FLOW DIAGRAM
Attachment 1

TCEQ TEXAS LAND APPLICATION PERMIT (TLAP) APPLICATION

ALTO PICCO BASTROP LLC

DOMESTIC WASTEWATER ADMINISTRATIVE AND TECHNICAL REPORTS WITH ATTACHMENTS

SAYERS RANCH WWTP

Approximately 4,600 FT south of the intersection of Smith Road and Sayers Road in Bastrop, Texas

Bastrop County, Texas

PREPARED BY:
Lauren B. Wahl, PE
reUse Engineering, Inc.

Rane Wilson, PG
reUse Engineering, Inc.

July 31, 2025

4411 S Interstate 35, Ste 100
Georgetown, Texas 78626

ENGINEERING
TX Firm No. 21880

reUse ENGINEERING
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Georgetown, Texas 78626
www.reuseinn.com

ALTO PICCO BASTROP LLC
SAYERS RANCH WWTP
DOMESTIC WASTEWATER PERMIT APPLICATION

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DOMESTIC ADMINISTRATIVE REPORT 1.0 AND 1.1		Required by Section
Attachment A.	Core Data Forms	Admin 1.0 § 3.C
Attachment B.	Plain Language Summary	Admin 1.0 § 8
Attachment C.	Public Involvement Plan	Admin 1.0 § 8
Attachment D.	U.S. Topographic Maps (full size)	Admin 1.0 § 13
Attachment E.	Affected Landowner Information	Admin 1.1 § 1
Attachment F.	Original Photographs	Admin 1.1 § 2
Attachment G.	Buffer Zone Map	Admin 1.1 § 3

DOMESTIC TECHNICAL REPORT 1.0 AND 1.1		Required by Section
Attachment 1.	Process Flow Diagram	Tech 1.0 § 2.C
Attachment 2.	Site Drawing	Tech 1.0 § 3
Attachment 3.	Justification of Permit Need	Tech 1.1 § 1.A
Attachment 4.	Regionalization of Facilities	Tech 1.1 § 1.B
Attachment 5.	Design Calculations	Tech 1.1 § 4
Attachment 6.	Wind Rose	Tech 1.1 § 5.B
Attachment 7.	Solids Management Plan	Tech 1.1 § 7

DOMESTIC TECHNICAL REPORT 3.0 AND 3.3		Required by Section
Attachment 8.	TLAP U.S. Topographic Maps	Tech 3.0 § 6
Attachment 9.	Available Water Quality & Well Logs	Tech 3.0 § 6
Attachment 10.	Groundwater Quality Technical Report	Tech 3.0 § 7
Attachment 11.	Soils Map	Tech 3.0 § 8
Attachment 12.	Soil Analyses	Tech 3.0 § 8
Attachment 13.	Alternative Hydraulic Application Rate	Tech 3.3 § 2.C
Attachment 14.	Recharge Feature Plan	Tech 3.3 § 3
Attachment 15.	Soil Evaluation	Tech 3.3 § 3
Attachment 16.	Site Preparation Plan	Tech 3.3 § 3

4411 S Interstate 35, Ste 100
Georgetown, Texas 78626
www.reuseinn.com

Attachment 17.	FEMA Flood Map	Tech 3.3 § 4
Attachment 18.	Surface/Groundwater Buffer Map	Tech 3.3 § 5

DOMESTIC TECHNICAL REPORT 7.0		**Required by Section**
Attachment 7A.	TLAP U.S. Topographic Map	Tech 7.0 § 1
Attachment 7B.	Concept Site Plan	Tech 7.0 § 1
Attachment 7D.	Proposed Fluid Distribution Diagram	Tech 7.0 § 3
Attachment 7F.	Groundwater Mounding Report	Tech 7.0 § 4
Attachment 7G.	Injection Zone Water Chemistry	Tech 7.0 § 4
Attachment 7H.	Injectate Fluid Chemistry in ppm	Tech 7.0 § 4
Attachment 7I.	Surrounding Water Wells	Tech 7.0 § 4

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

DOMESTIC WASTEWATER PERMIT APPLICATION CHECKLIST

Complete and submit this checklist with the application.

APPLICANT NAME: Alto Picco Bastrop, LLC

PERMIT NUMBER (If new, leave blank): WQ00Click to enter text.

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	☒	☐
Summary of Application (PLS)	☒	☐	Flow Diagram	☒	☐
Public Involvement Plan Form	☒	☐	Site Drawing	☒	☐
Technical Report 1.0	☒	☐	Original Photographs	☒	☐
Technical Report 1.1	☒	☐	Design Calculations	☒	☐
Worksheet 2.0	☐	☒	Solids Management Plan	☒	☐
Worksheet 2.1	☐	☒	Water Balance	☒	☐
Worksheet 3.0	☒	☐			
Worksheet 3.1	☐	☒			
Worksheet 3.2	☐	☒			
Worksheet 3.3	☒	☐			
Worksheet 4.0	☐	☒			
Worksheet 5.0	☐	☒			
Worksheet 6.0	☐	☒			
Worksheet 7.0	☒	☐			

For TCEQ Use Only

Segment Number _____County _____
Expiration Date _____Region_____
Permit Number _____

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

DOMESTIC WASTEWATER PERMIT APPLICATION ADMINISTRATIVE REPORT 1.0

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

Section 1. Application Fees (Instructions Page 26)

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

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

Minor Amendment (for any flow) $150.00 ☐

Payment Information:

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

Check/Money Order Amount: Click to enter text.

Name Printed on Check: Click to enter text.

EPAY Voucher Number: Click to enter text.

Copy of Payment Voucher enclosed? Yes ☒

Section 2. Type of Application (Instructions Page 26)

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

☐ Publicly Owned Domestic Wastewater

☒ Privately-Owned Domestic Wastewater

☐ Conventional Water Treatment

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

☐ Active ☐ Inactive

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

- ☐ TPDES Permit
- ☒ TLAP
- ☐ TPDES Permit with TLAP component
- ☒ Subsurface Area Drip Dispersal System (SADDS)

d. Check the box next to the appropriate application type

- ☒ New
- ☐ Major Amendment *with* Renewal
- ☐ Major Amendment *without* Renewal
- ☐ Renewal without changes
- ☐ Minor Amendment *with* Renewal
- ☐ Minor Amendment *without* Renewal
- ☐ Minor Modification of permit

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

f. For existing permits:

Permit Number: WQ00 Click to enter text.

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

Expiration Date: Click to enter text.

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

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

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

Alto Picco Bastrop 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:

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

Prefix: Mr. Last Name, First Name: Jackson, Kacee

Title: Manager Credential:

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?

Woodrun Development Co., Ltd.

(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: Click to enter text. Last Name, First Name: Lanier, Sidney E.

Title: Owner/President Credential: Click to enter text.

Provide a brief description of the need for a co-permittee: Landowner of proposed effluent disposal site.

Co-applicant information (#2). 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?

Hoffman Family Bastrop Trust

(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: Click to enter text. Last Name, First Name: Hoffman, Jr.; Travis Claude

Title: Trustee Credential: Click to enter text.

Provide a brief description of the need for a co-permittee: Landowner of the proposed WWTF site and effluent disposal site

C. Core Data Form

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

Section 4. Application Contact Information (Instructions Page 27)

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

A. Prefix: Ms. Last Name, First Name: Wahl, Lauren

Title: Water Resources Engineer Credential: P.E.

Organization Name: reUse Engineering, Inc.

Mailing Address: 4411 S IH-35 Suite 100 City, State, Zip Code: Georgetown, TX 78626

Phone No.: 512-755-9962 E-mail Address: Lauren@reUseEng.com

Check one or both: ☒ Administrative Contact ☒ Technical Contact

B. Prefix: Ms. Last Name, First Name: Bond, Hilary

Title: Director, Permitting & Entitlements Credential:

Organization Name: reUse Engineering, Inc.

Mailing Address: 4411 S IH-35 Suite 100 City, State, Zip Code: Georgetown, TX 78626

Phone No.: (512)285-0302 E-mail Address: Hilary@reUseEng.com

Check one or both: ☒ Administrative Contact ☐ Technical Contact

Section 5. Permit Contact Information (Instructions Page 27)

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

A. Prefix: Mr. Last Name, First Name: Archer, Rob

Title: Principal Credential:

Organization Name: Pathway Land Development, LLC

Mailing Address: 7011 Magenta Lane City, State, Zip Code: Austin, TX 78739-2084

Phone No.: (678) 362-0532 E-mail Address: RobWArcher@gmail.com

B. Prefix: Ms. Last Name, First Name: Wahl, Lauren

Title: Water Resources Engineer Credential: P.E.

Organization Name: reUse Engineering, Inc.

Mailing Address: 4411 S IH-35 Suite 100 City, State, Zip Code: Georgetown, TX 78626

Phone No.: 512-755-9962 E-mail Address: Lauren@reUseEng.com

Section 6. Billing Contact Information (Instructions Page 27)

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

Prefix: Mr. Last Name, First Name: Jackson, Kacee

Title: Manager Credential:

Organization Name: Alto Picco Bastrop LLC

Mailing Address: 1401 Lavaca Street PMB 366 City, State, Zip Code: Austin, Texas 78701

Phone No.: (512) 789-2833 E-mail Address: kaceej@360company.biz

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

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

Prefix: Mr. Last Name, First Name: Archer, Rob

Title: Principal Credential:

Organization Name: Pathway Land Development

Mailing Address: 7011 Magenta Lane City, State, Zip Code: Austin, TX 78739

Phone No.: (678) 362-0532 E-mail Address: RobWArcher@gmail.com

Section 8. Public Notice Information (Instructions Page 27)

A. Individual Publishing the Notices

Prefix: Ms. Last Name, First Name: Bond, Hilary

Title: Director, Permitting & Entitlements Credential:

Organization Name: reUse Engineering, Inc

Mailing Address: 4411 S IH-35 Suite 100 City, State, Zip Code: Georgetown, TX 78626

Phone No.: 512-285-0302 E-mail Address: hilary@reUseEng.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 permit to be listed in the Notices

Prefix: Ms. Last Name, First Name: Wahl, Lauren

Title: Water Resource Engineer Credential: P.E.

Organization Name: reUse Engineering, Inc.

Mailing Address: 4411 S IH-35 Suite 100 City, State, Zip Code: Georgetown, TX 78626

Phone No.: 512-755-9962 E-mail Address: lauren@reuseEng.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: Bastrop Public Library

Location within the building: Information Desk

Physical Address of Building: 1100 Church St

City: Bastrop County: Bastrop

Contact (Last Name, First Name):

Phone No.: (512)332-8880 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? Spanish

F. Summary of Application in Plain Language Template

Complete the F. Summary of Application in Plain Language Template (TCEQ Form 20972), also known as the plain language summary or PLS, and include as an attachment.

Attachment: See Table of Contents

G. Public Involvement Plan Form

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

Attachment: See Table of Contents

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

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

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):

Sayers Ranch

C. Owner of treatment facility: Alto Picco Bastrop LLC

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

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

Prefix: Last Name, First Name:

Title: Credential:

Organization Name: Hoffman Family Bastrop Trust

Mailing Address: PO Box 841 City, State, Zip Code: Bastrop, Texas 78602

Phone No.: (512)848-1827 E-mail Address: N/A

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:

E. **Owner 1** of effluent disposal site:

Prefix: Last Name, First Name:

Title: Credential:

Organization Name: Hoffman Family Bastrop Trust

Mailing Address: PO Box 841 City, State, Zip Code: Bastrop, Texas 78602

Phone No.: (512)848-1827 E-mail Address: N/A

Owner 2 of effluent disposal site:

Prefix: Last Name, First Name:

Title: Credential:

Organization Name: Woodrun Development Co., LTD

Mailing Address: 5510 Shoalwood Ave City, State, Zip Code: Austin, TX 78756

Phone No.: (512)970-3086 E-mail Address: selanier@gmail.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: N/A

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

Prefix: Last Name, First Name:

Title: Credential:

Organization 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 31)

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

☐ Yes ☐ No

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

N/A

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:

N/A

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

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

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

☐ Yes ☒ No

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

☐ Authorization granted ☐ Authorization pending

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

Attachment: Click to enter text.

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: Click to enter text.

Section 11. TLAP Disposal Information (Instructions Page 32)

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

☐ Yes ☐ No

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

SADDS will be utilized for effluent disposal. Drip Lines will be located in non-residential green spaces in the southwestern region and a small portion of the central greenbelt.

B. City nearest the disposal site: Bastrop, TX

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

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

Treated effluent will flow southwest from the WWTF via force main to a holding tank onsite, thence to the subsurface area drip dispersal system (SADDS) located in the southwestern portion of the site, as well as a small portion of greenspace located in the central portion of the site. See Attachment 2 of the Technical Report.

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

Section 12. Miscellaneous Information (Instructions Page 32)

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

☐ Yes ☒ No

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

☐ Yes ☐ No ☒ Not Applicable

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

Click to enter text.

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

☐ Yes ☒ No

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

D. Do you owe any fees to the TCEQ?

☐ Yes ☒ No

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

Account number: Click to enter text.

Amount past due: Click to enter text.

E. Do you owe any penalties to the TCEQ?

☐ Yes ☒ No

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

Enforcement order number: Click to enter text.

Amount past due: Click to enter text.

Section 13. Attachments (Instructions Page 33)

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

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

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

- Applicant's property boundary
- 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: See Table of Contents

Section 14. Signature Page (Instructions Page 34)

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

Permit Number: —

Applicant: **Alto Picco Bastrop, 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):

Signatory title:

Signature: _____ Date: 7/16/25

(Use blue ink)

Subscribed and Sworn to before me by the said Notary

on this 16th day of July, 20 25.

My commission expires on the 11th day of November, 20 28.

_____

Notary Public

[SEAL]

Travis

County, Texas

SHALON ROWENA MARTIN
Notary Public, State of Texas
Comm. Expires 11-20-2028
Notary ID 135178340

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Section 14. Signature Page (Instructions Page 34)

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

Permit Number: —

Applicant: **Woodrun Development Co., Ltd.**

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): SIDNEY E. LANIER

Signatory title: OWNER/PRESIDENT

Signature: ✓ _____ Date: 07/26/2025

(Use blue ink)

Subscribed and Sworn to before me by the said Sidney E. Lanier

on this 26th day of July, 20 25.

My commission expires on the ~~08~~ 16th day of August, 20 26.

G.O.

_____

Notary Public

[SEAL]

Travis

County, Texas

GABRIEL OCHOA
NOTARY PUBLIC, STATE OF TEXAS
ID# 133911988
COMM. EXP. 08-16-2026

Section 14. Signature Page (Instructions Page 34)

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

Permit Number: —

Applicant: **Hoffman Family Bastrop Trust**

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):

Signatory title:

Signature: Travis Claude Hoffman Jr. Date: 7/18/2025

(Use blue ink)

Subscribed and Sworn to before me by the said Travis Claude Hoffman Jr.

on this 18th day of July, 2025.

My commission expires on the 11th day of October, 2028.

Notary Public

[SEAL]

Bastrop

County, Texas

TRISTAN HARDEN
MY COMMISSION EXPIRES
OCTOBER 11, 2028
NOTARY ID: 135126646

DOMESTIC WASTEWATER PERMIT APPLICATION ADMINISTRATIVE REPORT 1.0

The following information is required for new and amendment applications.

Section 1. Affected Landowner Information (Instructions Page 36)

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

- ☒ 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 that the landowners list has also been provided as mailing labels in electronic format (Avery 5160).

D. Provide the source of the landowners' names and mailing addresses: https://bastropcad.org/

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

☐ Yes ☒ No

If **yes**, provide the location and foreseeable impacts and effects this application has on the land(s):

Click to enter text.

Section 2. Original Photographs (Instructions Page 38)

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

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

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

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

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

Section 3. Buffer Zone Map (Instructions Page 38)

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

- The applicant's property boundary;
- 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

DOMESTIC WASTEWATER PERMIT APPLICATION

SUPPLEMENTAL PERMIT INFORMATION FORM (SPIF)

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

Attachment: N/A

ATTACHMENT A

CORE DATA FORMS

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)*

CN ——

Follow this link to search for CN or RN numbers in Central Registry**

3. Regulated Entity Reference Number *(if issued)*

RN ——

SECTION II: Customer Information

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

☒ New Customer ☐ Update to Customer Information ☐ Change in Regulated Entity Ownership
☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

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

6. Customer Legal Name *(If an individual, print last name first: eg: Doe, John)*

Alto Picco Bastrop LLC

If new Customer, enter previous Customer below:

7. TX SOS/CPA Filing Number	**8. TX State Tax ID** (11 digits)	**9. Federal Tax ID** (9 digits)	**10. DUNS Number** *(if applicable)*
0805764315	32097363470	331694425	133983238

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: ~~210 Lavaca Street #2312~~ 1401 Lavaca St. PMB 366

City	State	ZIP	ZIP + 4
Austin	Texas	78701	

16. Country Mailing Information *(if outside USA)*

17. E-Mail Address *(if applicable)*

kaceej@360company.biz

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18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(512) 789-2833		( ) -

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.)*

Sayers Ranch WWTP

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

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

25. Description to Physical Location:	Appx 4,600 ft south of the intersection of Smith Road and Sayers Road in Bastrop, Texas.

26. Nearest City	State	Nearest ZIP Code
Bastrop	Texas	78602

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

27. Latitude (N) In Decimal:	30.139347	28. Longitude (W) In Decimal:	-97.329120

Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
30	8	21.6492	97	19	44.832

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		221320	

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

Wastewater Treatment

34. Mailing Address:	~~210 Lavaca Street #2312~~ 1401 Lavaca St. PMB 366							
	City	Austin	**State**	Texas	**ZIP**	78701	**ZIP + 4**	
35. E-Mail Address:	kaceej@360company.biz							

36. Telephone Number	37. Extension or Code	38. Fax Number *(if applicable)*
(512) 789-2833		( ) -

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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:	Ms. Hilary Bond	41. Title:	Director, Permitting & Entitlements

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(512) 285-0302		( ) -	hilary@reuseEng.com

SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	Alto Picco Bastrop	Job Title:	Manager	
Name *(In Print)*:	Kacee Jackson		Phone:	( ) - 512 7892833
Signature:			Date:	7/15/25

Scanned with CamScanner

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 —		RN —

SECTION II: Customer Information

4. General Customer Information | **5. Effective Date for Customer Information Updates** (mm/dd/yyyy) July 24, 2025

☒ New Customer ☐ Update to Customer Information ☐ Change in Regulated Entity Ownership
☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

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

6. Customer Legal Name (*If an individual, print last name first: eg: Doe, John*) — *If new Customer, enter previous Customer below:*

Woodrun Development Co., Ltd.

7. TX SOS/CPA Filing Number	**8. TX State Tax ID** (11 digits)	**9. Federal Tax ID** (9 digits)	**10. DUNS Number** (*if applicable*)
0011260410	32036259433	74-2873691	088034912

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:	5510 SHOALWOOD AVENUE						
	City AUSTIN	**State** TX	TX	**ZIP**	78756	**ZIP + 4**	

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

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
( ) (512) 970-3086		( ) -

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.)*

Sayers Ranch WWTP

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

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

25. Description to Physical Location:	Appx 4,600 ft south of the intersection of Smith Road and Sayers Road in Bastrop, Texas.				
26. Nearest City			**State**		**Nearest ZIP Code**
Bastrop			Texas		78602

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

27. Latitude (N) In Decimal:	30.139347		**28. Longitude (W) In Decimal:**	-97.329120	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
30	8	21.6492	97	19	44.832

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		221320	

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

Wastewater Treatment

34. Mailing Address:	~~210 Lavaca Street #2312~~ 1401 Lavaca Street PMB 366							
	City	Austin	**State**	Texas	**ZIP**	78701	**ZIP + 4**	
35. E-Mail Address:	kaceej@360company.biz							

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(512) 789-2833		( ) -

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:	Ms. Hilary Bond	41. Title:	Director, Permitting & Entitlements

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(512) 285-0302		( ) -	hilary@reuseEng.com

SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	WOODRUN DEVELOPMENT	**Job Title:**	OWNER
Name *(In Print):*	SIDNEY E. LANIER	**Phone:**	(512) 970-3086
Signature:	✓	**Date:**	07/26/2025

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 —		RN —

SECTION II: Customer Information

4. General Customer Information | **5. Effective Date for Customer Information Updates** (mm/dd/yyyy) 07.18.25

☒ 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:*

Hoffman Family Bastrop Trust

7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number *(if applicable)*
	~~33-7006301~~	33-7006301	

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

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

13. Independently Owned and Operated?
☑ Yes ☐ No

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

☐ Owner ☐ Operator ☐ Owner & Operator
☐ Occupational Licensee ☐ Responsible Party ☐ VCP/BSA Applicant
☑ Other: Trustee

15. Mailing Address:							
	P.O. Box 841						
	City: Bastrop	State: ~~TX~~		ZIP: 78602	ZIP + 4	

16. Country Mailing Information *(if outside USA)*	17. E-Mail Address *(if applicable)*
	n/a

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
512-848-1827		( ) -

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.)*

Sayers Ranch WWTP

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

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

25. Description to Physical Location:	Appx 4,600 ft south of the intersection of Smith Road and Sayers Road in Bastrop, Texas.				
26. Nearest City			**State**	**Nearest ZIP Code**	
Bastrop			Texas	78602	

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

27. Latitude (N) In Decimal:	30.139347		**28. Longitude (W) In Decimal:**	-97.329120	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
30	8	21.6492	97	19	44.832

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		221320	

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

Wastewater Treatment

34. Mailing Address:	~~210 Lavaca Street #2312~~ **1401 Lavaca Street PMB 366**							
	City	Austin	**State**	Texas	**ZIP**	78701	**ZIP + 4**	

35. E-Mail Address:	kaceej@360company.biz

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(512) 789-2833		( ) -

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:	Ms. Hilary Bond		41. Title:	Director, Permitting & Entitlements
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address	
(512) 285-0302		( ) -	hilary@reuseEng.com	

SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	Hoffman Family Bastrop Trust	Job Title:	
Name *(In Print)*:	Travis Claude Hoffman Jr	Phone:	(512) 848-1827
Signature:	Travis Claude Hoffman Jr	Date:	7/18/2025

ATTACHMENT B

PLAIN LANGUAGE SUMMARY

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

SUMMARY OF APPLICATION IN PLAIN LANGUAGE FOR TPDES OR TLAP PERMIT APPLICATIONS

Summary of Application (in plain language) Template and Instructions for Texas Pollutant Discharge Elimination System (TPDES) and Texas Land Application (TLAP) Permit Applications

Applicants should use this template to develop a plain language summary of your facility and application as required by Title 30, Texas Administrative Code (30 TAC), Chapter 39, Subchapter H. You may modify the template as necessary to accurately describe your facility as long as the summary includes the following information: (1) the function of the proposed plant or facility; (2) the expected output of the proposed plant or facility; (3) the expected pollutants that may be emitted or discharged by the proposed plant or facility; and (4) how you will control those pollutants, so that the proposed plant will not have an adverse impact on human health or the environment.

Fill in the highlighted areas below to describe your facility and application in plain language. Instructions and examples are provided below. Make any other edits necessary to improve readability or grammar and to comply with the rule requirements. After filling in the information for your facility delete these instructions.

If you are subject to the alternative language notice requirements in 30 TAC Section 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/STORMWATER

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 TAC Chapter 39. The information provided in this summary may change during the technical review of the application and is not a federal enforceable representation of the permit application.

Alto Picco Bastrop LLC (_) proposes to operate Sayers Ranch WWTP (_), a domestic wastewater treatment facility. The facility will be located at approximately 4,600 ft south of the intersection of Smith Road and Sayers Road, in Bastrop, Bastrop County, Texas 78602. The applicant is currently applying to the Texas Commission on Environmental Quality for a Texas Land Application Permit (TLAP) to utilize a maximum of 200,000 gallons per day of treated domestic wastewater from the proposed onsite Wastewater Treatment Facility for a subsurface area drip dispersal system (SADDS) with a minimum area of 18.4 acres. This permit will not authorize a discharge of pollutants into water in the state.

Discharges from the facility are expected to contain trace amounts of five-day carbonaceous biochemical oxygen demand ($CBOD_5$), total suspended solids (TSS), phosphorus (P), and ammonia nitrogen (NH_3-N). Removal of bacteria and pathogens through the MBR process is 96% or greater, and E. Coli concentration is reduced to zero through the use of U.V. The

effluent will meet the criteria for Type I reclaimed water per 30 TAC §210.33.. Domestic Wastewater will be treated by MBR (membrane bio-reactor) treatment technology. The facility includes an influent pump station, a fine screen, an anoxic tank, an aerobic tank, a membrane tank, ultraviolet disinfection and a sludge press.

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

AGUAS RESIDUALES DOMÉSTICAS **/AGUAS PLUVIALES**

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 es una representación ejecutiva fedérale de la solicitud de permiso.

Alto Picco Bastrop LLC (_) propone operar Sayers Ranch WWTP _, una planta de tratamiento de aguas residuales domésticas. La instalación estará ubicada en aproximadamente a 4.600 pies al sur de la intersección de Smith Road y Sayers Road., en Bastrop , Condado de Bastrop, Texas 78602. El solicitante está actualmente solicitando a la Comisión de Calidad Ambiental de Texas un Permiso de Aplicación de Tierra de Texas (TLAP) para utilizar un máximo de 200.000 galones por día de aguas residuales domésticas tratadas de la propuesta instalación de tratamiento de aguas residuales en el sitio para un sistema de dispersión por goteo en área subsuperficial (SADDS) con un área mínima de 18,4 acres..Este permiso no autorizará una descarga de contaminantes en el agua en el estado.

Se espera que las descargas de la instalación contengan trazas de demanda bioquímica de oxígeno carbonosa en cinco días ($CBOD_5$), sólidos suspendidos totales (SST), fósforo (P) y nitrógeno amoniacal (NH_3-N). La eliminación de bacterias y patógenos mediante el proceso de biorreactor de membrana (MBR) es del 96% o más, y la concentración de E. Coli se reduce a cero mediante desinfección con luz ultravioleta (U.V.). El efluente cumplirá con los criterios para agua regenerada Tipo I a conforme a 30 TAC §210.33. Las aguas residuales domésticas. estará tratado por tecnología de tratamiento MBR (biorreactor de membrana). La instalación incluye una estación de bombeo de afluente, una criba fina, un tanque anóxico, un tanque aeróbico, un tanque de membrana, desinfección ultravioleta y una prensa de lodos. .

ATTACHMENT C

PUBLIC INVOLVEMENT PLAN

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.

Alto Picco Bastrop LLC proposes to operate Sayers Ranch WWTP, a domestic wastewater treatment facility. The facility will be located at approximately 4,600 ft south of the intersection of Smith Road and Sayers Road, in Bastrop, Bastrop County, Texas 78602. The applicant is currently applying to the Texas Commission on Environmental Quality for a Texas Land Application Permit (TLAP) to utilize a maximum of 200,000 gallons per day of treated domestic wastewater from the proposed onsite Wastewater Treatment Facility for a subsurface area drip dispersal system (SADDS) with a minimum area of 18.4 acres. This permit will not authorize a discharge of pollutants into water in the state. Discharges from the facility are expected to contain trace amounts of five-day carbonaceous biochemical oxygen demand (CBOD5), total suspended solids (TSS), phosphorus (P), and ammonia nitrogen (NH3-N). Removal of bacteria and pathogens through the MBR process is 96% or greater, and E. Coli concentration is reduced to zero through the use of U.V. The effluent will meet the criteria for Type I reclaimed water per 30 TAC §210.33. Domestic Wastewater will be treated by MBR (membrane bio-reactor) treatment technology. The facility includes an influent pump station, a fine screen, an anoxic tank, an aerobic tank, a membrane tank, ultraviolet disinfection and a sludge press.

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.

Bastrop

(City)

Bastrop

(County)

Census Tract 9504.01

(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

89.5%

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

$45,142 (±$13,949)

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

Total Minority (42.39%); Hispanic or Latino (24.9%); Black or African American (10.0%); Other (unspecified) (4.7%); American Indian and Alaska Native (0.36%); Asian (2.4%); Native Hawaiian and Other Pacific Islander (0.15%);

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

0%

(e) Languages commonly spoken in area by percentage

English only (81.6%); Spanish (15.55%); Asian and Pacific Island languages (2.55%); Other Indo-European (0.3%);

(f) Community and/or Stakeholder Groups

Bastrop Chamber of Commerce; Bastrop County Historical Society

(g) Historic public interest or involvement

N/A

Section 6. Planned Public Outreach Activities

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

☐ Yes ☐ No

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

☐ Yes ☐ No

If Yes, please describe.

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

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

☐ Yes ☐ No

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

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

☐ Publish in alternative language newspaper

☐ Posted on Commissioner's Integrated Database Website

☐ Mailed by TCEQ's Office of the Chief Clerk

☐ Other (specify)

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

☐ Yes ☐ No

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

☐ Yes ☐ No

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

☐ TCEQ Regional Office ☐ TCEQ Central Office

☐ Public Place (specify)

Section 7. Voluntary Submittal

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

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

☐ Yes ☐ No

What types of notice will be provided?

☐ Publish in alternative language newspaper

☐ Posted on Commissioner's Integrated Database Website

☐ Mailed by TCEQ's Office of the Chief Clerk

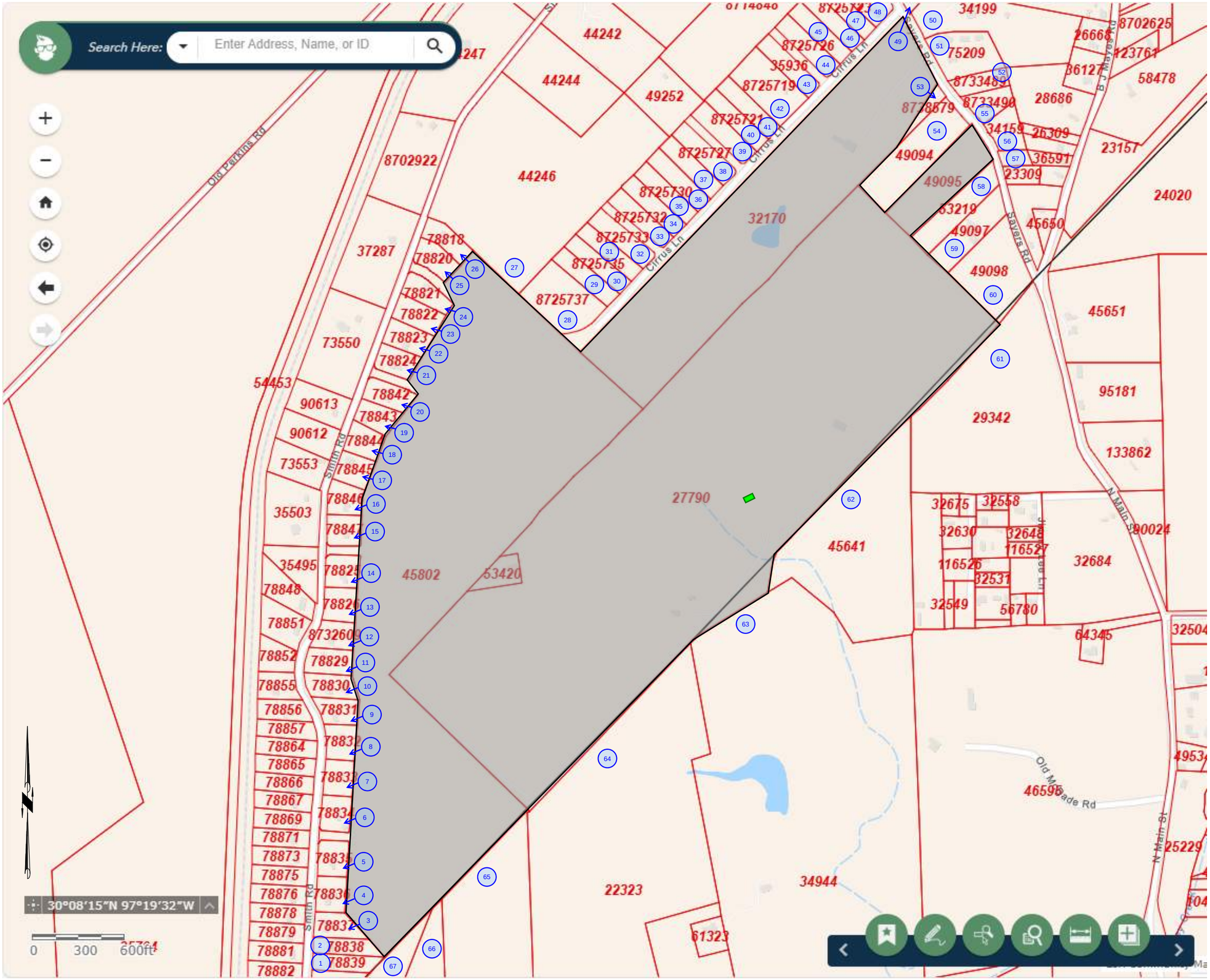
☐ Other (specify)

ATTACHMENT D

U.S. TOPOGRAPHIC MAP

ATTACHMENT E

AFFECTED LANDOWNER INFORMATION



Applicant's Property Boundary

Treatment Facility Boundary

Landowner's Cross Reference List provided on next page

Information compiled on 28 JUN 2025

reUse ENGINEERING
4411 SIH 35, Suite 100
Georgetown, TX 78626
TX Firm No. 21880

ALTO PICCO BASTROP LLC

SAYERS RANCH WWTP

BASTROP COUNTY, TEXAS

LANDOWNERS MAP

Attachment E

LANDOWNER'S CROSS REFERENCE LIST

1. AUBIN, MARK D & KAREN R
   139 SMITH RD
   BASTROP TX 78602

2. REINA, LOUIE & CRYSTAL R
   143 SMITH RD
   BASTROP TX 78602

3. HERNANDEZ, EFREN
   145 SMITH RD
   BASTROP TX 78602

4. MUNZER, ROBERT ALFRED & MURLYNN
   157 SMITH ROAD
   BASTROP TX 78602

5. KETCHERSID, LAURA
   PO BOX 1243
   BASTROP TX 78602

6. FLEMING, REBECCA G
   JOHN T OSBORN
   175 SMITH RD
   BASTROP TX 78602

7. CRUZ, RAFAEL
   185 SMITH RD
   BASTROP TX 78602

8. ENRIQUEZ, JUAN CARLOS
   195 SMITH RD
   BASTROP TX 78602

9. CHAPA, JOSE G & MYRA
   197 SMITH RD
   BASTROP TX 78602

10. CARBAJAL ORTIZ, ROCIO

LANDOWNER'S CROSS REFERENCE LIST

207 SMITH RD
BASTROP TX 78602

11. BARRON, MARTIN A
    FRANCES L AGUILAR
    213 SMITH RD
    BASTROP TX 78602

12. CASAS GONZALEZ, FRANCISCO
    221 SMITH RD
    BASTROP TX 78602

13. VELEZ, MARIO URBINA & HORTENCIA RAMIREZ ALVARADO
    229 SMITH RD
    BASTROP TX 78602

14. NELSON, MARK
    235 SMITH RD
    BASTROP TX 78602

15. CHERRY, JOHNATHAN & JENNIFER ANN
    243 SMITH RD
    BASTROP TX 78602

16. BOEISCHE, CLINTON LOUIS & JAN LOUISE RUEB
    251 SMITH RD
    BASTROP TX 78602

17. ARMENTA, RICARDO ARMANDO ALONSO
    259 SMITH RD
    BASTROP TX 78602

18. HORTON, SHANNON R
    JESSICA M ALVARADO
    271 SMITH RD
    BASTROP TX 78602

19. LAURENCE, KAREN LEA

LANDOWNER'S CROSS REFERENCE LIST

273 SMITH RD
BASTROP TX 78602

20. MONROY, MARIA G & ADIRAN ORTIZ GRANADOS
    283 SMITH RD
    BASTROP TX 78602

21. CASTRO, LEONARDO R JR
    12524 SKY HARBOR DR
    DEL VALLE TX 78617

22. CARWELL, TERRY M
    295 SMITH RD
    BASTROP TX 78602

23. MINERVA MAUR LIVING TRUST 2/16/2021
    P O BOX 763
    LITTLETON CO 80160

24. SMITH, DAVID EARL & MARY KATHLEEN SMITH
    121 LONESOME OAK DR
    BEEVILLE TX 78102

25. REYES, CLAUDIA & LAURA J ORTIZ
    315 SMITH RD
    BASTROP TX 78602

26. BAUGHMAN, TIM
    201 HUNTERS CROSSING BLVD STE 10-224
    BASTROP TX 78602

27. STEVENSON, SAMUEL J & CHRISTIANE M
    120 LANMAN RD
    NICEVILLE FL 32578

28. BASTROPS BEST PORK LLC
    200 E JANIS DR
    GEORGETOWN TX 78628

LANDOWNER'S CROSS REFERENCE LIST

29. GARCIA, ADRIAN
    201 CIRRUS LN
    BASTROP TX 78602

30. GUZMAN, LUIS
    142 SHADOW WOOD TRL
    CEDAR CREEK TX 78612

31. BALDERAS BALDERAS, MARGARITA
    5704 NETLEAF RD
    AUSTIN TX 78724

32. BALDERAS BALDERAS MARGARITA & ARTURO ROMERO MONTALVO
    5704 NETLEAF RD
    AUSTIN TX 78724

33. LOZA, ADALBERTO AVILES & MARIA JESUS GRANADOS DE NOVA
    KARLA JAMILET GONZALES
    183 CIRRUS LN
    BASTROP TX 78602

34. STIVERS, BRADLEY & MARK W STIVERS
    177 CIRRUS LANE
    BASTROP TX 78602

35. PEREZ, EMILIO & LILIANA
    12041 DESSAU RD
    AUSTIN TX 78754

36. CMH HOMES INC
    5000 CLAYTON RD
    MARYVILLE TN 37804

37. RANGEL, JOSE SAENZ & MARIA LOPEZ SAENZ
    165 CIRRUS LN
    BASTROP TX 78602

LANDOWNER'S CROSS REFERENCE LIST

38. FRAUSTO, RODRIGUEZ ALBERTO &
    MELISSA MARIE YBARRA
    161 CIRRUS LANE
    BASTROP TX 78602

39. LLANOS, JON & VALERI
    13021 DESSAU RD
    AUSTIN TX 78754

40. LUVIANO, MARTIN ANJEL & PAULA
    7008 CRYSTALBROOK DR
    AUSTIN TX 78744

41. ALTES, LYLE & SHERI
    7619 HOLLY OAK CIR
    AUSTIN TX 78744

42. DE HERNANDEZ, BAUDELIA FLORES
    1277 COUNTY ROAD 142
    GEORGETOWN TX 78626

43. RODRIGUEZ, LOURDES M
    OWNWELL LLC
    131 CIRRUS LN
    BASTROP TX 78602

44. GONZALEZ, FERNANDO MEZA &
    SAMANTHA BELMAREZ MONTOYA
    230 LA SELVA DR
    ELGIN TX 78621

45. RUBIO, MARIANO PONCE & CLAUDIA LOVATON
    117 CIRRUS LN
    BASTROP TX 78621

46. ALLEN, REMA
    1098 RED TOWN RD
    ELGIN TX 78621

LANDOWNER'S CROSS REFERENCE LIST

47. CHAIREZ, ISAI GOMEZ
    11320 MENCHACA RD
    AUSTIN TX 78748

48. SECRETARY OF HOUSING AND URBAN DEVELOPMENT
    C/O ISN CORPORATION
    2401 NW 23RD ST STE 1D
    OKLAHOMA CITY OK 73107

49. SMITH, CHERYL BARKER & WILBORN H
    175 SAYERS RD
    BASTROP TX 78602

50. PELLMAN, JOHN B & MARIE A
    169 SAYERS RD
    BASTROP TX 78602

51. PEREZ, NAZARIO & JANIE
    165 SAYERS RD
    BASTROP TX 78602

52. GONZALEZ-BELLO, ESTEBAN
    4900 FONTENAY DR
    AUSTIN TX 78744

53. DALY, JOSEPH (ETAL)
    C/O ARMBRUST & BROWN PLLC
    100 CONGRESS AVENUE SUITE 1300
    AUSTIN TX 78701

54. HERNANDEZ GOMEZ, SAMUEL & LIDIA AMAYA RODRIGUEZ (ETAL)
    2104 OLD WEST PLACE UNIT B
    ROUND ROCK TX 78681

55. PATTERSON, CHELSEA S
    145 SAYERS RD
    BASTROP TX 78602

LANDOWNER'S CROSS REFERENCE LIST

56. CUNNINGHAM, RICK & TANYA
    137 SAYERS RD
    BASTROP TX 78602

57. GUERREO, JAIME RODRIGUEZ
    133 SAYERS RD
    BASTROP TX 78602

58. ANDERSON, LESLIE L & REBECCA
    116 SAYERS RD
    BASTROP TX 78602

59. ANDERSON, LESLIE L & REBECCA
    116 SAYERS RD
    BASTROP TX 78602

60. LIBERTY HILL TRUCK SERVICE LLC
    12830 W STATE HIGHWAY 29
    LIBERTY HILL TX 78642

61. MAINSTREET BASTROP LLC
    6001 W WILLIAM CANNON DR
    AUSTIN TX 78749

62. STATON, JANET LYNN
    PO BOX 103
    BASTROP TX 78602

63. ODOM, GLENN & DONNA CASSEL
    P O BOX 541
    BASTROP TX 78602

64. FURRY, DONALD L
    272 REIDS BEND
    BASTROP TX 78602

65. GLENN D SYNNOTT REVOCABLE LIVING TRUST

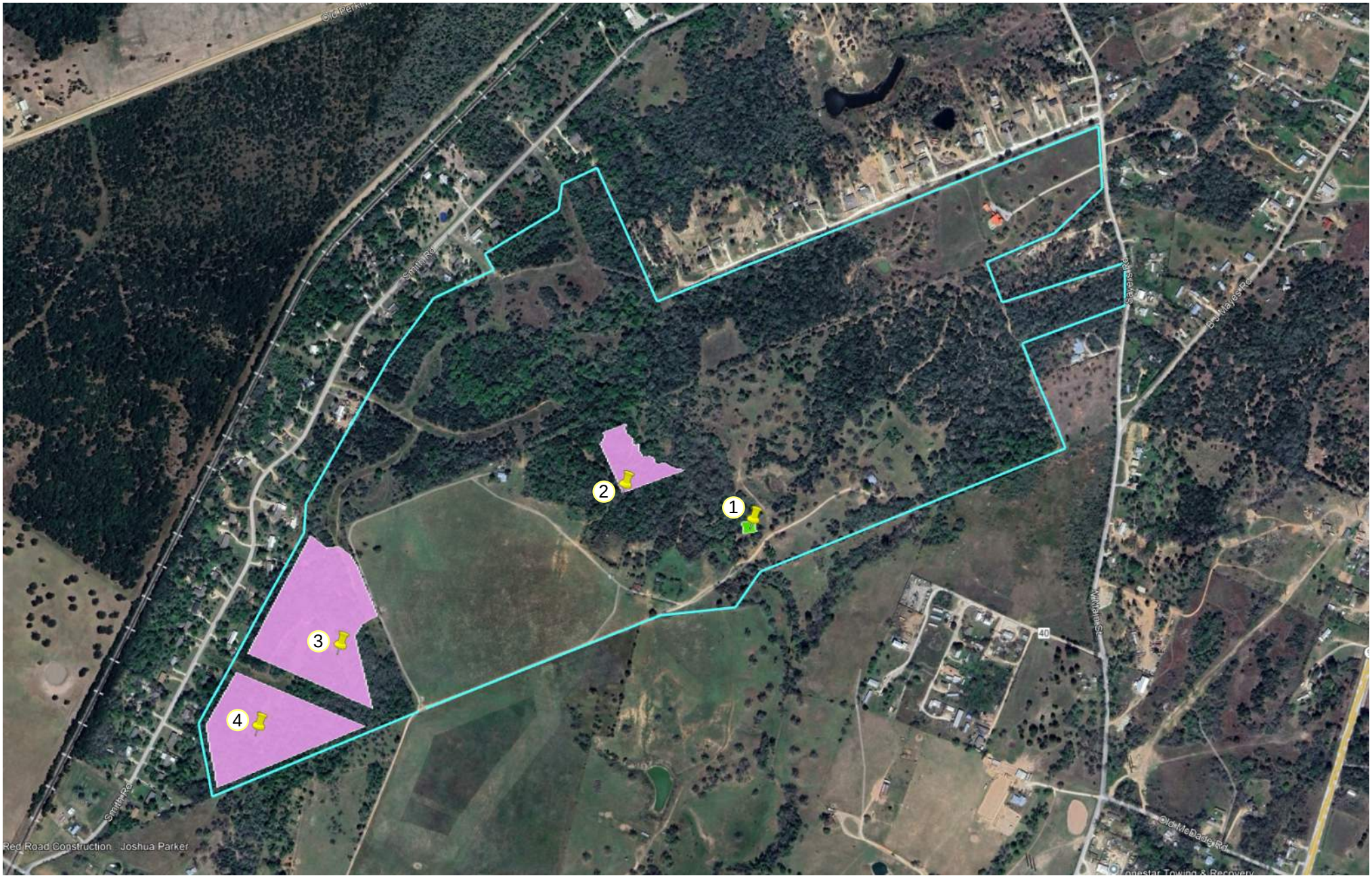
P O BOX 17066
AUSTIN TX 78760

66. CAOUETTE, JAMES C
    210 REIDS BEND
    BASTROP TX 78602

67. ALVARADO ROSAS, ALEJANDRO
    194 REIDS BEND
    BASTROP TX 78602

ATTACHMENT F

ORIGINAL PHOTOGRAPHS



Applicant's Property Boundary

Treatment Facility Boundary

Effluent Disposal Sites

Photo Locations

reUse ENGINEERING
4411 SIH 35, Suite 100
Georgetown, TX 78626
TX Firm No. 21880

ALTO PICCO BASTROP LLC

SAYERS RANCH WWTP

BASTROP COUNTY, TEXAS

ORIGINAL PHOTOGRAPHS MAP

Attachment F

WWTF



N



EFFLUENT DISPOSAL SITES



N



EFFLUENT DISPOSAL SITES



N



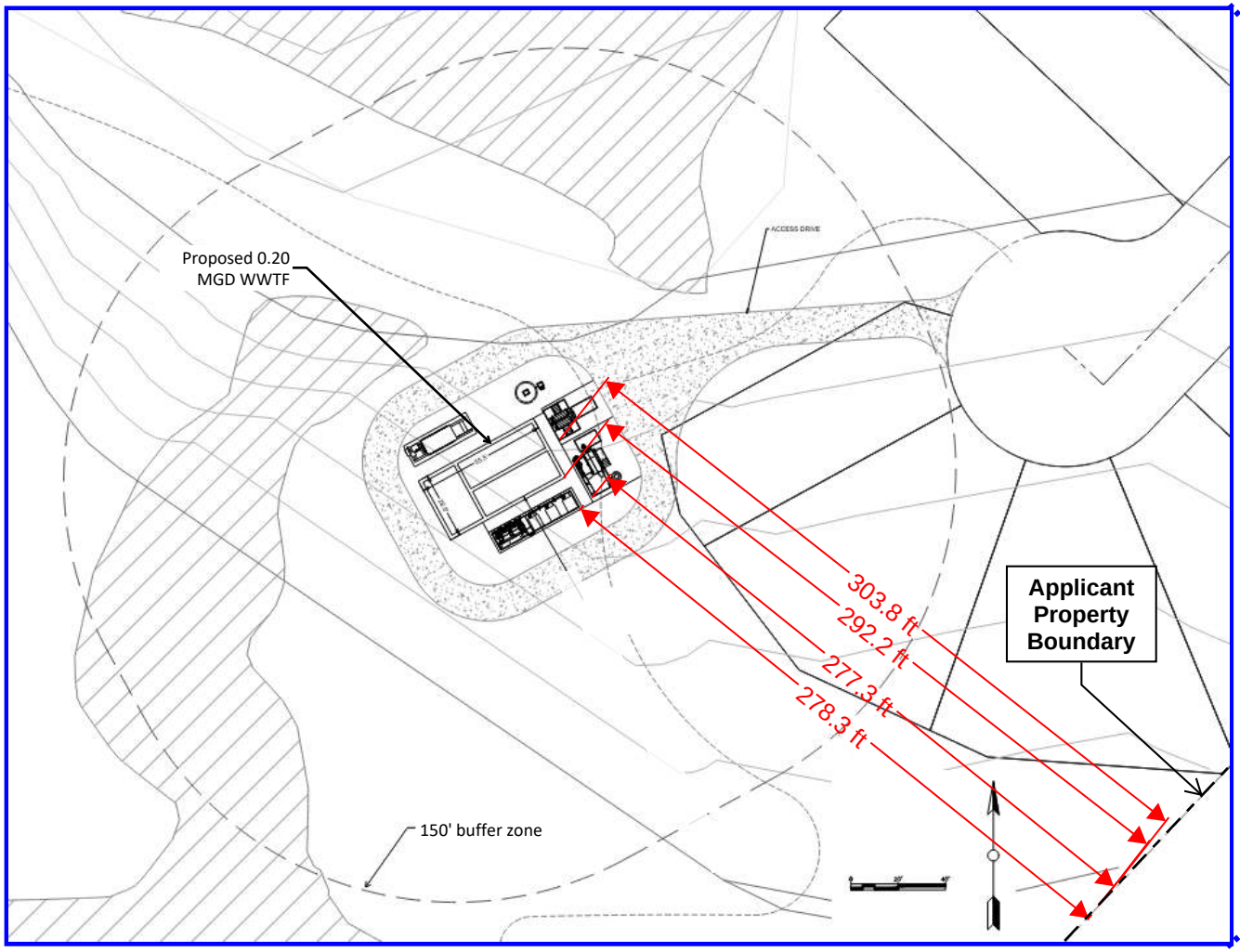
EFFLUENT DISPOSAL SITES

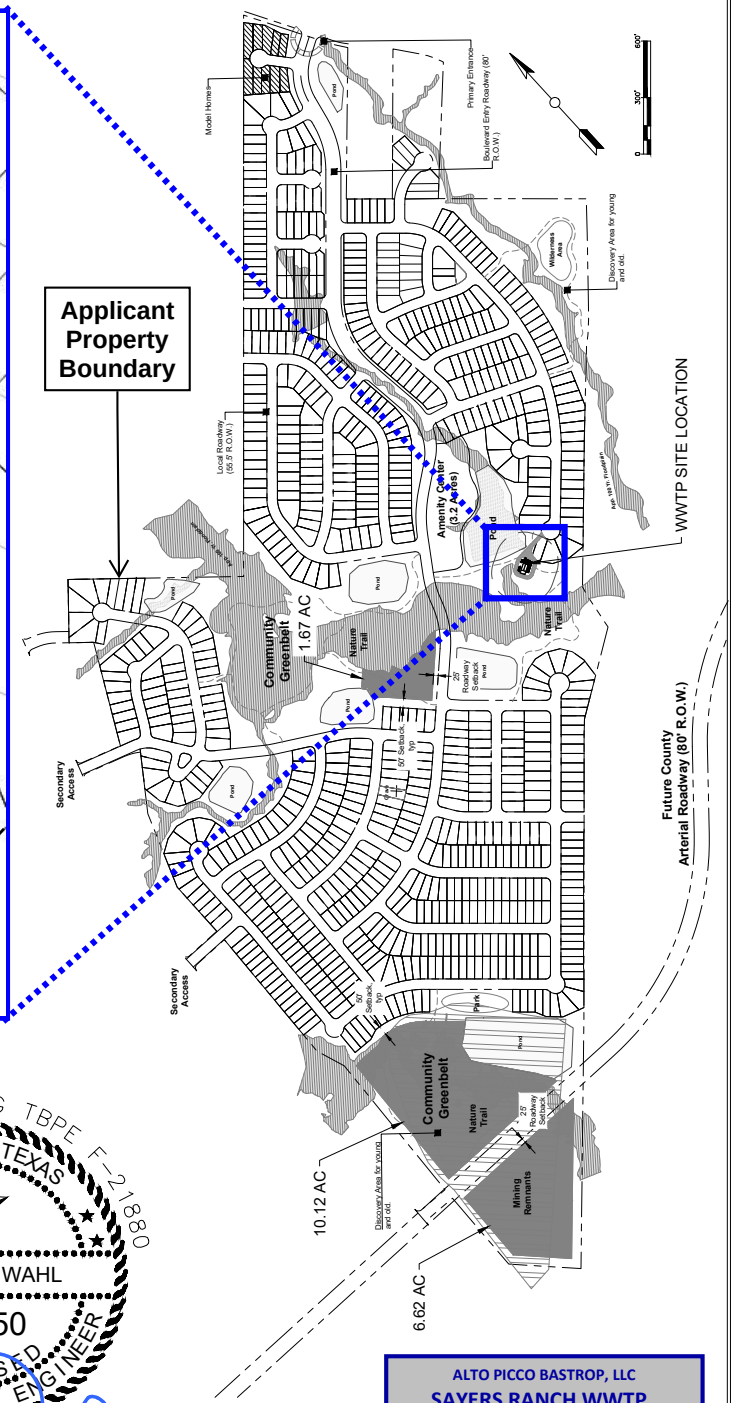


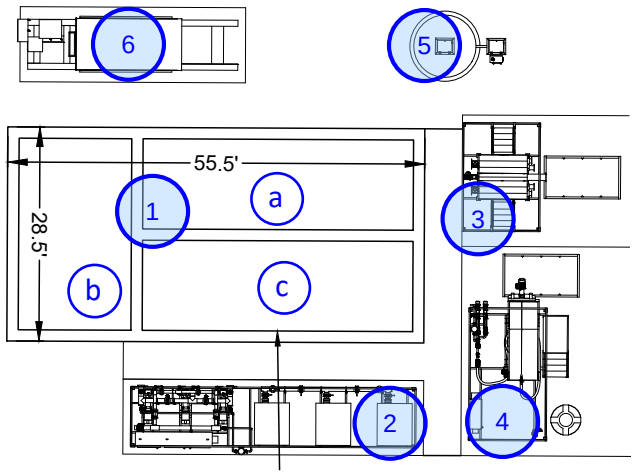


ATTACHMENT G

BUFFER ZONE MAP







1.Process Tank
   a. Anoxic Tank
   b. Aerobic Tank
   c. Membranes Tank
2.Permeate and Blower Skid
3.Fine Screens Skid
4.Sludge Press Skid
5.Influent Lift Station
6.Generator

REUSE ENGINEERING TBPE F-21880
STATE OF TEXAS
LAUREN B. WAHL
141050
LICENSED PROFESSIONAL ENGINEER
30 JUL 2025

reUse ENGINEERING
4411 SH 35, Suite 100
Georgetown, TX 78626
TX Firm No. 21880

ALTO PICCO BASTROP, LLC
SAYERS RANCH WWTP
BASTROP COUNTY, TEXAS

BUFFER MAP

Attachment G

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

DOMESTIC WASTEWATER PERMIT APPLICATION TECHNICAL REPORT 1.0

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

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

Section 1. Permitted or Proposed Flows (Instructions Page 42)

A. Existing/Interim I Phase

Design Flow (MGD): Click to enter text.

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

Estimated construction start date: Click to enter text.

Estimated waste disposal start date: Click to enter text.

B. Interim II Phase

Design Flow (MGD): Click to enter text.

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

Estimated construction start date: Click to enter text.

Estimated waste disposal start date: Click to enter text.

C. Final Phase

Design Flow (MGD): 0.20

2-Hr Peak Flow (MGD): 0.80

Estimated construction start date: April 2026

Estimated waste disposal start date: April 2027

D. Current Operating Phase

Provide the startup date of the facility: Calendar Year 2027

Section 2. Treatment Process (Instructions Page 42)

A. Current Operating Phase

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

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

The plant is an MBR (membrane bio-reactor) facility, including influent pump station, fine screen, anoxic tank, aerobic tank, and membrane cells with ultraviolet disinfection and a sludge press. The facility includes one 200,000 gallons per day (gpd) treatment train for a total of 0.20 MGD treated effluent to be discharged in the final phase.

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)
Fine Screen	3	N/A
Anoxic	1	12'x35'x17.5'
Aerobic	1	11'x35'x17.5'
Membranes	1	25'x15'x17.5'
UV Disinfection	1	N/A
Sludge Press	1	N/A

C. Process Flow Diagram

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

Attachment: 1. Process Flow Diagram

Section 3. Site Information and Drawing (Instructions Page 43)

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

- Latitude: N/A
- Longitude: N/A

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

- Latitude: 30.133885 and 30.139066
- Longitude: -97.336013 and -97.331654

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. Concept Site Plan

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

Sayers Ranch WWTP will serve a residential development, Sayers Ranch, with proposed 885 lots.

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

Collection System Information

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

Section 4. Unbuilt Phases (Instructions Page 44)

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**.

Click to enter text.

Section 5. Closure Plans (Instructions Page 44)

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

☐ Yes ☒ No

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

☐ Yes ☐ No

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

Click to enter text.

Section 6. Permit Specific Requirements (Instructions Page 44)

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

A. Summary transmittal

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

☐ Yes ☒ No

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

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

Click to enter text.

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.

Buffer Zone requirements will be met by ownership. Please see Attachment G of the 10053 Administrative Report.

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*.

Click to enter text.

D. Grit and grease treatment

1. Acceptance of grit and grease waste

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

☐ Yes ☒ No

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

2. Grit and grease processing

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

Click to enter text.

3. Grit disposal

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

☐ Yes ☐ No

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

Describe the method of grit disposal.

Click to enter text.

4. *Grease and decanted liquid disposal*

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

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

Click to enter text.

E. Stormwater management

1. *Applicability*

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

☐ Yes ☒ No

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

☐ Yes ☒ No

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

2. *MSGP coverage*

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

☐ Yes ☐ No

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

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

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

☐ Yes ☐ No

3. *Conditional exclusion*

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

☐ Yes ☐ No

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

Click to enter text.

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

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

☐ Yes ☐ No

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

Click to enter text.

5. ***Zero stormwater discharge***

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

☐ Yes ☐ No

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

Click to enter text.

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

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

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

☐ Yes ☐ No

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

intend to divert stormwater to the treatment plant headworks and indirectly discharge it to water in the state.

Click to enter text.

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

F. Discharges to the Lake Houston Watershed

Does the facility discharge in the Lake Houston watershed?

☐ Yes ☒ No

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

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

1. Acceptance of sludge from other WWTPs

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

☐ Yes ☒ No

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

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

Click to enter text.

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

2. Acceptance of septic waste

Is the facility accepting or will it accept septic waste?

☐ Yes ☒ No

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

☐ Yes ☐ No

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

☐ Yes ☐ No

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

Click to enter text.

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

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

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

☐ Yes ☒ No

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

Click to enter text.

Section 7. Pollutant Analysis of Treated Effluent (Instructions Page 49)

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). **W*ater treatment facilities*** discharging filter backwash water, complete Table 1.0(3). Provide copies of the laboratory results sheets. **These tables are not applicable for a minor amendment without renewal.** See the instructions for guidance.

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

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

Pollutant	Average Conc.	Max Conc.	No. of Samples	Sample Type	Sample Date/Time
$CBOD_5$, mg/l					
Total Suspended Solids, mg/l					
Ammonia Nitrogen, mg/l					
Nitrate Nitrogen, mg/l					
Total Kjeldahl Nitrogen, mg/l					
Sulfate, mg/l					
Chloride, mg/l					
Total Phosphorus, mg/l					
pH, standard units					
Dissolved Oxygen*, mg/l					
Chlorine Residual, mg/l					
E.coli (CFU/100ml) freshwater					
Entercocci (CFU/100ml) saltwater					
Total Dissolved Solids, mg/l					
Electrical Conductivity, µmohs/cm, †					
Oil & Grease, mg/l					
Alkalinity ($CaCO_3$)*, mg/l					

*TPDES permits only
†TLAP permits only

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

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

Section 8. Facility Operator (Instructions Page 49)

Facility Operator Name: Operator has not yet been identified.

Facility Operator's License Classification and Level: Click to enter text.

Facility Operator's License Number: Click to enter text.

Section 9. Sludge and Biosolids Management and Disposal (Instructions Page 50)

A. WWTP's Sewage Sludge or Biosolids Management Facility Type

Check all that apply. See instructions for guidance

- ☐ Design flow>= 1 MGD
- ☐ Serves >= 10,000 people
- ☐ Class I Sludge Management Facility (per 40 CFR § 503.9)
- ☐ Biosolids generator
- ☐ Biosolids end user – land application (onsite)
- ☐ Biosolids end user – surface disposal (onsite)
- ☐ Biosolids end user – incinerator (onsite)

B. WWTP's Sewage Sludge or Biosolids Treatment Process

Check all that apply. See instructions for guidance.

- ☐ Aerobic Digestion
- ☐ Air Drying (or sludge drying beds)
- ☐ Lower Temperature Composting
- ☐ Lime Stabilization
- ☐ Higher Temperature Composting
- ☐ Heat Drying
- ☐ Thermophilic Aerobic Digestion
- ☐ Beta Ray Irradiation
- ☐ Gamma Ray Irradiation
- ☐ Pasteurization
- ☐ Preliminary Operation (e.g. grinding, de-gritting, blending)
- ☐ Thickening (e.g. gravity thickening, centrifugation, filter press, vacuum filter)
- ☐ Sludge Lagoon
- ☐ Temporary Storage (< 2 years)
- ☐ Long Term Storage (>= 2 years)
- ☐ Methane or Biogas Recovery
- ☐ Other Treatment Process: Click to enter text.

C. Sewage Sludge or Biosolids Management

Provide information on the *intended* sewage sludge or biosolids management practice. Do not enter every management practice that you want authorized in the permit, as the

permit will authorize all sewage sludge or biosolids management practices listed in the instructions. Rather indicate the management practice the facility plans to use.

Biosolids Management

Management Practice	Handler or Preparer Type	Bulk or Bag Container	Amount (dry metric tons)	Pathogen Reduction Options	Vector Attraction Reduction Option
Disposal in Landfill	Off-site Third-Party Handler or Preparer	Bulk		Choose an item.	Choose an item.
Choose an item.	Choose an item.	Choose an item.		Choose an item.	Choose an item.
Choose an item.	Choose an item.	Choose an item.		Choose an item.	Choose an item.

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

D. Disposal site

Disposal site name: Texas Disposal Systems Landfill

TCEQ permit or registration number: ID: 2123 RN102016698

County where disposal site is located: Travis

E. Transportation method

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

Name of the hauler: Texas Disposal Systems

Hauler registration number: ID: 22419 RN108484742

Sludge is transported as a:

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

Section 10. Permit Authorization for Sewage Sludge Disposal (Instructions Page 52)

A. Beneficial use authorization

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

☐ Yes ☒ No

If yes, are you requesting to continue this authorization to land apply biosolids 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 Biosolids	☐ Yes	☒ No
Sludge Surface Disposal or Sludge Monofill	☐ Yes	☒ No
Temporary storage in sludge lagoons	☐ Yes	☒ No

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

☐ Yes ☐ No

Section 11. Sewage Sludge Lagoons (Instructions Page 53)

Does this facility include sewage sludge lagoons?

☐ Yes ☒ No

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

A. Location information

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

- Original General Highway (County) Map:

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

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

  Attachment: Click to enter text.
- Site map:

  Attachment: Click to enter text.

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

☐ Overlap a designated 100-year frequency flood plain

☐ Soils with flooding classification

☐ Overlap an unstable area

☐ Wetlands

☐ Located less than 60 meters from a fault

☐ None of the above

Attachment: Click to enter text.

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

Click to enter text.

B. Temporary storage information

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

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

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

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

Phosphorus, mg/kg: Click to enter text.

Potassium, mg/kg: Click to enter text.

pH, standard units: Click to enter text.

Ammonia Nitrogen mg/kg: Click to enter text.

Arsenic: Click to enter text.

Cadmium: Click to enter text.

Chromium: Click to enter text.

Copper: Click to enter text.

Lead: Click to enter text.

Mercury: Click to enter text.

Molybdenum: Click to enter text.

Nickel: Click to enter text.

Selenium: Click to enter text.

Zinc: Click to enter text.

Total PCBs: Click to enter text.

Provide the following information:

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

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

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

C. Liner information

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

☐ Yes ☐ No

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

Click to enter text.

D. Site development plan

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

Click to enter text.

Attach the following documents to the application.

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

  Attachment: Click to enter text.
- Copy of the closure plan

  Attachment: Click to enter text.
- Copy of deed recordation for the site

  Attachment: Click to enter text.
- Size of the sludge lagoon(s) in surface acres and capacity in cubic feet and gallons

  Attachment: Click to enter text.
- Description of the method of controlling infiltration of groundwater and surface water from entering the site

  Attachment: Click to enter text.
- Procedures to prevent the occurrence of nuisance conditions

  Attachment: Click to enter text.

E. Groundwater monitoring

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

☐ Yes ☒ No

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

Attachment: Click to enter text.

Section 12. Authorizations/Compliance/Enforcement (Instructions Page 54)

A. Additional authorizations

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

☐ Yes ☒ No

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

Click to enter text.

B. Permittee enforcement status

Is the permittee currently under enforcement for this facility?

☐ Yes ☒ No

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

☐ Yes ☒ No

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

Click to enter text.

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

A. RCRA hazardous wastes

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

☐ Yes ☒ No

B. Remediation activity wastewater

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

☐ Yes ☒ No

C. Details about wastes received

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

Attachment: Click to enter text.

Section 14. Laboratory Accreditation (Instructions Page 55)

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: N/A, not required for new applications

Title: Click to enter text.

Signature: _____

Date: _____

DOMESTIC WASTEWATER PERMIT APPLICATION TECHNICAL REPORT 1.1

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

Section 1. Justification for Permit (Instructions Page 56)

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.

Connecting to a nearby collection system was determined to be financially infeasible and sewer treatment per individual lot is not practical. In support of regionalization efforts, the applicant contacted every CCN holder and permitted wastewater outfall within a 3-mile radius to request service. Two of the three parcels within the development have been released from CCN No. 20466 (City of Bastrop). The release of the remaining parcel is currently in progress. All either declined to provide service or did not respond. See Attachment 4. For the Projection of LUEs & Wastewater Flow to WWTF Capacity Over Time of Development see Attachment 3. The plot shows that the WWTF capacity will increase prior to development and occupation of LUEs (Living Unit Equivalents). Year 0 represents the start of operation, when LUEs are occupied and wastewater flow begins.

B. Regionalization of facilities

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

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

1. Municipally incorporated areas

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

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

☐ Yes ☒ No ☐ Not Applicable

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

If yes, attach correspondence from the city.

Attachment: Click to enter text.

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

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

Attachment: Click to enter text.

2. ***Utility CCN areas***

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

☒ Yes ☐ No

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: N/A, nearby CCNs have denied service. See Attachment 4.

3. ***Nearby WWTPs or collection systems***

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

☒ Yes ☐ No

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

Attachment: 4. Regionalization of Facilities

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

Attachment: 4. Regionalization of Facilities

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

Attachment: Click to enter text.

Section 2. Proposed Organic Loading (Instructions Page 58)

Is this facility in operation?

☐ Yes ☒ No

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

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

A. Current organic loading

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

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

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

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

Click to enter text.

B. Proposed organic loading

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

Table 1.1(1) – Design Organic Loading

Source	Total Average Flow (MGD)	Influent BOD5 Concentration (mg/l)
Municipality	0.20	325
Subdivision		
Trailer park – transient		
Mobile home park		
School with cafeteria and showers		
School with cafeteria, no showers		
Recreational park, overnight use		
Recreational park, day use		
Office building or factory		
Motel		
Restaurant		
Hospital		
Nursing home		
Other		
TOTAL FLOW from all sources	0.20	
AVERAGE BOD_5 from all sources		325

Section 3. Proposed Effluent Quality and Disinfection (Instructions Page 58)

A. Existing/Interim I Phase Design Effluent Quality

Biochemical Oxygen Demand (5-day), mg/l: Click to enter text.

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

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

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

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

Other: Click to enter text.

B. Interim II Phase Design Effluent Quality

Biochemical Oxygen Demand (5-day), mg/l: Click to enter text.

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

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

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

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

Other: Click to enter text.

C. Final Phase Design Effluent Quality

Biochemical Oxygen Demand (5-day), mg/l: 10.0

Total Suspended Solids, mg/l: 10.0

Ammonia Nitrogen, mg/l: 5.0

Total Phosphorus, mg/l: 1.0

Dissolved Oxygen, mg/l: 5.0

Other: Click to enter text.

D. Disinfection Method

Identify the proposed method of disinfection.

☐ Chlorine: Click to enter text. mg/l after Click to enter text. minutes detention time at peak flow

Dechlorination process: Click to enter text.

☒ Ultraviolet Light: 1.0 seconds contact time at peak flow

☐ Other: Click to enter text.

Section 4. Design Calculations (Instructions Page 58)

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

Attachment: 5. Design Calculations

Section 5. Facility Site (Instructions Page 59)

A. 100-year floodplain

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

☒ Yes ☐ No

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

Click to enter text.

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

https://msc.fema.gov/portal/home

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

☐ Yes ☒ No

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

☐ Yes ☐ No

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

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

B. Wind rose

Attach a wind rose: 6. Wind Rose

Section 6. Permit Authorization for Sewage Sludge Disposal (Instructions Page 59)

A. Beneficial use authorization

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

☐ Yes ☒ No

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

B. Sludge processing authorization

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

☐ Sludge Composting

☐ Marketing and Distribution of sludge

☐ Sludge Surface Disposal or Sludge Monofill

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

Section 7. Sewage Sludge Solids Management Plan (Instructions Page 60)

Attach a solids management plan to the application.

Attachment: 7. Solids Management Plan

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

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

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

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 3.0: LAND DISPOSAL OF EFFLUENT

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

Section 1. Type of Disposal System (Instructions Page 67)

Identify the method of land disposal:

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

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

For existing authorizations, provide Registration Number: N/A

Section 2. Land Application Site(s) (Instructions Page 67)

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
Native Grasses	18.4	200,000	Y

Section 3. Storage and Evaporation Lagoons/Ponds (Instructions Page 67)

Table 3.0(2) – Storage and Evaporation Ponds

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

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

Attachment: N/A, storage tanks will be used in lieu of ponds.

Section 4. Flood and Runoff Protection (Instructions Page 67)

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

☐ Yes ☒ No

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

Click to enter text.

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

https://msc.fema.gov/portal/home

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

Earthen berms, no greater than two (2) feet in height will be constructed around the upgradient and downgradient sides of the proposed application areas and will parallel topography to control rainfall run-on and run-off. Cutoff ditches will be constructed on uphill locations.

Section 5. Annual Cropping Plan (Instructions Page 67)

Attach an Annual Cropping Plan which includes a discussion of each of the following items. If not applicable, provide a detailed explanation indicating why. **Attachment**: N/A; no harvestable crops. Native grasses will be overseeded with cool-season grass during the winter months. See Attachment 11 for a Soils Map.

- 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 68)

Attach a USGS map with the following information shown and labeled. If not applicable, provide a detailed explanation indicating why. **Attachment**: 8. TLAP USGS Maps and Attachment 9. TWDB Water Well Map

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

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

Table 3.0(3) – Water Well Data

Well ID	Well Use	Producing? Y/N	Open, cased, capped, or plugged?	Proposed Best Management Practice
See Table 3.0(3) in Attachment 9.			Choose an item.	
			Choose an item.	
			Choose an item.	

Well ID	Well Use	Producing? Y/N	Open, cased, capped, or plugged?	Proposed Best Management Practice
			Choose an item.	
			Choose an item.	

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

Attachment: 9. Water Quality & Well Log Data

Section 7. Groundwater Quality (Instructions Page 68)

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: 10. Groundwater Quality Technical Report

Are groundwater monitoring wells available onsite? ☐ Yes ☒ No

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

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

Attachment: Click to enter text.

Section 8. Soil Map and Soil Analyses (Instructions Page 69)

A. Soil map

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

Attachment: 11. Soils Map

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: 12. Soil Analysis

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
AfC – Edge fine sandy loam, 1 to 5 percent slopes	8 inches	1.4 gpd/sf	8.7	74
	18 inches	0.112 gpd/sf	8.7	74

Soil Series	Depth from Surface	Permeability	Available Water Capacity	Curve Number
	31 to 35 inches	0.08 gpd/sf	8.7	74
AfE2 – Edge fine sandy loam, 5 to 12 percent slopes, eroded	10 to 12 inches	2.52 gpd/sf	8.7	74
	31 inches	3.499 gpd/sf	8.7	74
	61 inches	0.630 gpd/sf	8.7	74
Amoozemeter test data is included in Attachment 15: Soil Evaluation				

Section 9. Effluent Monitoring Data (Instructions Page 70)

Is the facility in operation?

☐ Yes ☒ No

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

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

Table 3.0(5) – Effluent Monitoring Data

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

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

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

Click to enter text.

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

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

Section 1. Surface Disposal (Instructions Page 71)

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

NOT APPLICABLE TO THIS APPLICATION

A. Irrigation

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

Design application frequency:

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

Land grade (slope):

average percent (%): Click to enter text.

maximum percent (%): Click to enter text.

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

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

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

Method of application: Click to enter text.

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

Attachment: Click to enter text.

B. Evaporation ponds

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

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

Attachment: Click to enter text.

C. Evapotranspiration beds

Number of beds: Click to enter text.

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

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

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

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

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

Attachment: Click to enter text.

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

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

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

Section 1. Subsurface Application (Instructions Page 73)

Identify the type of system:

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

NOT APPLICABLE TO THIS APPLICATION

Application area, in acres: Click to enter text.

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

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

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

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

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

Number of beds: Click to enter text.

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

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

Storage volume, in gallons: Click to enter text.

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

Soil Classification: Click to enter text.

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

Attachment: Click to enter text.

Section 2. Edwards Aquifer (Instructions Page 73)

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

- ☐ Yes ☒ No

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

- ☐ Yes ☒ No

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

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

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

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

Section 1. Administrative Information (Instructions Page 74)

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. N/A Is the owner of the land where the treatment facility is located the same as the owner of the treatment facility?

☒ Yes ☐ No

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

Click to enter text.

C. Owner of the subsurface area drip dispersal system: Alto Picco Bastrop LLC

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

☒ Yes ☐ No

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

Click to enter text.

E. Owner of the land where the subsurface area drip dispersal system is located: Woodrun Development Co Ltd & Hoffman Family Bastrop Trust

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

☒ Yes ☐ No

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

Click to enter text.

Section 2. Subsurface Area Drip Dispersal System (Instructions Page 74)

A. Type of system

☒ Subsurface Drip Irrigation

☐ Surface Drip Irrigation

☐ Other, specify: Click to enter text.

B. Irrigation operations

Application area, in acres: 18.4

Infiltration Rate, in inches/hour: 0.017

Average slope of the application area, percent (%): Area A: 1.88% and Area B: 6.83%

Maximum slope of the application area, percent (%): Area A: 2.07% and Area B: 8.97%

Storage volume, in gallons: 600,000 gallons

Major soil series: Edge fine sandy loam, 1 to 6 percent slopes

Depth to groundwater, in feet: 27

C. Application rate

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

☒ Yes ☐ No

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

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

☐ Yes ☒ No

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

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

☒ Yes ☐ No

Hydraulic application rate, in gal/square foot/day: 0.25 gpd/SF, see Attachment 13.

Nitrogen application rate, in lbs/gal/day: 3.50 lb/day

D. Dosing information

Number of doses per day: TBD per the drip irrigation manufacturer's recommendation upon further evaluation of site/system.

Dosing duration per area, in hours: TBD

Rest period between doses, in hours: TBD

Dosing amount per area, in inches/day: TBD

Number of zones: TBD

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

☐ Yes ☒ No

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

Attachment: Click to enter text.

Section 3. Required Plans (Instructions Page 74)

A. Recharge feature plan

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

Attachment: 14. Recharge Feature Plan

B. Soil evaluation

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

Attachment: 15. Soil Evaluation

C. Site preparation plan

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

Attachment: 16. Site Preparation Plan

D. Soil sampling/testing

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

Attachment: Please refer to Attachment 12. Soil Analyses

Section 4. Floodway Designation (Instructions Page 75)

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: 17. FEMA Flood Map

Section 5. Surface Waters in the State (Instructions Page 75)

A. Buffer Map

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

Attachment: 18. Surface & Groundwater Buffer Map

B. Buffer variance request

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

☐ Yes ☒ No

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

Attachment: Click to enter text.

Section 6. Edwards Aquifer (Instructions Page 75)

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

☐ Yes ☒ No

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

☐ Yes ☒ No

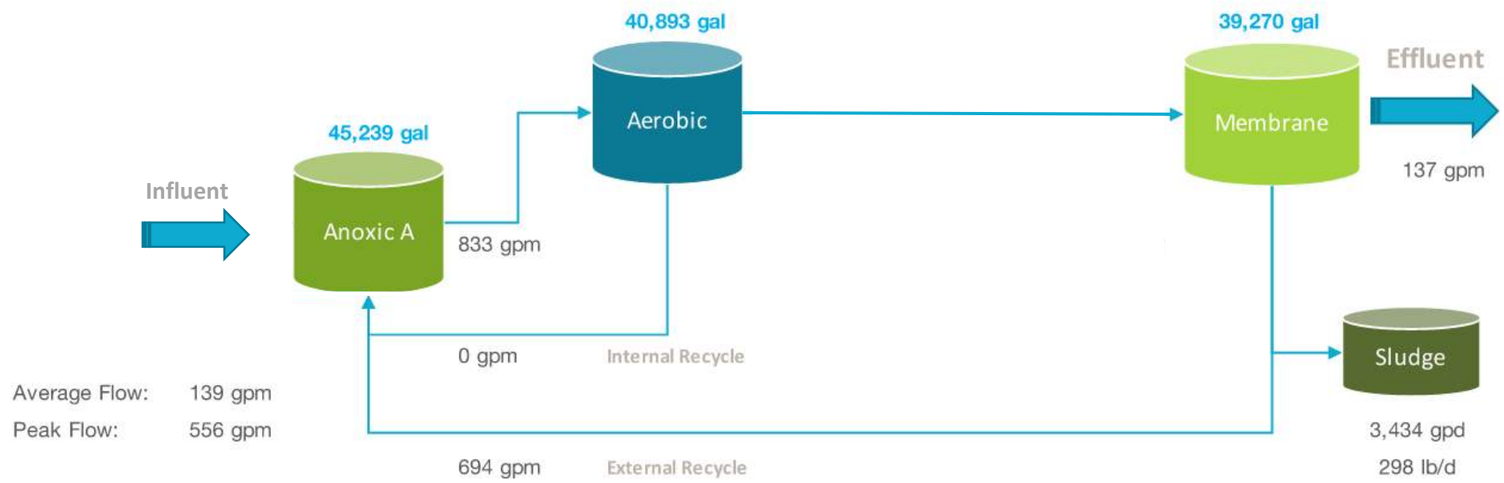
If yes to either question, then the SADDS may be prohibited by *30 TAC §213.8*. Please call the Municipal Permits Team at 512-239-4671 to schedule a pre-application meeting.

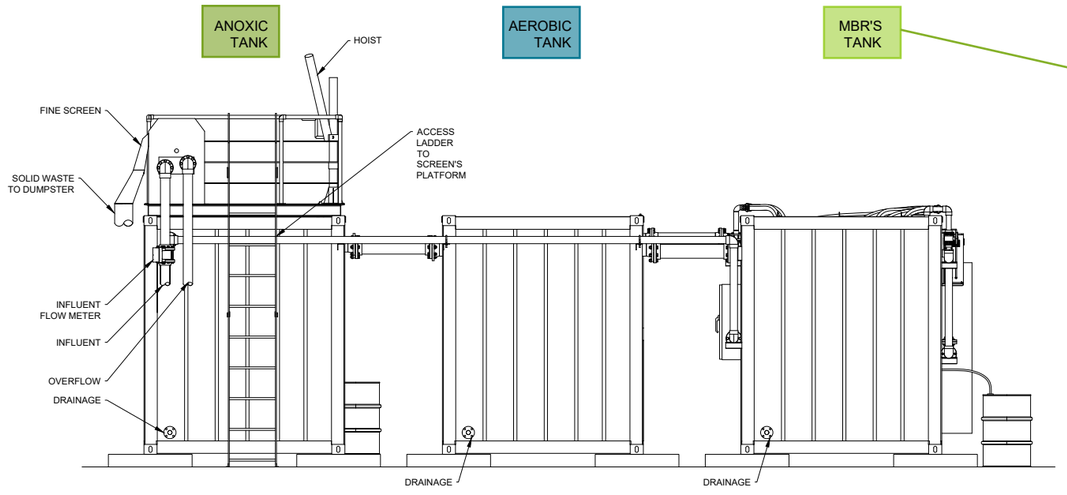
ATTACHMENT 1

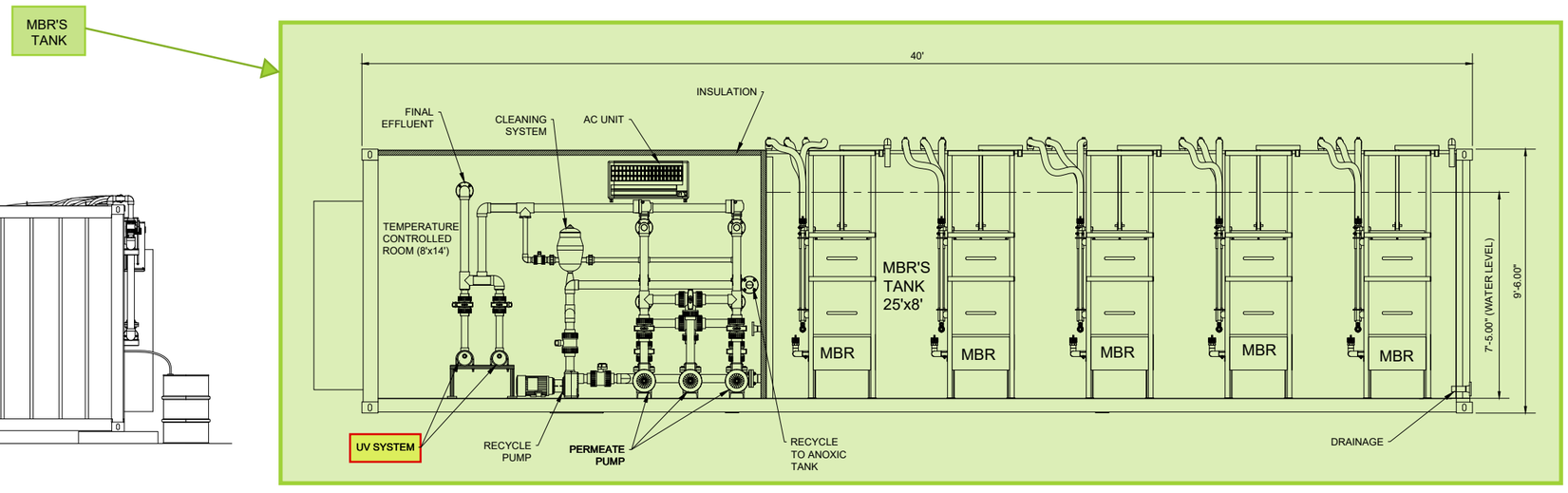
PROCESS FLOW DIAGRAM

The 0.20 MGD (200,000 GPD) Treatment Facility will be comprised of one (1) treatment train at 200,000 GPD

200,000 GPD Treatment: See 10054 Technical Report Attachment 5- Design Calculations







Example of Process Flow/Treatment Process (provided from design for 80,000 gpd Treatment Plant)

Disclaimer
This drawing was created by A3-USA for a separate project. It is presented here for illustrative purposes only. Sizes and dimensions will vary.

REUSE ENGINEERING TBPE F-21880
STATE OF TEXAS
LAUREN B. WAHL
141050
LICENSED PROFESSIONAL ENGINEER
30 JUL 2025

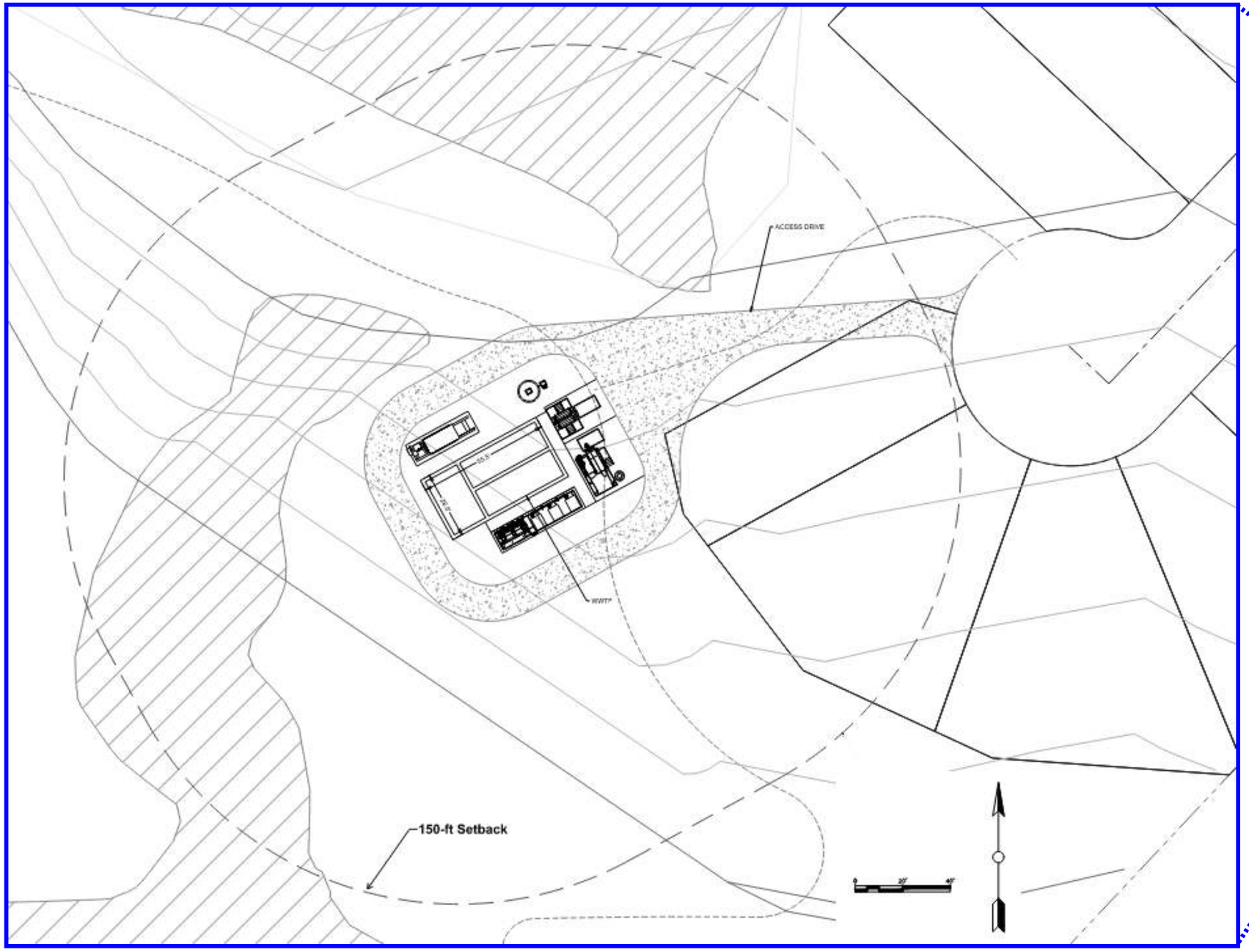
reUse ENGINEERING
4411 SIH 35, Suite 100
Georgetown, TX 78626
TX Firm No. 21880

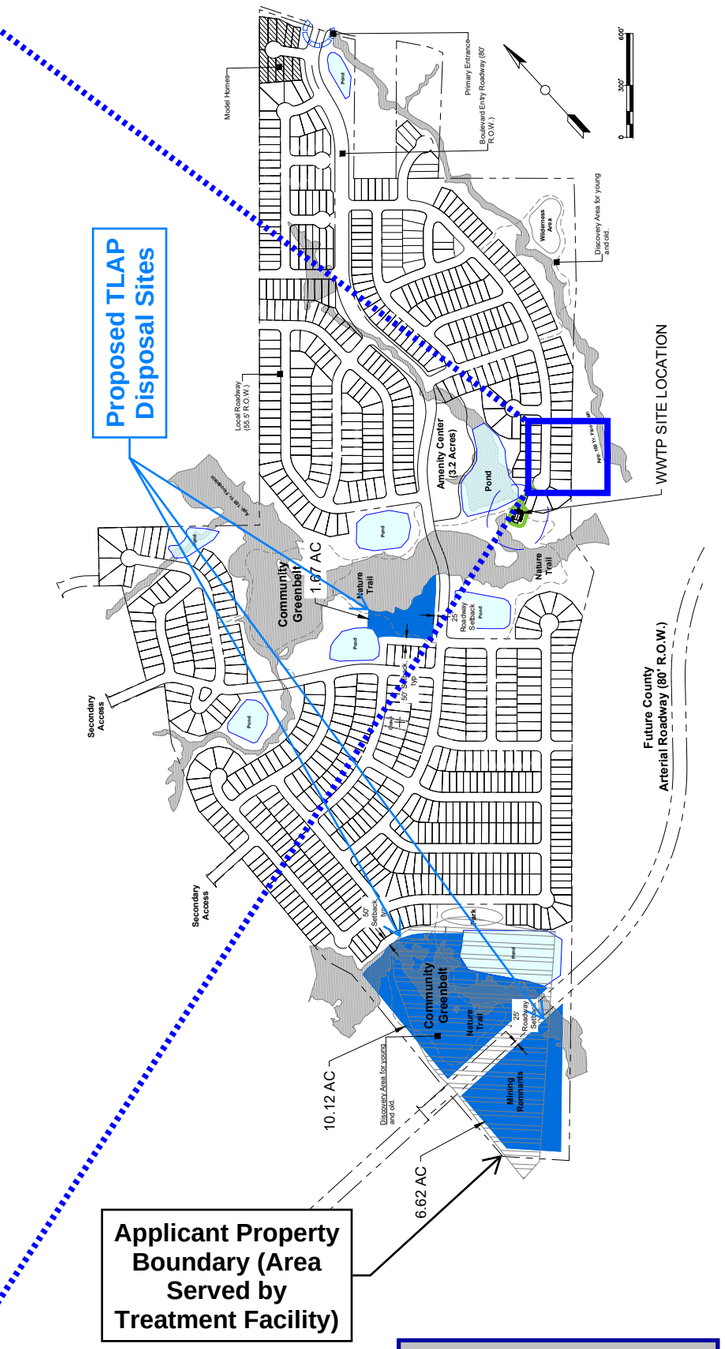
ALTO PICCO BASTROP LLC
SAYERS RANCH WWTP
BASTROP COUNTY, TEXAS

PROCESS FLOW DIAGRAM
Attachment 1

ATTACHMENT 2

SITE DRAWING





PRELIMINARY:
FOR REVIEW ONLY

This document is released for the purpose of interim review or permitting and it is not intended for Construction or bidding

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BASTROP COUNTY, TEXAS

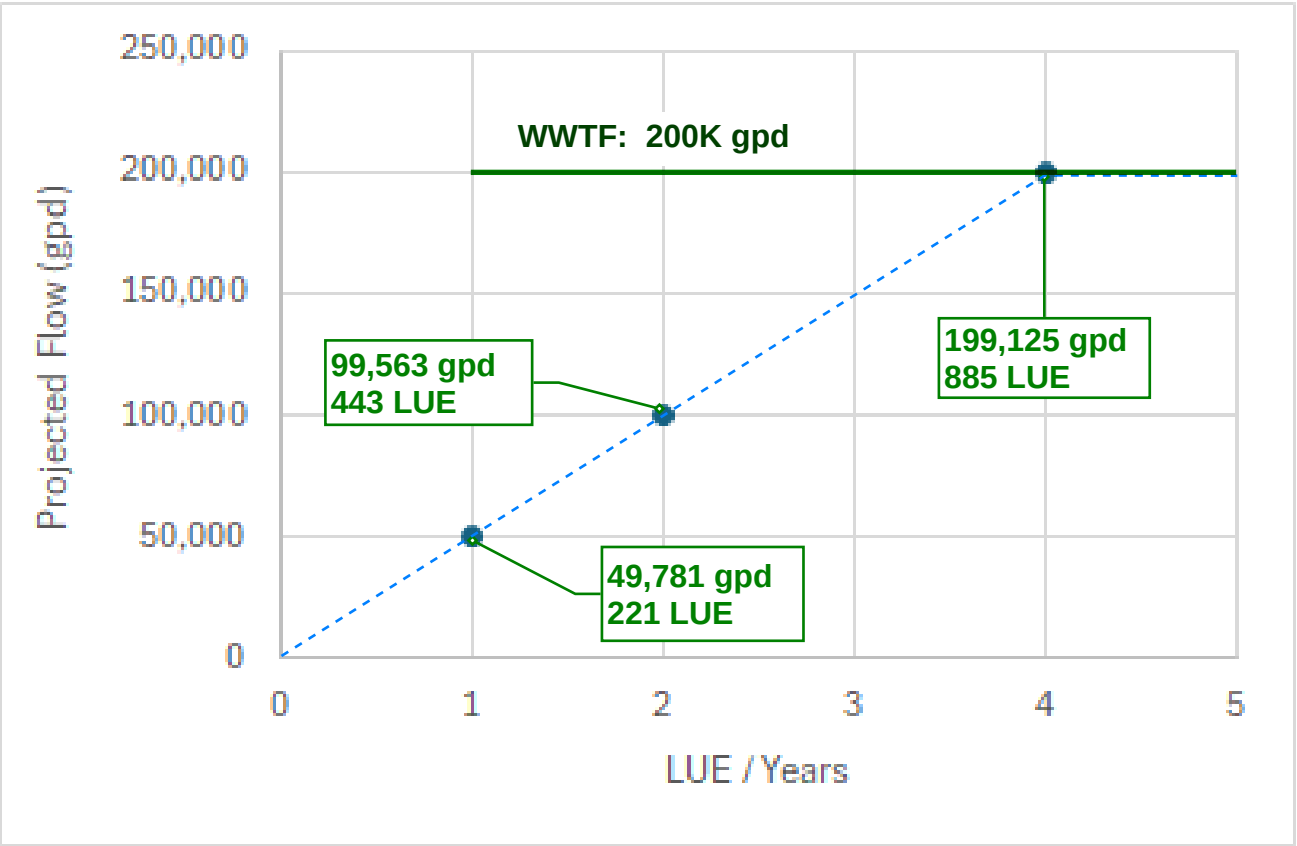
CONCEPT SITE PLAN
Attachment 2

ATTACHMENT 3

JUSTIFICATION OF PERMIT NEED (LUEs)

		Design Flow gpd	Cumulative Flow gpd
WWTP	1	200,000	200,000

		Development per Year LUE	Cumulative Development LUE	Projected Flow gpd
Year	1	221	221	49,781
Year	2	221	443	99,563
Year	4	443	885	199,125
			225	gpd/LUE



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STATE OF TEXAS
LAUREN B. WAHL
141050
LICENSED PROFESSIONAL ENGINEER
30 JUL 2025

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TX Firm No. 21880

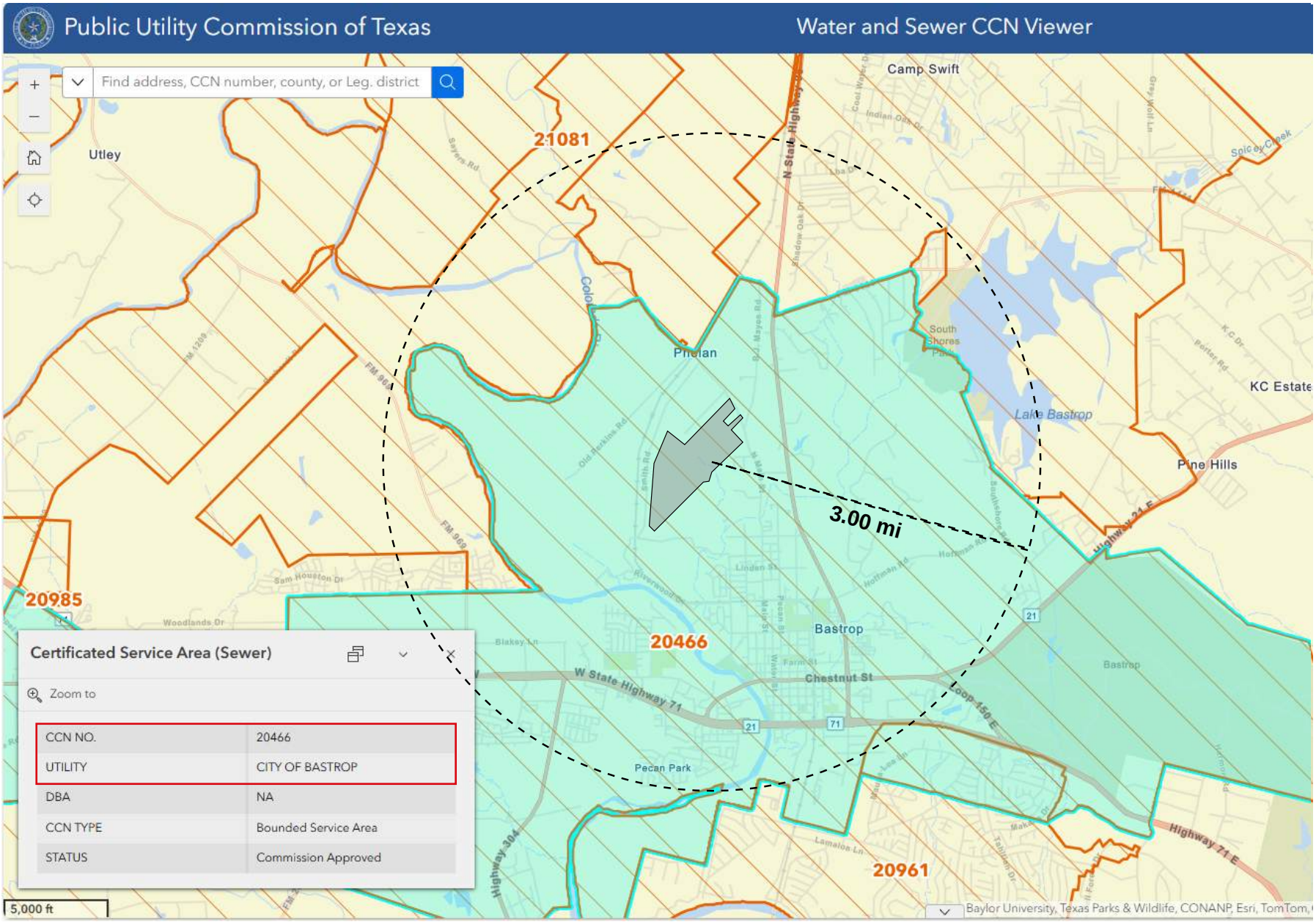
ALTO PICCO BASTROP LLC
SAYERS RANCH WWTP
BASTROP COUNTY, TEXAS

PROJECTION OF LUES & WASTEWATER FLOW TO WWTF CAPACITY

Attachment 3

ATTACHMENT 4

REGIONALIZATION OF FACILITIES



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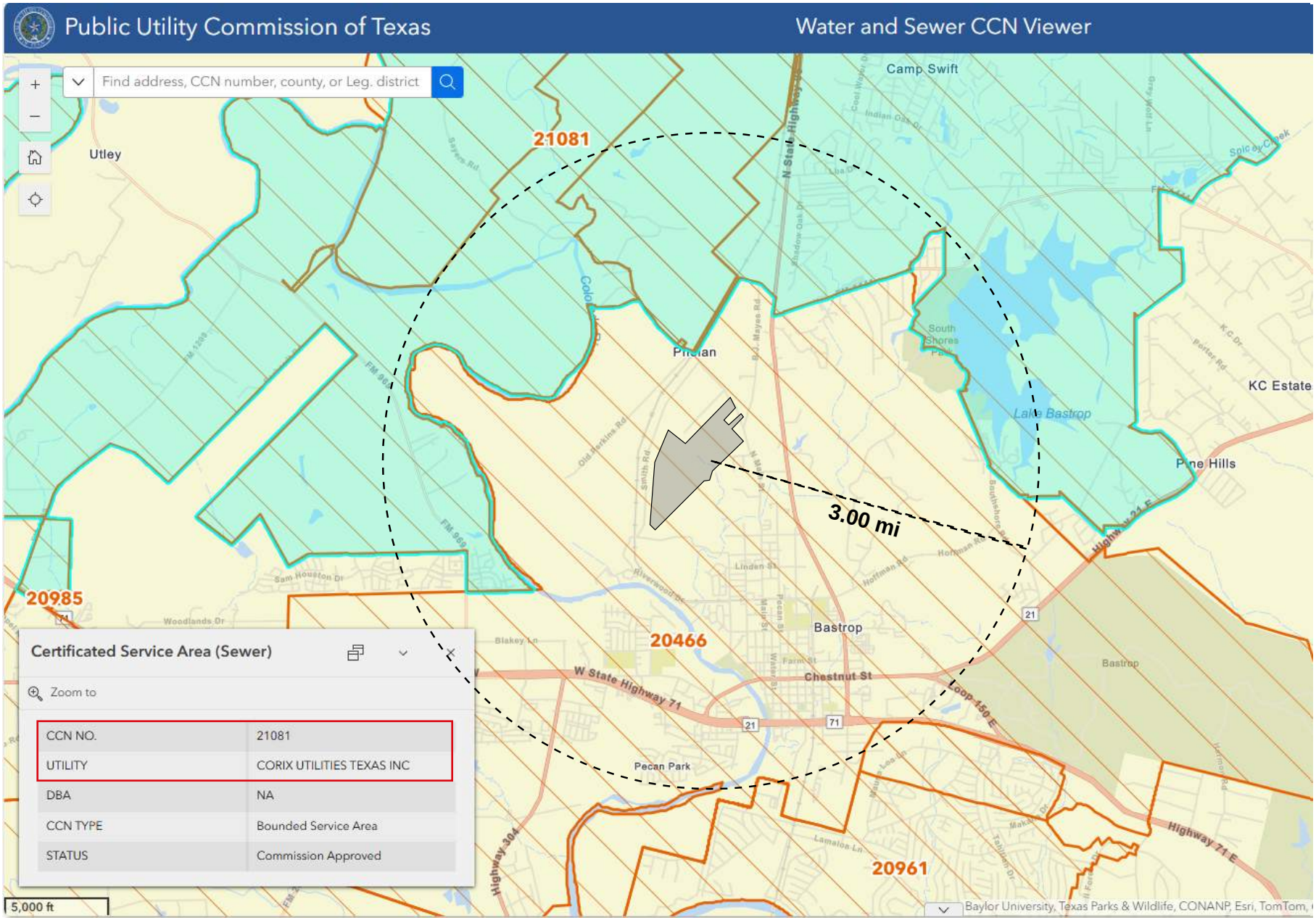
SAYERS RANCH WWTP
BASTROP COUNTY, TEXAS

CCN MAP 1

Attachment 4A



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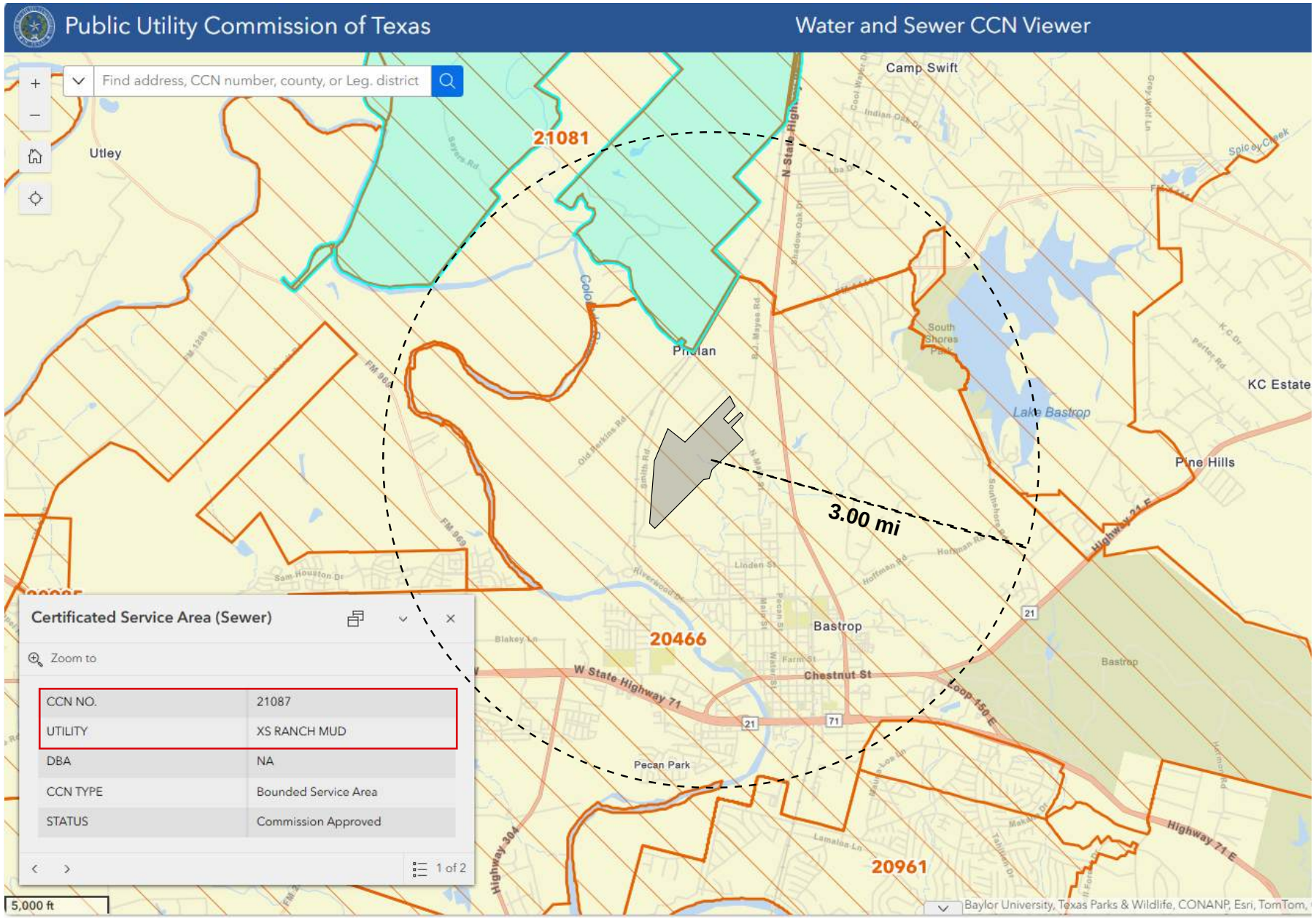
ALTO PICCO BASTROP LLC
SAYERS RANCH WWTP
BASTROP COUNTY, TEXAS

CCN MAP 2

Attachment 4A



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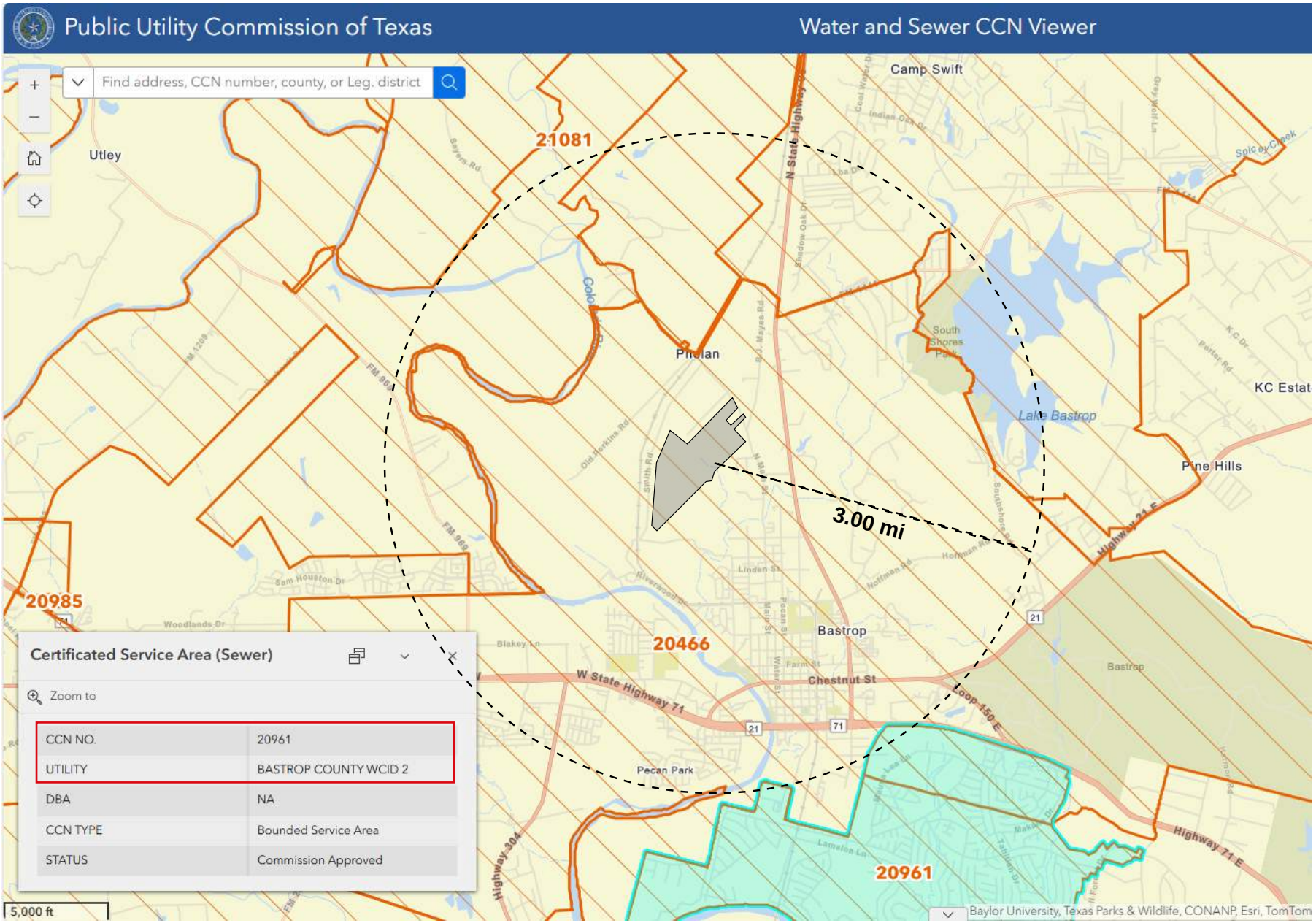
ALTO PICCO BASTROP LLC
SAYERS RANCH WWTP
BASTROP COUNTY, TEXAS

CCN MAP 3

Attachment 4A



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ALTO PICCO BASTROP LLC
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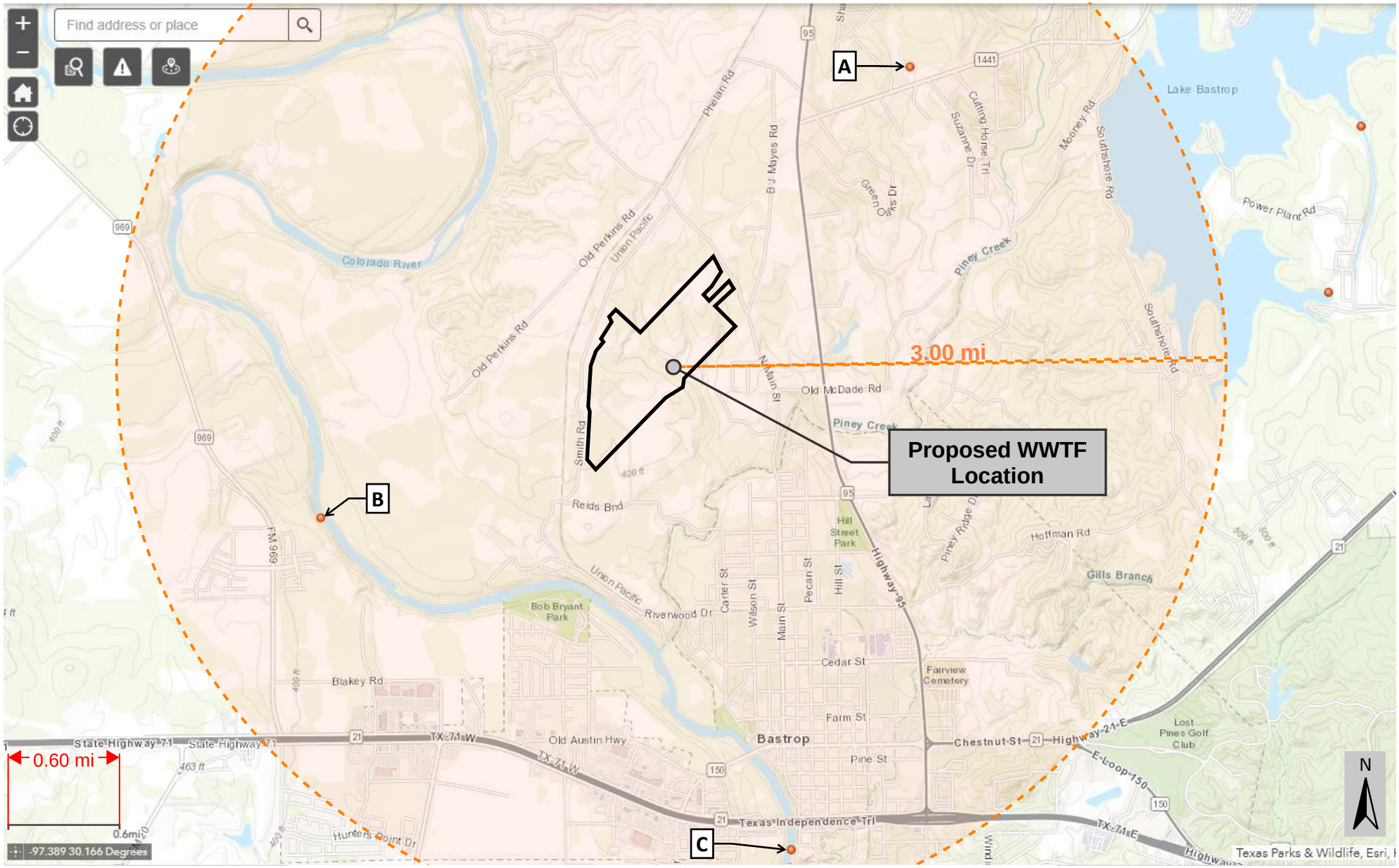
BASTROP COUNTY, TEXAS

CCN MAP 4

Attachment 4A



A. CORIX UTILITIES TEXAS INC (PERMIT 13548-001)
B. THE COLONY MUD 1A (PERMIT 14427-001)
C. CITY OF BASTROP (PERMIT 11076-001)

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ALTO PICCO BASTROP LLC
SAYERS RANCH WWTP
BASTROP COUNTY, TEXAS

WASTEWATER OUTFALL MAP

Attachment 4B

https://tceq.maps.arcgis.com/apps/webappviewer/index.html?id=d47b9419f42c49dea592203aeda99da1

X4C: REGIONALIZATION PACKET

CITY OF BASTROP

CONTENTS:

Request for Service + Attachments
Certified Mail Receipt
Additional Communications

4411 S Interstate 35, Ste 100
Georgetown, Texas 78626
www.reuseinn.com

July 18, 2025

Mr. Curtis Hancock
Director, Water and Wastewater Department
City of Bastrop
385 SH 304, Unit B
Bastrop, Texas 78602

VIA US-Mail & Email

RE: Application for New TLAP Permit
SAYERS RANCH WWTP
Appx 4,600 ft south of the intersection of Smith Road and Sayers Road in Bastrop, Texas (30.139347, -97.329120)

Dear Mr. Hancock,

On behalf of **Alto Picco Bastrop, LLC**, reUse Engineering, Inc. is in the process of submitting a request to the Texas Commission on Environmental Quality (TCEQ) for a Texas Land Application Permit (TLAP) for a proposed Wastewater Treatment Plant at the above referenced location. See attached. The client's property is located:

A. Appx 0.66 miles outside of City of Bastrop limits
B. Partially within City of Bastrop CCN No. 20466
C. Approx. 2.6 mile north of City of Bastrop permitted outfall 11076-011 (NPDES No. 0032671)

The facility will serve the Sayer's Ranch residential subdivision consisting of approximately 815 single-family connections. The proposed service area location is provided on the attached map. We are in the process of applying for an authorized flow of 0.2 MGD and plan to begin construction by April 2026 with wastewater service needing to commence by April 2027**.**

Two of the three parcels within the development have been released from CCN No. 20466 pursuant to **PUCT Docket No. 57854 (Order No. 4, issued June 16, 2025) and PUCT Docket No. 57964 (Order No. 3, issued July 8, 2025)**. A copy of the orders are attached for your reference. The remaining parcel is currently in the decertification process.

To satisfy TCEQ's regionalization requirements and ensure a smooth permitting process, we are contacting CCN holders and permittees within a three-mile radius. While we are not seeking wastewater service from the City of Bastrop, we respectfully request written

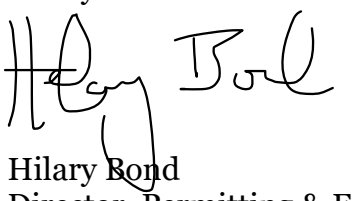
4411 S Interstate 35, Ste 100
Georgetown, Texas 78626
www.reuseinn.com

confirmation that the City does not intend to exercise its CCN rights to require service or to oppose the TLAP application on the basis of regionalization, given the ongoing decertification efforts for the remaining parcel.

A brief written response confirming the City's position would be greatly appreciated and will be included in our submittal to TCEQ. Please feel free to contact me at hilary@reuseeng.com or (512) 285-0302 with any questions.

We appreciate your time and consideration and look forward to your response.

Respectfully,
Hilary Bond

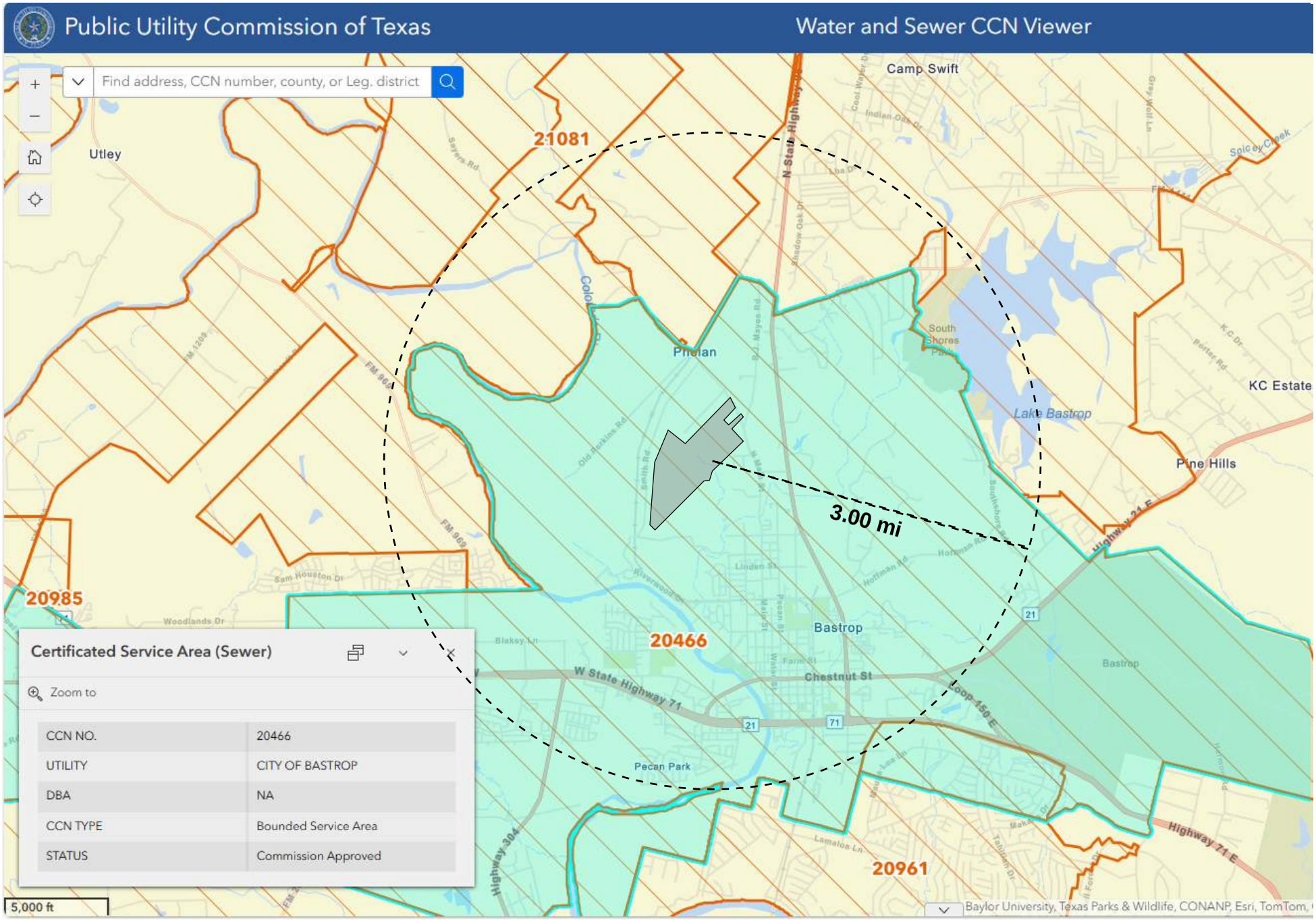


Hilary Bond
Director, Permitting & Entitlements
reUse Engineering, Inc.
4411 S IH-35, Suite 100
Georgetown, Texas 78626

CC: Sylvia Carillo, City Manager, City of Bastrop
Rob Archer, Principal, Pathway Land Development, LLC
Lauren Wahl, P.E., Water Resource Engineer, reUse Engineering, Inc.
Rane Wilson, P.G., Lead Hydrogeologist, reUse Engineering, Inc.

ATTACHMENT 1

CCN & WASTEWATER OUTFALL MAPS



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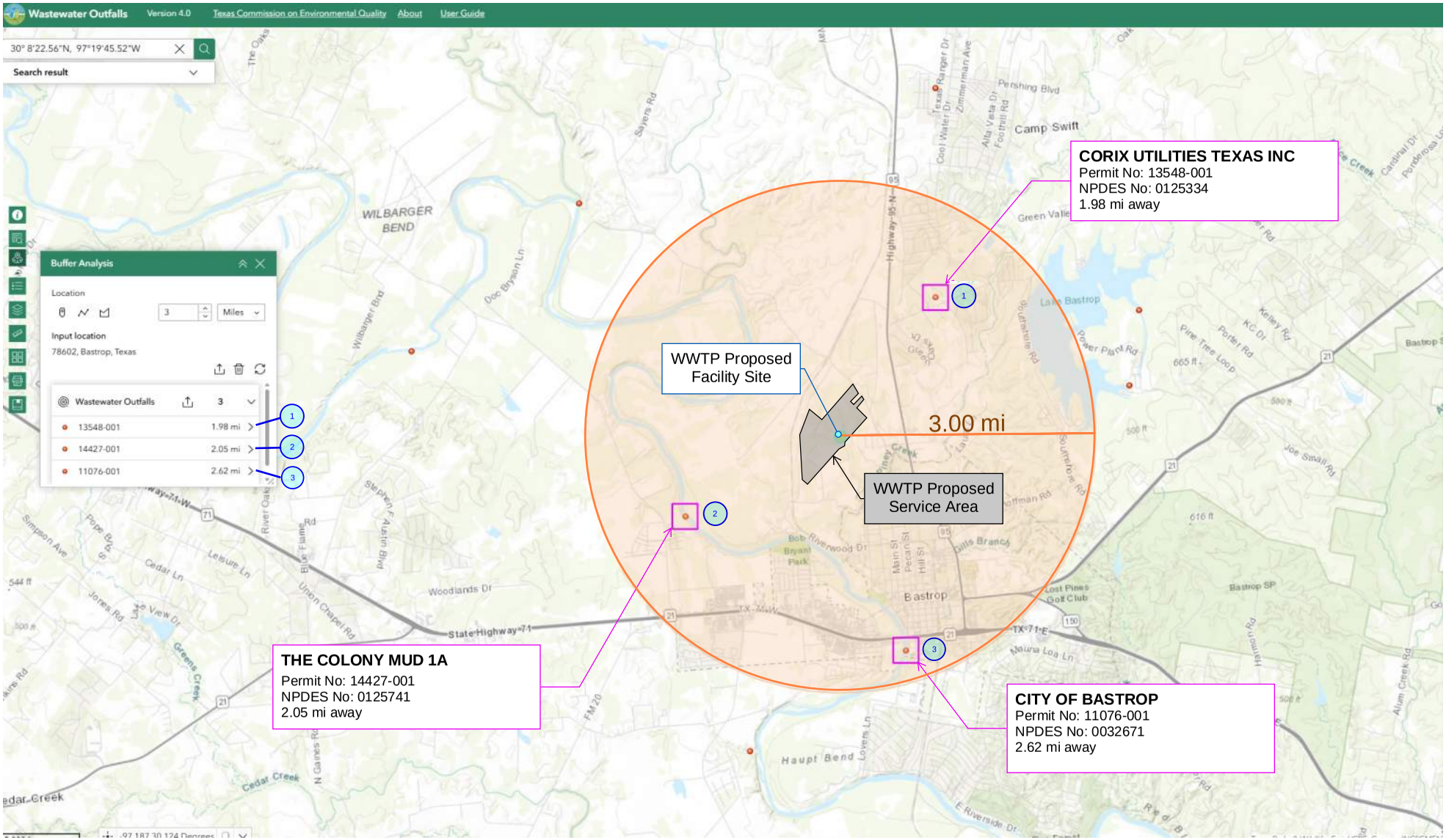

Data from 2025/06/26

Source: https://experience.arcgis.com/experience/262c0c7bfddf4d6da7f59552f652f197#data_s=id%3AdataSource_2-Wastewater_Outfalls_4053-0%3A13217379

reUse ENGINEERING

ATTACHMENT 2

PUBLIC UTILITY COMMISSION OF TEXAS
ORDERS GRANTING RELEASE FROM CCN

DOCKET NO. 57854

PETITION OF ALTO PICCO BASTROP, LLC TO AMEND CITY OF BASTROP'S CERTIFICATE OF CONVENIENCE AND NECESSITY IN BASTROP COUNTY BY STREAMLINED EXPEDITED RELEASE	**§**	**PUBLIC UTILITY COMMISSION OF TEXAS**

ORDER NO. 4
GRANTING STREAMLINED EXPEDITED RELEASE

This Order addresses the petition by Alto Picco Bastrop, LLC for streamlined expedited release of a tract of land in Bastrop County from the City of Bastrop's service area under certificate of convenience and necessity (CCN) number 20466. For the reasons stated in this Order, the Commission releases the tract of land from Bastrop's certificated service area. In addition, the Commission amends Bastrop's CCN number 20466 to reflect the removal of the tract of land from the service area.

Following entry of this Order, the Commission will determine the amount of compensation, if any, to be awarded to Bastrop, which will be addressed by separate order.

I. Findings of Fact

The Commission makes the following findings of fact.

Petitioner

1. Alto Picco Bastrop is a Texas limited liability company registered with the Texas secretary of state under filing number 805764315.

CCN Holder

2. Bastrop is a municipality in Bastrop County.

3. Bastrop holds CCN number 20466 that obligates the utility to provide retail sewer service in its certificated service area in Bastrop County.

Petition and Supplemental Materials

4. On March 19, 2025, the petitioner filed a petition for streamlined expedited release of a tract of land from the CCN holder's service area under CCN number 20466.

5. The petition includes an affidavit, dated March 13, 2025, of Kacee Jackson, the petitioner's authorized representative; maps; a warranty deed with vendor's lien, dated November 20, 2024; and digital mapping data.

6. On April 15, 2025, the petitioner filed supplemental digital mapping data.

7. In Order No. 2 filed on April 23, 2025, the administrative law judge (ALJ) found the petition, as supplemented, administratively complete.

Notice

8. On March 19, 2025, the petitioner sent a copy of the petition to the CCN holder by certified mail, return receipt requested.

9. In Order No. 2 filed on April 23, 2025, the ALJ found the notice sufficient.

Response to the Petition

10. On May 1, 2025, the CCN holder filed a response to the petition and does not contest the representations made by the petitioner.

The Tract of Land

11. The petitioner owns a tract of land in Bastrop County that is 36.3 acres, for which it seeks streamlined expedited release.

12. The tract of land is located within the CCN holder's certificated service area under CCN number 20466.

Ownership of the Tract of Land

13. The petitioner acquired the tract of land via a warranty deed with vendor's lien dated November 20, 2024.

Qualifying County

14. Bastrop County has a population of more than 52,000 and is adjacent to Travis County.

15. Travis County has a population of at least 1.2 million.

Sewer Service

16. The tract of land is not receiving actual sewer service from the CCN holder.

17. There are no meters, water lines or other facilities on the tract of land nor any billing accounts or other documents evidencing an existing sewer service account for the tract of land.

18. The CCN holder has not committed or dedicated any facilities or lines to the tract of land for sewer service.

19. The CCN holder has no facilities or lines that provide sewer service to the tract of land.

20. The CCN holder has not performed any acts for or supplied anything to the tract of land.

Map and Certificate

21. On June 4, 2025, Commission Staff filed its recommendation on final disposition that included a map on which it identified the tract of land in relation to the CCN holder's certificated service area.

22. On June 13, 2025, Commission Staff filed a certificate related to the CCN holder's CCN number 20466.

II. Conclusions of Law

The Commission makes the following conclusions of law.

1. The Commission has authority over the petition for streamlined expedited release under Texas Water Code (TWC) §§ 13.254 and 13.2541.

2. The petitioner provided notice of the petition in compliance with 16 Texas Administrative Code (TAC) § 24.245(h)(3)(F).

3. No opportunity for a hearing on a petition for streamlined expedited release is provided under TWC §§ 13.254 or 13.2541 and, under 16 TAC § 24.245(h)(6), no hearing will be held on the petitioner's petition.

4. This petition for streamlined expedited release filed under TWC §§ 13.254 and 13.2541 and 16 TAC § 24.245(h) is not a contested case.

5. The petitioner, under TWC §§ 13.254 and 13.2541 and 16 TAC § 24.245(h) is required to submit a verified petition through a notarized affidavit, and the CCN holder may submit a response to the petition that must be verified by a notarized affidavit.

6. Under 16 TAC § 24.245(h)(6), the Commission's decision is based on the information submitted by the landowner, the CCN holder, and Commission Staff.

7. To obtain streamlined expedited release under TWC § 13.2541(b), a landowner must demonstrate that the landowner owns a tract of land that is at least 25 acres, that the tract of land is located in a qualifying county, and that the tract of land for which the petitioner seeks release is not receiving service of the type that the current CCN holder is authorized to provide under the applicable CCN.

8. The time that the petition is filed is the only relevant time period to consider when evaluating whether a tract of land is receiving sewer service under TWC § 13.2541(b). Whether a tract of land might have previously received sewer service is irrelevant.

9. The petitioner is not required to seek the streamlined expedited release of all of its property.

10. The petitioner owns a tract of land that is at least 25 acres for which it seeks streamlined expedited release.

11. Bastrop County is a qualifying county under TWC § 13.2541(b) and 16 TAC § 24.245(h)(2).

12. The tract of land is not receiving sewer service under TWC §§ 13.002(21) and 13.2541(b) and 16 TAC § 24.245(h), as interpreted in *Texas General Land Office v. Crystal Clear Water Supply Corporation*, 449 S.W.3d 130 (Tex. App.—Austin 2014, pet. denied).

13. The petitioner is entitled under TWC § 13.2541(b) to the release of the tract of land from the CCN holder's certificated service area.

14. Under TWC §§ 13.254(h) and 13.2541(a), after the date of this Order, the CCN holder has no obligation to provide retail sewer service to the tract of land.

15. The Commission may release only the petitioner's tract of land from CCN number 20466 under TWC § 13.2541(b). The Commission has no authority to decertificate any facilities

or equipment owned and operated by the holder of CCN number 20466 to provide retail sewer service through the streamlined-expedited-release process under TWC § 13.2541(b).

16. The Commission processed the petition in accordance with the TWC and Commission rules.

17. Under TWC § 13.257(r) and (s), the CCN holder is required to record certified copies of the approved certificate and map, along with a boundary description of the service area, in the real property records of Bastrop County no later than the 31st day after the date the CCN holder receives this Order.

18. A retail public utility may not, under TWC §§ 13.254(d) and 13.2541(a), provide retail sewer service to the public within the tract of land unless just and adequate compensation under TWC § 13.254(g) has been paid to the holder of CCN number 20466.

III. Ordering Paragraphs

In accordance with these findings of fact and conclusions of law, the Commission issues the following orders.

1. The Commission releases the tract of land identified in the petition from the CCN holder's certificated service area under CCN number 20466.

2. The Commission does not decertificate any of the CCN holder's equipment or facilities that may lay on or under the tract of land.

3. The Commission amends CCN number 20466 in accordance with this Order.

4. The Commission approves the map attached to this Order.

5. The Commission issues the certificate attached to this Order.

6. The CCN holder must file in this docket proof of the recording required in TWC § 13.257(r) and (s) within 45 days of the date of this Order.

7. The proceeding to determine the amount of compensation to be awarded to the CCN holder, if any, commences on the date of this Order in accordance with the schedule adopted in Order No. 2. Any decision on compensation will be made by a separate order.

8. The Commission denies all other motions and any other requests for general or specific relief not expressly granted by this Order.

Signed at Austin, Texas the 16th day of June 2025.

PUBLIC UTILITY COMMISSION OF TEXAS



REBECCA BROMLEY-WILLIAMS
ADMINISTRATIVE LAW JUDGE

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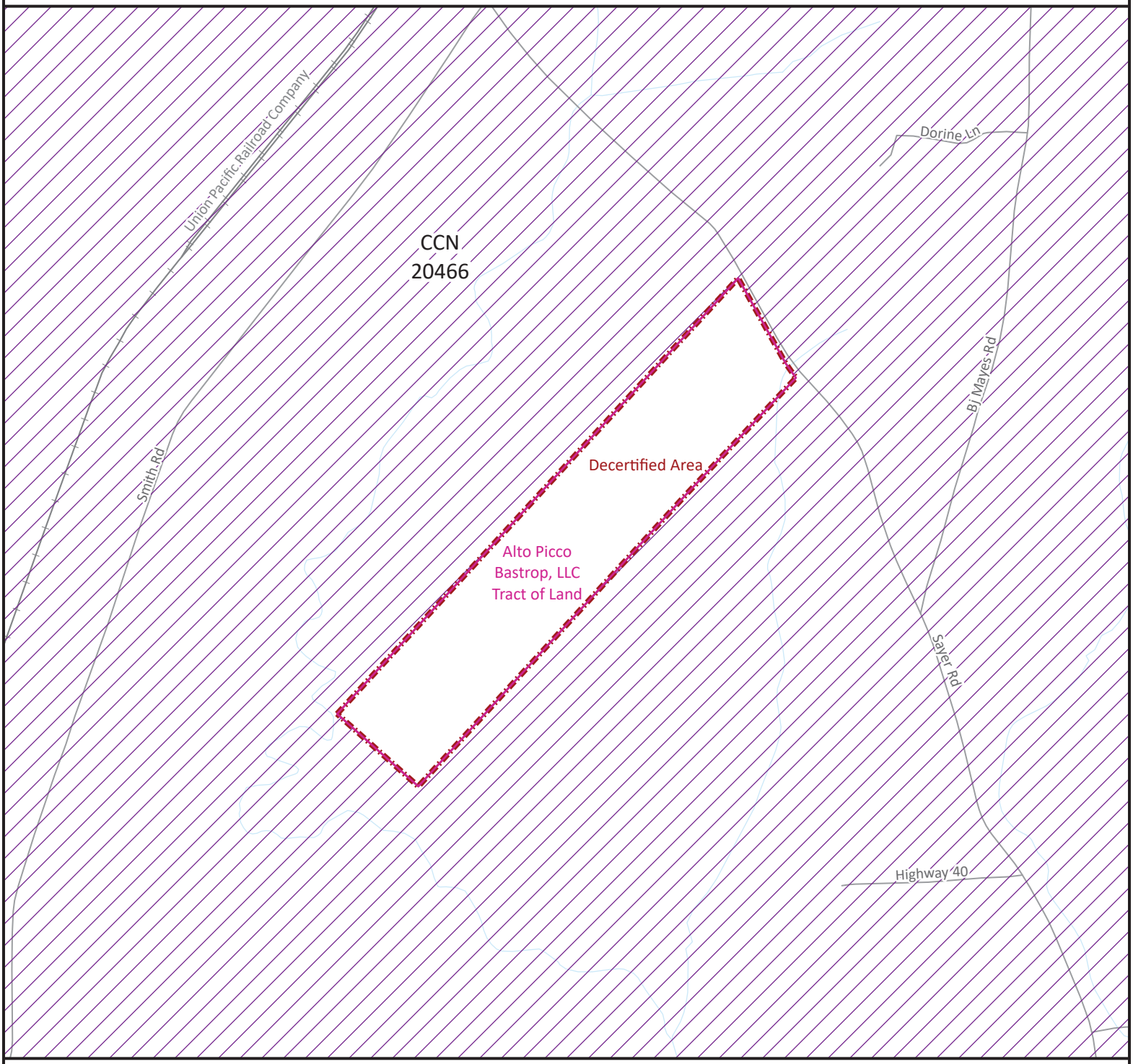
PUCT Docket No. 57854
City of Bastrop
Portion of Sewer CCN No. 20466
Petition by Alto Picco Bastrop, LLC to Amend
City of Bastrop's CCN by Streamlined Expedited Release in Bastrop County



N

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Sewer CCN

20466 - City of Bastrop

Decertified Area

Tract of Land

Mapping Section
Infrastructure Division

Date: May 23, 2025
Project: 57854.aprx

Public Utility Commission

of Texas

By These Presents Be It Known To All That

City of Bastrop

having obtained certification to provide sewer utility service for the convenience and necessity of the public, and it having been determined by this Commission that the public convenience and necessity would in fact be advanced by the provision of such service, City of Bastrop is entitled to this

Certificate of Convenience and Necessity No. 20466

to provide continuous and adequate sewer utility service to that service area or those service areas in Bastrop County as by final Order or Orders duly entered by this Commission, which Order or Orders resulting from Docket No. 57854 are on file at the Commission offices in Austin, Texas; and are matters of official record available for public inspection; and be it known further that these presents do evidence the authority and the duty of the City of Bastrop to provide such utility service in accordance with the laws of this State and Rules of this Commission, subject only to any power and responsibility of this Commission to revoke or amend this Certificate in whole or in part upon a subsequent showing that the public convenience and necessity would be better served thereby.

DOCKET NO. 57964

PETITION OF TRAVIS CLAUDE HOFFMAN, JR., TRUSTEE OF THE HOFFMAN FAMILY BASTROP TRUST, TO AMEND CITY OF BASTROP'S CERTIFICATE OF CONVENIENCE AND NECESSITY IN BASTROP COUNTY BY STREAMLINED EXPEDITED RELEASE	§ § § § § § § § §	**PUBLIC UTILITY COMMISSION** **OF TEXAS**

ORDER NO. 3
GRANTING STREAMLINED EXPEDITED RELEASE

This Order addresses the petition by Travis Claude Hoffman, Jr., Trustee of The Hoffman Family Bastrop Trust for streamlined expedited release of a tract of land from the City of Bastrop's service area under certificate of convenience and necessity (CCN) number 20466 in Bastrop County. For the reasons stated in this Order, the Commission releases the tract of land from Bastrop's certificated service area. In addition, the Commission amends Bastrop's CCN number 20466 to reflect the removal of the tract of land from the service area.

Following entry of this Order, the Commission will determine the amount of compensation, if any, to be awarded to Bastrop, which will be addressed by separate order.

I. Findings of Fact

The Commission makes the following findings of fact.

Petitioner

1. Travis Claude Hoffman, Jr. is the trustee of the Hoffman Family Bastrop Trust.

CCN Holder

2. Bastrop is a municipality in Bastrop County.

3. Bastrop holds CCN number 20466 that obligates it to provide retail sewer service in its certificated service area in Bastrop County.

Petition and Supplemental Materials

4. On April 15, 2025, the petitioner filed a petition for streamlined expedited release of a tract of land from the CCN holder's service area under CCN number 20466.

5. The petition includes an affidavit, dated March 31, 2025, of Mr. Hoffman; three general warranty deeds, all dated March 24, 2025; maps; and digital mapping data.

6. On May 2, 2025, the petitioner supplemented the petition with revised maps.

7. On May 6, 2025, the petitioner supplemented the petition with a revised affidavit, dated May 6, 2025, of Mr. Hoffman.

8. In Order No. 2 filed on May 19, 2025, the administrative law judge (ALJ) found the petition, as supplemented, administratively complete.

Notice

9. On April 15, 2025, the petitioner sent a copy of the petition to the CCN holder by certified mail, return receipt requested.

10. In Order No. 2 filed on May 19, 2025, the ALJ found the notice sufficient.

Response to the Petition

11. On May 19, 2025, the CCN holder filed a response to the petition.

The Tract of Land

12. The petitioner owns a tract of land in Bastrop County that is approximately 131.6 acres, for which it seeks streamlined expedited release.

13. The tract of land is located within the CCN holder's certificated service area under CCN number 20466.

Ownership of the Tract of Land

14. The petitioner acquired the tract of land through the purchases of the following three parcels:

    a. it acquired an approximately 4.5-acre parcel via a general warranty deed dated March 24, 2025;

    b. it acquired an approximately 126.1-acre parcel via a general warranty deed dated March 24, 2025; and

c. it acquired an approximately 1-acre parcel via a general warranty deed lien dated March 24, 2025.

14. The three parcels purchased by the petitioner are contiguous to one another and, collectively, comprise the petitioner's approximately 131.6-acre tract of land.

Qualifying County

15. Bastrop County has a population of more than 52,000 and is adjacent to Travis County.

16. Travis County has a population of at least 1.2 million.

Sewer Service to the Tract of Land

17. The tract of land is not receiving actual sewer service from the CCN holder.

18. There are no meters, sewer lines, or other sewer facilities on the tract of land.

19. There are no billing records or other documents evidencing an existing account with the CCN holder for the provision of sewer service to the tract of land.

20. The CCN holder has not committed or dedicated facilities or lines to the tract of land in furtherance of the CCN holder's obligation under the CCN to provide sewer service to the tract of land.

21. The CCN holder has no facilities or lines that provide sewer service to the tract of land.

22. The CCN holder has not performed acts or supplied something to the tract of land in furtherance of the CCN holder's obligation under the CCN to provide sewer service to the tract of land.

Map and Certificate

23. On June 30, 2025, Commission Staff filed its recommendation on final disposition that included a certificate and a map on which it identified the tract of land in relation to the CCN holder's certificated service area.

II. Conclusions of Law

The Commission makes the following conclusions of law.

1. The Commission has authority over this petition for streamlined expedited release under Texas Water Code (TWC) §§ 13.254 and 13.2541.

2. The petitioner provided notice of the petition in compliance with 16 Texas Administrative Code (TAC) § 24.245(h)(3)(F).

3. No opportunity for a hearing on a petition for streamlined expedited release is provided under TWC §§ 13.254 or 13.2541 and, under 16 TAC § 24.245(h)(6), no hearing will be held on the petitioner's petition.

4. This petition for streamlined expedited release filed under TWC §§ 13.254 and 13.2541 and 16 TAC § 24.245(h) is not a contested case.

5. The petitioner, under TWC §§ 13.254 and 13.2541 and 16 TAC § 24.245(h), is required to submit a verified petition through a notarized affidavit, and the CCN holder may submit a response to the petition that must be verified by a notarized affidavit.

6. Under 16 TAC § 24.245(h)(6), the Commission's decision is based on the information submitted by the landowner, the CCN holder, and Commission Staff.

7. To obtain streamlined expedited release under TWC § 13.2541(b), a landowner must demonstrate that the landowner owns a tract of land that is at least 25 acres, that the tract of land is located in a qualifying county, and that the tract of land for which the petitioner seeks release is not receiving service of the type that the current CCN holder is authorized to provide under the applicable CCN.

8. The time that the petition is filed is the only relevant time period to consider when evaluating whether a tract of land is receiving sewer service under TWC § 13.2541(b). Whether a tract of land might have previously received sewer service is irrelevant.

9. The petitioner is not required to seek the streamlined expedited release of all of its property.

10. The petitioner owns a tract of land that is at least 25 acres for which it seeks streamlined expedited release.

11. Bastrop County is a qualifying county under TWC § 13.2541(b) and 16 TAC § 24.245(h)(2).

12. The tract of land is not receiving sewer service under TWC §§ 13.002(21) and 13.2541(b) and 16 TAC § 24.245(h), as interpreted in *Texas General Land Office v. Crystal Clear Water Supply Corporation*, 449 S.W.3d 130 (Tex. App.—Austin 2014, pet. denied).

13. The petitioner is entitled under TWC § 13.2541(b) to the release of the tract of land from the CCN holder's certificated service area.

14. Under TWC §§ 13.254(h) and 13.2541(a), after the date of this Order the CCN holder has no obligation to provide retail sewer service to the tract of land.

15. The Commission may release only the petitioner's tract of land from CCN number 20466 under TWC § 13.2541(b). The Commission has no authority to decertificate any facilities or equipment owned and operated by the holder of CCN number 20466 to provide retail sewer service through the streamlined-expedited-release process under TWC § 13.2541(b).

16. The Commission processed the petition in accordance with the TWC and Commission rules.

17. Under TWC § 13.257(r) and (s), the CCN holder is required to record certified copies of the approved certificate and map, along with a boundary description of the service area, in the real property records of Bastrop County no later than the 31st day after the date the CCN holder receives this Order.

18. A retail public utility may not, under TWC §§ 13.254(d) and 13.2541(a), provide retail sewer service to the public within the tract of land unless just and adequate compensation under TWC § 13.254(g) has been paid to the holder of CCN number 20466.

III. Ordering Paragraphs

In accordance with these findings of fact and conclusions of law, the Commission issues the following orders.

1. The Commission releases the tract of land identified in the petition from the CCN holder's certificated service area under CCN number 20466.

2. The Commission does not decertificate any of the CCN holder's equipment or facilities that may lay on or under the tract of land.

3. The Commission amends CCN number 20466 in accordance with this Order.

4. The Commission approves the map attached to this Order.

5. The Commission issues the certificate attached to this Order.

6. The CCN holder must file in this docket proof of the recording required in TWC § 13.257(r) and (s) within 45 days of the date of this Order.

7. The proceeding to determine the amount of compensation to be awarded to the CCN holder, if any, commences on the date of this Order in accordance with the schedule adopted in Order No. 2. Any decision on compensation will be made by a separate order.

8. The Commission denies all other motions and any other requests for general or specific relief not expressly granted by this Order.

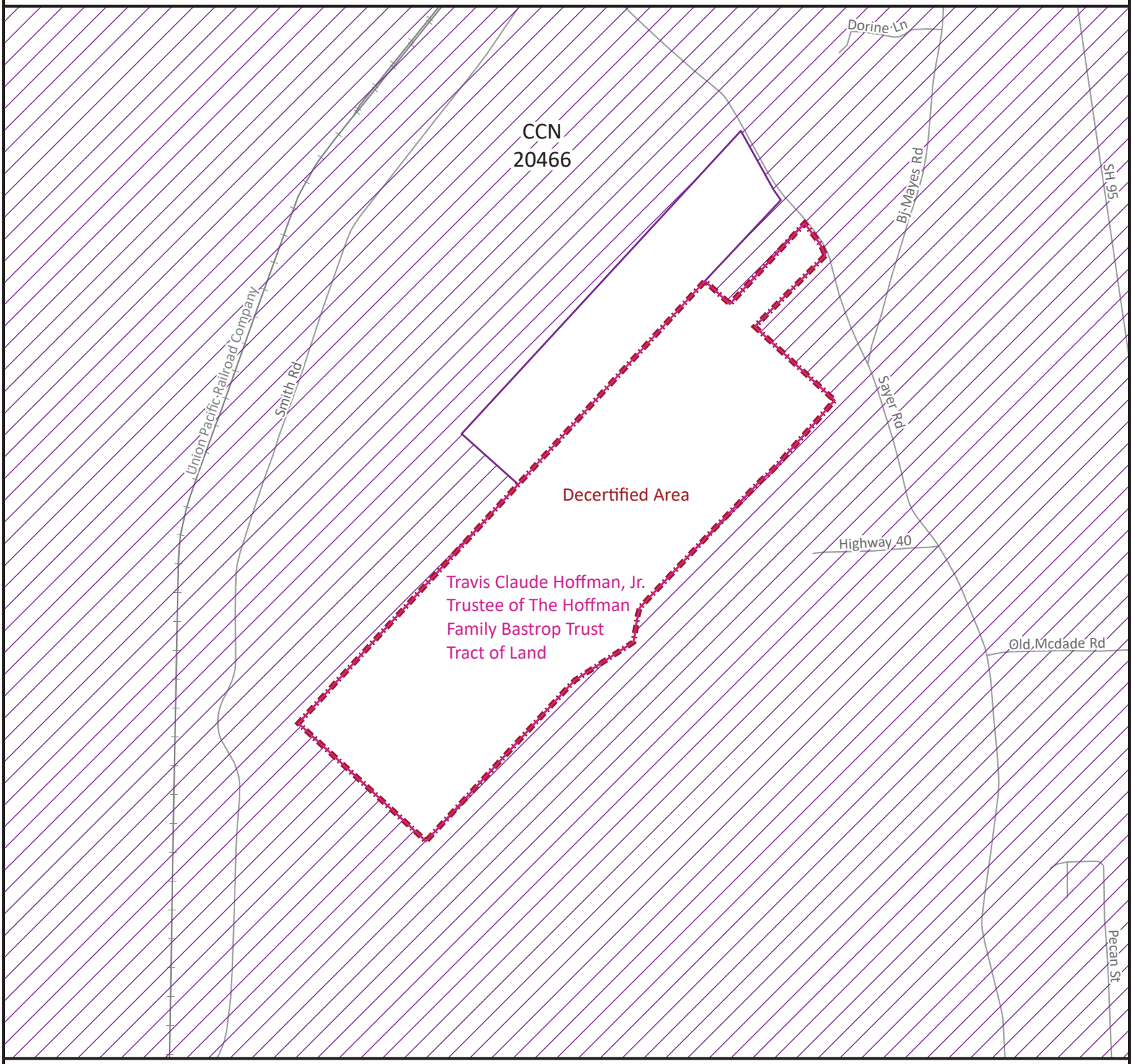
Signed at Austin, Texas on the 8th day of July 2025.

PUBLIC UTILITY COMMISSION OF TEXAS

HUNTER BURKHALTER
CHIEF ADMINISTRATIVE LAW JUDGE

q:\cadm\docket management\water\ccn_expedited\57xxx\57964-3 granting release.docx

PUCT Docket No. 57964
City of Bastrop
Portion of Sewer CCN No. 20466
Petition by Travis Claude Hoffman, Jr. Trustee of The Hoffman Family Bastrop Trust to Amend
City of Bastrop's CCN by 13.2541 Streamlined Expedited Release in Bastrop County



N

ft 0 500 1,000

Sewer CCN

20466 - City of Bastrop

Decertified Area

Tract of Land

Mapping Section
Infrastructure Division

Date: June 19, 2025
Project: 57964.aprx

PUBLIC UTILITY COMMISSION OF TEXAS

Public Utility Commission

of Texas

By These Presents Be It Known To All That

City of Bastrop

having obtained certification to provide sewer utility service for the convenience and necessity of the public, and it having been determined by this Commission that the public convenience and necessity would in fact be advanced by the provision of such service, City of Bastrop is entitled to this

Certificate of Convenience and Necessity No. 20466

to provide continuous and adequate sewer utility service to that service area or those service areas in Bastrop County as by final Order or Orders duly entered by this Commission, which Order or Orders resulting from Docket No. 57964 are on file at the Commission offices in Austin, Texas; and are matters of official record available for public inspection; and be it known further that these presents do evidence the authority and the duty of the City of Bastrop to provide such utility service in accordance with the laws of this State and Rules of this Commission, subject only to any power and responsibility of this Commission to revoke or amend this Certificate in whole or in part upon a subsequent showing that the public convenience and necessity would be better served thereby.

CITY OF BASTROP

Tracking Number:

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Your item was delivered to the front desk, reception area, or mail room at 10:47 am on July 28, 2025 in BASTROP, TX 78602.

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Delivered
Delivered, Front Desk/Reception/Mail Room
BASTROP, TX 78602
July 28, 2025, 10:47 am

Out for Delivery
BASTROP, TX 78602
July 25, 2025, 6:47 am

Arrived at Post Office
BASTROP, TX 78602
July 25, 2025, 6:36 am

Arrived at USPS Facility
BASTROP, TX 78602
July 25, 2025, 6:29 am

Departed USPS Regional Facility
AUSTIN TX DISTRIBUTION CENTER
July 25, 2025, 4:28 am

Departed USPS Regional Facility
AUSTIN TX PACKAGE SORTING CENTER
July 25, 2025, 3:02 am

Arrived at USPS Regional Destination Facility
AUSTIN TX PACKAGE SORTING CENTER
July 24, 2025, 8:07 pm

In Transit to Next Facility
July 24, 2025

Arrived at USPS Regional Origin Facility
CHARLOTTE NC DISTRIBUTION CENTER
July 22, 2025, 12:02 pm

Departed Post Office
MURPHY, NC 28906
July 21, 2025, 3:25 pm

USPS in possession of item
MURPHY, NC 28906
July 21, 2025, 9:23 am

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What Do USPS Tracking Statuses Mean?

HB

Hilary Bond

Reply | Reply all | Forward

To: chancock@cityofbastrop.org

Thu 7/24/2025 11:04 AM

Cc: Lauren Wahl; Rane Wilson; scarrillo@cityofbastrop.org

25.07.18 _ CoB Regionalizatio...
6 MB

Mr. Hancock,

On behalf of Mr. Rob Archer, P.E., Pathway Land Development, and Alto Pico Bastrop LLC, a letter has been submitted to the City of Bastrop Water and Wastewater Department regarding the project noted below. For your convenience, I've attached a copy of the letter.

RE: Application for New TLAP Permit
SAYERS RANCH WWTP
Appx 4,600 ft south of the intersection of Smith Road and Sayers Road in Bastrop, Texas (30.139347, -97.329120)

We would greatly appreciate it if you could review the request and respond with a brief email (or letter) confirming whether the City will let Alto Picco Bastrop LLC submit a TLAP permit application to TCEQ without protesting on the basis of regionalization.

If you have any questions, please feel free to email me or call me at (512) 285-0302. We appreciate your time and consideration and look forward to your response.

Respectfully,
Hilary

Hilary Bond

Director, Permitting & Entitlements

Office 737-275-2271 ***Mobile*** 512-285-0302
Address 4411 South IH-35 Suite 100, Georgetown, TX 78626

X4D: REGIONALIZATION PACKET

CORIX UTILITIES

CONTENTS:

Request for Service + Attachments
Certified Mail Receipt
Additional Communications

4411 S Interstate 35, Ste 100
Georgetown, Texas 78626
www.reuseinn.com

July 8, 2025

Corix Utilities Texas Inc. (CCN No. 21081)
P.O. Box 140164
Austin, Texas 78714

VIA US-Mail

RE: Application for New TLAP Permit
SAYERS RANCH WWTP
Appx 4,600 ft south of the intersection of Smith Road and Sayers Road in Bastrop, Texas (30.139347, -97.329120)

To whom it may concern,

On behalf of **Alto Picco Bastrop, LLC**, reUse Engineering, Inc. is in the process of submitting a request to the Texas Commission on Environmental Quality (TCEQ) for a Texas Land Application Permit (TLAP) for a proposed Wastewater Treatment Plant at the above referenced location. See attached. The client's property is located:

A. Appx 0.66 miles outside of City of Bastrop limits
B. Approx. 0.5 mi southeast of the boundary line of Corix Utilities Texas Inc. CCN No. 21081
C. Approx. 1.98 mi southwest of Corix Utilities Texas Inc. permitted outfall 14427-011 (NPDES No. 0125741)

The facility will serve the Sayer's Ranch residential subdivision consisting of approximately 815 single-family connections. The proposed service area location is provided on the attached map. We are in the process of applying for an authorized flow of 0.2 MGD and plan to begin construction by **April 2026** with wastewater service needing to commence by **April 2027.**

As required, we are contacting all existing TPDES permit holders and CCNs within a three-mile radius of the proposed WWTP site to determine whether you are willing and able to provide wastewater service. Specifically:

- Do you have the capacity and are you willing to provide service for the requested 0.2 MGD?

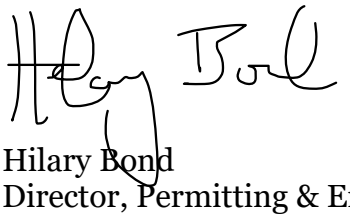
4411 S Interstate 35, Ste 100
Georgetown, Texas 78626
www.reuseinn.com

- If not, would you be willing and able to expand your facilities to accommodate this flow within the required timeframe?
- If service is available, please include the estimated costs and service terms in your written response.

Please provide a response indicating whether or not 0.2 MGD of wastewater treatment capacity in your facility is available and, if so, under what terms. A written reply on a copy of this letter will be adequate. You may email your response to hilary@reUseEng.com or call 512-285-0302.

We appreciate your time and consideration and look forward to your response.

Respectfully,
Hilary Bond



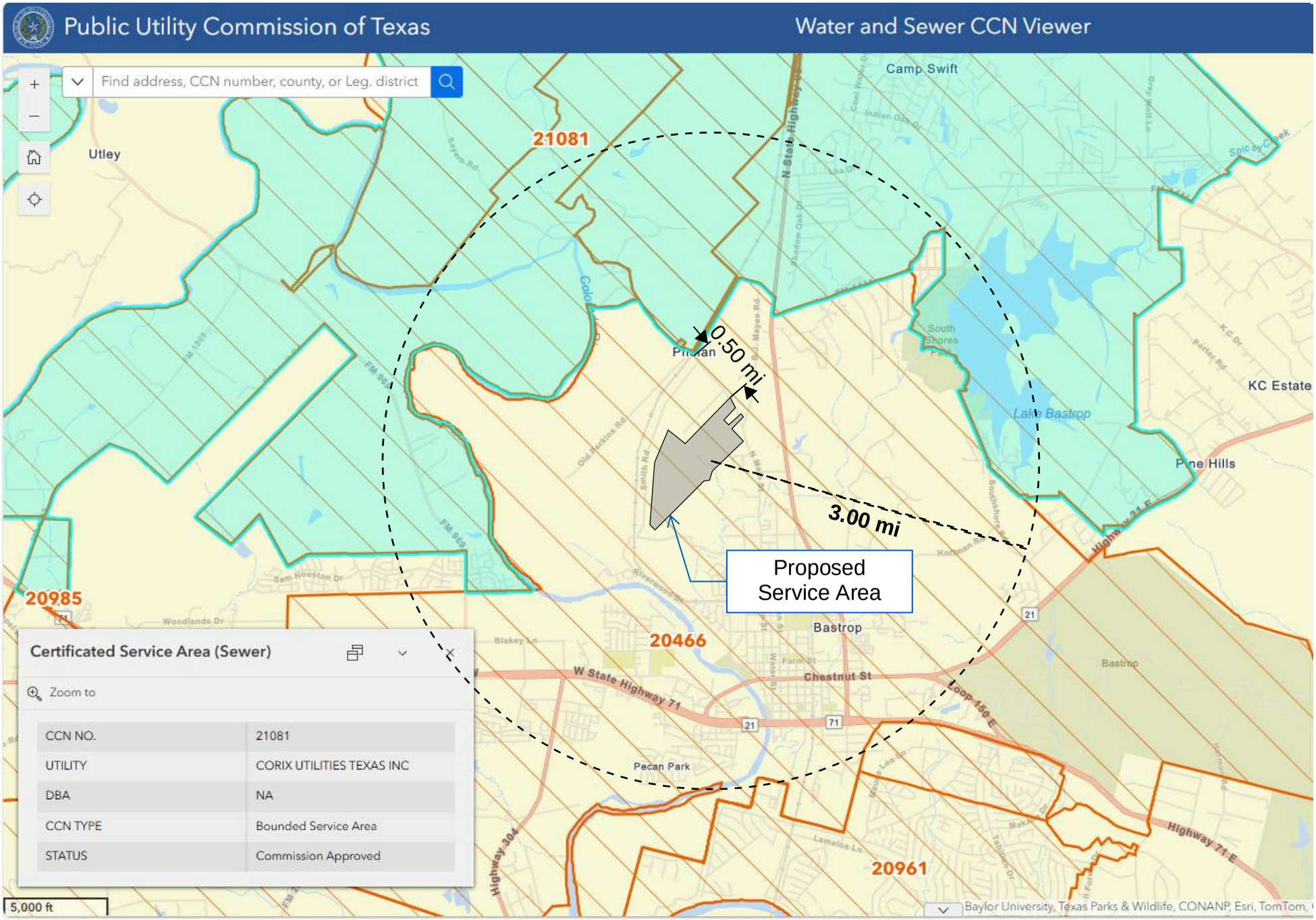
Hilary Bond
Director, Permitting & Entitlements
reUse Engineering, Inc.
4411 S IH-35, Suite 100
Georgetown, Texas 78626

Date of Reply:_____

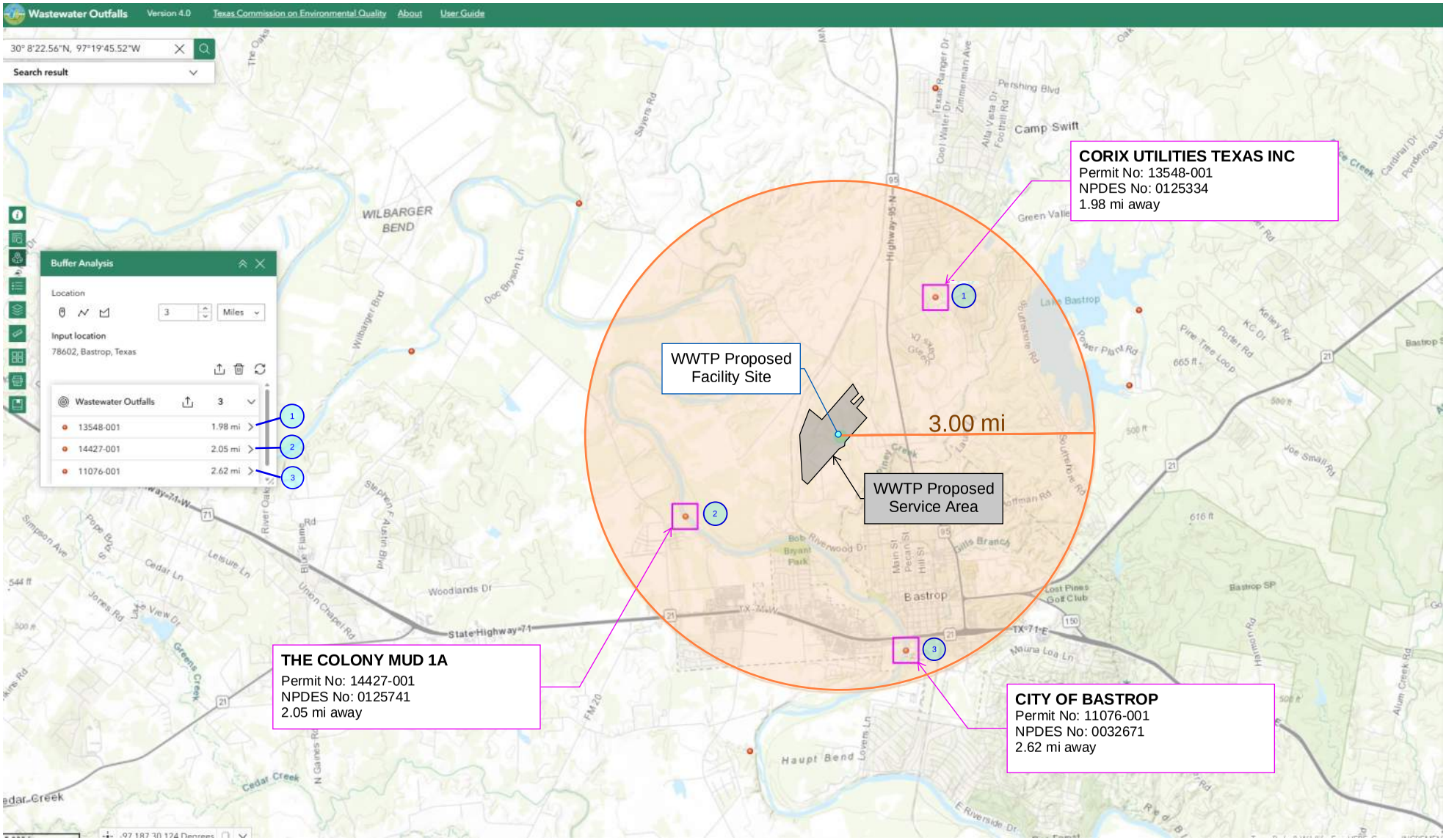
1. Is capacity available to accommodate 0.2 MGD? □ Yes □ No
2. If existing facilities are not adequate, is an expansion feasible? □ Yes □ No
3. If yes to either question, please provide in writing the estimated costs and terms for service.

Name and Title:_____

Signature: _____ Date: _____



reUse ENGINEERING



Data from 2025/06/26

Source: https://experience.arcgis.com/experience/262c0c7bfddf4d6da7f59552f652f197#data_s=id%3AdataSource_2-Wastewater_Outfalls_4053-0%3A13217379

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9589071052703187571094

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  AUSTIN, TX 78710
  July 16, 2025, 8:11 am
- **Arrived at USPS Regional Destination Facility**
  AUSTIN TX PACKAGE SORTING CENTER
  July 15, 2025, 6:37 pm
- **Arrived at USPS Facility**
  AUSTIN, TX 78755
  July 15, 2025, 2:58 pm
- **In Transit to Next Facility**
  July 15, 2025, 12:21 pm
- **Departed USPS Regional Facility**
  DALLAS TX LOGISTICS CENTER
  July 15, 2025, 10:15 am
- **Arrived at USPS Regional Facility**
  DALLAS TX LOGISTICS CENTER
  July 15, 2025, 8:32 am
- **In Transit to Next Facility**
  July 15, 2025, 4:08 am
- **Departed USPS Regional Facility**
  AMARILLO TX DISTRIBUTION CENTER
  July 15, 2025, 12:28 am
- **Arrived at USPS Regional Facility**
  AMARILLO TX DISTRIBUTION CENTER
  July 13, 2025, 9:58 am
- **In Transit to Next Facility**
  July 13, 2025, 6:38 am
- **Departed USPS Regional Facility**
  FORT WORTH TX DISTRIBUTION CENTER
  July 13, 2025, 2:36 am
- **Arrived at USPS Regional Facility**
  FORT WORTH TX DISTRIBUTION CENTER
  July 13, 2025, 2:22 am
- **In Transit to Next Facility**
  July 13, 2025, 2:02 am
- **Departed USPS Regional Facility**
  DALLAS TX LOGISTICS CENTER
  July 13, 2025, 1:41 am
- **Arrived at USPS Regional Facility**
  DALLAS TX LOGISTICS CENTER
  July 12, 2025, 9:16 pm
- **In Transit to Next Facility**
  July 12, 2025, 3:38 pm
- **In Transit to Next Facility**
  July 12, 2025, 8:20 am
- **Departed USPS Facility**
  GASTONIA, NC 28054
  July 12, 2025, 3:52 am
- **Arrived at USPS Regional Origin Facility**
  CHARLOTTE NC DISTRIBUTION CENTER
  July 10, 2025, 5:02 pm
- **In Transit to Next Facility**
  July 9, 2025
- **Departed Post Office**
  MURPHY, NC 28906
  July 8, 2025, 5:19 pm
- **USPS in possession of item**
  MURPHY, NC 28906
  July 8, 2025, 4:51 pm

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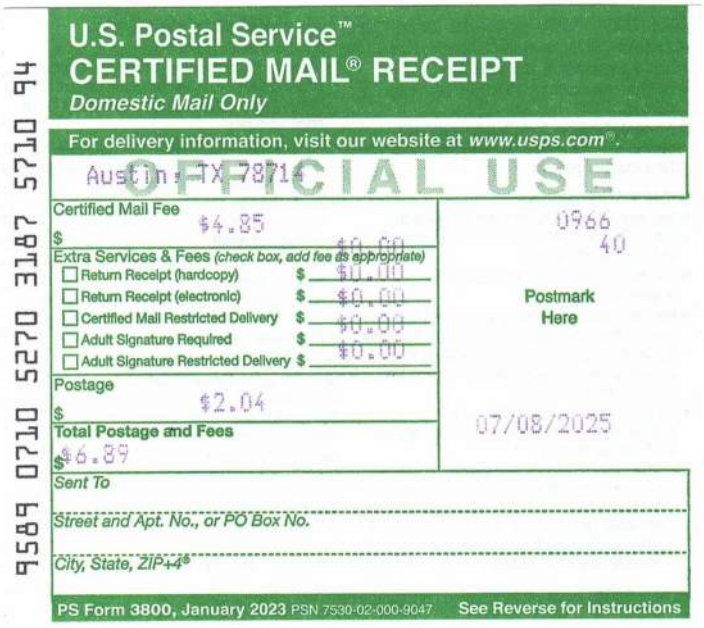

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☐ Return Receipt (electronic)	$0.00
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Total Postage and Fees	$6.89

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HB

Hilary Bond

Reply | Reply all | Forward

To: john.chisholm@nexuswg.com

Tue 7/29/2025 3:28 PM

Corix Utilities Regionalization...
5 MB

Mr. Chisholm,

On behalf of Mr. Rob Archer, P.E., Pathway Land Development, and Alto Pico Bastrop LLC, a letter has been submitted to Corix regarding the project noted below. For your convenience, I've attached a copy of the letter.

RE: Application for New TLAP Permit
SAYERS RANCH WWTP
Appx 4,600 ft south of the intersection of Smith Road and Sayers Road in Bastrop, Texas (30.139347, -97.329120)

It's my understanding that you have already spoken with Randall Nelson (reUse Engineering) and that Corix is not interested/able to provide service to this development at this time. To support compliance with state regionalization requirements, we would greatly appreciate a brief email or letter confirming this so we may include it in our TLAP permit application to TCEQ.

Please don't hesitate to reach out if you have any questions

Respectfully,
Hilary

Hilary Bond

Director, Permitting & Entitlements

Office 737-275-2271 ***Mobile*** 512-285-0302
Address 4411 South IH-35 Suite 100, Georgetown, TX 78626

X4E: REGIONALIZATION PACKET

THE COLONY MUD 1A

CONTENTS:

Request for Service + Attachments
Certified Mail Receipt

4411 S Interstate 35, Ste 100
Georgetown, Texas 78626
www.reuseinn.com

July 8, 2025

The Colony MUD 1A
Crossroads Utility Services
PO Box 8009
Round Rock, TX 78683-8009

VIA US-Mail

RE: Application for New TLAP Permit
SAYERS RANCH WWTP
Appx 4,600 ft south of the intersection of Smith Road and Sayers Road in Bastrop, Texas (30.139347, -97.329120)

To whom it may concern,

On behalf of **Alto Picco Bastrop, LLC**, reUse Engineering, Inc. is in the process of submitting a request to the Texas Commission on Environmental Quality (TCEQ) for a Texas Land Application Permit (TLAP) for a proposed Wastewater Treatment Plant at the above referenced location. See attached. The client's property is located:

A. Appx 0.66 miles outside of City of Bastrop limits
B. Approx. 2.05 mile northeast of The Colony MUD 1A permitted outfall 14427-011 (NPDES No. 0125741)

The facility will serve the Sayer's Ranch residential subdivision consisting of approximately 815 single-family connections. The proposed service area location is provided on the attached map. We are in the process of applying for an authorized flow of 0.2 MGD and plan to begin construction by **April 2026** with wastewater service needing to commence by **April 2027.**

As required, we are contacting all existing TPDES permit holders and CCNs within a three-mile radius of the proposed WWTP site to determine whether you are willing and able to provide wastewater service. Specifically:

- Do you have the capacity and are you willing to provide service for the requested 0.2 MGD?
- If not, would you be willing and able to expand your facilities to accommodate this flow within the required timeframe?
- If service is available, please include the estimated costs and service terms in your written response.

4411 S Interstate 35, Ste 100
Georgetown, Texas 78626
www.reuseinn.com

Please provide a response indicating whether or not 0.2 MGD of wastewater treatment capacity in your facility is available and, if so, under what terms. A written reply on a copy of this letter will be adequate. You may email your response to hilary@reUseEng.com or call 512-285-0302.

We appreciate your time and consideration and look forward to your response.

Respectfully,
Hilary Bond

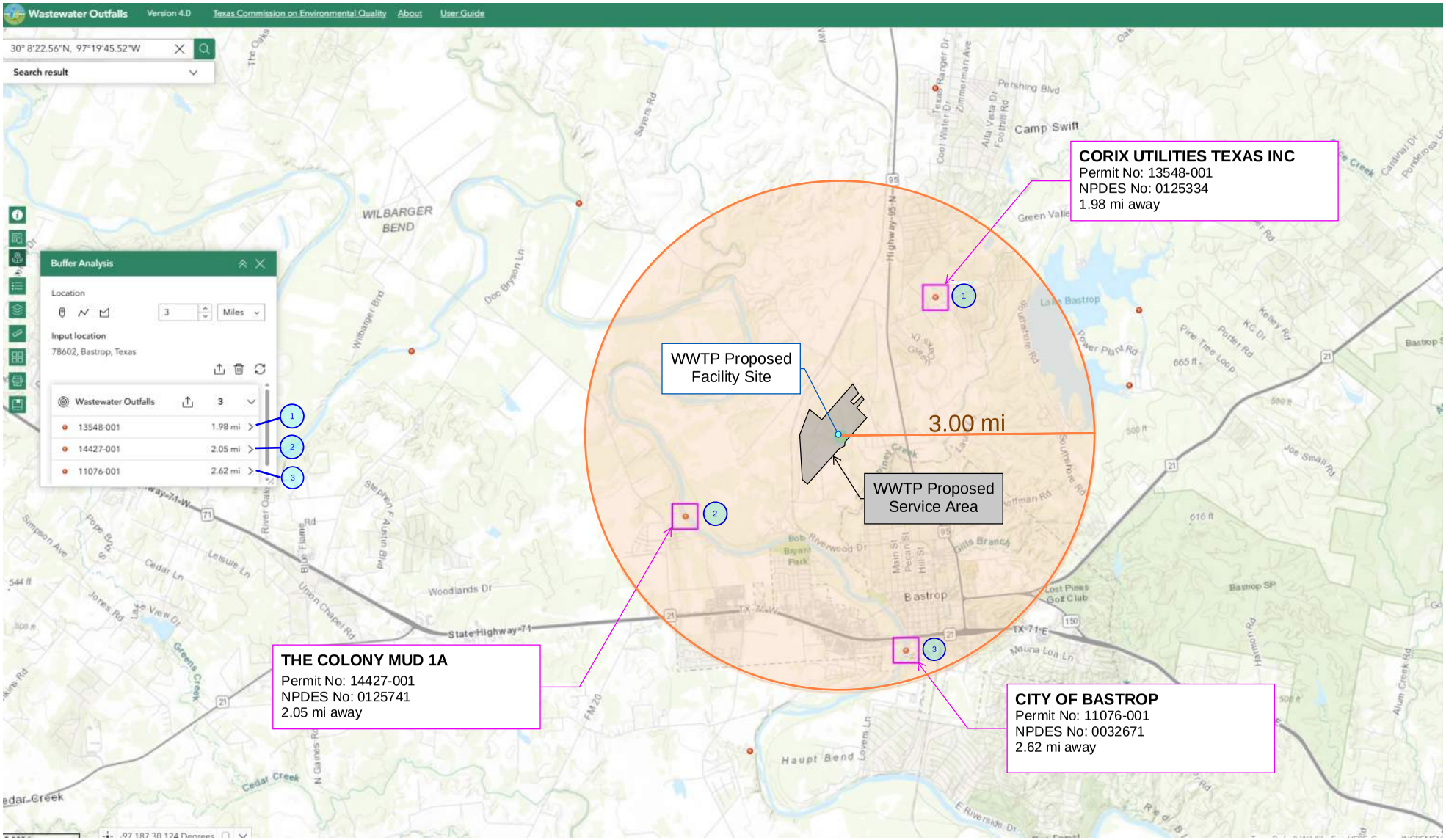
Hilary Bond
Director, Permitting & Entitlements
reUse Engineering, Inc.
4411 S IH-35, Suite 100
Georgetown, Texas 78626

Date of Reply:_____

1. Is capacity available to accommodate 0.2 MGD? □ Yes □ No
2. If existing facilities are not adequate, is an expansion feasible? □ Yes □ No
3. If yes to either question, please provide in writing the estimated costs and terms for service.

Name and Title:_____

Signature: _____ Date: _____



Data from 2025/06/26

Source: https://experience.arcgis.com/experience/262c0c7bfddf4d6da7f59552f652f197#data_s=id%3AdataSource_2-Wastewater_Outfalls_4053-0%3A13217379

reUse ENGINEERING

HB

Hilary Bond

Reply | Reply all | Forward

To: customerservice@crossroadsus.com

Sat 7/26/2025 12:22 PM

The Colony MUD 1A Regiona...
3 MB

Good afternoon,

Could you please forward the message below to the Board President or another appropriate representative of The Colony MUD 1A? I was unable to locate direct emails for the board and would greatly appreciate your help. Thank you!

On behalf of Mr. Rob Archer, P.E., Pathway Land Development, and Alto Pico Bastrop LLC, a letter has been submitted to The Colony MUD 1A regarding the project noted below. For your convenience, I've attached a copy of the letter.

RE: Application for New TLAP Permit
SAYERS RANCH WWTP
Appx 4,600 ft south of the intersection of Smith Road and Sayers Road in Bastrop, Texas (30.139347, -97.329120)

We would greatly appreciate it if you could review the request and respond with a brief email confirming whether The Colony MUD 1A will let Alto Picco Bastrop LLC submit a TLAP permit application to TCEQ without protesting on the basis of regionalization. If a response has already been sent, we are very appreciative.

If you have any questions, please feel free to reach out by email or phone at (512) 285-0302. We sincerely appreciate your time and consideration and look forward to your response.

Respectfully,
Hilary

Hilary Bond

Director, Permitting & Entitlements

Office 737-275-2271 ***Mobile*** 512-285-0302
Address 4411 South IH-35 Suite 100, Georgetown, TX 78626

HB

Hilary Bond

To: customerservice@crossroadsus.com

Reply | Reply all | Forward | ···

Thu 7/31/2025 10:19 AM

High importance

10054 X4E The Colony MUD ...
3 MB

Good morning!

I'm following up to see who the best point of contact would be regarding the letter attached and referenced below. We're aiming to submit the application tomorrow, but noticed that the letter was not picked up until Monday, July 28th. If possible, a phone number for follow-up would be incredibly helpful.

Thank you for your help!

Best,
Hilary

Hilary Bond

Director, Permitting & Entitlements

Office 737-275-2271 ***Mobile*** 512-285-0302
Address 4411 South IH-35 Suite 100, Georgetown, TX 78626

THE COLONY MUD 1A

Remove ›

Tracking Number:

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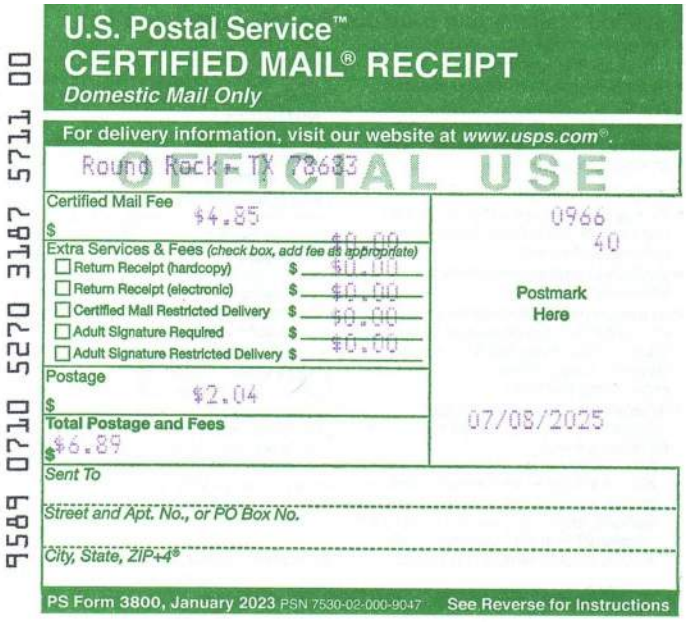

Delivered

Delivered, Individual Picked Up at Postal Facility
ROUND ROCK, TX 78664
July 28, 2025, 2:15 pm

Reminder to pick up your item
ROUND ROCK, TX 78683
July 20, 2025

Available for Pickup
ROUND ROCK
2250 DOUBLE CREEK DR
ROUND ROCK TX 78664-9998
M-F 0800-1700; SAT 0830-1300
July 15, 2025, 9:47 am

Arrived at Post Office
ROUND ROCK, TX 78664
July 15, 2025, 3:43 am

Arrived at USPS Facility
ROUND ROCK, TX 78664
July 15, 2025, 3:14 am

In Transit to Next Facility
July 15, 2025, 2:35 am

Departed USPS Regional Facility
AUSTIN TX DISTRIBUTION CENTER
July 15, 2025, 2:25 am

Arrived at USPS Regional Facility
AUSTIN TX DISTRIBUTION CENTER
July 15, 2025, 2:08 am

Departed USPS Regional Facility
AUSTIN TX PACKAGE SORTING CENTER
July 15, 2025, 12:24 am

Arrived at USPS Regional Destination Facility
AUSTIN TX PACKAGE SORTING CENTER
July 14, 2025, 7:29 pm

In Transit to Next Facility
July 14, 2025

Arrived at USPS Regional Origin Facility
CHARLOTTE NC DISTRIBUTION CENTER
July 10, 2025, 5:02 pm

Departed Post Office
MURPHY, NC 28906
July 8, 2025, 5:19 pm

USPS in possession of item
MURPHY, NC 28906
July 8, 2025, 4:52 pm

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X4F: REGIONALIZATION PACKET

BASTROP COUNTY WCID #2

CONTENTS:

Request for Service + Attachments
Certified Mail Receipt
Response Letter

4411 S Interstate 35, Ste 100
Georgetown, Texas 78626
www.reuseinn.com

July 8, 2025

Ms. Mary Beth O'Hanlon, President of the Board
Bastrop County WCID #2 (CCN No. 20961)
BCWCID #2 Office, 112 Corporate Drive
Bastrop, Texas 78602

VIA US-Mail

RE: Application for New TLAP Permit
SAYERS RANCH WWTP
Appx 4,600 ft south of the intersection of Smith Road and Sayers Road in Bastrop, Texas (30.139347, -97.329120)

Ms. O'Hanlon,

On behalf of **Alto Picco Bastrop, LLC**, reUse Engineering, Inc. is in the process of submitting a request to the Texas Commission on Environmental Quality (TCEQ) for a Texas Land Application Permit (TLAP) for a proposed Wastewater Treatment Plant at the above referenced location. See attached. The client's property is located:

A. Appx 0.66 miles outside of City of Bastrop limits
B. Approx. 2.71 mile northwest of Bastrop County WCID #2 (CCN No. 20961)

The facility will serve the Sayer's Ranch residential subdivision consisting of approximately 815 single-family connections. The proposed service area location is provided on the attached map. We are in the process of applying for an authorized flow of 0.2 MGD and plan to begin construction by **April 2026** with wastewater service needing to commence by **April 2027.**

As required, we are contacting all existing TPDES permit holders and CCNs within a three-mile radius of the proposed WWTP site to determine whether you are willing and able to provide wastewater service. Specifically:

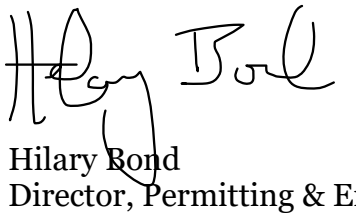
- Do you have the capacity and are you willing to provide service for the requested 0.2 MGD?
- If not, would you be willing and able to expand your facilities to accommodate this flow within the required timeframe?
- If service is available, please include the estimated costs and service terms in your written response.

4411 S Interstate 35, Ste 100
Georgetown, Texas 78626
www.reuseinn.com

Please provide a response indicating whether or not 0.2 MGD of wastewater treatment capacity in your facility is available and, if so, under what terms. A written reply on a copy of this letter will be adequate. You may email your response to hilary@reUseEng.com or call 512-285-0302.

We appreciate your time and consideration and look forward to your response.

Respectfully,
Hilary Bond



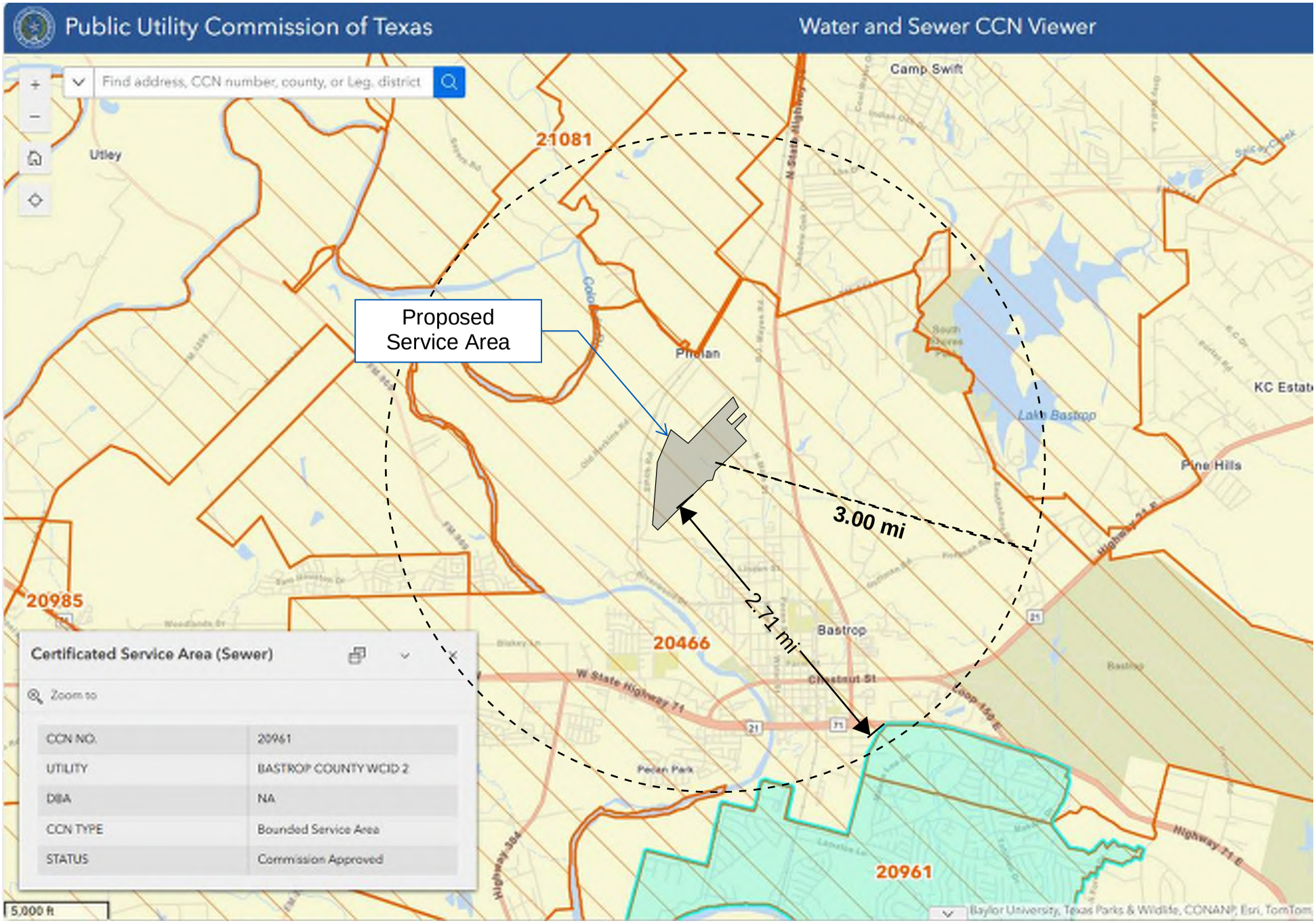
Hilary Bond
Director, Permitting & Entitlements
reUse Engineering, Inc.
4411 S IH-35, Suite 100
Georgetown, Texas 78626

Date of Reply:_____

1. Is capacity available to accommodate 0.2 MGD? □ Yes □ No
2. If existing facilities are not adequate, is an expansion feasible? □ Yes □ No
3. If yes to either question, please provide in writing the estimated costs and terms for service.

Name and Title:_____

Signature: _____ Date: _____



reUse ENGINEERING

BASTROP COUNTY WCID #2

Tracking Number:
9589071052703187571117

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Remove

Latest Update

Your item was delivered to an individual at the address at 12:08 pm on July 16, 2025 in BASTROP, TX 78602.

Get More Out of USPS Tracking:
USPS Tracking Plus®

Delivered
Delivered, Left with Individual
BASTROP, TX 78602
July 16, 2025, 12:08 pm

Out for Delivery
BASTROP, TX 78602
July 16, 2025, 6:10 am

Arrived at Post Office
BASTROP, TX 78602
July 16, 2025, 4:20 am

In Transit to Next Facility
July 16, 2025, 2:36 am

Departed USPS Regional Facility
AUSTIN TX DISTRIBUTION CENTER
July 16, 2025, 2:10 am

Departed USPS Regional Facility
AUSTIN TX PACKAGE SORTING CENTER
July 15, 2025, 8:48 pm

Arrived at USPS Regional Destination Facility
AUSTIN TX PACKAGE SORTING CENTER
July 15, 2025, 6:12 pm

Arrived at USPS Facility
AUSTIN, TX 78755
July 15, 2025, 2:56 pm

In Transit to Next Facility
July 15, 2025, 12:21 pm

Departed USPS Regional Facility
DALLAS TX LOGISTICS CENTER
July 15, 2025, 10:15 am

Arrived at USPS Regional Facility
DALLAS TX LOGISTICS CENTER
July 15, 2025, 8:32 am

In Transit to Next Facility
July 15, 2025, 4:08 am

Departed USPS Regional Facility
AMARILLO TX DISTRIBUTION CENTER
July 15, 2025, 12:29 am

Arrived at USPS Regional Facility
AMARILLO TX DISTRIBUTION CENTER
July 13, 2025, 9:58 am

In Transit to Next Facility
July 13, 2025, 6:36 am

Departed USPS Regional Facility
FORT WORTH TX DISTRIBUTION CENTER
July 13, 2025, 2:36 am

Arrived at USPS Regional Facility
FORT WORTH TX DISTRIBUTION CENTER
July 13, 2025, 2:22 am

In Transit to Next Facility
July 13, 2025, 2:02 am

Departed USPS Regional Facility
DALLAS TX LOGISTICS CENTER
July 13, 2025, 1:41 am

Arrived at USPS Regional Facility
DALLAS TX LOGISTICS CENTER
July 12, 2025, 9:16 pm

In Transit to Next Facility
July 12, 2025, 3:36 pm

In Transit to Next Facility
July 12, 2025, 8:20 am

Departed USPS Facility
GASTONIA, NC 28054
July 12, 2025, 3:52 am

Arrived at USPS Regional Origin Facility
CHARLOTTE NC DISTRIBUTION CENTER
July 10, 2025, 5:01 pm

In Transit to Next Facility
July 9, 2025

Departed Post Office
MURPHY, NC 28906
July 8, 2025, 5:19 pm

USPS in possession of item
MURPHY, NC 28906
July 8, 2025, 4:53 pm

Hide Tracking History

What Do USPS Tracking Statuses Mean?

9589 0710 5270 3187 5711 17

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

Bastrop TX 78602

OFFICIAL USE

Certified Mail Fee
$ $4.85

Extra Services & Fees (check box, add fee as appropriate)
- ☐ Return Receipt (hardcopy) $ $0.00
- ☐ Return Receipt (electronic) $ $0.00
- ☐ Certified Mail Restricted Delivery $ $0.00
- ☐ Adult Signature Required $ $0.00
- ☐ Adult Signature Restricted Delivery $ $0.00

Postage
$ $2.04

Total Postage and Fees
$ $6.89

0966
40

Postmark Here

07/08/2025

Sent To

Street and Apt. No., or PO Box No.

City, State, ZIP+4®

PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions

4411 S Interstate 35, Ste 100
Georgetown, Texas 78626
www.reuseinn.com

July 8, 2025

Ms. Mary Beth O'Hanlon, President of the Board
Bastrop County WCID #2 (CCN No. 20961)
BCWCID #2 Office, 112 Corporate Drive
Bastrop, Texas 78602

VIA US-Mail

RE: Application for New TLAP Permit
SAYERS RANCH WWTP
Appx 4,600 ft south of the intersection of Smith Road and Sayers Road in Bastrop, Texas (30.139347, -97.329120)

Ms. O'Hanlon,

On behalf of **Alto Picco Bastrop, LLC**, reUse Engineering, Inc. is in the process of submitting a request to the Texas Commission on Environmental Quality (TCEQ) for a Texas Land Application Permit (TLAP) for a proposed Wastewater Treatment Plant at the above referenced location. See attached. The client's property is located:

A. Appx 0.66 miles outside of City of Bastrop limits
B. Approx. 2.71 mile northwest of Bastrop County WCID #2 (CCN No. 20961)

The facility will serve the Sayer's Ranch residential subdivision consisting of approximately 815 single-family connections. The proposed service area location is provided on the attached map. We are in the process of applying for an authorized flow of 0.2 MGD and plan to begin construction by **April 2026** with wastewater service needing to commence by **April 2027.**

As required, we are contacting all existing TPDES permit holders and CCNs within a three-mile radius of the proposed WWTP site to determine whether you are willing and able to provide wastewater service. Specifically:

- Do you have the capacity and are you willing to provide service for the requested 0.2 MGD?
- If not, would you be willing and able to expand your facilities to accommodate this flow within the required timeframe?
- If service is available, please include the estimated costs and service terms in your written response.

4411 S Interstate 35, Ste 100
Georgetown, Texas 78626
www.reuseinn.com

Please provide a response indicating whether or not 0.2 MGD of wastewater treatment capacity in your facility is available and, if so, under what terms. A written reply on a copy of this letter will be adequate. You may email your response to hilary@reUseEng.com or call 512-285-0302.

We appreciate your time and consideration and look forward to your response.

Respectfully,
Hilary Bond

Hilary Bond
Director, Permitting & Entitlements
reUse Engineering, Inc.
4411 S IH-35, Suite 100
Georgetown, Texas 78626

Date of Reply: July 28, 2025

1. Is capacity available to accommodate 0.2 MGD? □ Yes X No
2. If existing facilities are not adequate, is an expansion feasible? □ Yes X No
3. If yes to either question, please provide in writing the estimated costs and terms for service. NOTE: Outside of our CCN service area.

Name and Title: Paul Hightower, General Manager

Signature: Paul Hightower Date: Digitally Signed & Certified July 28, 2025 @ 1010 hours Kofax Power PDF Solutions

X4G: REGIONALIZATION PACKET

XS RANCH MUD

CONTENTS:

Request for Service + Attachments
Certified Mail Receipt
Additional Communication Attempts

4411 S Interstate 35, Ste 100
Georgetown, Texas 78626
www.reuseinn.com

July 8, 2025

XS Ranch MUD, CCN No. 21087
8500 Bluffstone Cv
Ste B104
Austin, Texas 78759 - 7811

VIA US-Mail

RE: Application for New TLAP Permit
SAYERS RANCH WWTP
Appx 4,600 ft south of the intersection of Smith Road and Sayers Road in Bastrop, Texas (30.139347, -97.329120)

To whom it may concern,

On behalf of Alto Picco Bastrop, LLC, reUse Engineering, Inc. is in the process of submitting a request to the Texas Commission on Environmental Quality (TCEQ) for a Texas Land Application Permit (TLAP) for a proposed Wastewater Treatment Plant at the above referenced location. See attached. The client's property is located:

A. Appx 0.66 miles outside of City of Bastrop limits
B. Approx. 0.52 miles southeast of XS Ranch MUD CCN No. 21807

The facility will serve the Sayer's Ranch residential subdivision consisting of approximately 815 single-family connections. The proposed service area location is provided on the attached map. We are in the process of applying for an authorized flow of 0.2 MGD and plan to begin construction by **April 2026** with wastewater service needing to commence by **April 2027.**

As required, we are contacting all existing TPDES permit holders and CCNs within a three-mile radius of the proposed WWTP site to determine whether you are willing and able to provide wastewater service. Specifically:

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4411 S Interstate 35, Ste 100
Georgetown, Texas 78626
www.reuseinn.com

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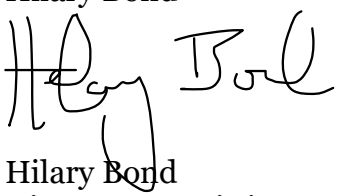
We appreciate your time and consideration and look forward to your response.

Respectfully,
Hilary Bond



Hilary Bond
Director, Permitting & Entitlements
reUse Engineering, Inc.
4411 S IH-35, Suite 100
Georgetown, Texas 78626

Date of Reply:_____

1. Is capacity available to accommodate 0.2 MGD? □ Yes □ No
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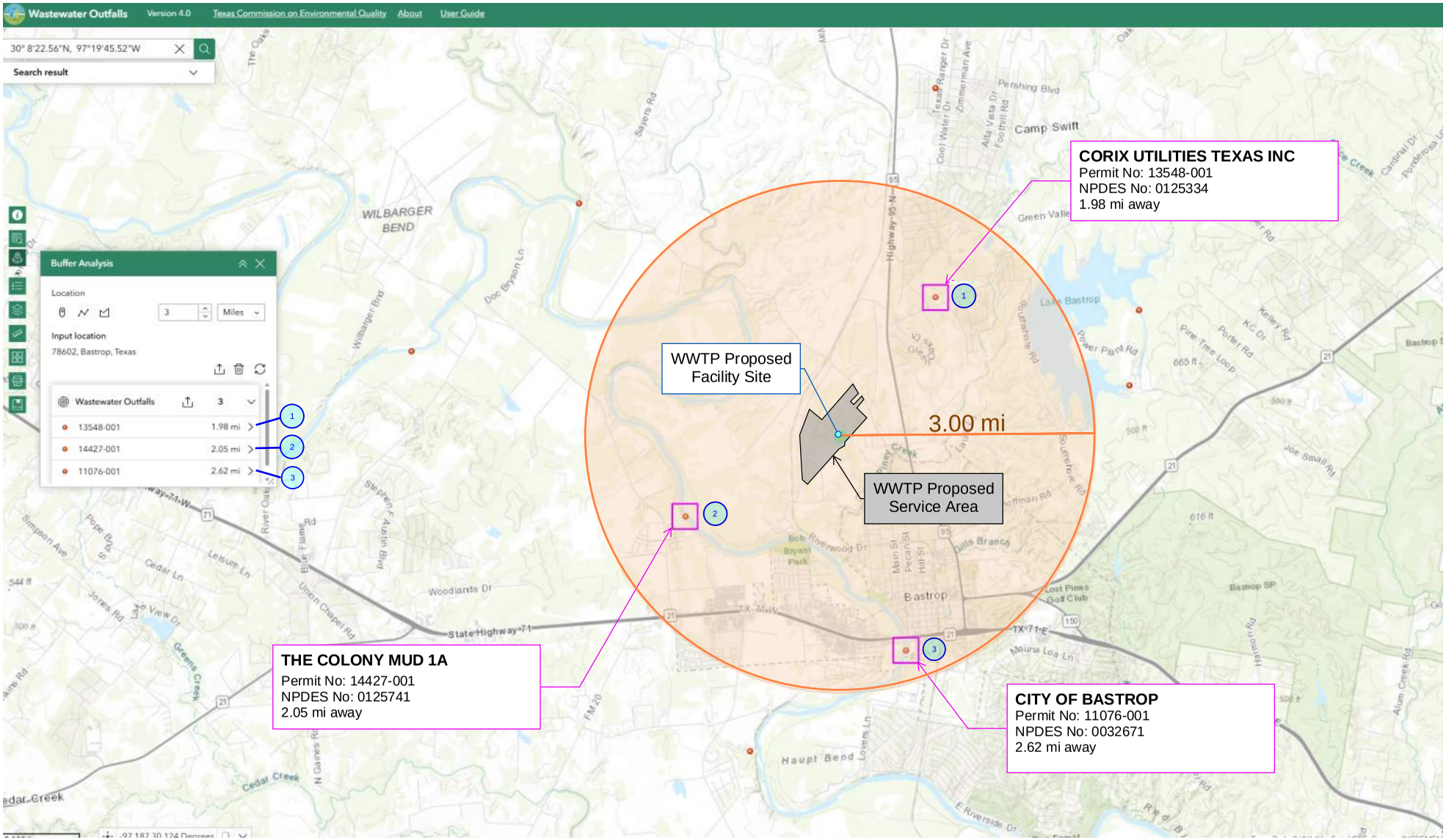
3. If yes to either question, please provide in writing the estimated costs and terms for service.

Name and Title:_____

Signature: _____ Date: _____



Data from 2025/06/26

Source: https://experience.arcgis.com/experience/262c0c7bfddf4d6da7f59552f652f197#data_s=id%3AdataSource_2-Wastewater_Outfalls_4053-0%3A13217379

reUse ENGINEERING

Remove ✕

Tracking Number:
9589071052703187571087

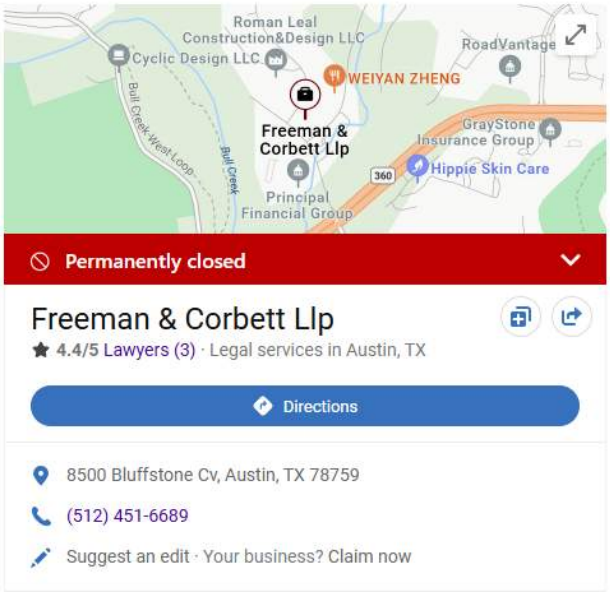
Copy Add to Informed Delivery

Latest Update

We were unable to deliver your package at 7:22 pm on July 26, 2025 in AUSTIN, TX 78759 because the business was closed. We will redeliver on the next business day. No action needed.

Get More Out of USPS Tracking:
USPS Tracking Plus®

Freeman & Corbett LLP is closed. No other publicly available contact information for this MUD.





Delivery Attempt
Redelivery Scheduled for Next Business Day
AUSTIN, TX 78759
July 26, 2025, 7:22 pm

Out for Delivery
AUSTIN, TX 78759
July 26, 2025, 6:10 am

Arrived at Post Office
AUSTIN, TX 78759
July 26, 2025, 4:55 am

Arrived at USPS Facility
AUSTIN, TX 78759
July 26, 2025, 12:58 am

In Transit to Next Facility
July 26, 2025, 12:08 am

Departed USPS Regional Facility
AUSTIN TX DISTRIBUTION CENTER
July 26, 2025, 12:00 am

Arrived at USPS Regional Facility
AUSTIN TX DISTRIBUTION CENTER
July 25, 2025, 4:14 pm

Departed USPS Regional Facility
AUSTIN TX PACKAGE SORTING CENTER
July 25, 2025, 1:01 pm

Arrived at USPS Regional Facility
AUSTIN TX PACKAGE SORTING CENTER
July 25, 2025, 11:41 am

Arrived at USPS Regional Facility
AUSTIN TX DISTRIBUTION CENTER
July 25, 2025, 8:53 am

Arrived at USPS Regional Facility
COPPELL TX DISTRIBUTION CENTER
July 24, 2025, 6:42 am

Addressee Unknown
AUSTIN, TX 78759
July 15, 2025, 2:35 pm

Out for Delivery
AUSTIN, TX 78759
July 15, 2025, 6:10 am

Arrived at Post Office
AUSTIN, TX 78759
July 15, 2025, 5:53 am

Departed USPS Regional Facility
AUSTIN TX DISTRIBUTION CENTER
July 15, 2025, 3:26 am

Departed USPS Regional Facility
AUSTIN TX PACKAGE SORTING CENTER
July 14, 2025, 10:59 pm

Arrived at USPS Regional Destination Facility
AUSTIN TX PACKAGE SORTING CENTER
July 14, 2025, 7:27 pm

In Transit to Next Facility
July 14, 2025

Arrived at USPS Regional Origin Facility
CHARLOTTE NC DISTRIBUTION CENTER
July 10, 2025, 5:02 pm

Departed Post Office
MURPHY, NC 28906
July 8, 2025, 5:19 pm

USPS in possession of item
MURPHY, NC 28906
July 8, 2025, 4:50 pm

Hide Tracking History

HB

Hilary Bond

Reply | Reply all | Forward

To: JOE@LONGAROCLARKE.COM

Sat 7/26/2025 12:35 PM

Bcc: sayers_ranch@reuse-innovations-company.us.monday.com

XS Ranch MUD Regionalizati...
3 MB

Good afternoon Mr. Longaro,

Below is an email for XS Ranch MUD. The PUCT website listed you as the primary contact for the Water CCN; however, if there is a different contact for the Sewer CCN, could you please forward this email to the appropriate representative of XS Ranch MUD? I would greatly appreciate your help. Thank you!

On behalf of Mr. Rob Archer, P.E., Pathway Land Development, and Alto Pico Bastrop LLC, a letter has been submitted to XS Ranch MUD regarding the project noted below. For your convenience, I've attached a copy of the letter.

RE: Application for New TLAP Permit
SAYERS RANCH WWTP
Appx 4,600 ft south of the intersection of Smith Road and Sayers Road in Bastrop, Texas (30.139347, -97.329120)

We would greatly appreciate it if you could review the request and respond with a brief email confirming whether XS Ranch MUD will let Alto Picco Bastrop LLC submit a TLAP permit application to TCEQ without protesting on the basis of regionalization. If a response has already been sent, we are very appreciative.

If you have any questions, please feel free to reach out by email or phone at (512) 285-0302. We sincerely appreciate your time and consideration and look forward to your response.

Respectfully,
Hilary

Hilary Bond

Director, Permitting & Entitlements

Office 737-275-2271 ***Mobile*** 512-285-0302
Address 4411 South IH-35 Suite 100, Georgetown, TX 78626

COMMUNICATION EFFORTS:

1. 7/8/2025: We sent a letter to the Responsible Party (as listed on puc.texas.gov), which was unable to be delivered due to the business being closed.

2. We called the phone number listed for both the Sewer Utility and Water Utility, which has been disconnected.

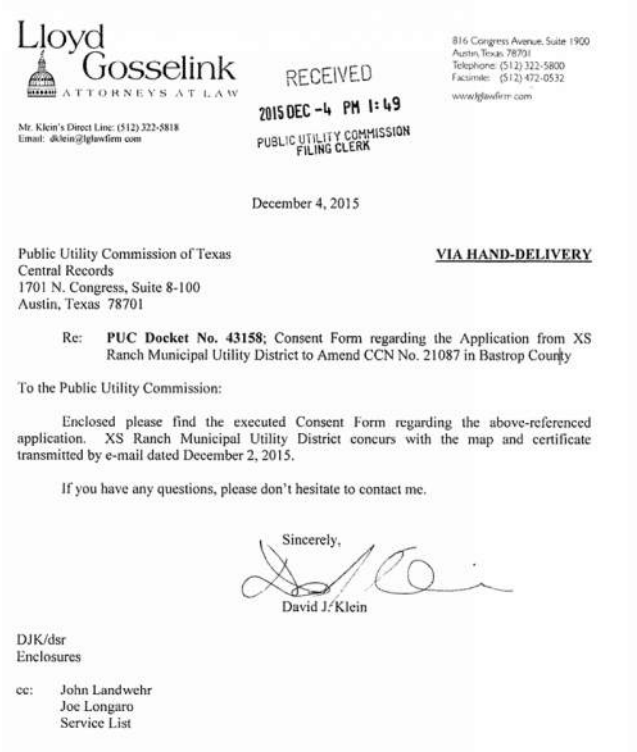
3. 7/26/2025: We sent an email to Mr. Joe Longaro, who is listed as the Responsible Party for the Water Utility and is CC'd on documents under the Sewer Utility.

4. 7/31/2025: We contacted Llyod Gosselink Attorneys at Law, who did some filing for XS Ranch MUD (see below). They did not have any updated information about the MUD or who to contact since this 2016 filing.

No additional information could be provided by PUCT Central Records or TCEQ Central Registry.

Sources used:
https://www.puc.texas.gov/WaterSearch/Utility?siteId=99099

https://www15.tceq.texas.gov/crpub/index.cfm?fuseaction=cust.showSingleCust&princ_id=816479012014036



Lloyd Gosselink
ATTORNEYS AT LAW

816 Congress Avenue, Suite 1900
Austin, Texas 78701
Telephone: (512) 322-5800
Facsimile: (512) 472-0532
www.lglawfirm.com

Mr. Klein's Direct Line: (512) 322-5818
Email: dklein@lglawfirm.com

RECEIVED
2015 DEC -4 PM 1:49
PUBLIC UTILITY COMMISSION
FILING CLERK

December 4, 2015

Public Utility Commission of Texas
Central Records
1701 N. Congress, Suite 8-100
Austin, Texas 78701

VIA HAND-DELIVERY

Re: **PUC Docket No. 43158**; Consent Form regarding the Application from XS Ranch Municipal Utility District to Amend CCN No. 21087 in Bastrop County

To the Public Utility Commission:

Enclosed please find the executed Consent Form regarding the above-referenced application. XS Ranch Municipal Utility District concurs with the map and certificate transmitted by e-mail dated December 2, 2015.

If you have any questions, please don't hesitate to contact me.

Sincerely,

David J. Klein

DJK/dsr
Enclosures

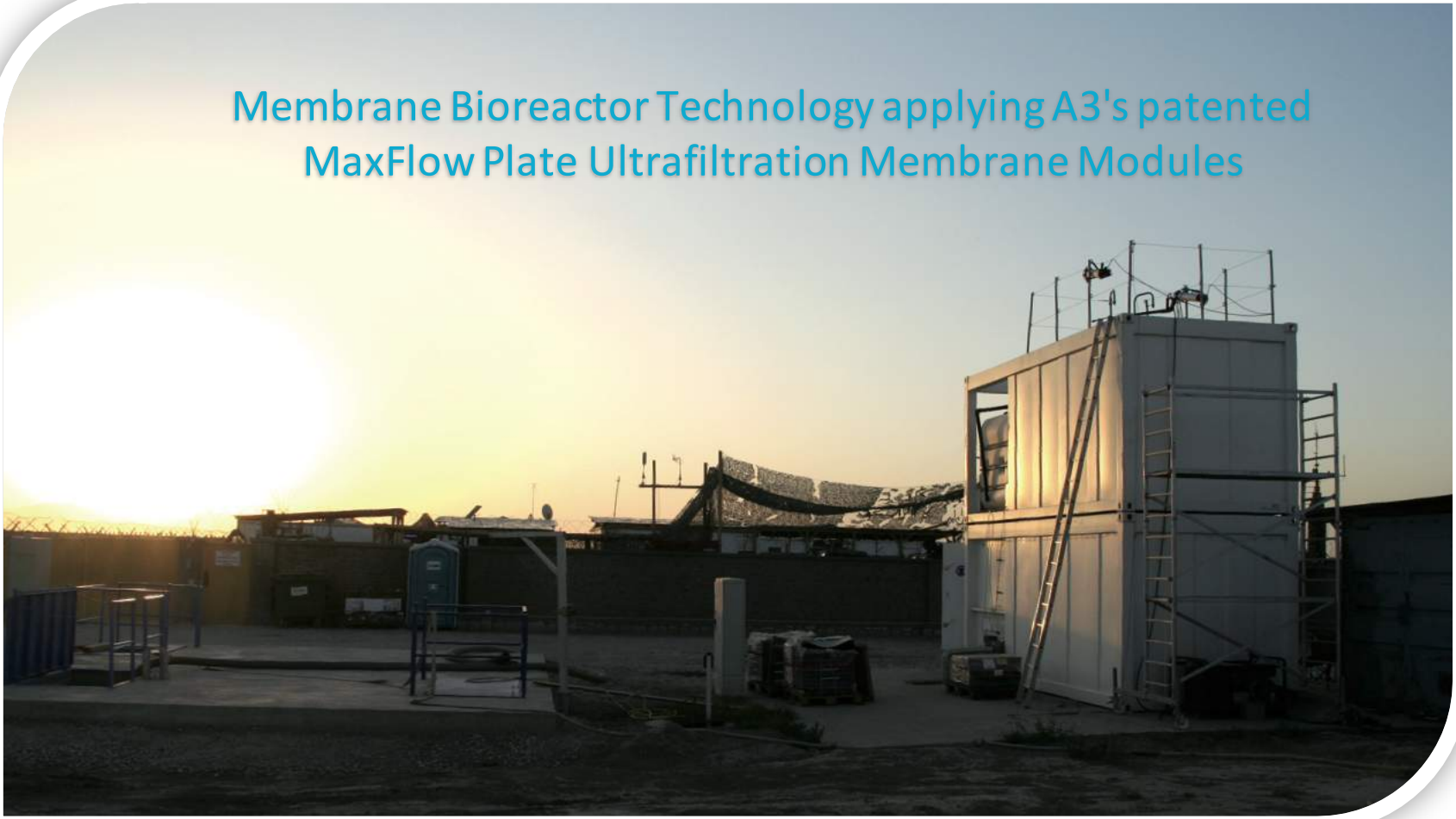
cc: John Landwehr
Joe Longaro
Service List

ATTACHMENT 5

DESIGN CALCULATIONS

MODERN WASTEWATER SOLUTIONS

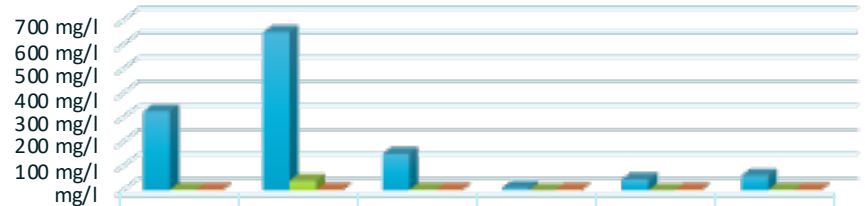
Budget Proposal # 1012



A3-USA, Inc 1674 Fountaintown Road Chinquapin, NC 28521

Process Summary

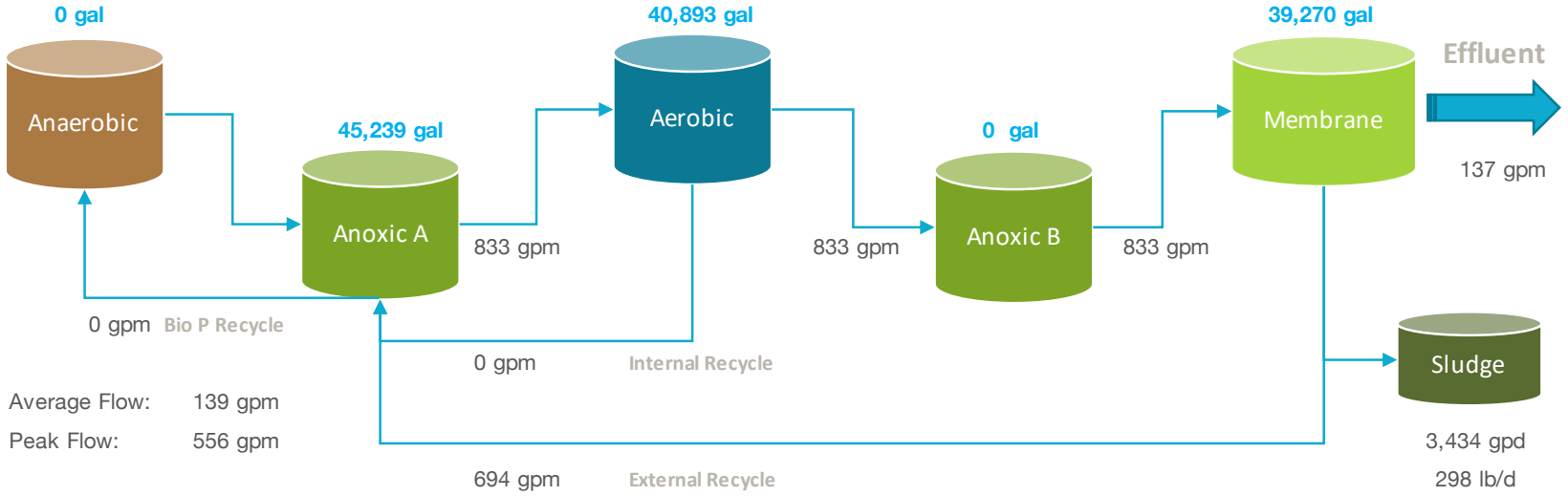
Influent & Effluent Parameters



	BOD	COD	TSS	P	NH4	TN
Influent	325 mg/l	650 mg/l	150 mg/l	10 mg/l	45 mg/l	60 mg/l
Effluent	2.0 mg/l	39.0 mg/l	1.0 mg/l	0.4 mg/l	0.2 mg/l	2.1 mg/l
Removal	99.4%	94.0%	99.3%	96.0%	99.6%	96.6%

PROCESS PARAMETERS

Sludge Age	35 d
Total Reactor Volume	125,402 gal
Total SOR	1,178 kgO2/d
MLSS in Anoxic / Aerobic Tank	10,352 mg/l
MLSS in Membrane Tank	12,557 mg/l
HRT	15 h
F/M RATIO (BOD)	0.052
F/M RATIO (COD)	0.103
Total Membrane Surface	56,672 sf



Aeration	Flow	Pressure
EQ	0 scfm	0.0 psi
Sludge	0 scfm	0.0 psi
Aerobic	403 scfm	8.0 psi
Membrane	641 scfm	8.0 psi

Applied Options:

NO DAF

NO RO

6/4/25

Biological Process Calculation

Influent Charateristics	Symbol	Value	Units
Type of wastewater		municipal	
Temperature	T	12	°C
pH	-	7.5	-
H_2CO_3 alkalinity	Alk_i	7	mg/l as $CaCO_3$
Site pressure / elevation	$p_{a,i}$	14.5	psi
Average daily flow	Q_i	200,000	gpd
Peak daily flow	$Q_{i,\ max,d}$	500,000	gpd
Hourly peak flow	$Q_{i,\ max,p}$	556	gpm
Peak factor	-	4.0	-
Average daily flow	Q_i	757	m^3/d
Max. monthly average daily flow	$Q_{i,\ max,d}$	1,893	m^3/d
Hourly peak flow	$Q_{i,\ max,h}$	126.2	m^3/h
Total BOD	$S_{BOD,i}$	325	mgBOD/l
Total COD	$S_{COD,i}$	650	mgCOD/l
COD/BOD ratio	-	2.00	-
Rapidly biodegradable COD	$S_{s,i}$	163	mgCOD/l
Volitale fatty acids (VFA)	$S_{VFA,i}$	25	mgCOD/l
Fermentable COD	$S_{F,i}$	138	mgCOD/l
Slowly biodegradable COD	$S_{ss,i}$	351	mgCOD/l
Biodegradable COD	$S_{bio,i}$	514	mgCOD/l
Soluble inert COD	$S_{SIN,i}$	39	mgCOD/l
Particulate inert COD	$S_{PIN,i}$	98	mgCOD/l

Influent Charateristics	Symbol	Value	Units
NO_3	$N_{NO3,i}$	0.0	mg/l
NH_4	$N_{a,i}$	45.0	mg/l
TKN	$N_{TKN,i}$	60.0	mg/l
TP	P_i	10.0	mg/l
Dissolved Oxygen	$S_{O2,i}$	0.0	mg/l
FSA fraction	$f_{a/TKN,i}$	0.8	-
Fixed (inorganic) suspended solids	$X_{FSS,i}$	47.5	mgISS/l
TSS concentration	$S_{TSS,i}$	150.0	mgTSS/l
Total BOD mass	$FS_{BOD,i}$	246.0	kgBOD/d
Total COD mass	$FS_{COD,i}$	492.1	kgCOD/d
Total NH_4 mass	$FS_{a,i}$	34.1	kgNH_4/d
Total TKN mass	$FS_{TKN,i}$	45.4	kgTKN/d
Total P mass	$FS_{P,i}$	7.6	kgP/d

Effluent Characteristics	Symbol	Value	Units
Waste Sludge	FX_t	298	lb/d
Waste Sludge	Q_w	3,434	gpd
Effluent BOD	$S_{BOD,e}$	< 3	mgBOD/l
Effluent COD	$S_{COD,e}$	39	mgCOD/l
Effluent TSS	$S_{TSS,e}$	1.0	mgTSS/l
Effluent P	P_e	0.4	mgP/l
Effluent NH_4	$N_{a,e}$	0.2	mgN/l
Effluent NO_3	$N_{NO3,e}$	0.4	mgN/l
Effluent TN (N_{ne} + N_{te})	$N_{t,e}$	2.1	mgN/l
Fecal/E.coli		ND	

Bioreactor Characteristics	Symbol	Value	Units
Temperature	T_{bio}	12	°C
Sludge retention time / Sludge age	SRT	35	d
Reactor volume	$V_{P,chosen}$	125,402	gallons
Reactor volume	$V_{P,chosen}$	475	m^3
Reactor volume	$V_{P,calc}$	120,173	gallons
Average MLSS concentration	X_{TSS}	10,500	mgTSS/l
Food to microorganism ratio	$F/M_{BOD,used}$	0.052	kgBOD/kgMLSS
Food to microorganism ratio	$F/M_{COD,used}$	0.103	kgCOD/kgMLSS
Membrane tank MLSS concentration	X_M	12,557	mgTSS/l
Aerobic/Anoxic tank MLSS concentration	X_{Bio}	10,352	mgTSS/l
Number of anaerobic zones	$\#_{AN}$	0	-
Number of anoxic zones	$\#_{AO}$	1	-
Number of aerobic zones	$\#_{AE}$	1	-
External recycle ratio	m	5	-
Internal recycle ratio	a	0	-
DO in m recycle	O_m	1	mgO_2/l
DO in a recycle	O_a	0	mgO_2/l
Recycle ratio to anaerobic tank (PAO)	s	0	-
DO in s recycle	$S_{O2,s}$	0	mgO_2/l
Nitrate on s recycle	$S_{NO3,s}$	0	mg/l
TKN/COD ratio	$f_{TKN/COD}$	0.092	mgTKN/mgCOD
Carbon source addition (Micro C)	B_{MicroC}	0.0	lb/d
Carbon source addition (Micro C)	S_{MicroC}	0.00	gpd
Nominal hydraulic retention time	HRT_n	15.0	h
Actual hydraulic retention time	HRT_a	2.5	h

Biological Oxygen Demand	Symbol	Value	Units
OD for synth & endo respiration (PAO)	FO_{PAO}	0	kgO_2/d
OD for synth & endo respiration (OHO)	FO_{OHO}	318	kgO_2/d
Mass carbonaceous oxygen demand	FO_C	318	kgO_2/d
Carbonaceous oxygen utilization rate	O_c	67%	-
Nitrification oxygen demand	FO_n	148	kgO_2/d
Total oxygen demand	FO_t	467	kgO_2/d
Oxygen recovered by denitrification	FO_d	92	kgO_2/d
Net total oxygen demand (AOR)	FO_{td}	374	kgO_2/d
Oxygen saturation @ operating temp.	c_s	10.9	mg/l
Desired oxygen level	c_x	2.0	mg/l
Transfer coefficient	α	0.40	-
Diffuser water depth	DWD	13	feet
Oxygen transfer efficiency	OTE	2	%
Standard total oxygen demand (SOR)	SOR	1,178	kgO_2/d
Required air flow	Q_{air}	**395**	scfm
Oxygen requir. per volume & depth	OS	18.5	$gO_2/(Nm_3*m_D)$

Membrane Module Design	Symbol	Value	Units
Permeate on cycle	T_o	8	minute
Permeate off cycle (relaxation)	T_s	2	minute
Effective membrane module surface	$A_{m,eff}$	87.8	m^2
Effective membrane module surface	$A_{m,eff}$	945	ft^2
Total number of membrane modules	N_M	60	-
Total membrane module surface	A_{total}	5,265	m^2
Total membrane module surface	A_{total}	56,672	ft^2
Nominal average daily flux	$Q_{ave,n}$	7.5	lmh
Nominal max. daily flux	$Q_{ave,n,max,mo}$	18.7	lmh
Nominal peak hourly flux	$Q_{peak,n}$	30.0	lmh
Average daily flux (excluding rest cycle)	$Q_{ave,n}$	**3.5**	gfd
Max. Daily flux (ex. rest cycle)	$Q_{ave,n,max,mo}$	**8.8**	gfd
Peak hourly flux (ex. rest cycle)	$Q_{peak,n}$	**14.1**	gfd
Total membrane module displacement vol.	$V_{modules}$	660	ft^3
Total membrane module displacement vol.	$V_{modules}$	4,937	gallons
Aeration modules	A#	20	-
Membrane module aeration requirement	Q_{am}	28.5	acfm
Total membrane modules aeration	$Q_{am,total}$	570	acfm
Membrane diffuser water depth	DWD_m	12.8	feet
Oxygen requirement per volume & depth	OS	14	$gO_2/(Nm_3*m_D)$
Standard oxygen rate, membrane aeration	SOR_m	2,729	lbO_2/d
Standard oxygen rate, membrane aeration	SOR_m	1,250	kgO_2/d



- ✓ Patented, innovative A3's MaxFlow™ membrane filtration modules manufactured in USA.
- ✓ The MaxFlow™ module "open channel design" provides optimal biofilm control, minimizes the quantity of chemical cleaning procedures and avoids module clogging.
- ✓ The compact module design enables dual-stack and triple-stack installations. It allows for a high membrane packing density resulting in a small footprint and high energy efficiency.
- ✓ Most existing conventional treatment plants can be retrofitted with MaxFlow™ membranes due to the

Kinetic Constants	Symbol	Value	Units
Yield coefficient OHO	Y_{OHO}	0.40	mgVSS/mgCOD
Yield coefficient OHO,OBS	$Y_{OHO,obs}$	0.05	mgVSS/mgCOD
Fermentation rate at 20°C	$k_{F,20}$	0.06	m3/gVSSd
Temperature coefficient for $k_{F,T}$	Θ_{kF}	1.029	-
Fermentation rate at T	$k_{F,T}$	0.05	m3/gVSSd
Endogenous respiration rate (decay)	$b_{OHO,20}$	0.24	gVSS/gVSSd
Endogenous respiration rate T	$b_{OHO,T}$	0.19	gVSS/gVSSd
Yield coefficient FSA	Y_A	0.10	mgVSS/mgFSA
Nitri. pH sensitivity coefficient	K_I	1.13	-
Nitri. pH sensitivity coefficient	K_{max}	9.50	-
Nitri. pH sensitivity coefficient	K_{II}	0.30	-
Max. specific growth rate at 20°C	μ_{Am}	0.45	1/d
Max. spec. growth rate - Temp/pH	μ_{AmTpH}	0.17	1/d
Half saturation coefficient	K_n	0.75	mgFSA/l
Half saturation coefficient - Temp	K_{nT}	0.30	mgFSA/l
Endogenous respiration rate (decay)	b_A	0.04	1/d
Temperature coefficient for $k_{F,T}$	θ_n	1.123	-
Endogenous respiration rate T	b_{AT}	0.016	1/d
Temperature sensitivity coefficient	Θ_{nk1}	1.20	-
Temperature sensitivity coefficient	Θ_{nk2}	1.05	-
Temperature sensitivity coefficient	Θ_{nk3}	1.03	-
Denitrification rates at 20°C	k_1	0.70	-
Denitrification rates at 20°C	k_2	0.10	-
Denitrification rates at 20°C	k_3	0.08	-
Denitrification rates	k_{1T}	0.163	-
Denitrification rates	k_{2T}	0.068	-
Denitrification rates	k_{3T}	0.064	-
Yield coefficient PAO	Y_{PAO}	0.45	gAVSS/gCOD
Yield coefficient PAO	$Y_{PAO,obs}$	0.19	gAVSS/gCOD
Endogenous respiration rate (decay)	b_{PAO_20}	0.04	gEVSS/gCOD
Temperature coefficient for $k_{F,T}$	$\Theta_{b,PAO}$	1.029	-
Endogenous respiration rate T	$b_{PAO,T}$	0.03	gEVSS/gVSSd

Stoichiometric Constants	Symbol	Value	Units
COD/BOD ratio	-	2.00	-
Readily biodeg. org. fraction (RBCOD)	$f_{s,COD}$	0.25	g/gTCOD
Non-biodegradable particulate COD	$f_{PNb,COD}$	0.15	g/gTCOD
Non-biodegradable soluble COD	$f_{SNb,COD}$	0.06	g/gTCOD
SVFA fraction of RBCOD	$f_{SVFA,SSi}$	0.15	$g/gCOD_{SS}$
VSS/TSS of activated sludge	f_{VT}	0.71	mgVSS/mgTSS
COD/VSS of activated sludge	f_{cv}	1.48	kgCOD/kgVSS
True synthesis fraction	f_s^0	0.57	-
Endogenous residue fraction	$f_{H/E,OHO}$	0.2	-
ISS content of OHOs	$f_{ISS,OHO}$	0.15	-
Active fraction - VSS	f_{avOHO}	21%	-
Active fraction - TSS	f_{at}	15%	-
Influent FSA fraction	$f_{FSA,i}$	0.75	-
Non-bio. soluble orgN fraction (inerts)	$f_{SNb,N}$	0.025	-
Non-bio. particulate orgN fraction	f_n	0.12	-
Permissible unaer. sludge mass fraction	f_{xm}	0.70	-
Design unaerated sludge mass fraction	f_{xt}	0.36	-
Minimum primary anoxic mass fraction	f_{x1min}	0.12	-
Primary anoxic mass fraction	f_{x1}	0.36	-
Secondary anoxic mass fraction	f_{x2}	0.00	-
Anaerobic mass fraction	f_{AN}	0.00	-
Non-bio. particulate orgP fraction	$f_{P,XE,OHO}$	0.05	mgP/mgVSS
Endogenous residue fraction	$f_{XE,PAO}$	0.25	gEVSS/gAVSS
P fraction in active PAO mass	$f_{P,PAO}$	0.38	gP/gAVSS
VSS/TSS ratio for PAO active mass	$f_{VT,PAO}$	0.46	gVSS/gTSS
Ratio of P release /VFA uptake	$f_{PO4,REL}$	0.5	gP/gCOD
Frac. of fixed inorganic s. solids of PAO	$f_{FSS,PAO}$	1.3	gFSS/gAVSS
P content of TSS	$f_{P,TSS}$	0.038	gP/gTSS
P content of VSS	$f_{P,FSS,i}$	0.02	gP/gVSS
TKN/COD ratio	f_{ns}	0.09	mgTKN/mgCOD
Nitrogen content of active biomass	$f_{N,VSS}$	0.10	gN/gAVSS

Biological Mass Balance	Symbol	Value	Units
Sludge age	SRT	35	d
Mixed liquor suspended solids	X_{TSS}	10,500	mgTSS/l
Readiable biodegradabe COD flux	$FS_{S,i}$	123	kgCOD/d
Daily flux of VFAs	$FS_{VFA,i}$	19	kgCOD/d
Daily flux of fermentable COD	$FS_{F,i}$	104	kgCOD/d
Daily flux of biodegradable COD	$FS_{bio,i}$	389	kgCOD/d
Daily flux of particulate inert COD	$FS_{PIN,i}$	74	kgCOD/d
Daily flux of fixed inorganic sus. solids	$FS_{ISS,i}$	36	kgISS/d
Influent particulate non-bio. COD	$FX_{VSS,i}$	50	kgVSS/d
Mass nitrogen into sludge prod.	FN_{Sludge}	12	kgN/d
Mass of nitrate generated per day	FN_{NO3}	32	kgN/d
VFAs stored by PAOs	$FS_{S,PAO}$	0	kgCOD/d
Remaining biodegradable COD	$FCOD_{b,OHO}$	389	kgCOD/d
Mass nitrifiers	MX_A	73	kgVSS
Active biomass PAO	MX_{PAO}	0	KgAVSS
Endogenous active biomass PAO	$MX_{E,PAO}$	0	kgEVSS
Bio mass	MX_{bio}	713	kgVSS
Active organism mass	MX_{OHO}	713	kgVSS
Endogenous residue mass	$MX_{E,OHO}$	952	kgVSS
Non-biodegradable particulate mass	MX_{Iv}	1,745	kgVSS
Volatile suspended solids mass	MX_{VSS}	3,411	kgVSS
Inorganic suspended solid mass	MX_{ISS}	1,365	kgISS
Total suspended solids mass	MX_{TSS}	4,776	kgTSS
Mass/Sludge TSS wasted	FX_t	136	KgTSS/d
Mass/Sludge VSS wasted	FX_V	97	kgVSS/d
Effluent COD	$S_{COD,e}$	39	mgCOD/l
COD mass out (effluent and waste)	$FS_{COD,e}$	30	kgCOD/d
Mass/Sludge COD wasted	$FX_{COD,s}$	144	kgCOD/d

Alkalinity	Symbol	Value	Units
Alkalinity Nitrification as CaCO3 (consumed)	Alk_{Nitri}	306	mg/l as $CaCO_3$
Alkalinity Denitrification as CaCO3 (recovered)	$Alk_{Denitri}$	155	mg/l as $CaCO_3$
Alkalinity ef	Alk_e	100	mg/l as $CaCO_3$
Alkalinity inf	Alk_i	7	mg/l as $CaCO_3$
Alkalinity Alum (consumed)	Alk_{Alum}	0.0	mg/l as $CaCO_3$
Alkalinity Total	Alk_{total}	-144	mg/l as $CaCO_3$
Alkalinity Added	Alk_{added}	244	mg/l as $CaCO_3$
Alkalinity Added	$XAlk_{added}$	403	lb/d
Density caustic solution (50%)	-	12.76	lb/gal
Alkalinity recovered	$Alk_{recovered}$	0.4	lb$CaCO_3$/lb
Caustic needed	-	161.3	lb/d
Caustic needed	-	12.6	gpd



$$V_P = \frac{MX_{TSS}}{X_{TSS}}$$

$$FX_t = \frac{MX_{TSS}}{SRT}$$

$$MX_{TSS} = MX_{ISS} + MX_{VSS}$$

N Removal	Symbol	Value	Units
Factor of safety	S_f	1.2	-
Nitrogen requirements	FN_{synth}	10	kgN/d
Nitrogen requirements	$TKN_{i,synth}$	12.87	gN/m3
Influent non-bio. soluble organic N	$N_{nbios,i}$	1.5	mgN/l
Influent non-bio. particulate org. N	$N_{nbiop,i}$	7.9	mgN/l
Influent biodegradable organic N	$N_{bio,i}$	13.5	mgN/l
Effluent non-bio. soluble organic N	$N_{nbios,e}$	1.5	mgN/l
NH4 concentration avail. for nitri.	N_{an}	43.1	mgN/l
Effluent ammonia	$N_{a,e}$	0.2	mgN/l
Effluent TKN	$N_{TKN,e}$	1.7	mgN/l
N concentration into sludge prod.	N_s	15.4	mgN/l
Nitrification capacity	N_c	42.9	mgN/l
Denitrification potential RBCOD	$D_{p1RBCOD}$	23.0	$mgNO_3$-N/l
Denitrification potential SBCOD	$D_{p1SBCOD}$	23.2	$mgNO_3$-N/l
Denitrification potential RBCOD	$D_{p3RBCOD}$	0.0	$mgNO_3$-N/l
Denitrification potential SBCOD	$D_{p3SBCOD}$	0.0	$mgNO_3$-N/l
Minimum sludge age for nitri.	SRT_m	10.4	d
Denitrification potential primary tank	D_{p1}	46.2	mgN/l
Denitrification potential secondary tank	D_{p3}	0.0	mgN/l
Denitri. potential recycle rate ($f_{xm} = f_{xdm}$)	D_{p^*}	37.5	mgN/l
Effluent nitrate	$N_{NO3,e}$	0.4	mgN/l
Effluent nitrate @ f_{xdm} & recycle rate	N_{NO3,e^*}	7.1	mgN/l

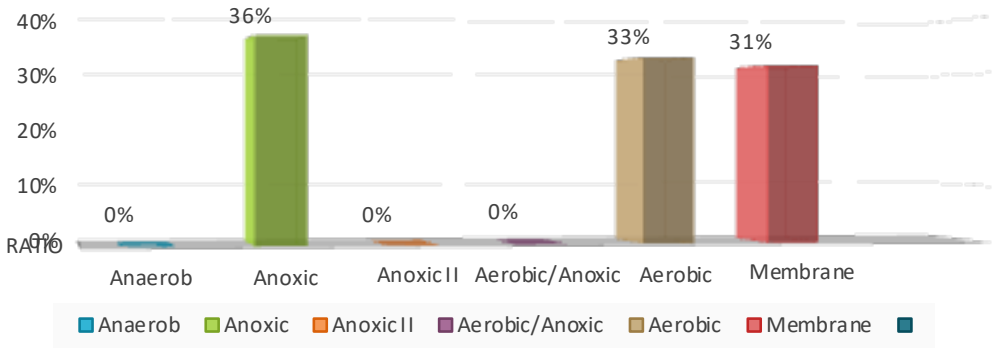
P Removal	Symbol	Value	Units
COD lost in anaerobic reatcor	$S_{F,ANn}$	0.0	$gCOD/m^3$
COD lost in anaerobic reatcor	S_{F,ANn^*}	0.0	$gCOD/m^3$
Fermentable COD for AN reactor	$S_{F,I,conv}$	0.0	$gCOD/m^3$
DO in influent	$S_{O2,i}$	0.0	mgO_2/l
PO_4 release AN reactor	$S_{PO4,rel}$	0.0	gP/m^3
P removal by PAOs	ΔP_{PAO}	0.0	gP/m^3
P removal by OHOs	ΔP_{OHO}	0.7	gP/m^3
P removal by endgeneous biomass	ΔP_{XE}	1.8	gP/m^3
P removal by influent inert mass	ΔP_{XI}	3.3	gP/m^3
P into sludge production	P_s	4.9	gP/m^3
Potential P removal by system	$\Delta P_{SYS,POT}$	10.6	gP/m^3
Actual P removal by system	$\Delta P_{SYS,ACT}$	10.0	gP/m^3
Effluent particulate P from TSS	$X_{P,e}$	0.0	gP/m^3
Influent total P	P_i	10.0	gP/m^3
Effluent total P	P_{e^*}	0.0	gP/m^3
P precipitated	P_{prec}	0.0	mgP/l
Precipitation chemical	B_{Alum}	0.0	lb/d
Precipitation chemical	Solution	0.0	gal/d
Density Alum	z_{AL}^{3+}	0.100	lb_{AL}/lb_{prec}
Density Iron	z_{FE}^{3+}	0.077	lb_{FE}/lb_{prec}
Alum efficiency	-	40.0	g/kg
Chemical precipitation sludge	-	0.0	lb/d

Mechanical Process Calculation

Tank Dimensions	Trains	Length	Width	Dia.	Degree	Height	Liquid level	Volume per train	Volume Total	Volume Total
Anaerobic	0	.00 ft	.00 ft	.00 ft	0.0	.00 ft	.00 ft	gal	gal	0.0 m3
Anoxic I	1	12.00 ft	35.00 ft	.00 ft	0.0	17.50 ft	14.40 ft	45,239 gal	45,239 gal	171.2 m3
Aerobic	1	11.00 ft	35.00 ft	.00 ft	0.0	17.50 ft	14.20 ft	40,893 gal	40,893 gal	154.8 m3
Anoxic II	0	.00 ft	.00 ft	.00 ft	0.0	.00 ft	.00 ft	gal	gal	0.0 m3
Anoxic Buffer	0	.00 ft	.00 ft	.00 ft	0.0	.00 ft	.00 ft	gal	gal	0.0 m3
Membrane	1	25.00 ft	15.00 ft	.00 ft	0.0	17.50 ft	14.00 ft	39,270 gal	39,270 gal	148.6 m3
Sludge	0	.00 ft	.00 ft	.00 ft	0.0	.00 ft	.00 ft	gal	gal	0.0 m3
Transfer Basin	0	.00 ft	.00 ft	.00 ft	0.0	.00 ft	.00 ft	gal	gal	0.0 m3

Tank Design	Symbol	Value	Units
Total process tank volume		125,402	gallons
Total process tank volume$_{calc}$		**120,173**	gallons
Unaerated tank percentage		36	%
Total tank volume		**125,402**	gallons
Membrane modules volume		4,937	gallons
F/M$_{used,BOD}$		0.052	kgBOD/kgMLSS
F/M$_{used,COD}$		0.103	kgCOD/kgMLSS

Weir level	1.3	inches
Weir length	13.0	ft
Velocity	1.08	fps
Vertical tank	0	
Horz. Tank	0	
Diameter	0	ft



Process Volume Distribution

Air Flow Design	Symbol	Membrane per train	Aerobic per train	Sludge	EQ	Unit
Minimum air flow	$Q_{A,re}$	570	395	0	0	acfm / scfm
Chosen air flow - actual	$Q_{A,\ chosen}$	571	367	0	0	acfm
Chosen air flow - inlet	$Q_{A,chosen}$	1,089	685	0	0	m^3/h
Chosen air flow - inlet	$Q_{A,chosen}$	**641**	**403**	**0**	**0**	scfm
Chosen air flow - piping	$Q_{A,chosen}$	413	260	0	0	acfm
Pipe pressure	p_b	8.0	8.0	0.0	0.0	psi
Pipe losses	H	0.13	0.42	0.00	0.00	psi
Equivalent length in pipe looses	L_p	600	600	400	400	feet
Pipe diameter	d	6.0	4.0	4.0	3.0	inches
Internal pipe diameter	d_i	6.36	4.26	4.26	3.26	inches
Standard temperature	T_1	293	293	293	293	K
Pipe temperature	T_2	332	332	293	293	K
Constant	f	0.02	0.02	0.09	0.06	-
Air velocity	v	**31.2**	**43.8**	**0.0**	**0.0**	fps
Atmospheric pressure	$p_{a,l}$	14.5	14.5	14.5	14.5	psi
Absolute pressure	p_2	22.5	22.5	14.5	14.5	psi
Pressure due to tank liquid level	$p_{DWD,m}$	5.6	6.0	0.0	0.0	psi
Pressure due to aeration device	p_{DWD}	0.7	0.5	0.5	0.5	psi
Pressure due to pipe losses & elev.	$p_{DWD,S}$	0.5	0.8	0.4	0.4	psi
Total pipe losses	p_t	6.8	7.3	0.9	0.9	psi
Total pipe losses	p_t	467.9	502.3	62.1	62.1	mbar

$$H = 9.82 \cdot 10^{-8} \cdot \frac{\left(f \cdot L_p T_2 Q_{A,chosen}\right)}{\left(p_2 d_i\right)^5}$$

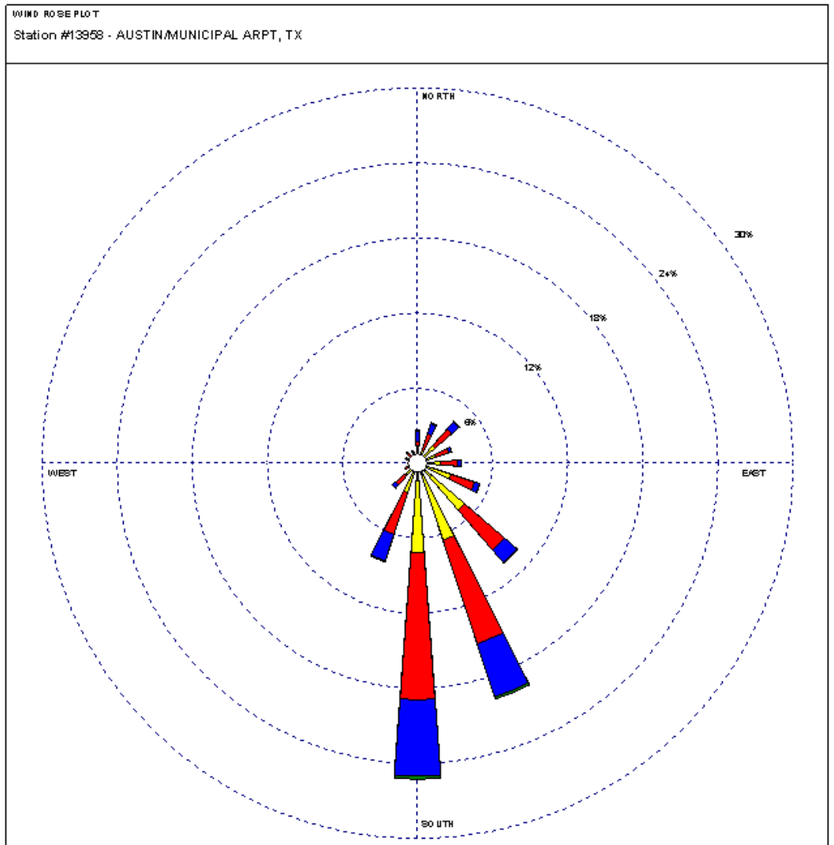
$$f = \frac{\left(0.029 \cdot d_i^{0.027}\right)}{Q_{A,chosen}^{0.148}} \qquad T_2 = T_1 \left(\frac{p_2}{p_{a,1}}\right)^{0.283}$$



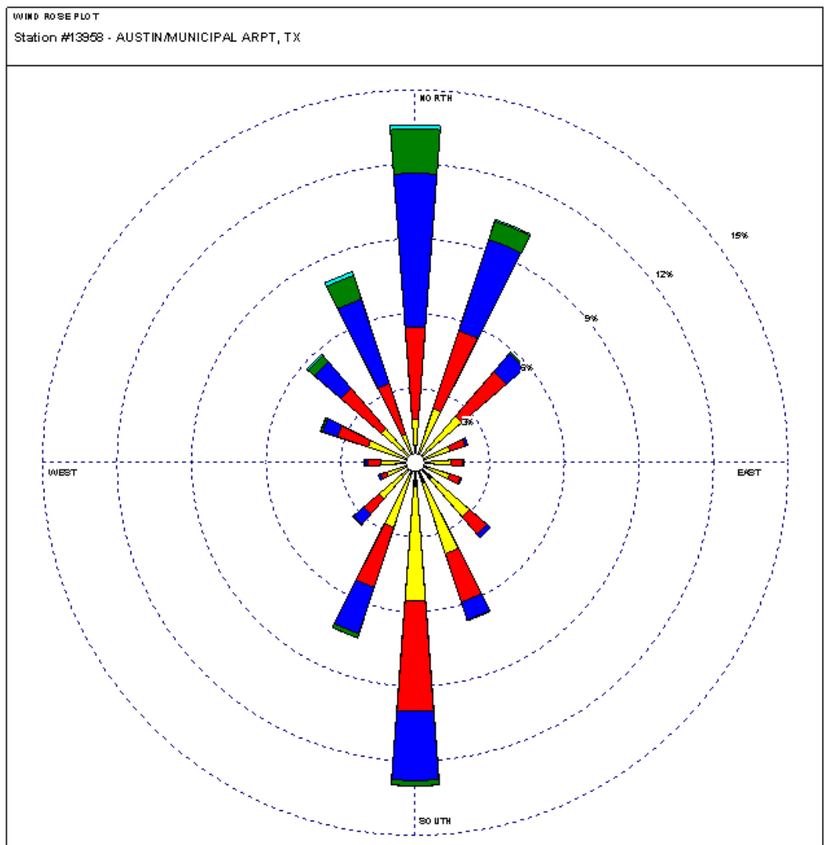
ATTACHMENT 6

WIND ROSE

*Representative of Summer months



*Representative of Winter months



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TX Firm No. 21880

NRCS Natural Resources Conservation Service

https://www.wcc.nrcs.usda.gov/ftpref/downloads/climate/windrose/texas/

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SAYERS RANCH WWTP
BASTROP COUNTY, TEXAS

WIND ROSE (AUSTIN, TX)

Attachment 6

ATTACHMENT 7

SOLIDS MANAGEMENT PLAN

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SOLIDS MANAGEMENT PLAN

Influent Design Flow: 0.20 MGD, Total
Influent BOD Concentration: 325 mg/L
MBR Basin MLSS: 12,557 mg/L

See **Attachment 1 - Process Flow Diagram** and **Attachment 5 - Design Calculations**. Attachment 5 shows calculations for one (1) 200,000 gpd (0.20 MGD) treatment train. There will be one of these treatment trains operating at full capacity for a total of 0.20 MGD in the final phase at Sayers Ranch.

Table 1 – Sludge Production for 0.20 MGD Design Flow

Solids Generated	100%	75%	50%	25%
Lbs/d Influent BOD_5	542.5	406.8	271.2	135.6
Lbs/d Dry Sludge Produced	298.0	223.5	149.0	74.5

Sludge will be sent from the Recycled Activated Sludge flow stream to the Sludge Screw Press. Calculations are based on 3,434 gpd of waste sludge, which equates to 298 lb/d (Table 1). The sludge will be pressed in the Sludge Screw Press to remove liquids and produce a dry sludge cake. All liquid will be decanted from the Screw Press and returned to the headworks for treatment. No wet solids will be produced through the treatment process. Dry sludge will be removed from the screw press and deposited into 4 cubic yard (CY) roll-off containers for disposal on a regular basis (Table 2).

Table 2 – Sludge Removal Schedule

Removal Schedule	100%	75%	50%	25%	Unit
Dry Waste Sludge	298.0	223.5	149.0	74.5	**lb/d**
Wet Waste Sludge	3,434	2,576	1,717	859	**gpd**
Wet Sludge	17.0	12.8	8.5	4.3	**CF/d**
Wet Sludge	11.1	8.3	5.6	2.8	**CY/d**
Reduction Factor	18.0	(provided by MBR WWTP manufacturer)			
Dry Sludge	0.9	0.7	0.5	0.2	**CY/d**
Dumpster Volume	4.0	4.0	4.0	4.0	**CY**
Days between Sludge Removal	**4**	**6**	**8**	**17**	**days**

The Sludge Age (Solids Retention Time) for a Total Reactor Volume of approximately 125,402 gal is 35 days, with an annual average sludge production of 108,770 lbs of dry sludge produced at 100% capacity. The dewatered sludge will be transported by a registered hauler, Texas Disposal Systems (TCEQ Sludge Registration ID #22419) to the Texas Disposal Systems Landfill (TCEQ Sludge Registration ID #2123) in Travis County, Texas.

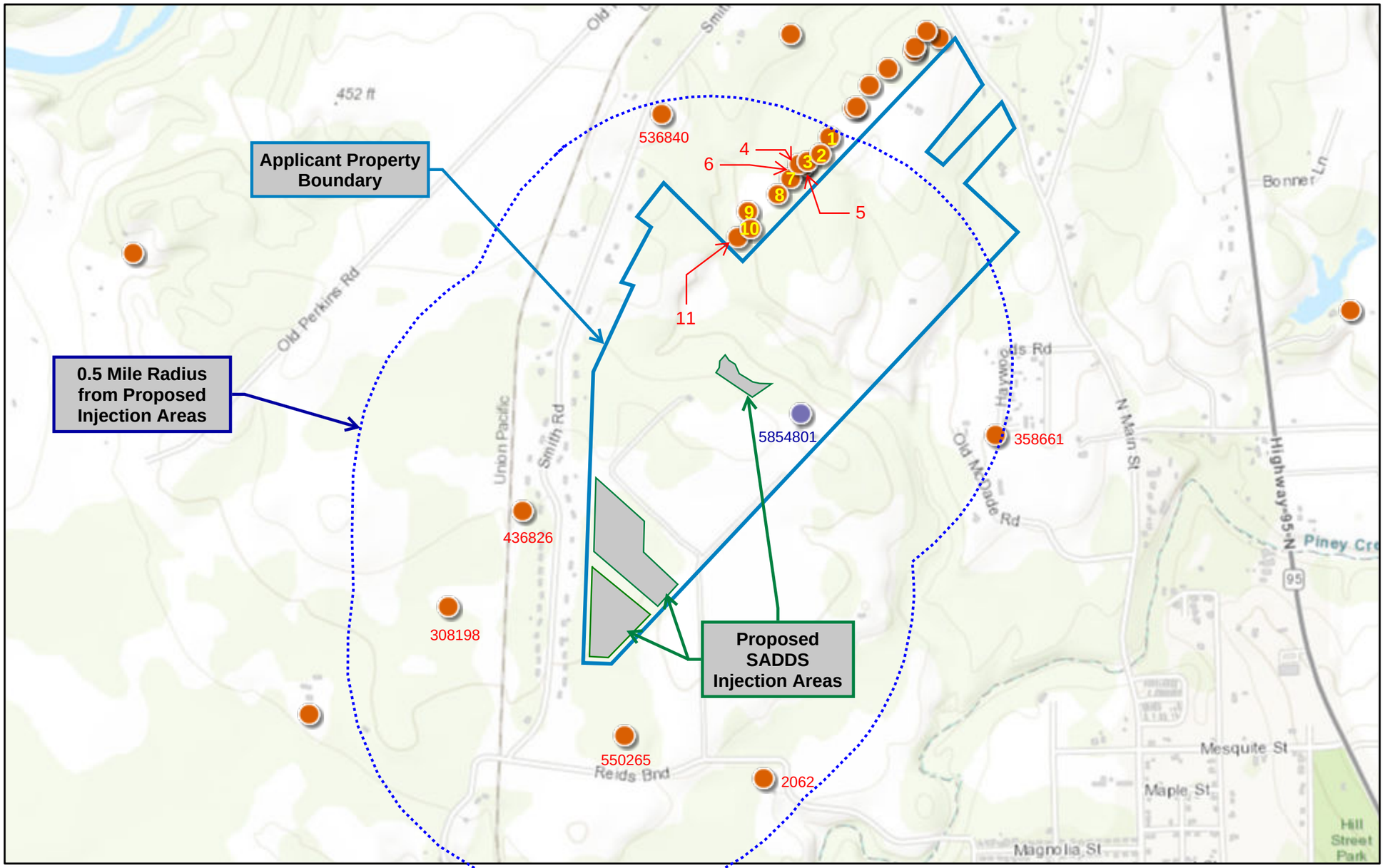
ATTACHMENT 8

TLAP U.S. TOPOGRAPHIC MAP

ATTACHMENT 9

AVAILABLE WATER QUALITY & WELL LOGS

Groundwater Data, Texas



1 626299
2 655369
3 660512
4 660458
5 635214
6 617395
7 655373
8 660495
9 654661
10 670884
11 662024

Texas Water Development Board

June 26, 2025

Well Reports
TWDB Groundwater



0 0.15 0.3 0.6 mi
0.15 mi
0 0.23 0.45 0.9 km
1:18,056

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri

TEXAS WATER DEVELOPMENT BOARD

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SAYERS RANCH WWTP
BASTROP COUNTY, TEXAS

WATER WELL MAP
Attachment 9

TABLE 3.0(3) - WATER WELL DATA						
Well ID	**Well Use**	**Producing Y/N**	**Open, Cased, Capped or Plugged?**	**Proposed Best Management Practice**	**Well Depth (ft below land surface [bls])**	**Depth to Groundwater (ft bls)**
5854801	Domestic	Y	Cased (0 to 300 ft bls)	None as the well is located more than 400 feet from proposed SADDS	360	82
358661	Domestic	Y	Cased (0 to 240 ft bls)	None as the well is located approximately 1/2 mile from proposed SADDS	280	78
2062	Domestic	Y	Cased (+1 to 208 ft bls)	None as the well is located more than 2,000 feet from proposed SADDS	235	55
550265	Domestic	Y	Cased (0 to 315 ft bls)	None as the well is located more than 700 feet from proposed SADDS	340	100
308198	Domestic	Y	Cased (0 to 300 ft bls)	None as the well is located more than 1,400 feet from proposed SADDS	350	57
436826	Domestic	Y	Cased (0 to 210 ft bls)	None as the well is located more than 600 feet from proposed SADDS	245	Not Reported (NR)
536840	Domestic	Y	Cased (0 to 555 ft bls)	None as the well is located more than 2,600 feet from proposed SADDS	580	128
626299	Domestic	Y	Cased (0 to 235 ft bls)	None as the well is located more than 2,500 feet from proposed SADDS	275	172
655369	Domestic	Y	Cased (0 to 230 ft bls)	None as the well is located more than 2,200 feet from proposed SADDS	270	164
660512	Domestic	Y	Cased (0 to 235 ft bls)	None as the well is located more than 2,100 feet from proposed SADDS	280	164
660458	Domestic	Y	Cased (0 to 235 ft bls)	None as the well is located more than 2,000 feet from proposed SADDS	280	174
635214	Domestic	Y	Cased (0 to 230 ft bls)	None as the well is located more than 2,000 feet from proposed SADDS	270	NR
617395	Domestic	Y	Cased (0 to 232 ft bls)	None as the well is located more than 2,000 feet from proposed SADDS	272	NR
655373	Domestic	Y	Cased (0 to 215 ft bls)	None as the well is located more than 1,900 feet from proposed SADDS	260	155

TABLE 3.0(3) - WATER WELL DATA						
Well ID	**Well Use**	**Producing Y/N**	**Open, Cased, Capped or Plugged?**	**Proposed Best Management Practice**	**Well Depth (ft below land surface [bls])**	**Depth to Groundwater (ft bls)**
660495	Domestic	Y	Cased (0 to 230 ft bls)	None as the well is located more than 1,700 feet from proposed SADDS	270	124
654661	Domestic	Y	Cased (0 to 270 ft bls)	None as the well is located more than 1,500 feet from proposed SADDS	310	168
670884	Domestic	Y	Cased (0 to 220 ft bls)	None as the well is located more than 1,300 feet from proposed SADDS	260	138
662024	Domestic	Y	Cased (0 to 240 ft bls)	None as the well is located more than 1,100 feet from proposed SADDS	280	119

Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number 58-54-801

GWDB Reports and Downloads

Well Basic Details

Scanned Documents

State Well Number	5854801
County	Bastrop
River Basin	Colorado
Groundwater Management Area	12
Regional Water Planning Area	K - Lower Colorado
Groundwater Conservation District	Lost Pines GCD
Latitude (decimal degrees)	30.138056
Latitude (degrees minutes seconds)	30° 08' 17" N
Longitude (decimal degrees)	-97.330555
Longitude (degrees minutes seconds)	097° 19' 50" W
Coordinate Source	+/- 1 Second
Aquifer Code	124SMBR - Simsboro Sand Member of Rockdale Formation
Aquifer	Carrizo-Wilcox
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	416
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	360
Well Depth Source	Driller's Log
Drilling Start Date	
Drilling End Date	1/13/1980
Drilling Method	Mud (Hydraulic) Rotary
Borehole Completion	Perforated or Slotted

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	T. C. Hoffman
Driller	Baker Water Well Service
Other Data Available	Drillers Log; Specific Capacity
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	5/25/1980
Last Update Date	7/8/2002

Remarks	Test hole observation well. Report- ed yield 50GPM with 1 foot drawdow- n after pumping 4 hours in 1980. S- pecific capacity 50GPM/ft. Pumping level 80 feet.

Casing

Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
4	Blank	Plastic (PVC)			0	300
4	Screen	Plastic (PVC)			300	360

Well Tests

Test Date	Test Type	Yield (gallons per minute)	Drawdown (ft.)	Test Hours
1980-01-15	Jetted	50	1	4

Lithology

Top Depth (ft.)	Bottom Depth (ft.)	Description
0	1	surface
1	3	red clay
3	10	brown clay
10	22	tan clay, sandstone, sand
22	28	gravel
28	33	blue shale
33	35	lignite
35	45	sandy shale, lignite, and sand
45	48	shale
48	50	coal
50	80	lignitic shale and coal streaks
80	100	lignite
100	108	sand and coal streaks
108	110	coal
110	135	lignite and shale
135	155	sandy shale and sandstone streaks
155	160	sandy shale and coal streaks
160	170	coal
170	180	shale, gray
180	181	rock hard
181	185	shale
185	222	hard sandy shale and coal streaks
222	223	sandstone
223	227	shale
227	229	rock
229	264	shale
264	270	coal
270	305	shale and coal streaks
305	320	shale, coal, sand
320	355	sand and sandy shale
355	360	shale

Annular Seal Range - No Data

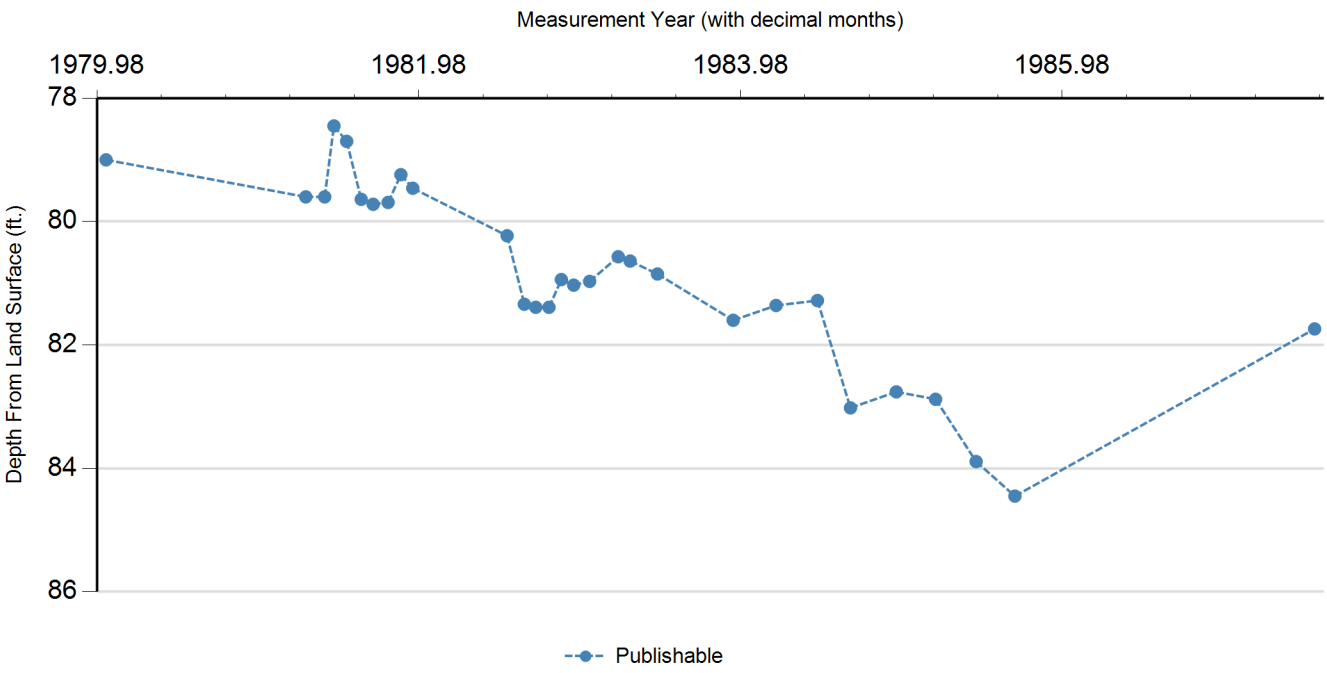
Borehole - No Data

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	1/15/1980		79		337	1	Registered Water Well Driller	Unknown		
P	4/13/1981		79.6	0.60	336.4	1	Texas Water Development Board	Steel Tape		
P	5/26/1981		79.6	0.00	336.4	1	Texas Water Development Board	Steel Tape		
P	6/17/1981		78.45	(1.15)	337.55	1	Texas Water Development Board	Steel Tape		
P	7/16/1981		78.7	0.25	337.3	1	Texas Water Development Board	Steel Tape		
P	8/19/1981		79.64	0.94	336.36	1	Texas Water Development Board	Steel Tape		
P	9/16/1981		79.72	0.08	336.28	1	Texas Water Development Board	Steel Tape		
P	10/20/1981		79.69	(0.03)	336.31	1	Texas Water Development Board	Steel Tape		
P	11/19/1981		79.24	(0.45)	336.76	1	Texas Water Development Board	Steel Tape		
P	12/16/1981		79.46	0.22	336.54	1	Texas Water Development Board	Steel Tape		
P	7/15/1982		80.23	0.77	335.77	1	Texas Water Development Board	Steel Tape		
P	8/24/1982		81.34	1.11	334.66	1	Texas Water Development Board	Steel Tape		
P	9/20/1982		81.39	0.05	334.61	1	Texas Water Development Board	Steel Tape		
P	10/20/1982		81.39	0.00	334.61	1	Texas Water Development Board	Steel Tape		
P	11/18/1982		80.94	(0.45)	335.06	1	Texas Water Development Board	Steel Tape		
P	12/16/1982		81.03	0.09	334.97	1	Texas Water Development Board	Steel Tape		
P	1/17/1983		80.97	(0.06)	335.03	1	Texas Water Development Board	Steel Tape		
P	3/22/1983		80.57	(0.40)	335.43	1	Texas Water Development Board	Steel Tape		
P	4/19/1983		80.64	0.07	335.36	1	Texas Water Development Board	Steel Tape		
P	6/21/1983		80.85	0.21	335.15	1	Texas Water Development Board	Steel Tape		
P	12/13/1983		81.6	0.75	334.4	1	Texas Water Development Board	Steel Tape		

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	3/15/1984		81.36	(0.24)	334.64	1	Texas Water Development Board	Steel Tape		
P	6/19/1984		81.28	(0.08)	334.72	1	Texas Water Development Board	Steel Tape		
P	9/4/1984		83.02	1.74	332.98	1	Texas Water Development Board	Steel Tape		
P	12/18/1984		82.76	(0.26)	333.24	1	Texas Water Development Board	Steel Tape		
P	3/12/1985		82.88	0.12	333.12	1	Texas Water Development Board	Steel Tape		
P	6/14/1985		83.89	1.01	332.11	1	Texas Water Development Board	Steel Tape		
P	9/12/1985		84.45	0.56	331.55	1	Texas Water Development Board	Steel Tape		
P	7/22/1987		81.74	(2.71)	334.26	1	Texas Water Development Board	Steel Tape		

Code Descriptions

Status Code	Status Description
P	Publishable

Water Quality Analysis

Sample Date: 8/25/1980 **Sample Time:** 0000 **Sample Number:** 1 **Collection Entity:** Texas Water Development Board

Sampled Aquifer: Simsboro Sand Member of Rockdale 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)		307	mg/L as CACO3	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		374.65	mg/L	
00910	CALCIUM (MG/L)		35.2	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		42	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.2	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CACO3)		104	mg/L as CACO3	
01045	IRON, TOTAL (UG/L AS FE)		90	ug/L	
00920	MAGNESIUM (MG/L)		4.1	mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)	<	0.1	mg/L as NO3	
00400	PH (STANDARD UNITS), FIELD		7.8	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		4.05		
00955	SILICA, DISSOLVED (MG/L AS SI02)		22	mg/L as SIO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		5.14		
00932	SODIUM, CALCULATED, PERCENT		71	PCT	
00929	SODIUM, TOTAL (MG/L AS NA)		121	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		750	MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)		8.6	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		28	C	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		417	mg/L	

** Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..*

GWDB DISCLAIMER: Except where noted, all of the information provided in the Texas Water Development Board (TWDB) Groundwater Database (https://www.twdb.texas.gov/groundwater/data/gwdbrpt.asp) is believed to be accurate and reliable; however, the TWDB assumes no responsibility for any errors appearing in rules or otherwise. Further, TWDB assumes no responsibility for the use of the information provided. PLEASE NOTE that users of these data are responsible for checking the accuracy, completeness, currency and/or suitability of all information themselves. TWDB makes no guarantees or warranties as to the accuracy, completeness, currency, or suitability of the information provided via the Groundwater Database (GWDB). TWDB specifically disclaims any and all liability for any claims or damages that may result from providing GWDB data or the information it contains. For additional information or answers to questions concerning the TWDB GWDB, contact the Groundwater Data Team at GroundwaterData@twdb.texas.gov.

STATE OF TEXAS WELL REPORT for Tracking #358661

Owner:	**Clyde Haywood**	Owner Well #:	**No Data**
Address:	**P O Box 121 Bastrop, TX 78602**	Grid #:	**58-54-8**
		Latitude:	**30° 08' 15" N**
Well Location:	**163 Old hwy 40 Bastrop, TX 78602**	Longitude:	**097° 19' 29" W**
Well County:	**Bastrop**	Elevation:	**No Data**

Type of Work: **New Well** Proposed Use: **Domestic**

Drilling Start Date: **12/12/2013** Drilling End Date: **12/14/2013**

	Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
Borehole:	**8.75**	**0**	**280**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

	Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
Filter Pack Intervals:	**240**	**280**	**Gravel**	**pea gravel**

	Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
Annular Seal Data:	**0**	**10**	**12**

Seal Method: **hand**

Sealed By: **Driller**

Distance to Property Line (ft.): **50+**

Distance to Septic Field or other concentrated contamination (ft.): **n/a**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **no septic at this time**

Surface Completion: **Surface Slab Installed**

Water Level: **78 ft.** below land surface on **2013-12-15** Measurement Method: **Unknown**

Packers: **1 rubber 10 ft**

Type of Pump: **no pump** Pump Depth (ft.): **180**

Well Tests: **Jetted** **Yield: 25 GPM with 111 ft. drawdown after 3 hours**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	**No Data**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Jimmy's Well Service**

P O Box 70
Bastrop, TX 78602

Driller Name: **David Odom** License Number: **58556**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**10**	**sandy loam**
10	**15**	**sand & gravel**
15	**16**	**rock**
16	**35**	**black clay**
35	**60**	**brown clay**
60	**66**	**lignite**
66	**76**	**shale**
76	**81**	**lignite**
81	**86**	**shale**
86	**103**	**sand**
103	**111**	**clay**
111	**144**	**sand**
144	**182**	**sandy shale**
182	**186**	**clay**
186	**208**	**sandy shale**
208	**279**	**sand**
279	**280**	**rock**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
5	**n**	**solid**	**000 240 sdr17**
5	**n**	**slotted**	**240 280 .012**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #2062

Owner:	**W. C. FROELHICH**	Owner Well #:	**No Data**
Address:	**1604 MAIN ST BASTROP, TX 78602**	Grid #:	**58-54-8**
Well Location:	**RIEDS BEND BASTROP, TX 78602**	Latitude:	**30° 07' 43" N**
		Longitude:	**097° 19' 54" W**
Well County:	**Bastrop**	Elevation:	**No Data**
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **8/8/2001** Drilling End Date: **8/9/2001**

	Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
Borehole:	**7.875**	**0**	**235**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

	Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
Filter Pack Intervals:	**200**	**228**	**Gravel**	

	Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
Annular Seal Data:	**0**	**10**	**6**

Seal Method: **HANDMIXED**

Sealed By: **CODY BROWN**

Distance to Property Line (ft.): **No Data**

Distance to Septic Field or other concentrated contamination (ft.): **NA**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **No Data**

Surface Completion: **Surface Slab Installed**

Water Level: **55 ft.** below land surface on **2001-08-17** Measurement Method: **Unknown**

Packers: **SHALE 10**

Type of Pump: **Submersible** Pump Depth (ft.): **190**

Well Tests: **Jetted** **Yield: 55 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
26	**GOOD**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **Unknown**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **BROWN WATER WELL DRILLING**

641 TRACK RD
DALE, TX 78616

Driller Name: **SAM BROWN**

License Number: **3086**

Apprentice Name: **CODY BROWN**

Apprentice Number: **3086WPKL**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**18**	**BROWN CLAY**
18	**29**	**SAND**
29	**31**	**GRAVEL**
31	**91**	**HARD CLAY AND LIGNITE**
91	**92**	**ROCK**
92	**111**	**SAND**
111	**168**	**CLAY AND LIGNITE WITH ROCKS**
168	**209**	**LIGNITE AND SAND**
209	**235**	**SAND**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
4	**NEW**	**PLASTIC**	**+1-208**
4	**NEW**	**SCREEN**	**208-228 .032**

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Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #550265

Owner:	**James Caouette**	Owner Well #:	**No Data**
Address:	**210 Reids Bend Bastrop, TX 78602**	Grid #:	**58-54-7**
Well Location:	**210 Reids Bend Bastrop, TX 78602**	Latitude:	**30° 07' 47" N**
		Longitude:	**097° 20' 09" W**
Well County:	**Bastrop**	Elevation:	**395 ft. above sea level**
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **6/11/2020** Drilling End Date: **6/13/2020**

	Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
Borehole:	**9**	**0**	**340**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

	Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
Filter Pack Intervals:	**260**	**335**	**Gravel**	**1/8"**

	Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
Annular Seal Data:	**0**	**10**	**Concrete 20 Bags/Sacks**

Seal Method: **Hand Mixed**

Sealed By: **Driller**

Distance to Property Line (ft.): **+100**

Distance to Septic Field or other concentrated contamination (ft.): **N/A**

Distance to Septic Tank (ft.): **+100**

Method of Verification: **per landowner**

Surface Completion: **Surface Sleeve Installed** **Surface Completion by Driller**

Water Level: **100 ft.** below land surface on **2020-06-13** Measurement Method: **Electric Line**

Packers: **hole plug at 260 ft.**

Type of Pump: **No Data**

Well Tests: **Jetted** **Yield: 100 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	**No Data**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Jackson Water Well**

PO Box 234
Rosanky, TX 78953

Driller Name: **Dake Jackson** License Number: **59214**

Apprentice Name: **Paul Stanley** Apprentice Number: **59983**

Comments: **well complete at 335 ft.**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**1**	**top soil**
1	**15**	**clay**
15	**35**	**sand & large gravel**
35	**42**	**lignite (lost circulation)**
42	**140**	**sandy gray clay**
140	**180**	**sand w/ some clay**
180	**260**	**gray clay**
260	**335**	**sand**
335	**340**	**clay**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4.5	**Blank**	**New Plastic (PVC)**	**SDR17**	**3**	**315**
4.5	**Screen**	**New Plastic (PVC)**	**SDR17 0.020**	**315**	**335**

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Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #308198

Owner:	**Tim Hill**	Owner Well #:	**No Data**
Address:	**132 Reids Bend Bastrop, TX 78602**	Grid #:	**58-54-7**
Well Location:	**132 Reds Bend Bastrop, TX 78602**	Latitude:	**30° 07' 59" N**
		Longitude:	**097° 20' 28" W**
Well County:	**Bastrop**	Elevation:	**357 ft. above sea level**
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **10/9/2012** Drilling End Date: **10/23/2012**

	Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
Borehole:	**8.75**	**0**	**350**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

	Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
Filter Pack Intervals:	**300**	**350**	**Gravel**	**pea gravel**

	Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
Annular Seal Data:	**0**	**10**	**8**

Seal Method: **hand**

Sealed By: **Driller**

Distance to Property Line (ft.): **50+**

Distance to Septic Field or other concentrated contamination (ft.): **150+**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **measured w/owner**

Surface Completion: **Surface Slab Installed**

Water Level: **57 ft.** below land surface on **2012-10-23** Measurement Method: **Unknown**

Packers: **1 rubber 10 ft**

Type of Pump: **Submersible** Pump Depth (ft.): **140**

Well Tests: **Jetted** **Yield: 100+ GPM with 111 ft. drawdown after 3 hours**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	**No Data**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Jimmys Well Service**

P O Box 70
Bastrop, TX 78602

Driller Name: **David Odom** License Number: **58556**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

From (ft)	To (ft)	Description
0-	**12**	**brown dirt**
12-	**20**	**sand and small gravel**
20-	**106**	**gray shale w/sand layers**
106-	**114**	**lignite**
114-	**117**	**brown clay**
117-	**121**	**lignite**
121-	**207**	**gray shale w/lignite**
207-	**208**	**rock**
208-	**216**	**sandy shale**
216-	**217**	**rock**
217-	**247**	**sand**
247-	**248**	**rock**
248-	**350**	**sand**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
5	**n**	**solid**	**0 300**
5	**n**	**slotted**	**300 340 .014**
5	**n**	**solid**	**340 350**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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P.O. Box 12157
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(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #436826

Owner:	**Melvin klatt - Lauren Concrete**	Owner Well #:	**No Data**
Address:	**113 Kalama Drive Bastrop, TX 78602**	Grid #:	**58-54-7**
Well Location:	**113 Kalama Drive Bastrop, TX 78602**	Latitude:	**30° 08' 08" N**
		Longitude:	**097° 20' 20" W**
Well County:	**Bastrop**	Elevation:	**470 ft. above sea level**
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **6/13/2016** Drilling End Date: **9/20/2016**

	Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
Borehole:	**8.75**	**0**	**245**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **gravel packed**

	Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
Annular Seal Data:	**0**	**10**	**Cement 14**

Seal Method: **Hand Mixed**

Sealed By: **Driller**

Distance to Property Line (ft.): **50+**

Distance to Septic Field or other concentrated contamination (ft.): **150+**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **measured w/owner**

Surface Completion: **Surface Slab Installed** **Surface Completion by Driller**

Water Level: **No Data**

Packers: **Rubber at 10 ft.**

Type of Pump: **Submersible** Pump Depth (ft.): **180**

Well Tests: **Jetted** **Yield: 30 GPM with 41 ft. drawdown after 6 hours**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	**No Data**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Jimmy's Well Service**

P O Box 70
Bastrop, TX 78602

Driller Name: **David Odom** License Number: **58556**

Apprentice Name: **Shane Odom** Apprentice Number: **59687**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**18**	**sand/ bull rock**
18	**29**	**sandy gravel**
29	**106**	**sandy shale**
106	**147**	**clay w/sandy streaks**
147	**245**	**sandy shale**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
5	**Blank**	**New Plastic (PVC)**	**80 17**	**0**	**210**
5	**Perforated or Slotted**	**New Plastic (PVC)**	**80 0.016**	**210**	**245**

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(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #536840

Owner:	**Samuel Stevenson**	Owner Well #:	**No Data**
Address:	**363 Smith Rd Bastrop, TX 78602**	Grid #:	**58-54-7**
Well Location:	**363 Smith Rd Bastrop, TX 78602**	Latitude:	**30° 08' 45" N**
		Longitude:	**097° 20' 05" W**
Well County:	**Bastrop**	Elevation:	**430 ft. above sea level**
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **2/4/2020** Drilling End Date: **2/6/2020**

	Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
Borehole:	**9**	**0**	**580**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

	Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
Filter Pack Intervals:	**430**	**575**	**Gravel**	**1/8"**

	Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
Annular Seal Data:	**0**	**10**	**Concrete 14 Bags/Sacks**

Seal Method: **Hand Mixed**

Sealed By: **Driller**

Distance to Property Line (ft.): **+100**

Distance to Septic Field or other concentrated contamination (ft.): **N/A**

Distance to Septic Tank (ft.): **N/A**

Method of Verification: **per landowner**

Surface Completion: **Surface Sleeve Installed** **Surface Completion by Driller**

Water Level: **128 ft.** below land surface on **2020-02-06** Measurement Method: **Electric Line**

Packers: **hole plug at 430 ft.**

Type of Pump: **No Data**

Well Tests: **Jetted** **Yield: 100 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	**No Data**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Jackson Water Well**

PO Box 234
Rosanky, TX 78953

Driller Name: **Dake Jackson** License Number: **59214**

Apprentice Name: **Paul Stanley** Apprentice Number: **59983**

Comments: **well complete at 575 ft.**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**1**	**top soil**
1	**8**	**red clay**
8	**22**	**sandy clay**
22	**190**	**sand & lignite**
190	**220**	**sandy clay**
220	**400**	**sand**
400	**430**	**sandy clay**
430	**575**	**sand**
575	**580**	**clay**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4.5	**Blank**	**New Plastic (PVC)**	**SDR17**	**3**	**555**
4.5	**Screen**	**New Plastic (PVC)**	**SDR17 0.020**	**555**	**575**

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STATE OF TEXAS WELL REPORT for Tracking #626299

Owner:	**Alberto Frausto Rodriguez Melissa Marie**	Owner Well #:	**No Data**
Address:	**Cirrus Ln Lot 1-c Bastrop, TX 78602**	Grid #:	**58-54-8**
Well Location:	**Cirrus Ln Lot 1-c Bastrop, TX 78602**	Latitude:	**30° 08' 42.88" N**
Well County:	**Bastrop**	Longitude:	**097° 19' 46.87" W**
		Elevation:	**441 ft. above sea level**

Type of Work: **New Well** Proposed Use: **Domestic**

Drilling Start Date: **12/1/2022** Drilling End Date: **12/1/2022**

Borehole:

Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
8.75	**0**	**275**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

Filter Pack Intervals:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
205	**275**	**Gravel**	**1/8**

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
0	**25**	**Cement 18 Bags/Sacks**
20	**205**	**Grout 15 Bags/Sacks**

Seal Method: **Hand Mixed**

Sealed By: **Driller**

Distance to Property Line (ft.): **76**

Distance to Septic Field or other concentrated contamination (ft.): **NA**

Distance to Septic Tank (ft.): **100+**

Method of Verification: **Owner**

Surface Completion: **Surface Sleeve Installed** **Surface Completion by Driller**

Water Level: **172 ft.** below land surface on **2022-12-01**

Packers: **No Data**

Type of Pump: **Submersible** Pump Depth (ft.): **215**

Well Tests: **Jetted** **Yield: 35-40 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	**No Data**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Jimmy's Well Service LLC**

P O Box 70
Bastrop, TX 78602

Driller Name: **David Odom** License Number: **58556**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**14**	**Red and Tan Clay with Sandy Gravel**
14	**24**	**Tan Sand**
24	**44**	**Grey Clay and Sand**
44	**79**	**Grey Shale**
79	**81**	**Lignite**
81	**98**	**Grey Shale**
98	**134**	**Grey Sandy Shale**
134	**136**	**Rock**
136	**220**	**Grey Shale**
220	**275**	**Sand**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4	**Blank**	**New Plastic (PVC)**	**40**	**0**	**235**
4	**Screen**	**New Plastic (PVC)**	**0.020**	**235**	**275**

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STATE OF TEXAS WELL REPORT for Tracking #655369

Owner:	**Clayton Homes #1**	Owner Well #:	**No Data**
Address:	**166 Cirrus Ln Bastrop, TX 78602**	Grid #:	**58-54-8**
Well Location:	**166 Cirrus Ln Bastrop, TX 78602**	Latitude:	**30° 08' 41.2" N**
		Longitude:	**097° 19' 47.86" W**
Well County:	**Bastrop**	Elevation:	**441 ft. above sea level**
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **12/11/2023** Drilling End Date: **12/11/2023**

Borehole:

Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
12	**0**	**5**
7.5	**5**	**270**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

Filter Pack Intervals:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
220	**270**	**Gravel**	**1/8**

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
0	**4**	**Cement 3 Bags/Sacks**
4	**10**	**Hole Plug 4 Bags/Sacks**

Seal Method: **Hand Mixed**

Sealed By: **Driller**

Distance to Property Line (ft.): **54**

Distance to Septic Field or other concentrated contamination (ft.): **NA**

Distance to Septic Tank (ft.): **NA**

Method of Verification: **Owner**

Surface Completion: **Surface Sleeve Installed** **Surface Completion by Driller**

Water Level: **164 ft.** below land surface on **2023-12-11**

Packers: **Plastic at 10 ft.**

Type of Pump: **Submersible** Pump Depth (ft.): **220**

Well Tests: **Jetted** **Yield: 40 GPM with 67 ft. drawdown after unspecified hours**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	**No Data**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Jimmy's Well Service LLC**

P O Box 70
Bastrop, TX 78602

Driller Name: **David Odom** License Number: **58556**

Comments: **No Data**

Report Amended on 3/11/2024 by Request #41812

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**2**	**Sand And Gravel**
2	**4**	**Red Clay**
4	**33**	**Tan Clay**
33	**46**	**Grey Shale**
46	**63**	**Sand**
63	**68**	**Lignite**
68	**120**	**Sand And Shale Layers**
120	**121**	**Rock**
121	**161**	**Sand And Sandy Shale**
161	**219**	**Grey Shale**
219	**270**	**Sand**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4	**Blank**	**New Plastic (PVC)**	**SDR 17**	**0**	**230**
4	**Screen**	**New Plastic (PVC)**	**0.2**	**230**	**270**

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STATE OF TEXAS WELL REPORT for Tracking #660512

Owner:	**JOT Holding**	Owner Well #:	**No Data**
Address:	**Cirrus Ln Bastrop, TX 78602**	Grid #:	**58-54-8**
Well Location:	**Cirrus Ln Bastrop, TX 78602**	Latitude:	**30° 08' 40.53" N**
		Longitude:	**097° 19' 49.2" W**
Well County:	**Bastrop**	Elevation:	**444 ft. above sea level**
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **12/28/2023** Drilling End Date: **12/28/2023**

Borehole:

Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
12	**0**	**5**
7.5	**5**	**280**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

Filter Pack Intervals:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
220	**280**	**Gravel**	**1/8**

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
0	**4**	**Cement 3 Bags/Sacks**
4	**10**	**Hole Plug 4 Bags/Sacks**

Seal Method: **Hand Mixed**

Sealed By: **Driller**

Distance to Property Line (ft.): **55**

Distance to Septic Field or other concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **NA**

Method of Verification: **Owner**

Surface Completion: **Surface Sleeve Installed** **Surface Completion by Driller**

Water Level: **164 ft.** below land surface on **No Data**

Packers: **Plastic at 10 ft.**

Type of Pump: **Submersible** Pump Depth (ft.): **220**

Well Tests: **Jetted** **Yield: 40 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	**No Data**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Jimmy's Well Service LLC**

P O Box 70
Bastrop, TX 78602

Driller Name: **David Odom** License Number: **58556**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**2**	**Sandy Loam**
2	**12**	**Red Sand And Rock**
12	**16**	**Gravel**
16	**44**	**Tan Clay**
44	**84**	**Sandy Shale**
84	**143**	**Sand**
143	**209**	**Grey Shale**
209	**210**	**Rock**
210	**218**	**Sandy Shale**
218	**280**	**Sand**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4	**Blank**	**New Plastic (PVC)**		**0**	**235**
4	**Screen**	**New Plastic (PVC)**	**0.2**	**235**	**275**
4	**Blank**	**New Plastic (PVC)**		**275**	**280**

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STATE OF TEXAS WELL REPORT for Tracking #660458

Owner:	**Clayton Holmes**	Owner Well #:	**No Data**
Address:	**165 Cyrus Ln Bastrop, TX 78602**	Grid #:	**58-54-8**
Well Location:	**165 Cyrus Ln Bastrop, TX 78602**	Latitude:	**30° 08' 40.35" N**
		Longitude:	**097° 19' 50.22" W**
Well County:	**Bastrop**	Elevation:	**437 ft. above sea level**
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **12/13/2023** Drilling End Date: **12/13/2023**

Borehole:

Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
12	**0**	**5**
7.5	**5**	**280**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

Filter Pack Intervals:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
220	**280**	**Gravel**	**1/8**

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
0	**4**	**Cement 4 Bags/Sacks**
4	**10**	**Hole Plug 4 Bags/Sacks**

Seal Method: **Hand Mixed**

Sealed By: **Driller**

Distance to Property Line (ft.): **50+**

Distance to Septic Field or other concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **NA**

Method of Verification: **No Data**

Surface Completion: **Surface Sleeve Installed** **Surface Completion by Driller**

Water Level: **174 ft.** below land surface on **No Data**

Packers: **Plastic at 10 ft.**

Type of Pump: **Submersible** Pump Depth (ft.): **220**

Well Tests: **Jetted** **Yield: 35 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	**No Data**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Jimmy's Well Service LLC**

P O Box 70
Bastrop, TX 78602

Driller Name: **David Odom** License Number: **58556**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**12**	**Gravel And Sand**
12	**24**	**Red Clay**
24	**78**	**Grey Shale**
78	**99**	**Sandy Shale**
99	**121**	**Grey Shale**
121	**154**	**Sandy Shale**
154	**216**	**Grey Shale**
216	**280**	**Sand**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4	**Blank**	**New Plastic (PVC)**	**40**	**0**	**235**
4	**Screen**	**New Plastic (PVC)**	**0.2**	**235**	**275**
4	**Blank**	**New Plastic (PVC)**	**40**	**275**	**280**

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STATE OF TEXAS WELL REPORT for Tracking #635214

Owner:	**Emilo Perez**	Owner Well #:	**No Data**
Address:	**173 Cirrus Ln Bastrop, TX 78602**	Grid #:	**58-54-8**
Well Location:	**173 Cirrus Ln Bastrop, TX 78602**	Latitude:	**30° 08' 40.14" N**
		Longitude:	**097° 19' 49.67" W**
Well County:	**Bastrop**	Elevation:	**433 ft. above sea level**
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **3/23/2023** Drilling End Date: **3/23/2023**

Borehole:

Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
10	**0**	**5**
7.5	**5**	**270**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

Filter Pack Intervals:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
200	**270**	**Gravel**	**1/8**

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
0	**10**	**Cement 7 Bags/Sacks**

Seal Method: **Hand Mixed**

Sealed By: **Driller**

Distance to Property Line (ft.): **53**

Distance to Septic Field or other concentrated contamination (ft.): **100+**

Distance to Septic Tank (ft.): **90**

Method of Verification: **Owner**

Surface Completion: **Surface Sleeve Installed** **Surface Completion by Driller**

Water Level: **No Data**

Packers: **Plastic at 10 ft.**

Type of Pump: **Submersible** Pump Depth (ft.): **216**

Well Tests: **Jetted** **Yield: 40+ GPM**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	**No Data**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Jimmy's Well Service LLC**

P O Box 70
Bastrop, TX 78602

Driller Name: **David Odom** License Number: **58556**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**5**	**Red Clay**
5	**37**	**Red Sand**
37	**114**	**Grey Clay**
114	**137**	**Sand with Lignite**
137	**185**	**Grey Shale**
185	**186**	**Rock**
186	**219**	**Shale**
219	**221**	**Rock**
221	**270**	**Sand**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4	**Blank**	**New Plastic (PVC)**	**40**	**0**	**230**
4	**Screen**	**New Plastic (PVC)**	**0.020**	**230**	**270**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #617395

Owner:	**Brad & Lindsay Sivers**	Owner Well #:	**No Data**
Address:	**177 Cirrus Ln Bastrop, TX 78602**	Grid #:	**58-54-8**
		Latitude:	**30° 08' 39.9" N**
Well Location:	**177 Cirrus Ln Bastrop, TX 78602**	Longitude:	**097° 19' 50.11" W**
Well County:	**Bastrop**	Elevation:	**432 ft. above sea level**
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **8/31/2022** Drilling End Date: **8/31/2022**

Borehole:

Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
8.75	**0**	**272**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

Filter Pack Intervals:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
200	**272**	**Gravel**	**1/8**

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
0	**8**	**Cement 6 Bags/Sacks**
8	**200**	**Grout 13 Bags/Sacks**

Seal Method: **Hand Mixed**

Sealed By: **Driller**

Distance to Property Line (ft.): **28**

Distance to Septic Field or other concentrated contamination (ft.): **N/A**

Distance to Septic Tank (ft.): **N/A**

Method of Verification: **Measured with Owner**

Surface Completion: **Surface Sleeve Installed** **Surface Completion by Driller**

Water Level: **No Data**

Packers: **None Grout from gravel up**

Type of Pump: **Submersible** Pump Depth (ft.): **200**

Well Tests: **Jetted** **Yield: 40 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	**No Data**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Jimmy's Well Service LLC**

P O Box 70
Bastrop, TX 78602

Driller Name: **David Odom** License Number: **58556**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**7**	**Red Clay**
7	**35**	**Red Sand**
35	**51**	**Brown Clay**
51	**98**	**Grey Shale**
98	**117**	**Light Grey Silty Clay**
117	**119**	**Rock**
119	**217**	**Light Grey Shale**
217	**219**	**Rock**
219	**270**	**Sand**
270	**272**	**Shale**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4	**Blank**	**New Plastic (PVC)**	**SDR17**	**0**	**232**
4	**Perforated or Slotted**	**New Plastic (PVC)**	**SDR17 0.020**	**232**	**270**

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(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #655373

Owner:	**AdAlberto Auiles Lopez**	Owner Well #:	**No Data**
Address:	**183 Cirrus Ln Bastrop, TX 78602**	Grid #:	**58-54-8**
		Latitude:	**30° 08' 38.94" N**
Well Location:	**183 Cirrus Ln Bastrop, TX 78602**	Longitude:	**097° 19' 51.08" W**
Well County:	**Bastrop**	Elevation:	**423 ft. above sea level**
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **12/4/2023** Drilling End Date: **12/4/2023**

Borehole:

Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
12	**0**	**5**
8.75	**5**	**260**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

Filter Pack Intervals:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
200	**260**	**Gravel**	**1/8**

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
0	**4**	**Cement 4 Bags/Sacks**
4	**10**	**Hole Plug 4 Bags/Sacks**

Seal Method: **Hand Mixed**

Sealed By: **Driller**

Distance to Property Line (ft.): **52**

Distance to Septic Field or other concentrated contamination (ft.): **NA**

Distance to Septic Tank (ft.): **NA**

Method of Verification: **Owner**

Surface Completion: **Surface Sleeve Installed** **Surface Completion by Driller**

Water Level: **155 ft.** below land surface on **No Data**

Packers: **Plastic at 10 ft.**

Type of Pump: **Submersible** Pump Depth (ft.): **200**

Well Tests: **Jetted** **Yield: 30-35 GPM with 55 ft. drawdown after unspecified hours**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	**No Data**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Jimmy's Well Service LLC**

P O Box 70
Bastrop, TX 78602

Driller Name: **David Odom** License Number: **58556**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**4**	**Red Clay**
4	**29**	**Orange Clay**
29	**34**	**Fine Gravel**
34	**53**	**Grey Clay**
53	**58**	**Lignite**
58	**79**	**Grey Shale**
79	**144**	**Sandy Shale**
144	**145**	**Rock**
145	**204**	**Grey Shale And Sand Streaks**
204	**207**	**Rock**
207	**260**	**Sand**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4	**Blank**	**New Plastic (PVC)**	**SDR 17**	**0**	**215**
4	**Screen**	**New Plastic (PVC)**	**0.2**	**215**	**255**
4	**Blank**	**New Plastic (PVC)**	**SDR 17**	**255**	**260**

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P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #660495

Owner:	**Margarita Balderas**	Owner Well #:	**No Data**
Address:	**5704 Netleaf Rd Austin , TX 78724**	Grid #:	**58-54-8**
		Latitude:	**30° 08' 37.52" N**
Well Location:	**Block 3 Lot 1 Cirrus Ln Bastrop, TX 78599**	Longitude:	**097° 19' 52.44" W**
Well County:	**Bastrop**	Elevation:	**417 ft. above sea level**
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **12/27/2023** Drilling End Date: **12/27/2023**

Borehole:

Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
12	**0**	**5**
7.5	**5**	**270**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

Filter Pack Intervals:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
220	**270**	**Gravel**	**1/8**

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
0	**4**	**Cement 4 Bags/Sacks**
4	**10**	**Hole Plug 4 Bags/Sacks**

Seal Method: **Hand Mixed**

Sealed By: **Driller**

Distance to Property Line (ft.): **50+**

Distance to Septic Field or other concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **NA**

Method of Verification: **Owner**

Surface Completion: **Surface Sleeve Installed** **Surface Completion by Driller**

Water Level: **124 ft.** below land surface on **No Data**

Packers: **Plastic at 10 ft.**

Type of Pump: **Submersible** Pump Depth (ft.): **207**

Well Tests: **Jetted** **Yield: 40+ GPM**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	**No Data**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Jimmy's Well Service LLC**

P O Box 70
Bastrop, TX 78602

Driller Name: **David Odom** License Number: **58556**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**2**	**Sandy Loam**
2	**4**	**Red Clay**
4	**13**	**Sandy Shale**
13	**26**	**Gravel**
26	**33**	**Sand**
33	**68**	**Brown Clay**
68	**69**	**Rock**
69	**106**	**Grey Shale**
106	**144**	**Sand And Sandy Shale**
144	**206**	**Grey Shale**
206	**270**	**Sand**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4	**Blank**	**New Plastic (PVC)**	**40**	**0**	**230**
4	**Screen**	**New Plastic (PVC)**	**0.2**	**230**	**270**

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P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #654661

Owner:	**Bastrop Best Pork**	Owner Well #:	**No Data**
Address:	**Block B Lot 5 Bastrop, TX 78602**	Grid #:	**58-54-8**
Well Location:	**Block B Lot 5 Bastrop, TX 78602**	Latitude:	**30° 08' 35.84" N**
		Longitude:	**097° 19' 55.76" W**
Well County:	**Bastrop**	Elevation:	**401 ft. above sea level**
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **9/17/2023** Drilling End Date: **9/17/2023**

Borehole:

Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
12	**0**	**5**
8.75	**5**	**310**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

Filter Pack Intervals:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
230	**310**	**Gravel**	**1/8**

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
0	**4**	**Cement 4 Bags/Sacks**
4	**10**	**Hole Plug 4 Bags/Sacks**

Seal Method: **Hand Mixed**

Sealed By: **Driller**

Distance to Property Line (ft.): **50+**

Distance to Septic Field or other concentrated contamination (ft.): **NA**

Distance to Septic Tank (ft.): **NA**

Method of Verification: **Owner**

Surface Completion: **Surface Sleeve Installed** **Surface Completion by Driller**

Water Level: **168 ft.** below land surface on **2023-09-17**

Packers: **Plastic at 10 ft.**

Type of Pump: **Submersible** Pump Depth (ft.): **240**

Well Tests: **Jetted** **Yield: 50+ GPM with 74 ft. drawdown after unspecified hours**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	**No Data**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Jimmy's Well Service LLC**

P O Box 70
Bastrop, TX 78602

Driller Name: **David Odom** License Number: **58556**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**3**	**Sand And Gravel**
3	**12**	**Red Clay**
12	**19**	**Gravel**
19	**40**	**Tan Clay**
40	**94**	**Grey Shale**
94	**140**	**Sand**
140	**211**	**Sandy Shale**
211	**213**	**Rock**
213	**310**	**Sand**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4.5	**Blank**	**New Plastic (PVC)**	**SDR 17**	**0**	**270**
4.5	**Screen**	**New Plastic (PVC)**	**0.2**	**270**	**310**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #670884

Owner:	**Titan Homes**	Owner Well #:	**No Data**
Address:	**Lot 3 Block D Cirrus LN Bastrop, TX 78602**	Grid #:	**58-54-8**
Well Location:	**Lot 3 Block D Cirrus LN Bastrop, TX 78602**	Latitude:	**30° 08' 34.31" N**
		Longitude:	**097° 19' 55.37" W**
Well County:	**Bastrop**	Elevation:	**407 ft. above sea level**
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **7/9/2024** Drilling End Date: **7/9/2024**

Borehole:

Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
8.75	**0**	**260**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

Filter Pack Intervals:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
200	**260**	**Gravel**	**1/8**

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
0	**10**	**Cement 8 Bags/Sacks**

Seal Method: **Hand Mixed**

Sealed By: **Driller**

Distance to Property Line (ft.): **55+**

Distance to Septic Field or other concentrated contamination (ft.): **NA**

Distance to Septic Tank (ft.): **NA**

Method of Verification: **Owner**

Surface Completion: **Surface Sleeve Installed** **Surface Completion by Driller**

Water Level: **138 ft.** below land surface on **No Data**

Packers: **Plastic at 10 ft.**

Type of Pump: **Submersible** Pump Depth (ft.): **220**

Well Tests: **Jetted** **Yield: 40+ GPM with 93 ft. drawdown after unspecified hours**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	**No Data**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Jimmy's Well Service LLC**

P O Box 70
Bastrop, TX 78602

Driller Name: **David Odom** License Number: **58556**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**2**	**Sandy Loam**
2	**7**	**Red Clay**
7	**31**	**Tan Sandy Clay**
31	**57**	**Grey Shale**
57	**97**	**Sand And Shale**
97	**131**	**Sand**
131	**194**	**Grey Shale**
194	**260**	**Sand**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4	**Blank**	**New Plastic (PVC)**		**0**	**220**
4	**Screen**	**New Plastic (PVC)**	**0.020**	**220**	**260**

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STATE OF TEXAS WELL REPORT for Tracking #662024

Owner:	**Adrian Garcia**	Owner Well #:	**No Data**
Address:	**Lot 4 Block D Cirrus Ln Bastrop, TX 78602**	Grid #:	**58-54-8**
Well Location:	**Lot 4 Block D Cirrus Ln Bastrop, TX 78602**	Latitude:	**30° 08' 33.47" N**
		Longitude:	**097° 19' 56.85" W**
Well County:	**Bastrop**	Elevation:	**393 ft. above sea level**
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **3/19/2024** Drilling End Date: **3/19/2024**

	Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
Borehole:	**16.75**	**0**	**280**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

	Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
Filter Pack Intervals:	**220**	**280**	**Gravel**	**1/8**

	Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
Annular Seal Data:	**0**	**2**	**Cement 3 Bags/Sacks**
	2	**10**	**Hole Plug 7 Bags/Sacks**

Seal Method: **Hand Mixed**

Sealed By: **Driller**

Distance to Property Line (ft.): **55**

Distance to Septic Field or other concentrated contamination (ft.): **No Septic**

Distance to Septic Tank (ft.): **NA**

Method of Verification: **With Owner**

Surface Completion: **Surface Sleeve Installed** **Surface Completion by Driller**

Water Level: **119 ft.** below land surface on **No Data**

Packers: **Plastic at 10 ft.**

Type of Pump: **Submersible** Pump Depth (ft.): **240**

Well Tests: **Jetted** **Yield: 15-20 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	**No Data**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Jimmy's Well Service LLC**

P O Box 70
Bastrop, TX 78602

Driller Name: **David Odom** License Number: **58556**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**11**	**Red Clay**
11	**21**	**Gravel**
21	**29**	**Tan Clay**
29	**64**	**Grey Clay**
64	**134**	**Grey Sandy Shale**
134	**178**	**Grey Shale**
178	**219**	**Sand**
219	**220**	**Rock**
220	**280**	**Sand**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4	**Blank**	**New Plastic (PVC)**		**0**	**240**
4	**Screen**	**New Plastic (PVC)**	**0.2**	**240**	**280**

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ATTACHMENT 10

GROUNDWATER QUALITY TECHNICAL REPORT

4411 S Interstate 35, Ste 100
Georgetown, Texas 78626
www.reuseinn.com

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4411 S Interstate 35, Ste 100
Georgetown, Texas 78626
www.reuseinn.com

I. Site Information

The Sayers Ranch Community is in Bastrop County, Texas, 0.5 miles from the city limits of Bastrop, Texas (Figure 1). The site is currently undeveloped farmland, with construction projected to start in Calendar Year 2026. The proposed development will consist of single-family homes.

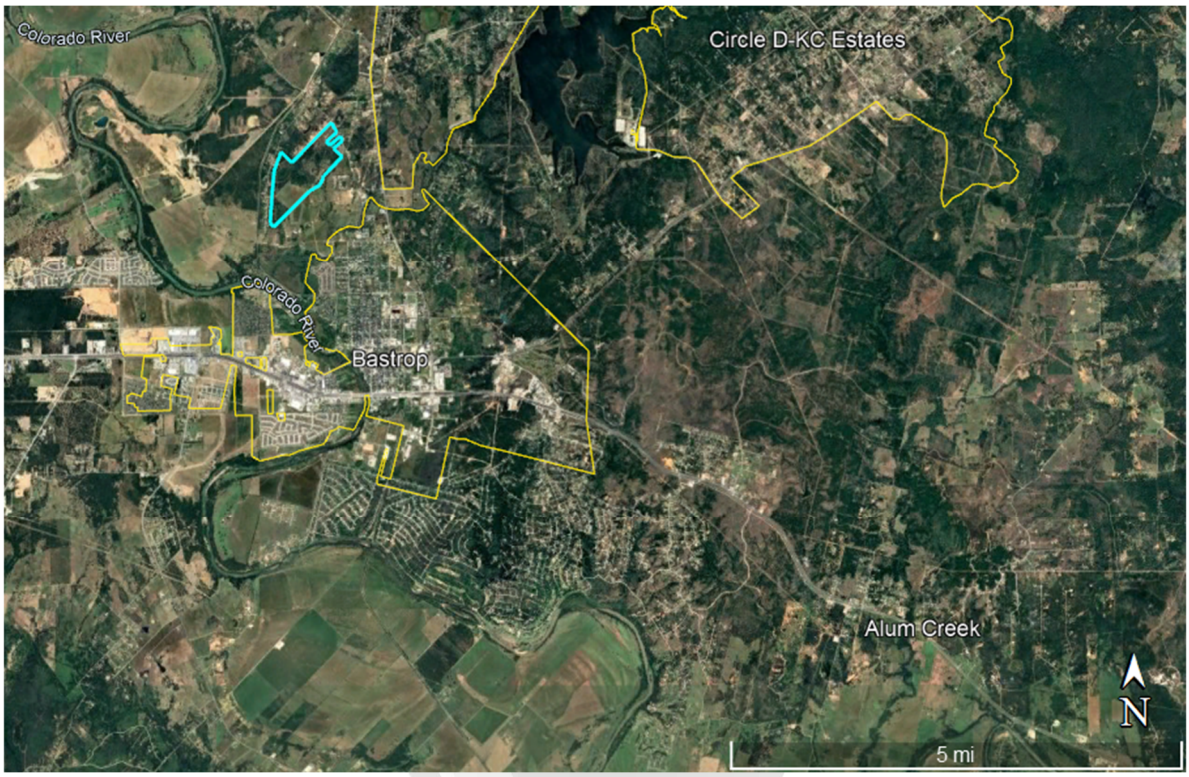


Figure 1. Site Location Map.

There are currently 885 proposed lots in the Sayers Ranch Community, which would require a minimum of 199,125 gallons per day (gpd) of wastewater capacity. The proposed Wastewater Treatment Facility (WWTF) will be sized for 200,000 gpd treatment capacity. Sayers Ranch WWTP will pursue a Texas Land Application Permit (TLAP) to dispose of the treated effluent from the Membrane Bioreactor (MBR) WWTF via a subsurface area drip dispersal system (SADDS). The TLAP will serve the full 200,000 gpd flow for the development.

II. Proposed SADDS Design

The results of onsite soil testing show that Sayers Ranch soils have an average 10% Ksat value of 0.36 gallons per day per square foot (gpd/sf) in the southwest region, and 2.34 gpd/SF in the central greenbelt area. Applying a more conservative 10% Ksat value of 0.25 gpd/SF to the site would require a total of 18.4 acres for drip irrigation to serve the full 200,000 gpd for the

development (Figure 2). Please refer to Attachment 15 for more details on soil testing and the request for a higher hydraulic application rate than the standard 0.1 gpd/SF that is typically required for this region.



Figure 2. Map of Potential Drip Irrigation Areas.

It may be possible to reduce the required acreage even further if the executive director would consider a higher percentage, such as 15% Ksat, for Sayers Ranch soils, but this would require special approval. Other locations onsite may be utilized for irrigation, but further soil testing would be required to increase the application rate above 0.1 gpd/SF.

Treated domestic wastewater would be stored in an aboveground storage tank (AST) located adjacent to the proposed WWTF. The AST would be sized to hold three days of the design treatment rate (200,000 gpd): 600,000 gallons.

III. Stratigraphy and Lithology Summary

Fluviatile terrace deposits are mapped at the land surface in the southern portion of the site and the Calvert Bluff Formation is mapped at the land surface in the central and northern portions of the site (Figure 3).

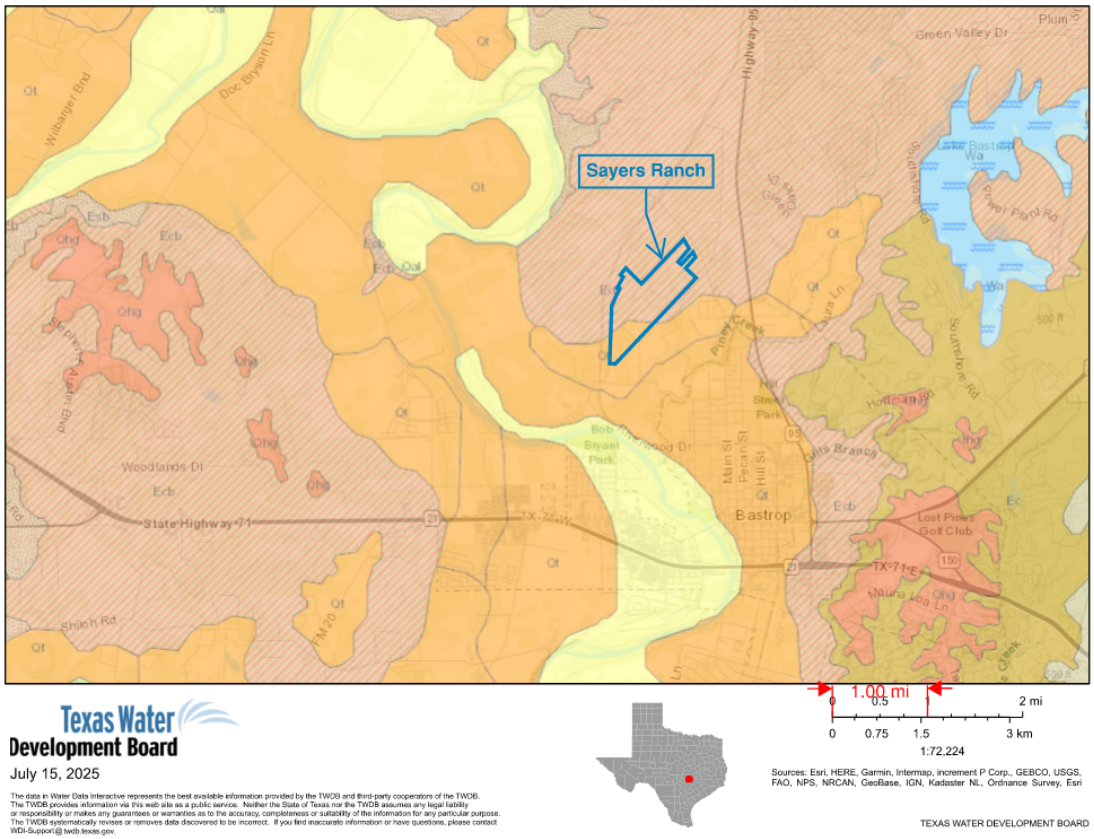


Figure 3. Geologic Map of Site and Surrounding Area.

The Calvert Bluff Formation consists mainly of fine to coarse grained sand and sandstone, interbedded with silt, mudstone and lignite. Sandstones can yield appreciable quantities of water in the Calvert Bluff Formation when present in sufficient thickness. The Calvert Bluff Formation is the uppermost (youngest) unit within the Wilcox Group, which is part of the Carrizo-Wilcox Aquifer. The Wilcox Group also includes the Simsboro and Hooper Formations, both outcropping west-northwest of the site. Younger sediment/rock outcrop east-southeast of the site including the Carrizo Formation.

Figure 5 of Texas Water Development Board, Report 109, Ground-Water Resources of Bastrop County, Texas (March 1970) notes a fault approximately four (4) miles south of the site. No other faults were identified in publicly accessible geologic reports.

IV. Aquifer Description

As referenced above, the aquifer underlying the site is the Carrizo-Wilcox Aquifer. George and others (2011) describe the aquifer as a "major aquifer extending from the Louisiana border to the border of Mexico and consists of the Wilcox Group and the overlying Carrizo Formation of

the Claiborne Group. The aquifer is primarily composed of sand locally interbedded with gravel, silt, clay, and lignite. Although the Carrizo-Wilcox Aquifer reaches 3,000 feet in thickness, the freshwater saturated thickness of sands averages 670 feet. The groundwater, although hard, is generally fresh and typically contains less than 500 milligrams per liter of total dissolved solids in the outcrop, whereas softer groundwater with total dissolved solids of more than 1,000 milligrams per liter can occur in the subsurface in areas further downdip from the outcrop."

Groundwater flow in the Carrizo-Wilcox Aquifer is expected to be to the southeast; generally in the direction of regional dip.

V. Water Well Review

Per 30 TAC § 309.20(a)(4) subparagraph (A), a total of 18 water wells were identified on the Texas Water Development Board's (TWDB's) Water Data Interactive database within a ½-mile radius of the proposed application site boundaries. The location of these wells along with the State of Texas Well Reports are included as Attachment 9. Information regarding these wells is also presented in Table 3.0(3) included in Attachment 9.

All 18 wells were identified as "domestic" water wells and varied in depth from 235 feet below land surface (bls) to 580 feet bls. Additionally, all 18 wells were cased with casing depths varying from 208 feet to 555 feet bls. Depth to groundwater was reported in 17 of the 18 wells and varied from depths of 55 feet to 174 feet bls. Blown or jetted yields were reported for all wells and ranged from 15 gallons per minute (gpm) to 100 gpm. Specific capacity was reported for eight (8) of the wells and ranged from 0.23 gallons per minute per foot of drawdown (gpm/ft) to 50 gpm/ft.

The nearest water well to one of the two proposed application sites is State Well Number 58-54-801, located approximately 400 feet south-southeast of the central application site. The well was completed in January 1980 with 300 feet of 4-inch diameter casing and was used by the TWDB to monitor groundwater elevations from January 1980 through July 1987. Depth to groundwater during this period of time varied from 79 to 84 feet bls.

Three other domestic water wells are located hydrogeologically downgradient of the proposed application areas. These wells are approximately 700 feet to ½ mile from the application areas and were constructed with casing at depths of 208, 240, and 315 feet. Depth to groundwater in the nearest well was reported at 100 feet bls.

The Well Information Report for State Well Number 58-54-801 noted that the groundwater is derived from the Simsboro Sand Member of the Rockdale Formation. Review of geological

reports for Bastrop County indicates that the Simsboro Sand Member is a geologic formation within the Rockdale Formation of Plummer (1932), which is part of the Wilcox Group.

A groundwater sample was collected from the well in August 1980 and analyzed for a suite of inorganic constituents. The results are presented on the well report included as Attachment 9. Laboratory analysis did not detect any analyte above its secondary maximum contaminant level. Analytes of consideration and their reported concentration include:

- Total dissolved solids: 417 milligram per liter (mg/L);
- Specific conductance: 750 microohms per centimeter;
- Total chloride: 42 mg/L;
- Total sulfate: 8.6 mg/L; and
- Total iron: 90 micrograms per liter.

As noted in the soil evaluation report included as Technical Report Attachment 15, a geotechnical investigation was performed in November 2024 where eight (8) soil borings and six (6) test pits were advanced across the proposed site. Two (2) of the soil borings were advanced to 50 feet bls and groundwater was observed in one (1) of the soil borings at a depth of 27 feet bls. The lithologic log for this boring noted water was first encountered at this depth but no further information was provided concerning the groundwater level at the completion of the boring.

VI. Former Lignite Mine Area

Information obtained during our evaluation indicates that the southern portion of the site was formerly a lignite mine. In March 1982, the Lower Colorado River Authority issued a report entitled “Mining History of Powell Bend Lease Area”, which is included as Appendix 10-A. As noted in Exhibit 1 of this report, the southernmost corner of the proposed Sayers Ranch development site was mined for lignite with a railroad spur from the western adjacent Missouri-Kansas-Texas (M-K-T) Railroad transecting the mined area. Reportedly, lignite was mined via the vertical shaft method where a vertical shaft is dug/excavated on the down-dip (lowest elevation) point of the lignite seam. These shafts reportedly ranged from 40 to 160 feet in depth. Lignite was subsequently excavated via the “room and pillar” method.

In late 1996, Maxim Technologies, Inc. (Maxim) performed a Geotechnical Engineering Investigation and Environmental Assessment for a proposed 136-acre housing development, which is part of the proposed Sayers Ranch development. Maxim’s 1996 report is included as Appendix 10-B. As part of their investigation, Maxim reviewed historical aerial photographs with remnants of the above referenced railroad spur reportedly being apparent in the 1951 aerial

photograph. This railroad spur was “the only indication of past mining activity” identifiable on the aerial photographs.

A field investigation (visual observation of the former mine area) was performed as part of Maxim’s investigation with “approximately 25 sinkholes” being observed (Figure 4). The “sinkholes” varied in depth from two (2) to 15 feet and were “generally circular in shape”. Maxim noted that “these depressions appear to be related to the former mining activities at the site and may seem to have been deepened through erosion from surface runoff.”

reUse performed Amoozemeter tests and excavated several test pits in the proposed application areas in early June 2025. Visual observations of the readily accessible areas of the proposed application areas identified two circular depressions, each approximately 13 feet in diameter and approximately 8 feet in depth. These depressions are located in the former mine area at coordinates: 30.134489/-97.336133 and 30.134389/-97.336529.



Figure 4. Map of Depressions.

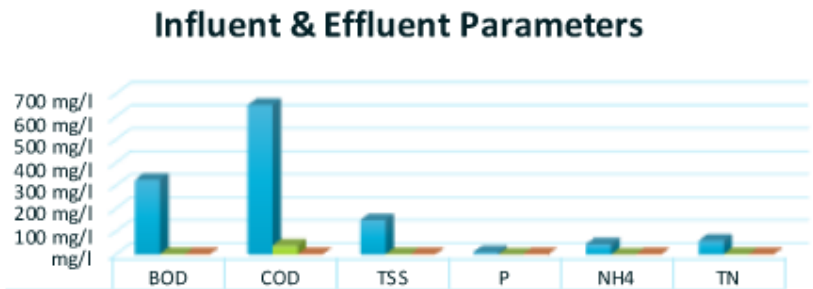
The lithologic log for State Well Number 58-54-801 included in Attachment 9 noted lignite at depths of 33 to 35 and 80 to 100 feet bls. Boring logs for the two borings advanced to 50 feet bls (B-01 and B-02) during the Geotechnical Investigation completed in November 2024 encountered lignite at depths of 38.5 to 44.5 and 44.5 to 48.5 feet, respectively. Soil overlying

the referenced lignite seams in both borings include approximately 20 feet of sandy fat clay, sandy lean clay, and lean clay underlain by a five (5) to nine (9) foot lens of clayey sand with gravel.

VII. Conclusion

Depth to groundwater at the site ranges from approximately 27 to 100 feet bls. Domestic water wells are located within ½-mile of the proposed application areas, but all the wells are constructed with more than 200 feet of casing. Additionally, only four (4) of the 18 domestic wells are located hydrogeologically downgradient of the application areas with the nearest well being 400 feet from the central greenbelt area. This domestic well was completed to a depth of 360 feet and constructed with 300 feet of 4-inch diameter casing. Given the depth to groundwater, well construction, and distances to domestic groundwater users, the proposed SADDS will not impact groundwater beneath or downgradient of the site.

The proposed wastewater treatment plant will be a membrane bio-reactor (MBR) that will effectively remove 94 to 99.6% of the constituents of concern (BOD, COD, TSS, P, NH4, and TN) as noted in Figure 5. The treatment effectiveness of the proposed MBR plant further supports the above referenced statement that the proposed SADDS will not impact groundwater. Therefore, groundwater monitoring wells or lysimeters will not be installed.



	BOD	COD	TSS	P	NH4	TN
Influent	325 mg/l	650 mg/l	150 mg/l	10 mg/l	45 mg/l	60 mg/l
Effluent	2.0 mg/l	39.0 mg/l	1.0 mg/l	0.4 mg/l	0.2 mg/l	2.1 mg/l
Removal	99.4%	94.0%	99.3%	96.0%	99.6%	96.6%

Figure 5. Expected influent and Effluent Parameters.

The surface collapse features and circular depressions in the former mine area could facilitate the rapid downward migration of treated irrigation waters. Steps to isolate or remediate these features/depressions will be taken. These steps could involve backfilling the features with less permeable soils/material and/or routing drip irrigation lines around versus through these features.

VIII. References

George, P.G., Mace, R.E., and Petrossian, R., 2011, Aquifers of Texas: Texas Water Development Board, Report 380, 182 p.

Follett, C.R., 1970, Ground-water resources of Bastrop County, Texas: Texas Water Development Board, Report R109, 138 p.

Plummer, F.B., 1932, Cenozoic systems in Texas, in The geology of Texas, V.1, Stratigraphy: University of Texas Bulletin 3232 (1933), 1,026 p.



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APPENDIX 10-A

LOWER COLORADO RIVER AUTHORITY
MINING HISTORY OF POWELL BEND LEASE AREA
MARCH 1982

LOWER COLORADO RIVER AUTHORITY

MINING HISTORY
OF
POWELL BEND LEASE AREA

POWELL BEND PROJECT
BASTROP COUNTY, TEXAS

MARCH, 1982

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SECTION 1.0

INTRODUCTION

1.1 OBJECTIVES

The Powell Bend lease area covering approximately 5,400 acres within Bastrop County has had a history of nearly 40 years of continous mining. The actual extent of the mining operations and how it effects LCRA's future mining reserves has not previously been fully investigated or analyzed. This report attempts to do so by summarizing research efforts involving mining methods, production figures and mine locations.

1.2 SUMMARY OF RESULTS

During the period of 1902-1941, ten companies produced approximately 4 million tons of lignite within the Powell Bend lease area. From a total of 23 mine entry shafts approximately 1,100 acres or 20% of the lease area has been affected by subsurface mining. Within this affected area only 20 to 25% of the lignite has actually been mined out.

1.3 STUDY AREA

In 1980, the Lower Colorado River Authority aquired a lease block immediately north of the city of Bastrop in Bastrop County. This lease area, called the Powell Bend Project Area, contains approximately 5,400 acres. It extends from the Colorado River, just west of Bastrop, in a NNE 1 mile wide strip for 7 miles, terminating at

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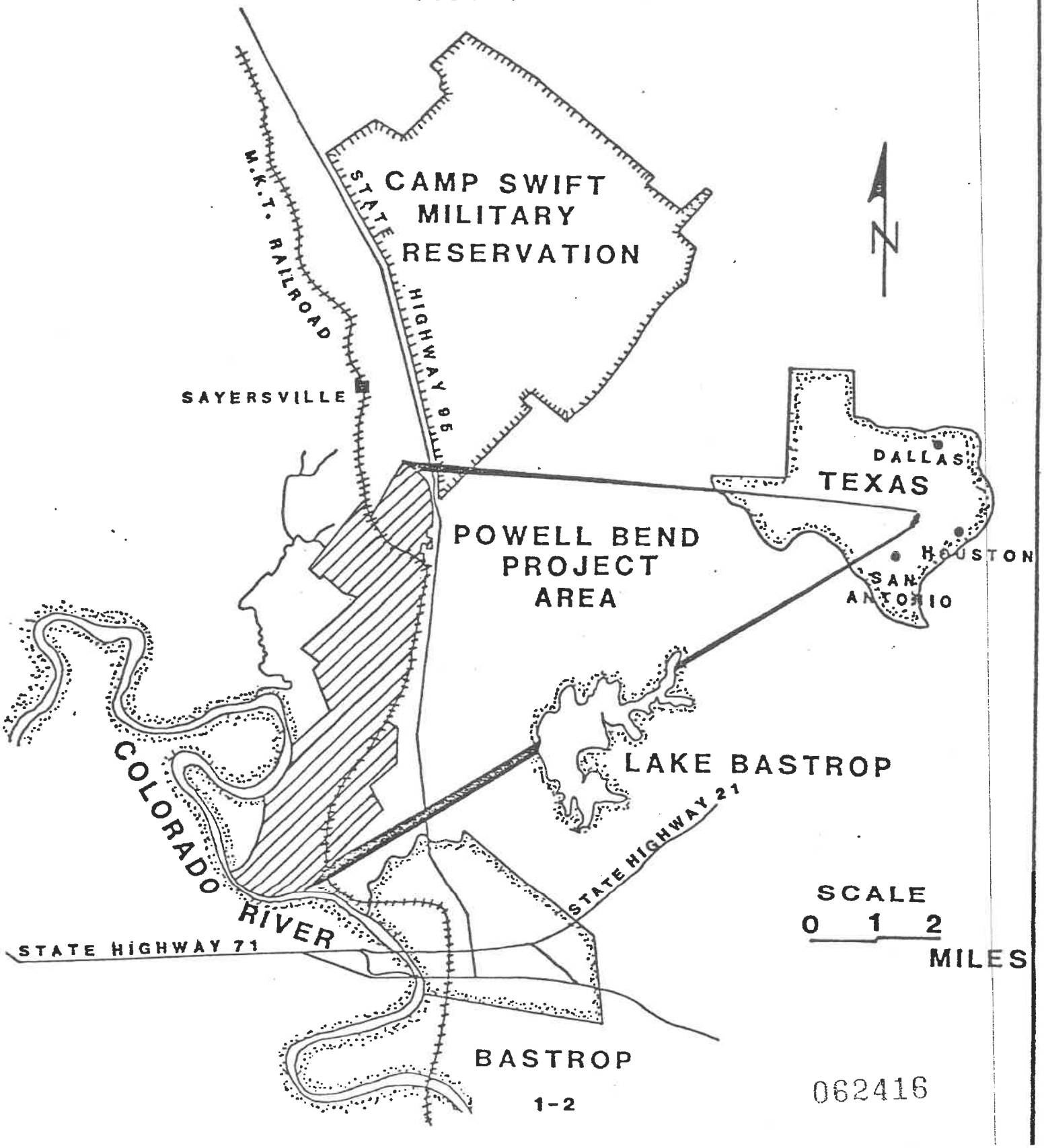
GENERAL LOCATION MAP
POWELL BEND PROJECT
BASTROP COUNTY, TEXAS

FIGURE 1



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the southern border of Camp Swift. M-K-T Railroad maintains a Bastrop to Elgin line through the property, (See Figure 1). All along the M-K-T Railway within the lease area are evidences of past mining activities.

1.4 GEOLOGY

The Powell Bend Project Area is located within a NNE-SSW trending outcrop of the Wilcox Group. The Wilcox Group is composed of the Hooper, Simsboro, and Calvert Bluff Formations, in ascending order. Lignite of economic importance within the lease area occurs only in the lower part of the Calvert Bluff Formation. The Calvert Bluff, Upper Paleocence to Early Eocene in age, is composed of a complex deltaic sequence of fine to medium grained sands, silts, and clays with several lignite seams.

In ascending order, there are five Calvert Bluff lignite seams of possible economic significance which are labeled for identification purposes as the Purple (P), A, B, C, and D seams. The 'A' seam, the thickest and most persistent seam, was the target seam for the majority of the underground mining operations. In some cases the 'B' and 'C' were mined either as a second level within the mine secondarily to the 'A' seam or as the targeted seam. A generalized stratigraphic section showing the typical lignite intervals is shown on Figure 2.

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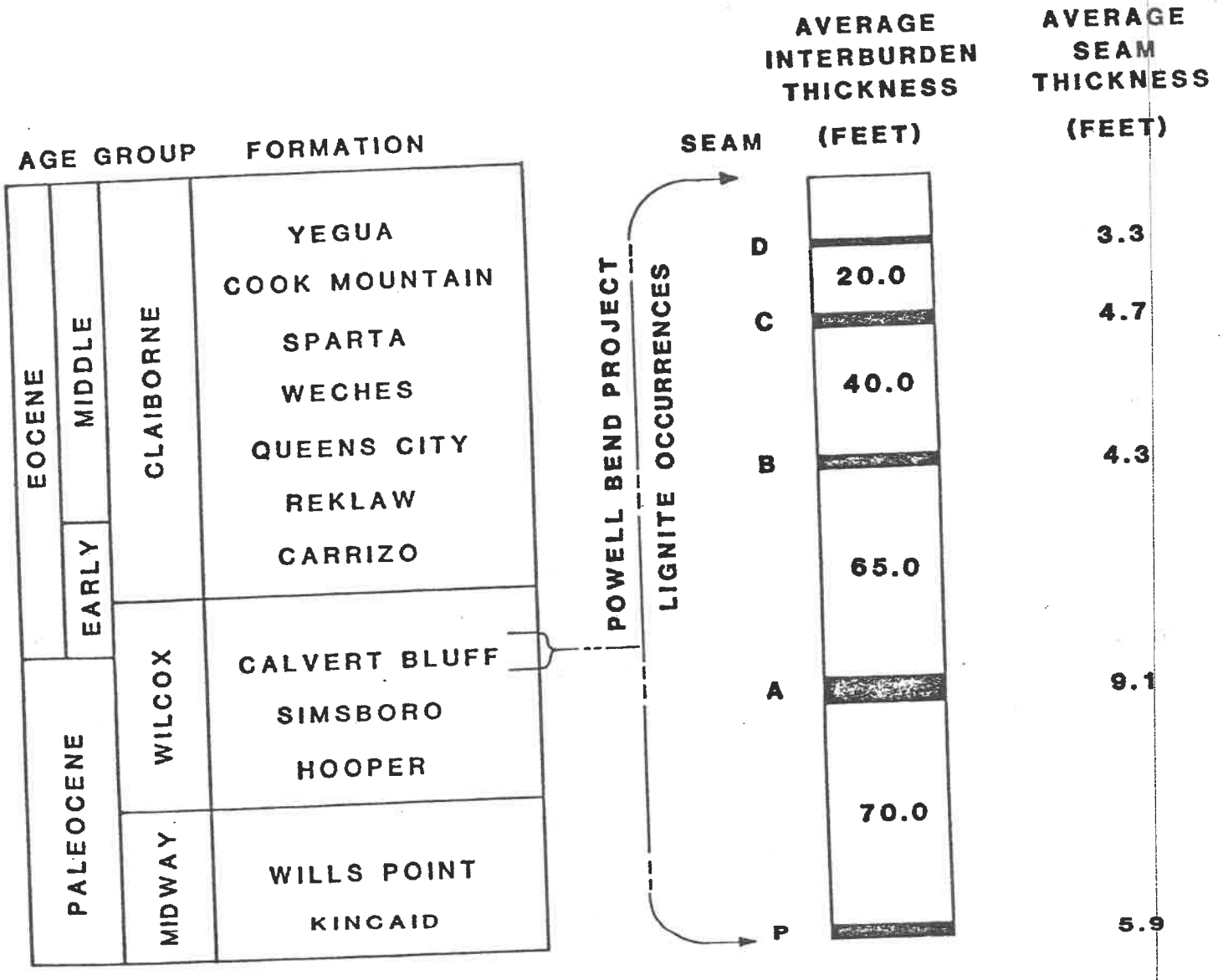
GENERALIZED TERTIARY STRATIGRAPHIC SECTION
BASTROP COUNTY, TEXAS

FIGURE 2



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SECTION 2.0

PROCEDURE

2.1 SOURCE OF INFORMATION

There were three main sources of information which were invaluable in preparation of this report. They are the State Mine Inspectors Annual Reports, the yearly production figures reported to the Bureau of Mines and a "Report on Lignite Investigation in Bastrop County, August-1926" directed to the Texas Power and Light Company.

The State Mining Board was orgainzed in 1909, with one State Mine Inspector reporting to the board. The Inspector submitted an annual report to the board which contained lignite and coal production figures, mining related accidents and deaths, operating companies and some details on mine operations and mining regulations. The only reports still in existence are for the years 1909, 1910, 1914, 1919, 1920, 1921, and 1928.

In 1921, the Bureau of Mines requested yearly production figures from each mining company. Through the cooperation of the University of Texas Bureau of Economic Geology, we have received production figures for the following years; 1914, 1921, and 1925 through 1941 with the exception of 1929. These figures were used in reaching specific conclusions contained in this report.

The property map showing mining companies and mine locations attached to this report was prepared using information in Texas

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Power and Light's 1926 Lignite Investigation Report. It contained maps showing lignite outcrops, mine company property boundaries and mine locations. Also included were some descriptions of the mining methods and activities within the Bastrop mining area.

Other sources of information used in data collection were the following:

- Maps and spur alterations for each mining company serviced by Missouri-Kansas-Texas (M-K-T) Railroad Company
- An Archaeological Study conducted for Shell Oil Company on the Milam Mine
- Unpublished Report on Calvin Coal Mine
- Surface Observations and drill hole data

Surface observations included identifying surface depressions where underground workings have collapsed, finding spur and shaft locations, and noting abandoned mining equipment. Drill hole data consisted of noting any drill hole that intersected an underground cavity.

Other published or unpublished sources of information used to gain some understanding of the mining methods and the lignite industry in general are noted in the Bibliography.

2.2 COMPILATION OF INFORMATION

All information pertinent to each mining company and its associated mines is compiled in Table 1 of Section 3. Real as well as extrapolated production figures through the years 1902 to 1941 are shown

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graphically in Figure 3 of Section 3. The property holdings of the various mining companies and mine entry locations are depicted on a 1"=2000' topographic map of the Powell Bend lease area. Using production figures, mining methods, surface observations and drill hole data, areas of mining activity radiating out from the mine entries were determined and plotted on the mine location map. From these areas and from known production figures a total recovery rate was estimated for each mine.

SECTION 3.0

DISCUSSION

3.1 LIGNITE USAGE AND PERIOD OF ACTIVITY

The four principal uses of lignite in Texas during the early 1900's were:

- Fuel under stationary boilers
- Fuel in gas producers
- Briquetting, to make it much less friable with a better heating value
- Dry distillation and recovery of chemical by-products

Before 1920, lignite was the predominant boiler fuel at most of the cotton gins, compresses, and other steam-driven plants in Texas and accounted for approximately 30% of total production (Betancourt, 1977). Some of the railroads used lignite in their freight engines from 1891 to 1937. Electric utility plants also used considerable amounts of lignite. By 1927 lignite fueled power plants accounted for 61% of total electrical production in Texas (Betancourt, 1977). The University of Texas power plant contracted lignite from the Bastrop Lignite Coal Company during the 1920's and 1930's. In 1910 the Round Rock White Lime Company used lignite to produce gas for burning lime. Lignite mining flourished during the period between 1895 and 1930 in Texas because lignite had so many uses, and was so abundant in Texas. Also, oil and gas did not have a firm impact until the 1930's and the railways which were well established

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provided the main avenue for freighting of the fuel. Locally in Bastrop County, lignite mining was continous from 1902 to 1941.

3.2 MINING METHODS

There were two principal methods of mining in the Bastrop area; the slope mine and the vertical shaft mine. There was one, possibly two, slope mines in operation in the earlier years of mining. The majority of the mines (23 mines) used the vertical shaft method.

The slope mine was normally an entry at a 45° angle to the seam and then mining followed the gentle dip (2° to 3°) of the lignite seam. Using this method the lignite was extracted by pick and shovel, loaded onto small wooden cars and then drawn by mules from their respective workings (rooms), to the base of the slope. The cars were then hauled up a sloping track by means of a cable and small steam engine to the mine entrance. From the mine entrance, the car would travel up an elevated framework where the lignite would be tipped into a waiting railcar (Betancourt, 1977). The advantages of the slope mine was easier access in and out of the mine and the use of natural ventilation.

The vertical shaft was normally a rectangular, double-compartment entry with a tipple framework towering over the shaft entrance. Double-compartment referred to two elevators, one at the top and the other at the bottom which were operated in opposite directions. A pair of cables were attached to the elevators, draped over pulleys

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at the top of the tipple framework and then attached to the steam operated hoist located in a building close by. An interesting feature concerning the vertical shafts is that invariably they were located at the lowest down-dip point of the underground system of tunnels to provide a slope which loaded cars could travel to the bottom of the shaft and to drain the water from the mine so it could be bailed or pumped out. The shafts within the Powell Bend area ranged from 40 to 160 feet in depth.

The actual mining of the lignite employed a system known as the "room and pillar" method. The room and pillar method consisted of mining the lignite in a rectangular pattern of tunnels. Unworked blocks of lignite called pillars were left between the tunnels to support the roof. These pillars were generally much larger than the tunnels, thus, only half or as little as a quarter of the lignite could be mined. In most cases the main haulways were established to the outer limits of the proposed mine area (normally 1,300 feet) and then miners would "room and pillar" mine from that point toward the shaft. This was done in case of roof collapse, so that the collapse would not be between the miners and the shaft. Generally, the only timber support was in the main hualways. In all other tunnels the miners left a foot to a foot and half of lignite to support the roof.

The majority of the labor force were Mexican miners brought over

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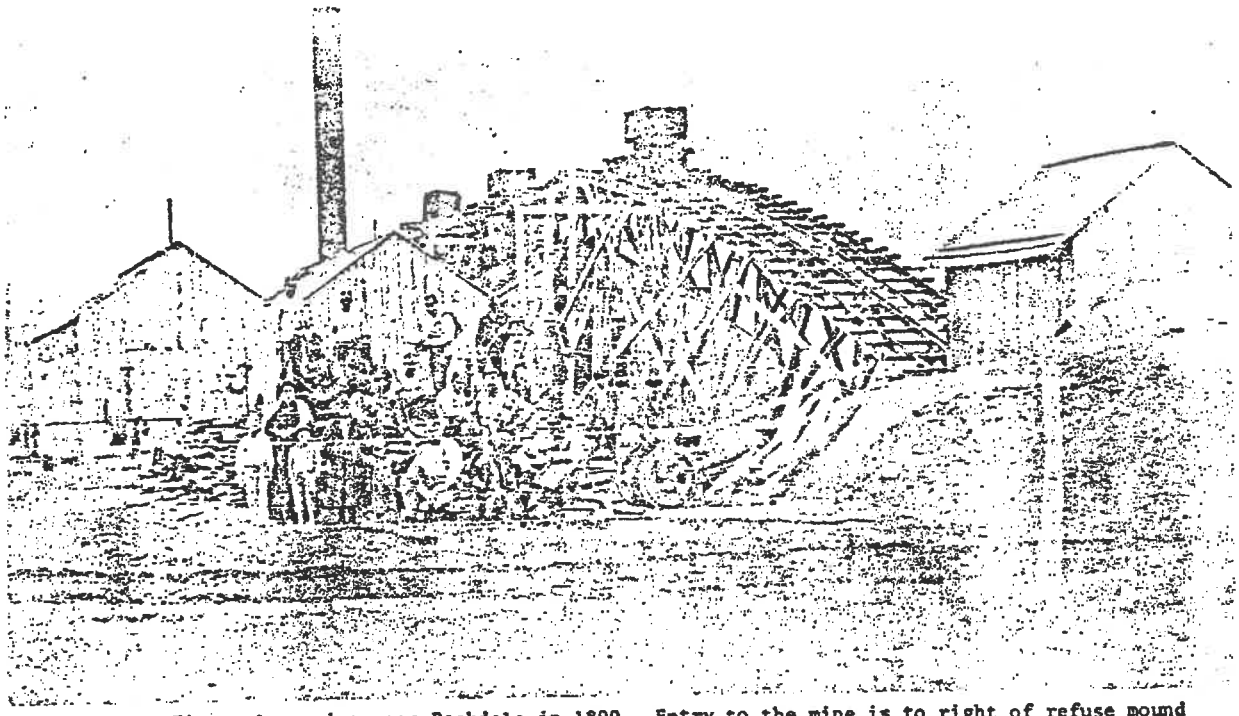
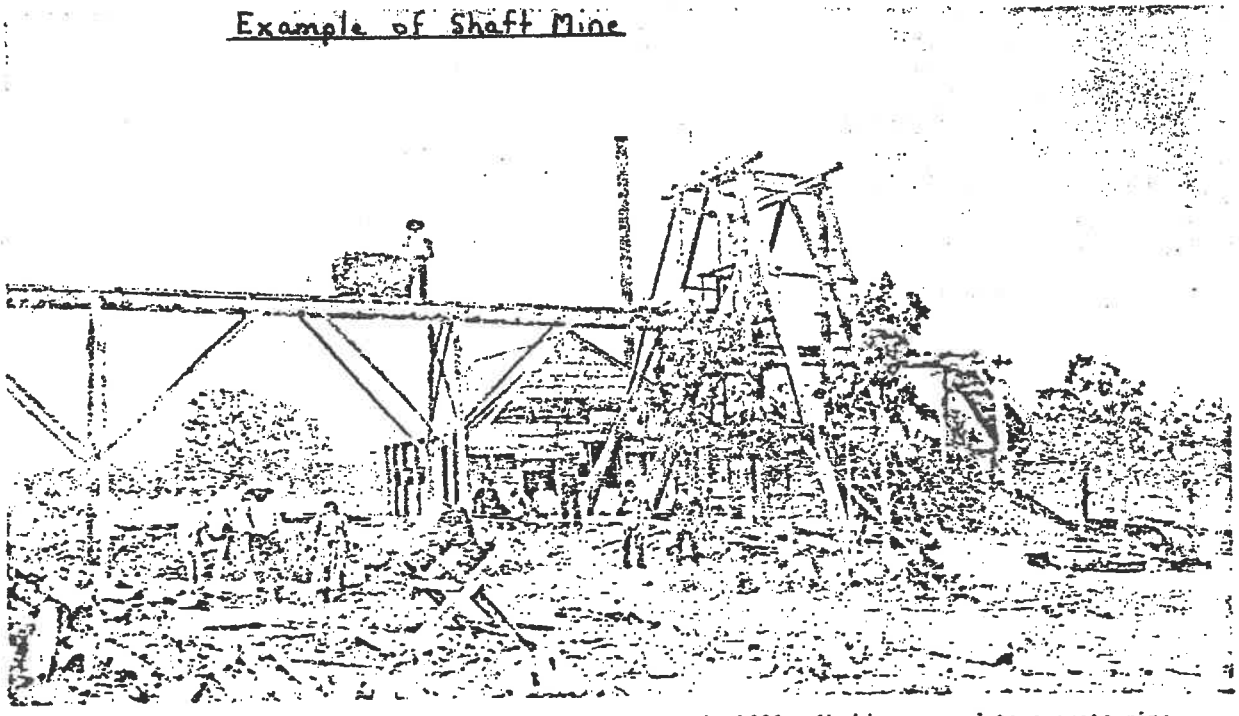
Example of Slope Mine



First slope mine near Rockdale in 1890. Entry to the mine is to right of refuse mound at bottom of elevated runway. Boiler engine was housed in building with smokestack. Note piggy-back carrier and lignite-filled car on runway. (Courtesy of Willie, Gus, and Louise Lorenz)

Example of Shaft Mine



Vogel's first shaft mine under construction in 1890. Machinery used to operate mine was housed in structure in background. (Courtesy of Willie, Gus, and Louise Lorenz)

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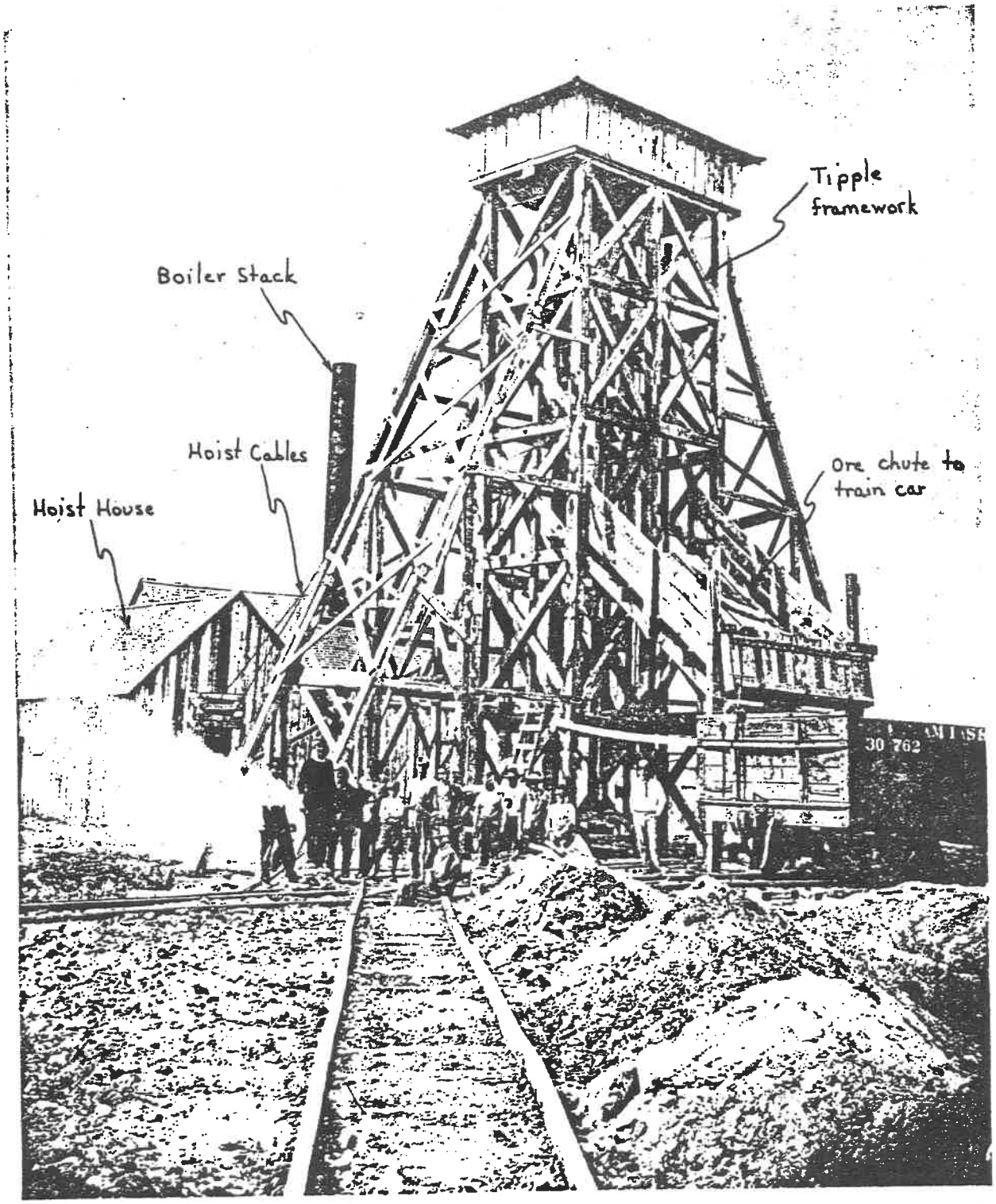

Operation of McKay Lignite Mining Company, Como, Texas
(August 1913)
Example of Vertical Shaft Mining

the border for the sole purpose of lignite mining. The average mine employed about 50 workers. Most of the underground workers were pick and shovel miners who were paid about 40¢ per pit car (approximately 1,500 lbs. of lignite). A miner generally averaged 8 cars a day. The common laborers who took care of the mules, etc. were paid $2.00 to $2.40 per day while the hoist engineer received from $2.75 to $3.00 per day.

3.3 MINING COMPANIES

Through the period of 1902 to 1941 there were nine companies operating in the Powell Bend area and one in the Camp Swift area just to the north of the Powell Bend area (Exhibit 1). The Glen-Belto Mine was the first lignite mine in Bastrop County and was located three miles south of Sayers (now Sayersville). The next three companies - Calvin Coal Co., Bastrop Lignite Coal Co., and the Independence Mining Co. - all established by 1910, were the major producers within the Powell Bend area. They were responsible for about one-half of the total affected area (see Table 1). The lease area of each of the nine companies ranged from 200 to 1,000 acres.

All lease holdings either crossed or bordered the M-K-T railroad. Without the advantageous location of the M-K-T railroad established in the 1890's possibly none of the Powell Bend area would have been mined. Each one of the 23 shafts were serviced by a spur from the M-K-T railroad. The maximum spur length in the Powell Bend area was one mile, belonging to Bastrop Lignite Coal Company.

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TABLE 1

	COAL COMPANY	MINE NAME OR NUMBER OF MINE	TYPE OF MINE	DEPTH	SEAM AND SEAM THICKNESS	YEAR OPENED	YEAR ABANDONED	APPROX. TOTAL PRODUCTION IN TONS	APPROX. NUMBER MEN EMPLOYED	APPROX. ACREAGE EFFECTED	COMMENTS
1	CALVIN COAL COMPANY	CALVIN #1	Shaft / Slope?	45'	'B' - 4'	1910	1919	175,000?	45	101	Calvin Coal Co. was taken over by Vaugh Coal Co. in 1929 and Vaugh opened up Calvin #3. Total seam recovery rate ~ 20%
		CALVIN #2	Shaft	90'	'A' - 8'	1919	1928	250,000	75	106	
2	BASTROP LIGNITE COAL CO.	Titantic #1	Shaft	89'	'B' - 4'	1908	1920	#1 & 2 Combined 300,000	47	90	Total recovery rate ~ 18%
		Titantic #1	Shaft	102'	'A' - 8'	1920	1931		85		
		Titantic #2	Shaft	165'	'A' - 8'	1920	1931		75	50	
		Titantic #3	Shaft	89'	'B' - 4'	1932	1941	245,400		75	
3	INDEPENDENCE MINING CO. * Changed name to Phelan Mining Co. around 1922	Independence #1	Shaft	84' / 120'	'B' - 5'8" / 'A' - 7'4"	1902	?	All 5 combined no more than 675,000	109-73	245	Independence Mining Co. seemed to withhold most their information concerning production and seam thickness. Total recovery rate ~ 20%
		Independence #2	Shaft	80' / 92'	'B' - 6'4" / 'A' - 9'0"	1902	?		114-140		
		Independence #3	Shaft	100'	'B' - 4'6"	1908	1920?				
		Independence #4	Shaft	165'	'A' - 8'	1919?	1926	120,000	75		
		Independence #5	Shaft	?	?	1919?	1927	?			
4	OUR COAL COMPANY	1	Shaft	85'	'A' - 7'	1919	?	< 100,000	30	54	
5	DENISON COAL COMPANY	Earhard #1	Shaft	130'	'A' - 8'	1919	1930	170,000	75	56	Total seam recovery rate ~ 21%
6	CONSUMERS COAL CO.	1	Shaft	45'	'A' - 11"	?	Before 1926	< 150,000		43	
7	BELTO COAL COMPANY	Belto Mine	Shaft	Shallow	Probably 'C' 'D'	1919	1924	75,000?		49	The Biglo Mine was originally owned and operated by Biglo Mining Company. Glenn-Belto Mine was first mine in Bastrop County.
		Miley or Belto #2	Shaft	135'	'A' - 6'	1920	Before 1929	50,000?	75	33	
		Biglo Mine	Slaft	?	Probably 'C'	?	1920	50,000?			
		Glenn-Belto	Shaft	50'	'C' - 4'	1902	?	?		30	
8	WAUGH COAL COMPANY	1	Shaft	Shallow	Probably 'C' 'D'	?	?	75,000?		28	← Recovery rate ~ 20% Calvin #3 acreage effected, is included in areas of Calvin #1 and #2
		Calvin #3	Slaft	~100'	'A' - 8'	1929	1941	181,500		?	
9	CARR COAL COMPANY * In 1920? the Colorado Mining Co. took over the Carr and Buniva Mines	Buniva Mine	Shaft	55'	'C' 'D' - 4'	1919?	1925	< 100,000	30	19	Information for these three mines is very sketchy
		Carr Mine	Shaft	160'	'A' - 8'	1915	1921	150,000	75	60	
		? ?	Shaft	?	'B' or 'C'	?	Before 1928	? 100,000?		49	
10	F.L. DENISON	Sayers #1	Slope	—	'A' seam	1914	1920	? 50,000?		11	Only mine known on Camp Swift's present day location. Total recovery rate ~ 23%
		Sayers #2	Slaft	40'	'A' - 6'	1920	1927	60,000		33	

062416

The locations of the shafts were dependent upon the combination of several factors:

- Distance from the M-K-T railroad
- The most down-dip location of the lignite seam on the property
- Depth to the seam target
- The lease boundary

Most of the activity (housing, stores, etc.) was centered around three temporary rail stations - Phelan, Glenham and Calvin, shown on Exhibit 1.

3.4 PRODUCTION

Yearly production figures were obtained for each year from 1914 to 1941, with the exception of 9 years (see Figure 3). The production from 1902 to 1913 and the 9 years mentioned above were extrapolated using known production figures and the number of mines operational at that time. From 1902 to 1913 an average mine production of 30,000 to 40,000 tons per year was used. From 1916 to 1925 an average mine production of 40,000 to 25,000 tons per year was used. These figures are believed to be fairly reliable since the Bastrop area production graph compares favorably with the lignite production graph for Texas (see Figure 3). Between the years 1902 and 1921 the graphs look very similar with both peaking at around 1914-1915. The similarity ends after 1921 since the Texas figures go up and peak again in 1924-1925 while the Bastrop production steadily decreases. Between 1928 and 1930 numerous mines were

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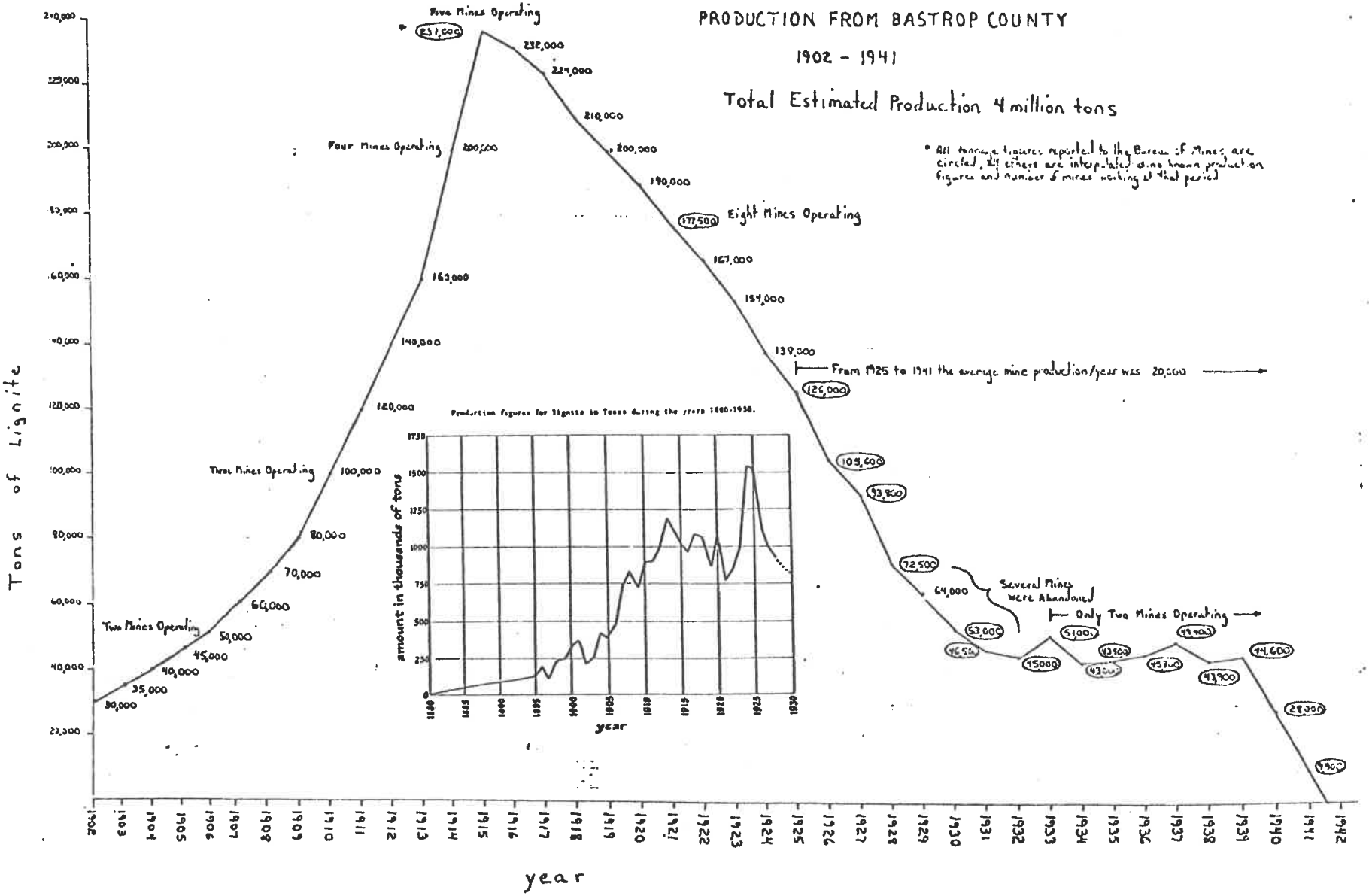
PRODUCTION FROM BASTROP COUNTY
1902 - 1941
Total Estimated Production 4 million tons
* All tonnage figures reported to the Bureau of Mines are circled, all others are interpolated using known production figures and number of mines working at that period
Five Mines Operating
Four Mines Operating
Three Mines Operating
Two Mines Operating
Eight Mines Operating
From 1925 to 1941 the average mine production/year was 20,000
Several Mines were Abandoned
Only Two Mines Operating
Tons of Lignite
year
Production figures for lignite in Texas during the years 1880-1930.
amount in thousands of tons
year

0624116

abandoned in Texas as well as in Bastrop. After 1930 production in the Bastrop area remained nearly constant until 1939, then declined to zero in 1942. The decline in the late 20's and early 30's was due to the Depression and its profound effect on the price of cotton. Also, gasoline engines were increasingly replacing steam engines.

During the production period of 1902-1941 the overall individual annual average mine output was 25,000 tons. With a $\pm$ 20% accuracy, the total production for the Powell Bend lease area was estimated to be four million tons.

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SECTION 4.0

RESULTS

4.1 EXTENT OF UNDERGROUND MINING

Numerous factors as previously mentioned, were used in determining the extent of underground mining from each mine entry. These "areas of influence" from each shaft are outlined on the Property-Mine Map (Exhibit 1). They range from 500 feet to 1,800 feet out from the mine opening. Factors used in determining the extent of underground workings were:

- Property boundaries
- Direction of strike and dip of the lignite seam in relation to the shaft
- Surface collapse structures
- Drill holes intersecting mine workings
- Distance between shafts owned and operated by the same company
- Outcrop boundary of the target seam

The average underground development from the mine entry was determined to be approximately 1,300 feet.

The area affected by each mine shaft and its workings are shown on Table 1. The total affected area within the Powell Bend lease area is approximately 1,100 acres or 20% of LCRA's lease area. It is worth noting that many of the affected area boundaries are "best

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guess" and are not to be taken as absolute boundaries. It is likely that the areas are probably smaller than what is shown on Exhibit 1.

4.2 RECOVERY

Using the production figures from each mine and the determined area affected for that mine, it was possible to calculate a lignite recovery rate. In some cases there was not enough data to calculate recovery. The rate of recovery ranged from 18% to 25% with an average of approximately 22%. This means that 22% of the lignite from a single targeted seam was recovered, excluding unmined multiple seams which may occur within the same area.

From a Powell Bend Reserve study by Morrison-Knudsen, using a map with the "disturbed" areas outlined as on Exhibit 1, the original in-place lignite volumetrics were determined to be as follows:

- Undisturbed - 54,886,000 tons
- Marginal - 3,833,000 tons
- Disturbed - 21,889,000 tons

Total - 80,608,000 tons

From these figures, one fourth to one third of the total lignite tonnage has been affected by previous mining. Using 21.9 million as a disturbed tonnage figure, 4 million tons of mined lignite at 22% recovery seems very realistic when one takes in account the additional tonnage from other unmined seams within the disturbed area.

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SECTION 5.0

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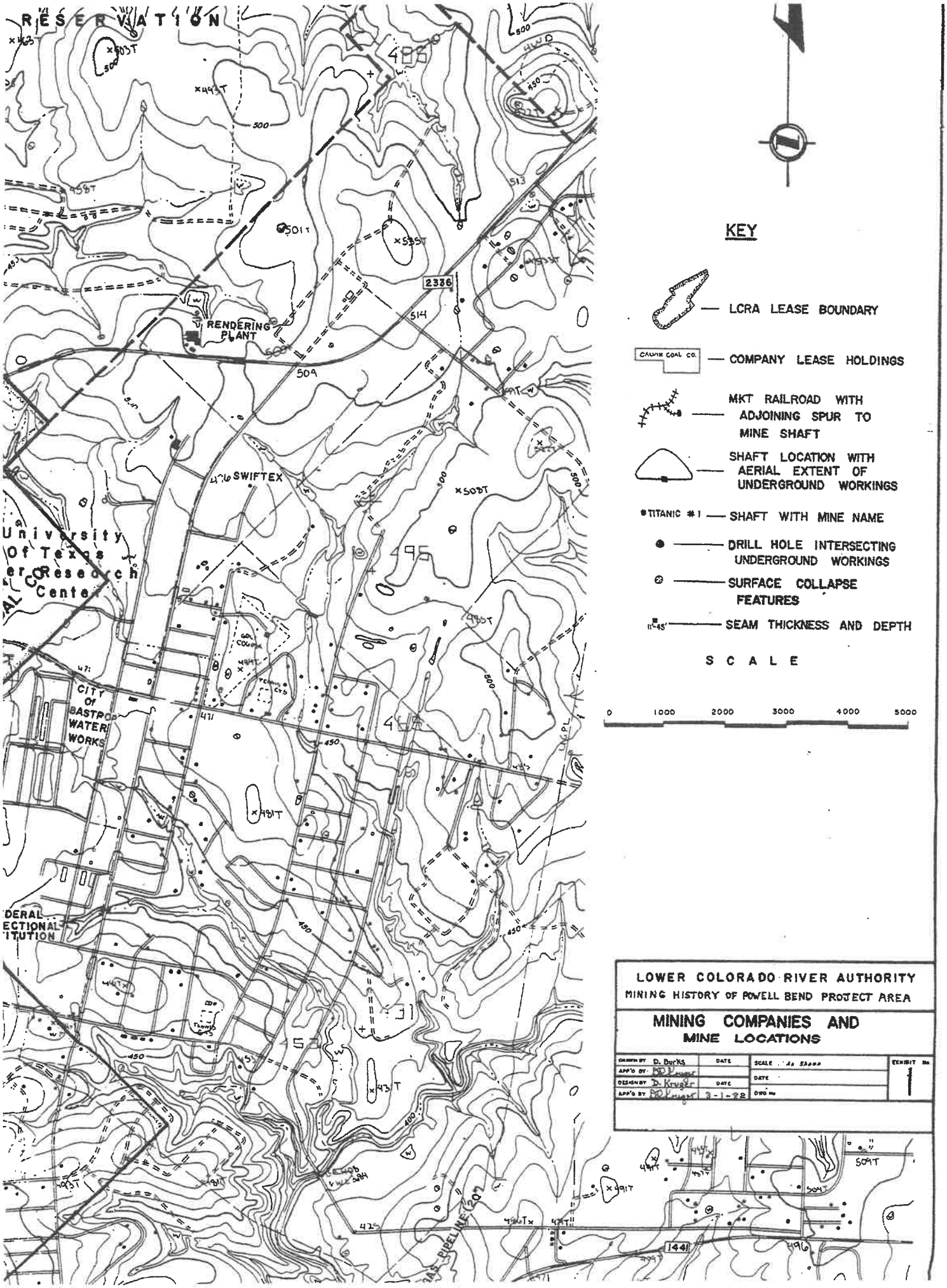
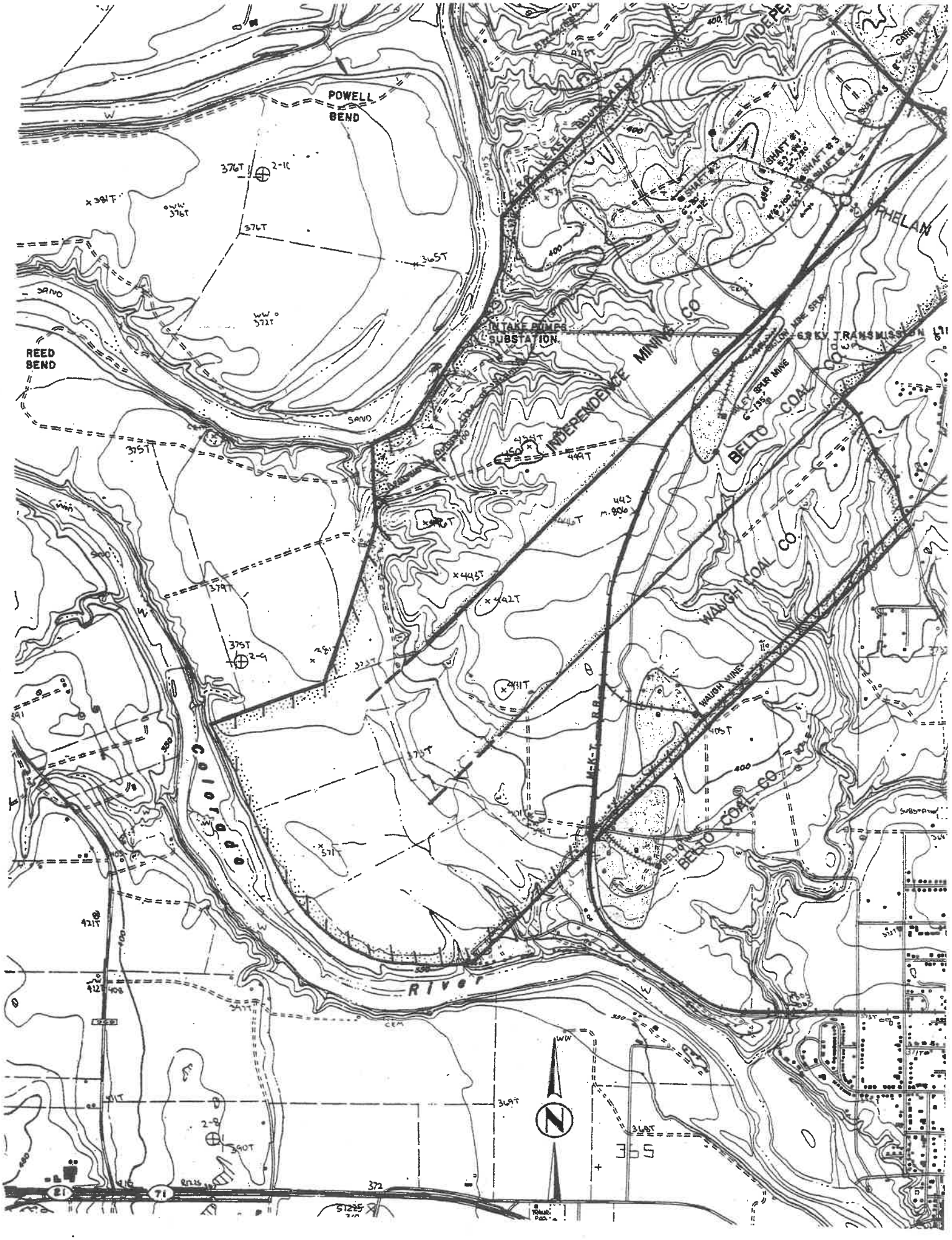
M-K-T Rail Line Data

Drawings and Spur Abandonments for each company, M-K-T Railroad Company, Denison

062119


NWL
450
Lake Bastrop
1441
Piney Creek
33" WATER LINE
Spicey Creek
138 KV TRANSMISSION LINE
SIM GIDEON POWER PLANT
Lake Bastrop Park Southshore
Piney Creek
Piney
69 KV TRANSMISSION LINE
138 KV TRANSMISSION LINE
UNDERGROUND GAS PIPE LINE (20")
BASTROP
BASTROP STATE PARK
21


RESERVATION
RENDERING PLANT
SWIFTEX
University Of Texas
Research Center
CITY Of BASTROP WATER WORKS
2336
1441
KEY
LCRA LEASE BOUNDARY
CALVIN COAL CO.
COMPANY LEASE HOLDINGS
MKT RAILROAD WITH ADJOINING SPUR TO MINE SHAFT
SHAFT LOCATION WITH AERIAL EXTENT OF UNDERGROUND WORKINGS
TITANIC #1
SHAFT WITH MINE NAME
DRILL HOLE INTERSECTING UNDERGROUND WORKINGS
SURFACE COLLAPSE FEATURES
SEAM THICKNESS AND DEPTH
SCALE
0 1000 2000 3000 4000 5000
LOWER COLORADO RIVER AUTHORITY
MINING HISTORY OF POWELL BEND PROJECT AREA
MINING COMPANIES AND MINE LOCATIONS
D. Burks
3-1-82
EXHIBIT No.


POWELL BEND
REED BEND
INTAKE PUMPS SUBSTATION
INDEPENDENCE MINING CO
BELTO COAL CO
WAUGH COAL CO
WAUGH MINE
PHELAN
Colorado River
M-K-T R.R.
SAND
CEM
SHAFT #1
SHAFT #2
SHAFT #3
SHAFT #4
SHAFT #5
SHAFT #6
SPUR MINE
CARR MINE
376T
365T
375T
379T
443
442T
411T
405T
371T
421T
369T
368T
390T
372
365
21
71



375
Big Sandy Creek
CONSUMERS COAL
OUR COAL CO.
UNDERGROUND GAS PIPE LINE (20")
CALVIN
OUR COAL CO.
CALVIN COAL
CALVIN COAL CO.
138 KV TRANSMISSION LINE (LCRA)
BASTROP LIGNITE COAL CO.

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APPENDIX 10-B

GEOTECHNICAL ENGINEERING INVESTIGATION AND ENVIRONMENTAL SITE ASSESSMENT
DECEMBER 1996

MAXIM
TECHNOLOGIES INC

December 9, 1996

Mr. Sidney E. Lanier, P.E., R.I.A.
L & L Investment Company
7901 East Ben White Boulevard
Austin, Texas 78741

Re: Geotechnical Engineering Investigation and Environmental Site Assessment
Proposed Woodrun Subdivision
Bastrop, Texas
Maxim Project No. 1805-60-8557

Dear Mr. Lanier:

We are pleased to submit our report regarding the geotechnical investigation and environmental site assessment for the proposed Woodrun Subdivision. The project scope was carried out in general accordance our proposal 96-GEO-508.D, dated September 6. This project was authorized through your signature of the "Agreement and Authorization" section of our proposal on October 11, 1996.

If you have any questions regarding the report, or if we can be of further assistance, please contact us. We appreciate the opportunity to work with you on this project and look forward to the opportunity to provide additional services as the project progresses.

Sincerely,

MAXIM TECHNOLOGIES, INC.

Harvey J. Treybig, P.E.
Project Manager/Geotechnical

Jeff Richardson
Project Manager/Environmental



Copies Submitted: (4)

DECEMBER 9, 1996

GEOTECHNICAL ENGINEERING INVESTIGATION AND ENVIRONMENTAL SITE ASSESSMENT PROPOSED WOODRUN SUBDIVISION BASTROP COUNTY, TEXAS

Prepared for:

L & L INVESTMENT COMPANY
AUSTIN, TEXAS

Prepared by:

Maxim Technologies, Inc.
Austin, Texas

Project No. 1805-60-8557

INTRODUCTION

Maxim Technologies, Inc. (Maxim) was retained by L & L Investment Company to provide an environmental and geotechnical engineering investigation at the proposed 136 acres Woodrun subdivision located adjacent to County Road (CR) 418 and south of CR 157 northwest of Bastrop, Bastrop County, Texas. The site is shown on the Site Location Map, which is included as Figure 1 of Appendix A.

From 1929 through 1941, a lignite mine operated on the southern portion of this site utilizing room and pillar mining methodology. Several of the proposed subdivision lots, as well as the proposed local roads on the southern portion of the property, are located in the area of the abandoned mine workings. A geotechnical study was completed to investigate the impact of mined areas on the proposed county road, as well as the development of pavement design criteria.

To determine the potential for adverse impacts on the future development from health, environmental and ground suitability aspects, Maxim performed an environmental assessment and geotechnical engineering investigation at the site. The tasks performed during these investigations, as well as recommendations based on results of the investigations, are described in detail in the environmental assessment section of this report.

ENVIRONMENTAL SITE ASSESSMENT

PHASE I - ENVIRONMENTAL ASSESSMENT

Historical Use Information

Historical use information for the site and adjoining properties was obtained from reviewing reasonably ascertainable historical sources such as aerial photographs, Texas Railroad Commission and Lower Colorado River Authority documents. Uses of the site are referenced from the present back until at least 1940 using reasonably ascertainable standard historical sources, as noted below; whereas, uses prior to 1940 (if the site was developed) until the time the site was undeveloped relied upon at least one reasonable ascertainable standard historical source.

Review of Aerial Photographs

Reasonably available aerial photographs depicting development of the site and vicinity were reviewed at periodic intervals, as summarized below. Evaluation of aerial photographs is controlled by aerial photograph scale and quality. Aerial photographs were obtained from Maxim's in-house library of photos obtained during previous investigations and/or the Texas Natural Resource Information System (TNRIS). Copies of noteworthy aerial photographs are presented in the Appendix as Figures 3 through 7 and are listed below.

- 1951
- 1953
- 1974
- 1981
- 1991

Historical aerial photographs for various years between 1951 and 1991 were reviewed. Review of the aerial photographs indicate the site has been vacant, undeveloped land from 1951 through the present. As shown on the photographs, the site has become increasingly more heavily

vegetated since 1951. The remnants of a railroad spur are apparent in the northeast section of the site in 1951, providing the only indication of past mining activity at the site. The surrounding area is sparsely populated and undeveloped through 1991. Subsequent to 1981, the City of Bastrop has experienced increased development in the northern section of town.

State Agency Review

Records and reports from the Texas Railroad Commission and Lower Colorado River Authority were reviewed as part of this investigation. Based on the Lower Colorado River Authority report "Mining History of Powell Bend Lease Area", the location of the site is part of the Waugh Coal Company lease. It appears that the historical mine workings of the Waugh Coal Company are located in the south central section of the proposed subdivision. The Waugh Coal Company was one of nine coal companies that mined lignite in the Powell Bend Lease area. The majority of the mining in this area took place between 1902 through 1941, with the mining at the Waugh lease occurring between 1929 through 1941.

There were two methods of mining employed in the area, the slope mine and the vertical shaft mine. The mining operations at the site location employed the vertical shaft method. This method entailed using the room and pillar method, where square areas of lignite (rooms) were removed and pillars of lignite were left behind to support the ceiling of the tunnel. It appears that three vertical shaft mines operated at the site. Production data for one vertical shaft mine, the Calvin 3, exists, however, no information is available for the other two mines and total production figures have been interpolated for these mines. The Calvin 3 mine produced 181,500 tons of coal during the life of the mine. The other two mines are thought to have produced approximately 75,000 tons of lignite.

Site and Adjoining Property Conditions

A site visit was conducted to observe and record visual surficial evidence of potential environmental impairments. Additionally, reconnaissance of adjoining properties was performed

to identify land use and associated potential recognized environmental conditions. Site photographs are included in Appendix B and the Site Map is shown as Figure 2. The site and adjoining properties were visually inspected on October 29, 1996, by Maxim Environmental Professional Mitch McDonald, Jr.

Site Topography

The 1974 (photorevised 1982) Bastrop and Lake Bastrop 7.5 Minute USGS Quadrangles were reviewed. Site topography is generally flat, with surface runoff flowing generally towards the north via several small unnamed creeks. Elevation of the site is approximately 400 feet above mean sea level.

Site Geology

The University of Texas Bureau of Economic Geology, Geological Atlas of Texas, Austin Sheet, was reviewed. According to this map, the soils on the site are underlain by clays, fine grained sands and lignite seams of the Calvert Bluff Formation, the uppermost member of the Wilcox Group.

Site Overview

The site is 136.22 acres of vacant, heavily vegetated land. Vegetation consists mostly of small trees and dense underbrush with lesser amounts of medium sized oaks. Currently, access to the site is via four newly cleared right-of-ways along the proposed roads of the future subdivision.

Description of Specific Site Features

Hazardous Chemicals and Petroleum Products associated with Operations other than Storage Tanks

No hazardous substances or petroleum products associated with the site operations were visually identified during the reconnaissance.

Storage Tanks and Associated Equipment

No storage tanks or associated equipment were identified on the site at the time of the inspection.

Odors

No unusual odors were detected on the site at the time of the inspection.

Interior and Exterior Surficial Staining or Corrosion and Stressed Vegetation

No interior or exterior surficial staining, corrosion or stressed vegetation were identified on the site at the time of the inspection.

Drums and Other Containers of Unknown Contents

No drums or other containers were identified on the site at the time of the inspection.

Land Scars

Approximately 25 sinkholes were observed on the site at the time of inspection. These ranged in size from 32 cubic feet to 1,200 cubic feet and were generally circular in shape. Depths ranged from two to fifteen feet. By far, the majority of these depressions were approximately 145 cubic feet and approximately four feet deep. Only one was found to be fifteen feet in depth. These depressions appear to be related to the former mining activities at the site, and many seem to have been deepened through erosion from surface runoff. The sinkholes appeared to be concentrated in two areas of the site, as depicted on Figure 2 of the Appendix.

Adjoining Property Observations

Adjoining properties were visually examined from public access right-of-ways to make a cursory assessment of the current land use and its potential for recognized environmental conditions which may have impact on the site. Reconnaissance of adjoining properties was performed by

viewing land use from legal boundaries or by walking upon the adjoining properties that were legally accessible. Adjoining development to the site is as follows:

North: Residential and pasture land
South: Residential and pasture land
East: Residential and pasture land
West: Residential and pasture land

Review of the adjoining properties indicates no recognized environmental conditions.

Soil and Water Sampling and Analysis

Surficial soil samples were collected for analysis at three locations, as shown on Figure 2. These sample locations were chosen from areas that may have been impacted by previous site activities. Each of the samples consisted of discreet aloquots of soil collected from the ground surface down to a maximum depth of two feet below ground level and were composited into a single sample. Two soil samples were analyzed for Total Petroleum Hydrocarbons (TPH), benzene, toluene, ethylbenzene, and total xylenes (BTEX), and the eight Resource Conservation Recovery Act (RCRA) metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver). The third soil sample was analyzed for volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) and the eight RCRA metals.

A water sample was collected from one of the sinkholes at the site. The sampling location is shown on Figure 2. The sample was collected using a disposable bailer and was analyzed for VOCs, SVOCs, and RCRA metals.

The samples were collected by Maxim personnel using clean disposable gloves. The samples were placed into pre-cleaned, laboratory supplied glass and polyethylene containers and sealed with Teflon (trademark)-lined lids. The sample containers were then placed in a sample shuttle

containing ice pending transportation to the Maxim Technologies lab in Houston, Texas. Proper chain-of-custody procedures were maintained and documented throughout sample collection and transportation to the laboratory. Analytical reports and the chain-of-custody documentation are included in Appendix C.

Soil and groundwater analytical results are presented in Table 1. Only those constituents detected above the analytical method detection limits are shown. As shown on Table 1, various metals were detected in each of the soil samples collected. Arsenic, barium, chromium, and lead were detected in all three of the samples. In addition to the above metals, mercury and selenium were also detected in Sample # 1. Metals concentrations detected are within published naturally-occurring background concentrations for metals in soils. The detected metals concentrations, with the exception of arsenic, are all well below the Texas Natural Resource Conservation Commission (TNRCC) maximum concentration for soil/air and ingestion standard for residential use (SAI-Res). These concentrations are published in the Texas Administrative Code (TAC), Chapter 335, Subchapter S.

The detected arsenic concentrations (2.85 and 3.35 milligrams/kilogram [mg/kg]) are above the SAI-Res (0.366 mg/kg), but the TNRCC is in the process of reevaluating cleanup levels for arsenic in soil as there has been considerable controversy regarding the cleanup standard for arsenic. In an interoffice memorandum dated May 19, 1995, the TNRCC directed Risk Reduction programs to utilize a cleanup level of 20 mg/kg for arsenic in soil in residential areas. All detected arsenic concentrations are well below this cleanup level for residential sites. Based on the limited number of sample results obtained from this investigation, it appears that these metals concentrations represent naturally-occurring concentrations in the site soils. TPH, BTEX, VOCs, and SVOCs constituents were not detected.

Analytical results for the surface water sample collected indicated arsenic and barium were detected at concentrations of 0.010 mg/l, and 0.15 mg/l respectively. These results represent

total metals concentrations and are likely due to suspended sediment in the water. As shown on Table 1, the detected concentrations are below the TNRCC maximum concentration in groundwater for residential exposure as published in TAC Chapter 335, Subchapter S. Toluene was detected in the surface water sample at a concentration of 0.0295 milligrams/liter (mg/L) which is well below the EPA maximum contaminant level of 1.00 mg/L from Section 141 of the Federal Safe Drinking Water Act. It is likely that this constituent was brought onto the site in surface runoff from the surrounding area.

Soil Gas Survey

A soil gas survey was conducted to determine the presence of methane gas associated with lignite mining. The survey was conducted in each of the twelve geotechnical borings advanced at the site, as well as in ten additional borehole locations. The locations of these soil gas samples are shown on Figure 2. At each probe location, a steel probe was driven approximately three to four feet into the subsurface. The steel probe was removed and a sample of the soil gas was withdrawn and scanned onsite using a portable infrared landfill gas analyzer. A Geotechnical Instruments Model GA 1.1 gas analyzer was used to perform field measurements. No discernable methane was detected during the survey.

Based on the results of the limited environmental assessment conducted at the site, it does not appear that the proposed subdivision property has been impacted by previous site activities in such a way as to impact the future development from a health or environmental aspect.

TABLE 1
SOIL AND GROUNDWATER ANALYTICAL RESULTS
L & L INVESTMENT COMPANY
Woodrun Subdivision

Sample ID	Analytical Parameter	Analytical Results (mg/kg)*	Health-Based Concentration (mg/kg)*
Soil #1	Arsenic	2.85	20
	Barium	109	19,100
	Chromium	9.40	391
	Lead	7.62	500
	Mercury	0.1	82.3
	Selenium	3.30	1,370
Soil #2	Arsenic	3.35	20
	Barium	98.7	19,100
	Chromium	8.54	391
	Lead	19.8	500
Soil #3	Barium	54.3	19,100
	Chromium	5.86	391
	Lead	11.2	500
Water #1	Arsenic	0.010	0.05
	Barium	0.15	2.00
	Toluene	0.0295	1.00

Notes: mg/kg - milligrams/kilogram
* - milligrams/liter for water sample
Health-based concentration as published in TAC Chapter 335, Subchapter S and in internal TNRCC memo dated May 19, 1995

GEOTECHNICAL INVESTIGATION

FIELD PROGRAM

Subsurface conditions for this study were evaluated by drilling 12 borings. Four of the five borings completed within the road alignments of the southern portion of the property (B-1, B-2, B-3, B-5) were drilled to a depth of 10 feet. The fifth boring in this area (B-4) was extended to 20 ft. These boring depths were chosen to evaluate whether any mined areas were present within the vertical zone of influence for the proposed roads. Additionally, six borings (B-6, B-7, B-9 through B-12) were completed to depths of 5 feet for portions of the roadway alignment where no mining is suspected. Boring B-8 could not be accessed due to wet site conditions and was omitted from the field program. Three-inch nominal diameter borings were drilled with truck-mounted drilling equipment. The boring depths were measured from the existing ground surface at the time of our field activities.

The Boring Logs, presenting the soil descriptions, types of sampling used, and additional field data, are presented on Pages A-1 through A-11 of Appendix A. The Symbol Key Sheet, which defines the terms and descriptive symbols used on the logs, is presented on Page A-12.

Sampling Procedures

When possible, soil samples were recovered using thin-walled, open-tube samplers (Shelby tubes) in general accordance with the procedures outlined in ASTM D 1587. All samples were removed from the samplers in the field, visually classified, and placed in sample containers to preserve their in-situ moisture contents. Pocket penetrometer tests were performed on samples of cohesive soils in the field to serve as a general measure of consistency.

When undisturbed samples were not possible, soil samples were sampled by means of the Standard Penetration Test (SPT) in general accordance with ASTM D 1586. This test consists of determining the number of blows required for a 140 pound hammer free falling 30 inches to drive a standard split-spoon sampler 12 inches into the subsurface material after an initial seating of 6 inches. These N values are used to evaluate the engineering properties of the soil layer.

All samples were removed from samplers in the field, visually classified and placed in sample containers to preserve their in-place moisture contents.

Sample Disposal

All samples were returned to our laboratory in Austin, Texas. Samples not tested in the laboratory will be stored for a period of 60 days subsequent to submittal of this report and will be discarded after this period, unless we are notified otherwise.

LABORATORY TESTING

All samples obtained during the field program were initially visually classified in the laboratory according to procedures outlined in ASTM D 2488. A testing program was conducted on selected samples to aid in classification and evaluation of engineering properties required for analyses. Laboratory tests were performed in accordance with the indicated standard procedures:

Laboratory Test	Applicable Test Standard
Liquid Limit, Plastic Limit, and Plasticity Index of Soil	ASTM D 4318
Moisture Content	ASTM D 2216
Unconfined Compressive Strength of Cohesive Soils	ASTM D 2166
Percent Finer Than No. 200 Sieve	ASTM D 1140

Results of the laboratory tests are presented on the Boring Logs, located on Pages A-1 through A-12 of the Appendix. Laboratory test results were used to finalize the soil classifications in accordance with the Unified Soil Classification System (ASTM D 2487).

SITE CONDITIONS

Subsurface Conditions

The soil deposits encountered at the site include clays, fine grained sands and lignite seams of the Calvert Bluff Formation, the uppermost member of the Wilcox Group, as mapped by the

Bureau for Economic Geology. According to the "Soil Survey of Bastrop County, Texas", published by the United States Department of Agriculture Soil Conservation Service, the predominate soil type located at the site belongs to the Axtell Series, with a portion of the site (in the northern tract) consisting of the Demona Formation. The characteristics of these mapped formations generally correspond with the results of the boring program.

The generalized subsurface stratigraphy at the site, which was developed from our field and laboratory programs, is tabulated below:

STRATUM	RANGE IN DEPTH, FEET[1]	SOIL DESCRIPTION AND CLASSIFICATION
I	0-2	Clayey Sand (SC), loose to medium dense, brown
II	0.5-12	Fat Clay (CH), Sandy Fat Clay (CH), Lean Clay (CL), Sandy Lean Clay (CL), very stiff to hard, brown, red, and gray
III	0-20	Poorly-Graded Sand (SP), Silty Gravel (GM), Clayey Sand (GC), loose to medium dense, tan

[1] Approximate depth below ground surface.

Surficial clayey sands of Stratum I were encountered at every boring with an average thickness of about 1 to 1.5 feet. In-situ moisture contents ranged from 5 to 22 percent. Plasticity Indices of 22 percent and 31 percent were recorded from samples of this semi-cohesive soils.

The clays of Stratum II, encountered at all borings except B-12, are expected to exhibit a moderate to high shrink/swell potential, as indicated by Plasticity Indices (PIs) ranging from 26 to 59 percent. Unconfined compression strengths ranging from 4.4 to 14.0 tons per square foot (tsf) were recorded. Moisture contents of 11 through 22 percent were recorded for this stratum.

Dry unit weights ranged from 106 to 120 pounds per cubic foot (pcf).

Granular soils were occasionally encountered beneath the expansive clay soils. SPT N values varied from 9 to 17 blows per foot within this stratum, indicating a loose to medium dense relative in-situ density.

Groundwater Conditions

All of the borings were dry augered as deep as possible to allow for observation of groundwater conditions. Groundwater was not observed in any of the project borings during the dry auger process. However, zones of seepage are possible (particularly during periods of wet weather). Groundwater conditions may vary significantly with changes in climatic conditions, and the status should be established just prior to construction.

ENGINEERING EVALUATION AND RECOMMENDATIONS

The following analyses are based upon the data obtained in the field and laboratory programs, project information provided to us, and our experience with similar subsurface and site conditions.

Based on the presence of moderate to high plasticity clay soils fitting the description of the Axtell series, we recommend a total flexible pavement thickness (TFPT) of 9.5 inches, with a minimum Hot Mix Asphaltic Concrete (HMAC) of 1.5 inches for the proposed local residential streets. This designs corresponds to the required TFPT for poor subgrade soils, as specified in the Bastrop County Subdivision Regulations.

As illustrated on Figure 2 of Appendix A, there is visual evidence of surface collapse features within the proposed roadway alignment along the southern portion of the property. However, the presence of trees growing through these features and the length of time since the halting of

mining activity in this area suggest that these features have not been recently created. There were no encounters of subsurface voids to depths of 10 feet (and to 20 feet at boring B-4) within the borings completed within this area. We should note that our borings were spaced at about 300 feet on center and could potentially have been drilled into pillar areas. However, historical mine records suggest the depth of lignite seams mined in this area were about 20 to 40 feet below the ground surface and no appreciable quantities of lignite seams were encountered during our drilling program.

Based on the anticipated wheel loads and tire pressures for the proposed residential roads and the depth to which mined areas are estimated, the creation of additional collapse features are not expected along the proposed road alignments. However, lowered subgrade support characteristics are possible in areas which have previously experienced surface collapse. Therefore, it is recommended that the subgrade is proof rolled prior to pavement construction to lessen the potential of future settlement. Detailed recommendations for site preparation and pavement design guidelines are discussed in the following subsections.

Site Preparation for Pavement Construction

Construction areas should be stripped of all vegetation, loose topsoil, rocks, and boulders. The exposed subgrade, if soil, should be proofrolled with at least a 20-ton rubber-tired roller with a minimum tire pressure of 80 pounds per square foot (psi) to detect weak areas. The roller should make at least four complete passes across the construction areas. Weak areas should be removed and replaced with soil exhibiting similar classification, moisture content, and density as the adjacent in-place soils. Voids resulting from boulder or tree removal should be treated in the same manner.

The subgrade should be scarified to a depth of six inches and moisture adjusted to between -2 and +3 percent of optimum moisture content. The subgrade should then be recompacted to at

least 95 percent of TEX 113E. We recommend the use of a vibratory sheepsfoot roller for the compaction of the semi-cohesive to cohesive soils encountered near the surface.

Fill to be used to raise grade in pavement areas should preferably exhibit a Plasticity Index between 5 and 20 percent and should not contain rocks greater than 3 inches in their greatest dimension. All structural fill should be placed in compacted lifts not exceeding six inches in compacted thickness. All fill should be compacted to at least 95 percent of the TEX 113E maximum dry density, at a moisture content ranging between optimum moisture content and 3 percent wet of optimum moisture content.

Proper site drainage should be maintained during construction so that ponding of surface runoff does not occur and cause construction delays and/or inhibit site access. Care should be taken to insure that the subgrade does not dry out or become saturated prior to pavement construction.

Pavement Design

The pavement design criteria from the construction standards of the Bastrop County Subdivision Regulations were used for the 20 year pavement design, along with the results of our subsurface data. It is our understanding that the proposed roadways are all classified as local residential streets. According to the "Soil Survey of Bastrop County, Texas", published by the United States Department of Agriculture Soil Conservation Service, the predominate soil type located at the site belongs to the Axtell Series, with a portion of the site (in the northern tract) consisting of the Demona Formation. The results of our laboratory program are in general adhere to the published test values of the Axtell Series.

Therefore, we recommend a total flexible pavement thickness (TFPT) of 9.5 inches. This thickness include a layer of Hot Mix Asphaltic Concrete (HMAC) underlain by flexible base. This designs corresponds to the required TFPT for poor subgrade soils, as specified in the

Bastrop County Subdivision Regulations. A HMAC thickness of 1.5 inches and a base thickness of 8 inches are a potential TFPT combination for the proposed local residential streets. We recommend an HMAC thickness of at least 1.5 inches.

Presented below are our recommended material requirements for the various pavement sections.

Hot Mix Asphaltic Concrete Surface Course - The asphaltic concrete surface course should be plant mixed, hot laid Type D (Fine Graded Surface Course) meeting the master specifications requirements in TxDOT Item 340 and specific criteria for the job mix formula. The mix should be designed for a stability of at least 40 and should be compacted to between 92 and 97 percent of the maximum theoretical density as measured by ASTM D 2041. The asphalt cement content by percent of total mixture weight should fall within a tolerance of ± 0.3 percent asphalt cement from the specific mix. In addition, the mix should be designed so that 75 to 85 percent of the voids in the mineral aggregate (VMA) are filled with asphalt cement.

Crushed Limestone Base - Base material should be composed of crushed limestone meeting the requirements of TxDOT Item 247, Grade 1 or 2, Type A. The base should be compacted to a minimum of 95% of the maximum density as determined by TEX 113E at -2 to +3 percent of optimum moisture content.

Moisture Conditioned Subgrade - The subgrade should be scarified to a depth of six inches and moisture adjusted to between -2 and +3 percent of optimum moisture content. The subgrade should then be recompacted to at least 95 percent of TEX 113E. Care should be taken to insure that the subgrade does not dry out or become saturated prior to pavement construction.

It is important that proper perimeter drainage be provided so that infiltration of surface water from unpaved areas surrounding the pavement is minimized, or curbs should extend through the base and into the subgrade. A crack sealant compatible to both asphalt and concrete should be provided at concrete-asphalt interfaces.

We should note that these systems were derived based on the Bastrop County pavement design guidelines. Specific testing (such as CBR, and resilient modulus, etc.) may be performed on the site subgrade soils to better define the subgrade supportive characteristics.

DESIGN REVIEW

Additional analyses may be necessary as final plans are developed. Maxim can provide additional consultation and analysis as necessary. Maxim should be provided the opportunity to review the final plans and specifications to check that these and subsequent recommendations are properly interpreted. This review is not a part of our project scope and would be an additional service. Maxim cannot be responsible for misinterpretations of our recommendations if we have not had an opportunity to review these documents.

CONSTRUCTION MONITORING

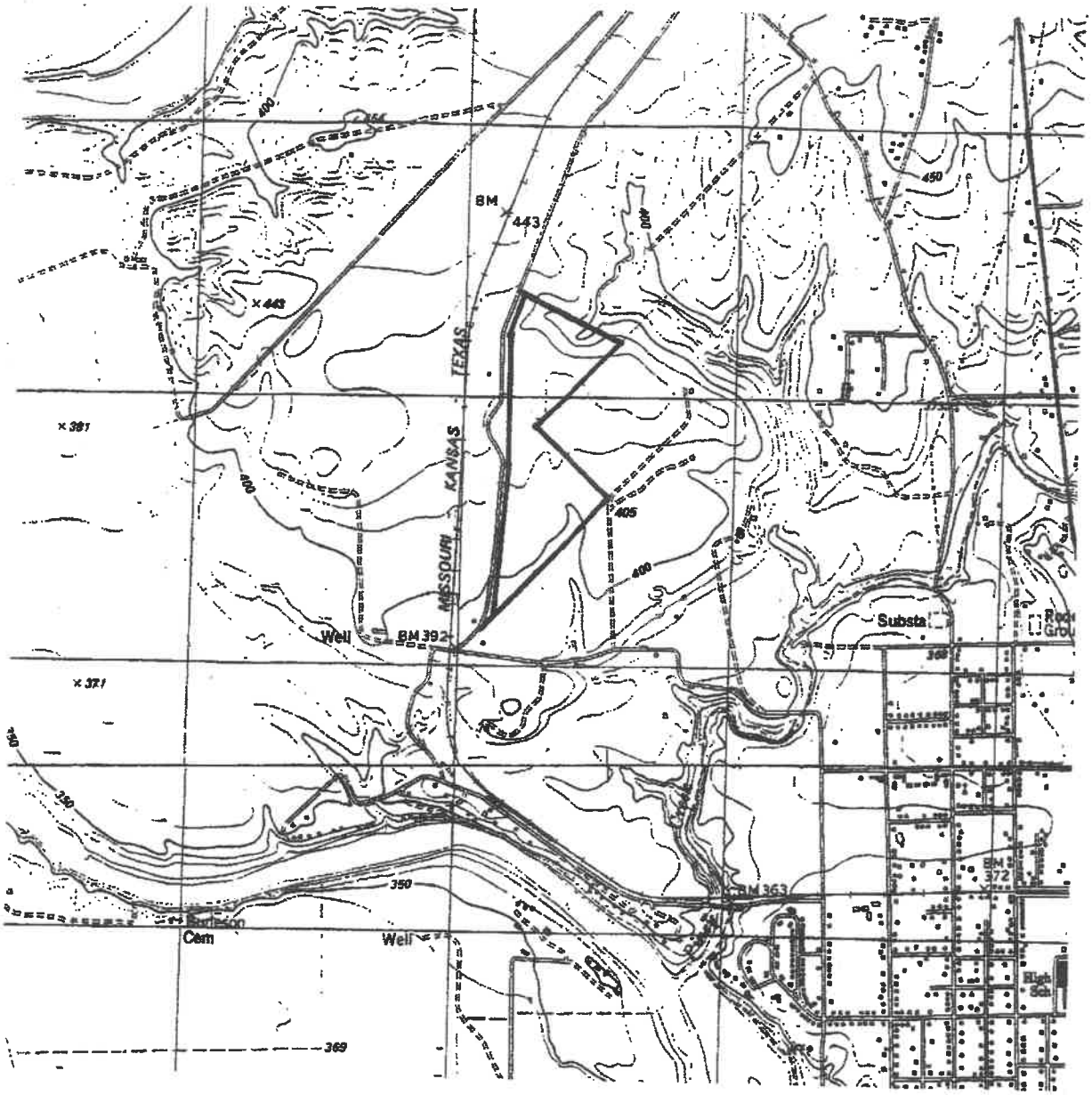
Construction monitoring services should be provided for proof rolling and subgrade preparation / compaction. Maxim should be retained to provide these services to check that construction is in accordance with the intentions of this report.

LIMITATIONS

Subsurface conditions may exist at the site which differ significantly from those encountered during our drilling operations. Variations may occur due to the geology of the area as well as filled areas which may not have been detected in the boring program. Should any subsurface conditions be encountered which differ from those described in this report, Maxim should be immediately notified so that further evaluation and supplemental recommendations can be provided.

This study was performed in accordance with accepted geotechnical engineering practice for design purposes only. Determination of excavation, trench safety, dewatering and trafficability requirements is the responsibility of others specializing in those areas. In the event that any changes in the nature, design or location of the improvements are made, the conclusions and recommendations in this report should not be considered valid until the changes are reviewed and the conclusions and recommendations modified or verified in writing.

APPENDIX A
FIGURES



N

0 500 1000 2000
(SCALE IN FEET)

BASE MAP SOURCE:
U.S.G.S. 7.5 MIN. LAKE BASTROP AND BASTROP QUADRANGLE

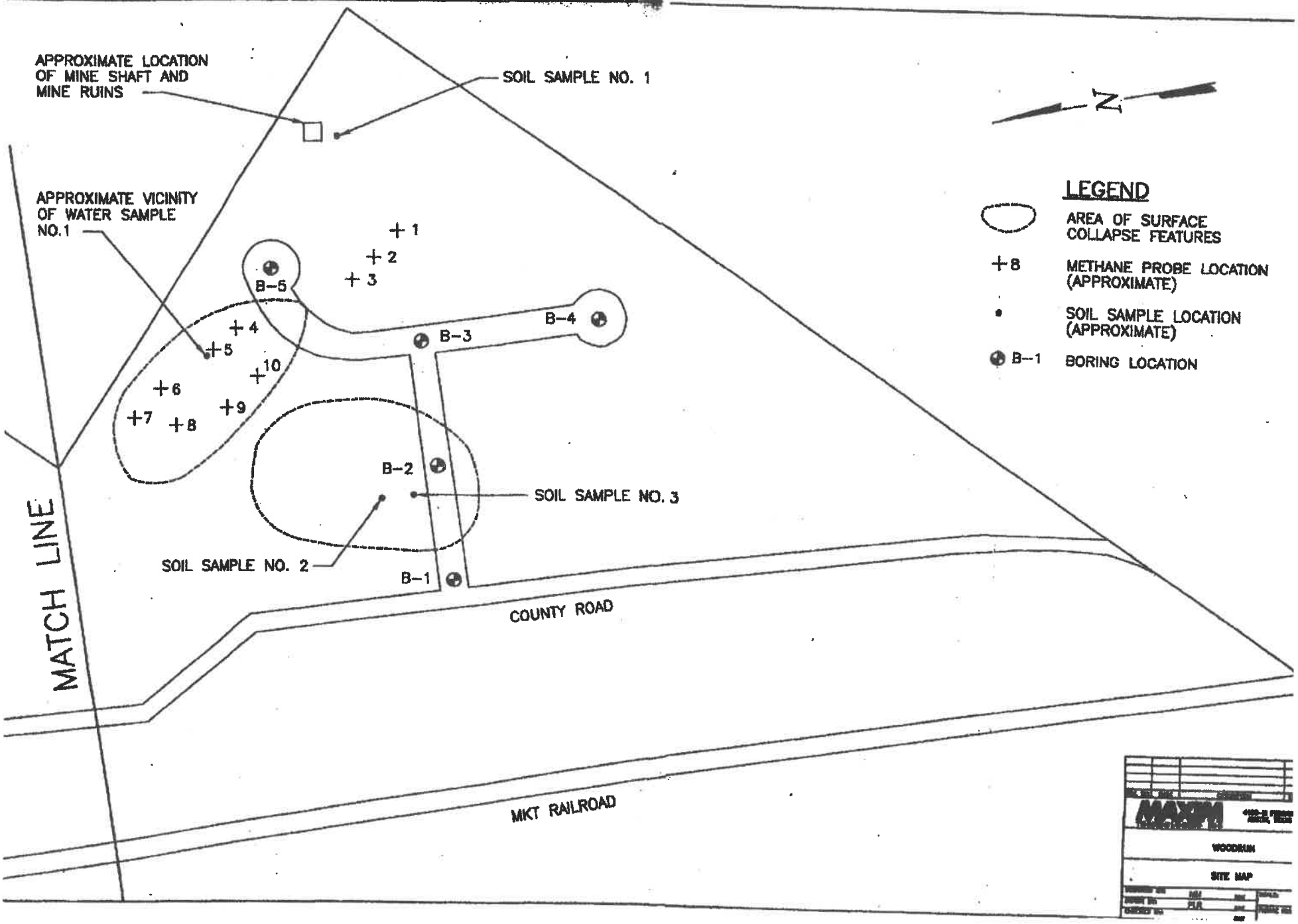
SITE LOCATION MAP

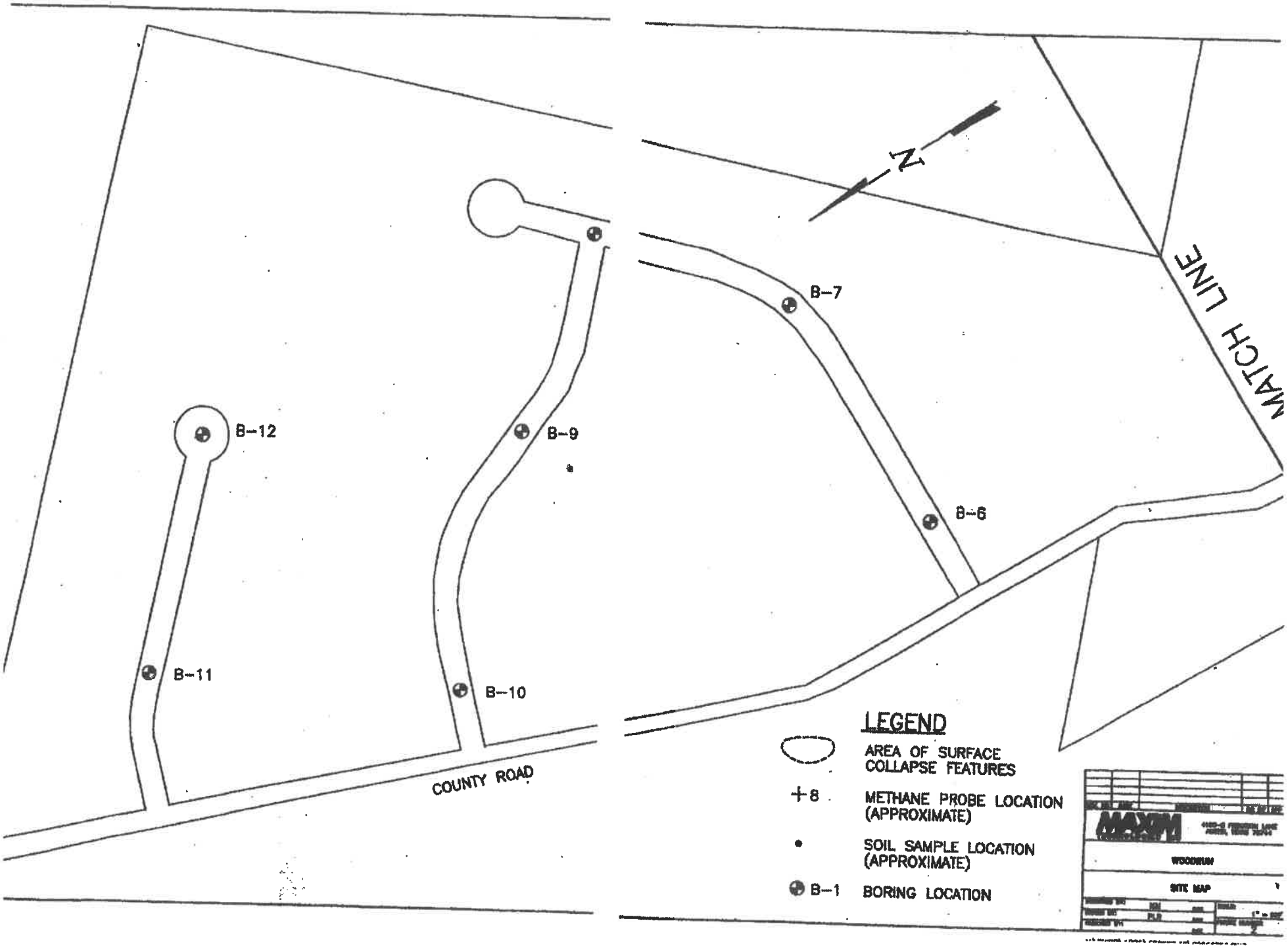
FUTURE WOODRUN SUBDIVISION BASTROP, TEXAS

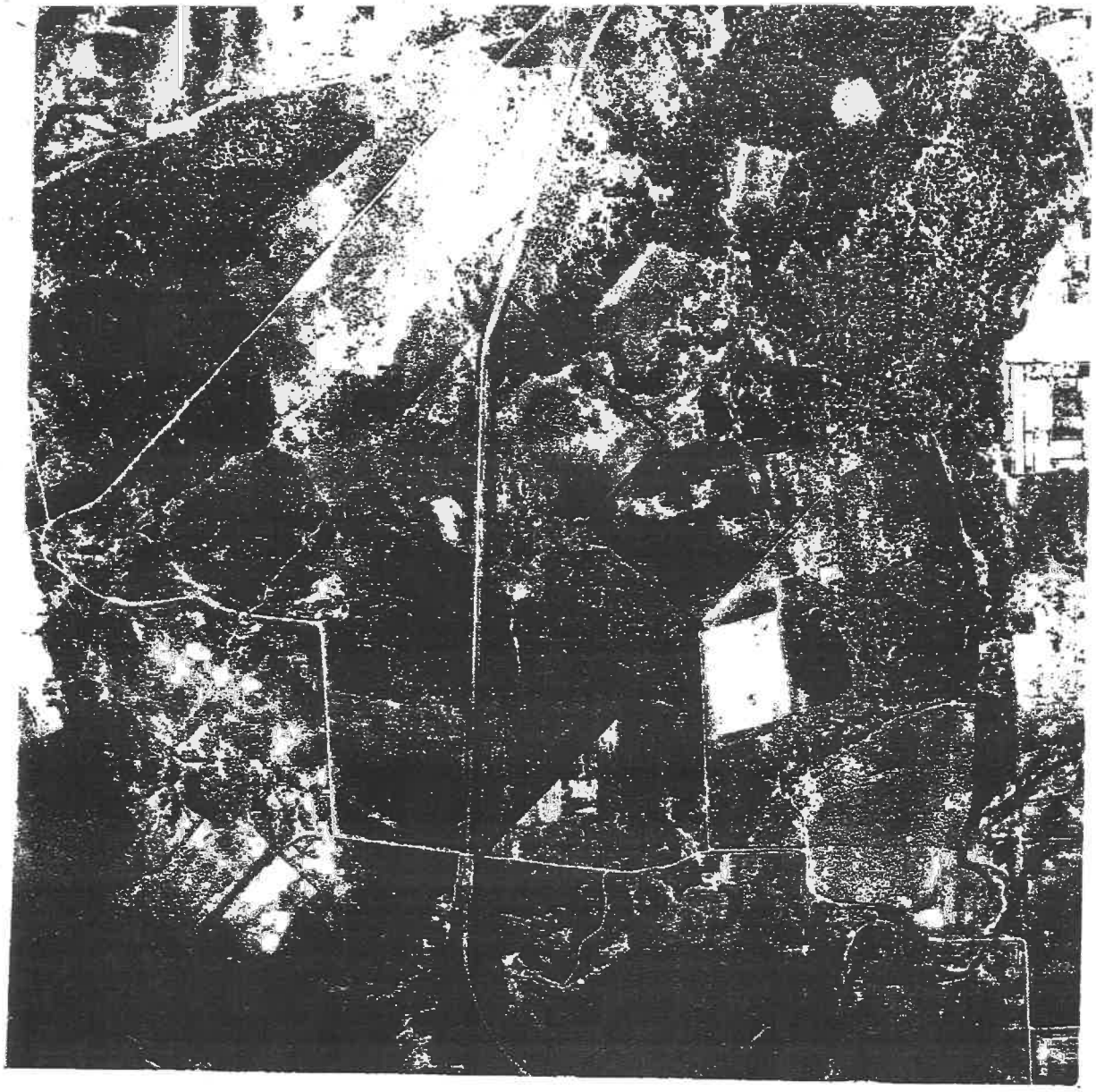
MAXIM TECHNOLOGIES INC
4150-B FREDRICH LANE
AUSTIN, TEXAS 78744

REFERENCE NO:	1805808557
DRAWING NO:	60855701
DATE ISSUED:	11-18-98

FIGURE NO. 1


APPROXIMATE LOCATION OF MINE SHAFT AND MINE RUINS
SOIL SAMPLE NO. 1
APPROXIMATE VICINITY OF WATER SAMPLE NO.1
N
LEGEND
AREA OF SURFACE COLLAPSE FEATURES
+8 METHANE PROBE LOCATION (APPROXIMATE)
SOIL SAMPLE LOCATION (APPROXIMATE)
B-1 BORING LOCATION
+1
+2
+3
+4
+5
+6
+7
+8
+9
+10
B-5
B-4
B-3
B-2
B-1
SOIL SAMPLE NO. 3
SOIL SAMPLE NO. 2
MATCH LINE
COUNTY ROAD
MKT RAILROAD
MAXIM
WOODRUM
SITE MAP


N
MATCH LINE
B-7
B-6
B-12
B-9
B-11
B-10
COUNTY ROAD
LEGEND
AREA OF SURFACE COLLAPSE FEATURES
+8 METHANE PROBE LOCATION (APPROXIMATE)
SOIL SAMPLE LOCATION (APPROXIMATE)
B-1 BORING LOCATION
MAXIM
WOODRUM
SITE MAP



N

SOURCE: T.N.R.I.S.
FILE NO: RSDIS #100006
SCALE: 4"=1 MILE
DATE: JANUARY 18, 1951

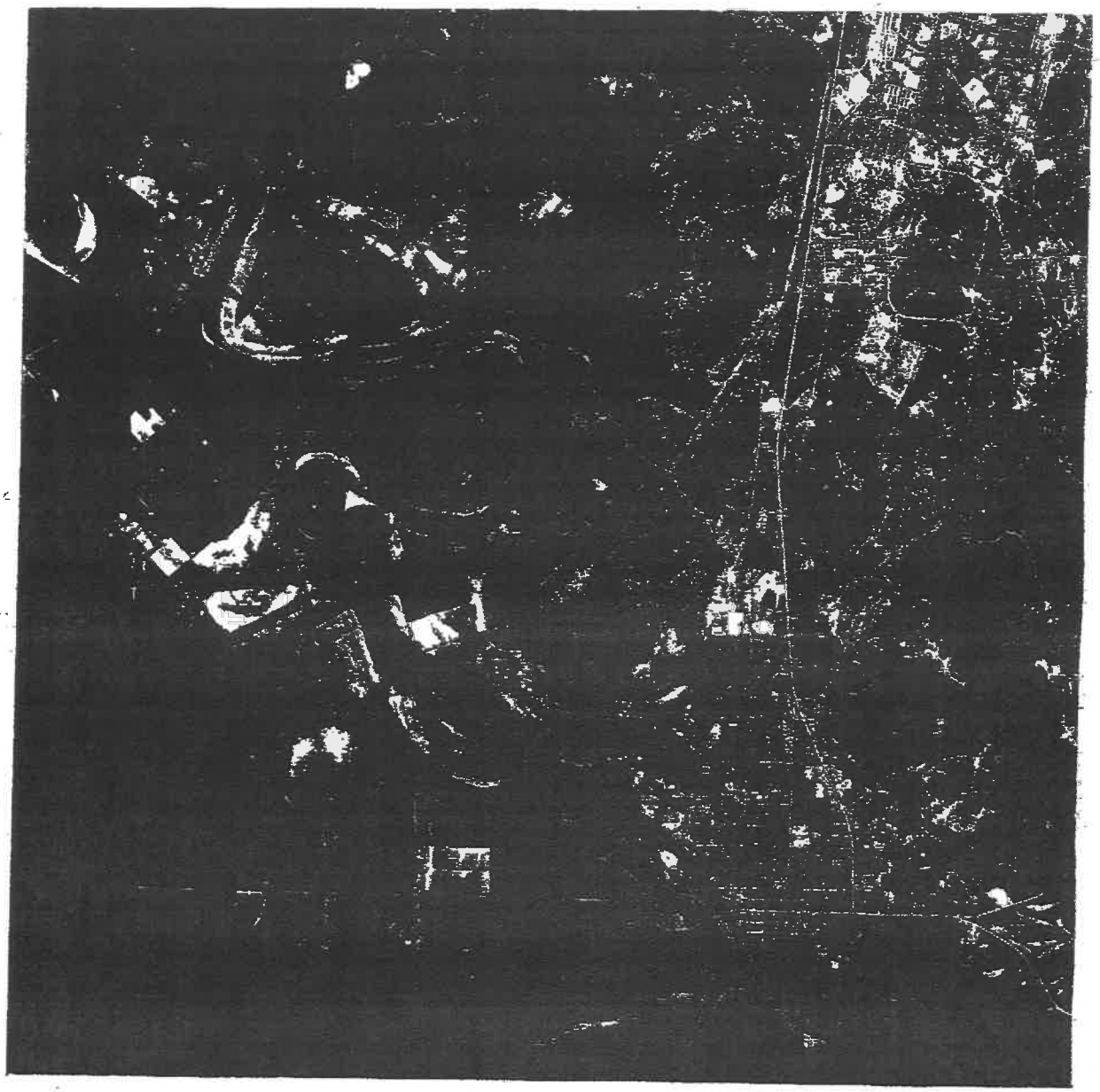
1951
AERIAL PHOTO

FUTURE WOODRUN SUBDIVISION
BASTROP, TEXAS

MAXIM TECHNOLOGIES INC
4150-B FREIDRICH LANE
AUSTIN, TEXAS 78744

REFERENCE NO:	1805608557
DRAWING NO:	60855707
DATE ISSUED:	11-18-96

FIGURE NO. 7



N

SOURCE: T.N.R.I.S.
FILE NO: RSDIS #000020
SCALE:
DATE: JANUARY 25, 1953

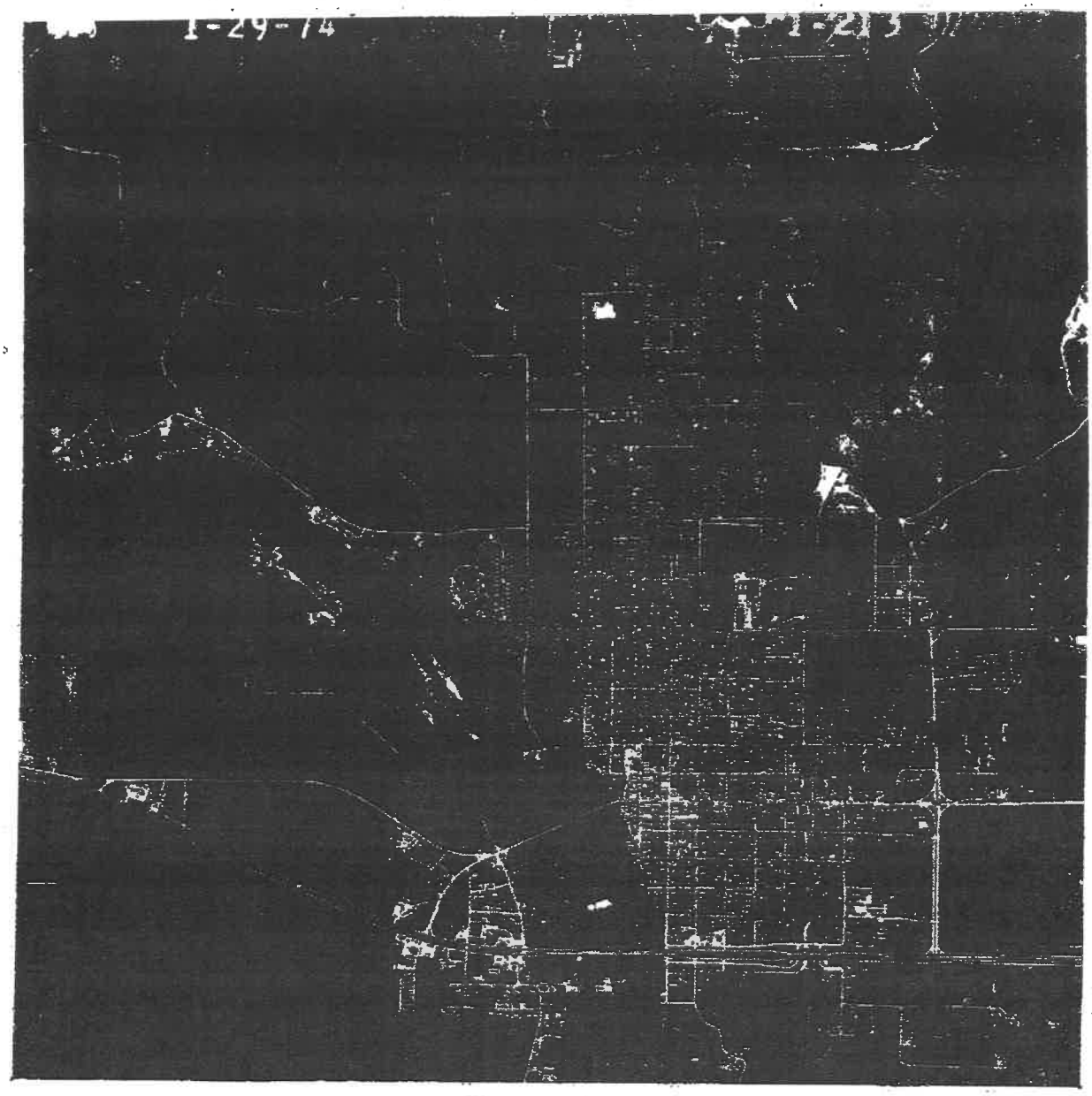
1953
AERIAL PHOTO

FUTURE WOODRUN SUBDIVISION
BASTROP, TEXAS

MAXIM TECHNOLOGIES INC
4130-B FREDRICH LANE
AUSTIN, TEXAS 78744

REFERENCE NO:	1605688557
DRAWING NO:	60855706
DATE ISSUED:	11-18-98

FIGURE NO. 6



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SOURCE: T.N.R.I.S.
FILE NO: RSDIS #001061
SCALE: 1:25,600
DATE: JANUARY 29, 1974

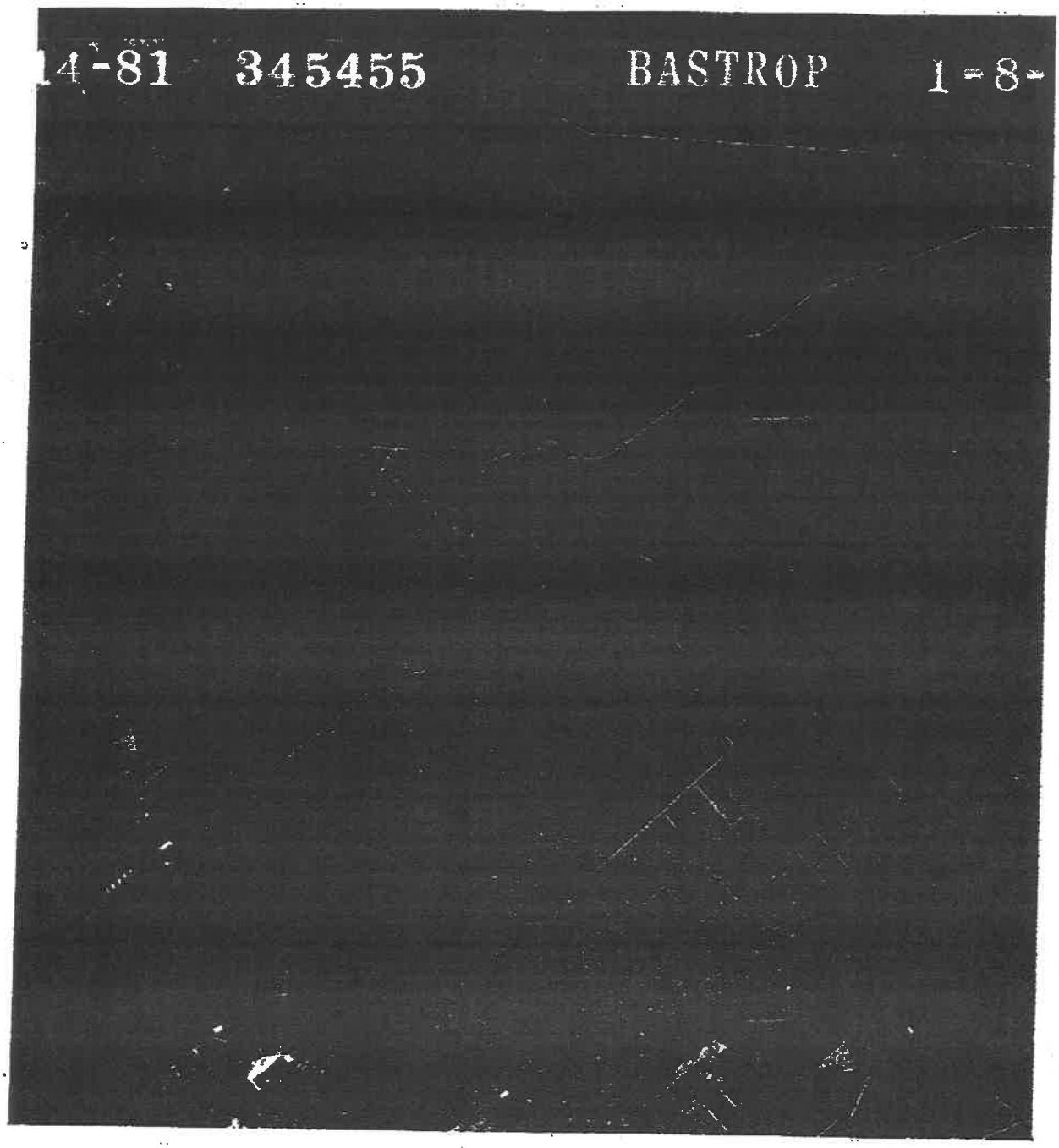
1974
AERIAL PHOTO

FUTURE WOODRUN SUBDIVISION
BASTROP, TEXAS

MAXIM TECHNOLOGIES INC
4150-B FREDRICH LANE
AUSTIN, TEXAS 78744

REFERENCE NO:	1805808557
DRAWING NO:	60855705
DATE ISSUED:	11-18-96

FIGURE NO. 5



N

SOURCE: T.N.R.I.S.
FILE NO: RSDIS #001517
SCALE: 1:24,000
DATE: MAY 14, 1981

1981
AERIAL PHOTO

FUTURE WOODRUN SUBDIVISION
BASTROP, TEXAS

MAXIM TECHNOLOGIES INC
4130-B FREDRICH LANE
AUSTIN, TEXAS 78744

REFERENCE NO:	1605808557
DRAWING NO:	60855704
DATE ISSUED:	11-18-96

FIGURE NO. 4



N

SOURCE: T.N.R.I.S.
FILE NO: RSDIS #001488
SCALE: 1:24,000
DATE: MARCH 5, 1991

1991 AERIAL PHOTO

FUTURE WOODRUN SUBDIVISION BASTROP, TEXAS

MAXIM TECHNOLOGIES INC

4150-B FREIDRICH LANE
AUSTIN, TEXAS 78744

REFERENCE NO:	1805608557
DRAWING NO:	60855703
DATE ISSUED:	11-18-96

FIGURE NO. 3

BORING NO. B-1

PROJECT: Woodrun Subdivision
Bastrop County, Texas
CLIENT: L & L Investments
Austin, Texas

PROJECT NO.: 1803-60-8557
DATE DRILLED: 10/29/96
LOGGED BY: M. McDonald

DRILLING METHOD(S): Dry Augered 0-10 ft

GROUNDWATER INFORMATION: No groundwater encountered during drilling.

FIELD DATA				LABORATORY DATA										
SOIL & ROCK SYMBOL	DEPTH (FT)	SAMPLE TYPE	N: BLOWS/FT, TC: BLOWS/FT P: TONS/SQ FT R: PERCENT RQD: PERCENT	MOISTURE CONTENT, %	DRY DENSITY POUNDS/CU.FT	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %	MINUS NO. 200 SIEVE, %	COMPRESSIVE STRENGTH, TSF	FAILURE STRAIN, %	CONFINING PRESSURE, PSI	DESCRIPTION OF STRATUM
			N=7	10									Loose brown Clayey Sand (SC) Stratum I
			P=4.5+	14	120	57	18	39		14.0			Hard brown Fat Clay (CH)
	5		P=4.5+										becoming mottled brown, red, and gray with some fine gravel below 4 ft
			P=4.5+	11	124								Stratum II
				6									Loose to medium dense light brown Poorly-Graded Sand (SP) Stratum III
	10												Boring Terminated @ 10 ft
	15												
	20												
	25												

N - STANDARD PENETRATION TEST RESISTANCE
TC - THD CONE PENETRATION RESISTANCE
P - POCKET PENETROMETER RESISTANCE
R - PERCENTAGE OF ROCK CORE RECOVERY
RQD - ROCK QUALITY DESIGNATION

REMARKS:

BORING NO. B-2

PROJECT: Woodrun Subdivision
Bastrop County, Texas
CLIENT: L & L Investments
Austin, Texas

PROJECT NO.: 1803-60-9557
DATE DRILLED: 10/29/96
LOGGED BY: M. McDonald

DRILLING METHOD(S): Dry Augered 0-10 ft

GROUNDWATER INFORMATION: No groundwater encountered during drilling.

FIELD DATA				LABORATORY DATA									DESCRIPTION OF STRATUM
SOIL & ROCK SYMBOL	DEPTH (FT)	SAMPLE TYPE	N: BLOWS/FT TC: BLOWS/FT P: TONS/SQ. FT R: PERCENT RQD: PERCENT	MOISTURE CONTENT, %	DRY DENSITY POUNDS/CU.FT	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %	MINUS NO. 200 SIEVE, %	COMPRESSIVE STRENGTH, TSF	FAILURE STRAIN, %	CONFINING PRESSURE, PSI	
				5					38				Loose brown Clayey Sand (SC) Stratum I
			P=4.5+	15	119	62	22	40					Very stiff to hard brown to light brown, red, and gray mottled Fat Clay (CH) with trace fine gravel
	5		P=4.5+										reddish brown 6-8 ft
			P=4.5+	13									light brown below 8 ft
			P=4.5+	14	114								Stratum II
	10												Boring Terminated @ 10 ft
	15												
	20												
	25												

N - STANDARD PENETRATION TEST RESISTANCE
TC - THD CONE PENETRATION RESISTANCE
P - POCKET PENETROMETER RESISTANCE
R - PERCENTAGE OF ROCK CORE RECOVERY
RQD - ROCK QUALITY DESIGNATION

REMARKS:

BORING NO. B-3

PROJECT: Woodrun Subdivision
Bastrop County, Texas
CLIENT: L & L Investments
Austin, Texas

PROJECT NO.: 1803-60-8557
DATE DRILLED: 10/29/96
LOGGED BY: M. McDonald

DRILLING METHOD(S): Dry Augered 0-10 ft

GROUNDWATER INFORMATION: No groundwater encountered during drilling.

FIELD DATA				LABORATORY DATA										
SOIL & ROCK SYMBOL	DEPTH (FT)	SAMPLE TYPE	N: BLOWS/FT TC: BLOWS/FT P: TONS/SQ. FT R: PERCENT RQD: PERCENT	MOISTURE CONTENT, %	DRY DENSITY POUNDS/CU.FT	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %	MINUS NO. 200 SIEVE, %	COMPRESSIVE STRENGTH, TSF	FAILURE STRAIN, %	CONFINING PRESSURE, PSI	DESCRIPTION OF STRATUM
			P=2.25	13		50	19	31					Loose light brown Clayey Sand (SC) Stratum I
			P=4.5+	18	111								Hard yellowish brown Fat Clay (CH) with sand and lignite seams
	5		P=4.5+	15	112	57	20	37					reddish brown below 4 ft
			P=4.5+	22									
			P=4.5+	16									Stratum II
	10												Boring Terminated @ 10 ft
	15												
	20												
	25												

N - STANDARD PENETRATION TEST RESISTANCE
TC - THD CONE PENETRATION RESISTANCE
P - POCKET PENETROMETER RESISTANCE
R - PERCENTAGE OF ROCK CORE RECOVERY
RQD - ROCK QUALITY DESIGNATION

REMARKS:

BORING NO. B-4

PROJECT: Woodrun Subdivision
Bastrop County, Texas
CLIENT: L & L Investments
Austin, Texas

PROJECT NO.: 1803-60-8557
DATE DRILLED: 11/12/98
LOGGED BY: M. McDonald

DRILLING METHOD(S): Dry Augered 0-20 ft

GROUNDWATER INFORMATION: No groundwater encountered during drilling.

FIELD DATA				LABORATORY DATA									
SOIL & ROCK SYMBOL	DEPTH (FT)	SAMPLE TYPE	N: BLOWS/FT TC: BLOWS/FT P: TONS/SQ FT R: PERCENT RQD: PERCENT	MOISTURE CONTENT, %	DRY DENSITY POUNDS/CU.FT	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %	MINUS NO. 200 SIEVE, %	COMPRESSIVE STRENGTH, TSF	FAILURE STRAIN, %	CONFINING PRESSURE, PSI	DESCRIPTION OF STRATUM
			P=4.5+	22									Loose light brown Clayey Sand (SC) — Stratum I
			P=4.5+	12	109				78				Very stiff to hard dark brown Sandy Fat Clay (CH) — Stratum II
	5		P=4.5+	14		43	17	26					Hard dark brown to brown Lean Clay (CL)
			P=4.5+	14									
			P=4.5+	14	111								
	10												Stratum II
													Very stiff to hard Sandy Lean Clay (CL) with fine gravel — Stratum II
	15												Tan Silty Gravel (GM) — Stratum III
	20												Boring Terminated @ 20 ft
	25												

N - STANDARD PENETRATION TEST RESISTANCE
TC - THD CONE PENETRATION RESISTANCE
P - POCKET PENETROMETER RESISTANCE
R - PERCENTAGE OF ROCK CORE RECOVERY
RQD - ROCK QUALITY DESIGNATION

REMARKS:

BORING NO. B-5

PROJECT: Woodrun Subdivision
Bastrop County, Texas
CLIENT: L & L Investments
Austin, Texas

PROJECT NO.: 1803-60-8557
DATE DRILLED: 10/29/96
LOGGED BY: M. McDonald

DRILLING METHOD(S): Dry Augered 0-10 ft

GROUNDWATER INFORMATION: No groundwater encountered during drilling.

FIELD DATA				LABORATORY DATA										DESCRIPTION OF STRATUM
SOIL & ROCK SYMBOL	DEPTH (FT)	SAMPLE TYPE	N: BLOWS/FT TC: BLOWS/FT P: TONS/SQ FT R: PERCENT ROD: PERCENT	MOISTURE CONTENT, %	DRY DENSITY POUNDS/CU.FT	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %	MINUS NO. 200 SIEVE, %	COMPRESSIVE STRENGTH, TSF	FAILURE STRAIN, %	CONFINING PRESSURE, PSI		
				8										Loose light brown Clayey Sand (SC) — Stratum I
			P=4.5+											Hard mottled brown and red Fat Clay (CH) with sand
			P=4.5+	13		50	17	33						
	5		P=4.5+	15	112				76					brown below 4 ft
			P=4.5+	16										with calcite below 6 ft
			P=4.5+	17	113									Stratum II
	10													Boring Terminated @ 10 ft
	15													
	20													
	25													

N - STANDARD PENETRATION TEST RESISTANCE
TC - THD CONE PENETRATION RESISTANCE
P - POCKET PENETROMETER RESISTANCE
R - PERCENTAGE OF ROCK CORE RECOVERY
ROD - ROCK QUALITY DESIGNATION

REMARKS:

BORING NO. B-6

PROJECT: Woodrun Subdivision
Bastrop County, Texas
CLIENT: L & L Investments
Austin, Texas

PROJECT NO.: 1803-60-8557
DATE DRILLED: 10/29/96
LOGGED BY: M. McDonald

DRILLING METHOD(S): Dry Augered 0-5 ft

GROUNDWATER INFORMATION: No groundwater encountered during drilling.

FIELD DATA				LABORATORY DATA										
SOIL & ROCK SYMBOL	DEPTH (FT)	SAMPLE TYPE	N: BLOWS/FT TC: BLOWS/FT P: TONS/SQ FT R: PERCENT RQD: PERCENT	MOISTURE CONTENT, %	DRY DENSITY POUNDS/CU.FT	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %	MINUS NO. 200 SIEVE, %	COMPRESSIVE STRENGTH, TSF	FAILURE STRAIN, %	CONFINING PRESSURE, PSI	DESCRIPTION OF STRATUM
			P=0.5	6									Loose light brown Clayey Sand (SC) — Stratum I
			P=4.5+	19	112	80	21	59					Hard Sandy Fat Clay (CH) with sand
	5		P=4.5+	14					57				Stratum II
													Boring Terminated @ 5 ft
	10												
	15												
	20												
	25												

N - STANDARD PENETRATION TEST RESISTANCE
TC - THD CONE PENETRATION RESISTANCE
P - POCKET PENETROMETER RESISTANCE
R - PERCENTAGE OF ROCK CORE RECOVERY
RQD - ROCK QUALITY DESIGNATION

REMARKS:

BORING NO. B-7

PROJECT: Woodrun Subdivision
Bastrop County, Texas
CLIENT: L & L Investments
Austin, Texas

PROJECT NO.: 1803-60-8557
DATE DRILLED: 10/29/96
LOGGED BY: M. McDonald

FIELD DATA				LABORATORY DATA									
SOIL & ROCK SYMBOL	DEPTH (FT)	SAMPLE TYPE	N: BLOWS/FT TC: BLOWS/FT P: TONS/SQ FT R: PERCENT RQD: PERCENT	MOISTURE CONTENT, %	DRY DENSITY POUNDS/CU.FT	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %	MINUS NO. 200 SIEVE, %	COMPRESSIVE STRENGTH, TSF	FAILURE STRAIN, %	CONFINING PRESSURE, PSI	DESCRIPTION OF STRATUM
			P=2.0	11									Loose brown Clayey Sand (SC) — Stratum I
			P=4.5+	14	117	54	17	37		11.8			Hard brown Fat Clay (CH) with sand — Stratum II
			P=4.5+	16									Hard reddish brown Lean Clay (CL) with calcareous gravel — Stratum II
	5												Boring Terminated @ 5 ft
	10												
	15												
	20												
	25												

DRILLING METHOD(S): Dry Augered 0-5 ft

GROUNDWATER INFORMATION: No groundwater encountered during drilling.

N - STANDARD PENETRATION TEST RESISTANCE
TC - THD CONE PENETRATION RESISTANCE
P - POCKET PENETROMETER RESISTANCE
R - PERCENTAGE OF ROCK CORE RECOVERY
RQD - ROCK QUALITY DESIGNATION

REMARKS:

BORING NO. B-9

PROJECT: Woodrun Subdivision
Bastrop County, Texas
CLIENT: L & L Investments
Austin, Texas

PROJECT NO.: 1803-60-8557
DATE DRILLED: 10/29/96
LOGGED BY: M. McDonald

FIELD DATA				LABORATORY DATA									
SOIL & ROCK SYMBOL	DEPTH (FT)	SAMPLE TYPE	N: BLOWS/FT TC: BLOWS/FT P: TONS/SQ FT R: PERCENT RQD: PERCENT	MOISTURE CONTENT, %	DRY DENSITY POUNDS/CU.FT	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %	MINUS NO. 200 SIEVE, %	COMPRESSIVE STRENGTH, TSF	FAILURE STRAIN, %	CONFINING PRESSURE, PSI	DESCRIPTION OF STRATUM
													Loose brown Clayey Sand (CL) — Stratum I
			P=4.5+	22	106								Hard reddish brown Lean Clay (CL) with sand
			P=4.5+	13		46	18	28					
	5		P=4.5+	11					79				Stratum II
													Boring Terminated @ 5 ft
	10												
	15												
	20												
	25												

DRILLING METHOD(S): Dry Augered 0-5 ft

GROUNDWATER INFORMATION: No groundwater encountered during drilling.

N - STANDARD PENETRATION TEST RESISTANCE
TC - THD CONE PENETRATION RESISTANCE
P - POCKET PENETROMETER RESISTANCE
R - PERCENTAGE OF ROCK CORE RECOVERY
RQD - ROCK QUALITY DESIGNATION

REMARKS:

BORING NO. B-10

PROJECT: Woodrun Subdivision
Bastrop County, Texas
CLIENT: L & L Investments
Austin, Texas

PROJECT NO.: 1803-60-8557
DATE DRILLED: 10/29/96
LOGGED BY: M. McDonald

DRILLING METHOD(S): Dry Augered 0-5 ft

GROUNDWATER INFORMATION: No groundwater encountered during drilling.

FIELD DATA				LABORATORY DATA									
SOIL & ROCK SYMBOL	DEPTH (FT)	SAMPLE TYPE	N: BLOWS/FT TC: BLOWS/FT P: TONS/SQ FT R: PERCENT RQD: PERCENT	MOISTURE CONTENT, %	DRY DENSITY POUNDS/CU.FT	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %	MINUS NO. 200 SIEVE, %	COMPRESSIVE STRENGTH, TSF	FAILURE STRAIN, %	CONFINING PRESSURE, PSI	DESCRIPTION OF STRATUM
													Loose brown Clayey Sand (SC) — Stratum I
			P=4.5+	14									Very stiff to hard reddish brown Lean Clay (CL) with sand and calcareous gravel
			P=4.5+	10	115	47	18	29		4.67			— Stratum II
			P=4.5+	8									Medium dense tan Poorly-Graded Sand (SP) — Stratum III
	5												Boring Terminated @ 5 ft
	10												
	15												
	20												
	25												

N - STANDARD PENETRATION TEST RESISTANCE
TC - THD CONE PENETRATION RESISTANCE
P - POCKET PENETROMETER RESISTANCE
R - PERCENTAGE OF ROCK CORE RECOVERY
RQD - ROCK QUALITY DESIGNATION

REMARKS:

BORING NO. B-11

PROJECT: Woodrun Subdivision
Bastrop County, Texas

CLIENT: L & L Investments
Austin, Texas

PROJECT NO.: 1803-60-8557
DATE DRILLED: 10/29/98
LOGGED BY: M. McDonald

FIELD DATA				LABORATORY DATA									
SOIL & ROCK SYMBOL	DEPTH (FT)	SAMPLE TYPE	N: BLOWS/FT TC: BLOWS/FT P: TONS/SQ FT R: PERCENT ROD: PERCENT	MOISTURE CONTENT, %	DRY DENSITY POUNDS/CU.FT	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %	MINUS NO. 200 SIEVE, %	COMPRESSIVE STRENGTH, TSF	FAILURE STRAIN, %	CONFINING PRESSURE, PSI	DESCRIPTION OF STRATUM
			P=4.5+	11		42	20	22					Very stiff to hard brown to reddish brown Sandy Lean Clay (CL) Stratum I
			P=4.5	16	109	57	18	39					Hard light brown Fat Clay (CH) with sand
	5		P=4.5+	16									Stratum II Boring Terminated @ 5 ft
	10												
	15												
	20												
	25												

DRILLING METHOD(S): Dry Augered 0-5 ft

GROUNDWATER INFORMATION: No groundwater encountered during drilling.

N - STANDARD PENETRATION TEST RESISTANCE
TC - THD CONE PENETRATION RESISTANCE
P - POCKET PENETROMETER RESISTANCE
R - PERCENTAGE OF ROCK CORE RECOVERY
ROD - ROCK QUALITY DESIGNATION

REMARKS:

BORING NO. B-12

PROJECT: Woodrun Subdivision
Bastrop County, Texas
CLIENT: L & L Investments
Austin, Texas

PROJECT NO.: 1803-60-8557
DATE DRILLED: 10/29/96
LOGGED BY: M. McDonald

FIELD DATA				LABORATORY DATA										
SOIL & ROCK SYMBOL	DEPTH (FT)	SAMPLE TYPE	N: BLOWS/FT TC: BLOWS/FT P: TONS/SQ FT R: PERCENT RQD: PERCENT	MOISTURE CONTENT, %	DRY DENSITY POUNDS/CU.FT	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %	MINUS NO. 200 SIEVE, %	COMPRESSIVE STRENGTH, TSF	FAILURE STRAIN, %	CONFINING PRESSURE, PSI	DESCRIPTION OF STRATUM
			N=9	5					17				Loose to medium dense brown Poorly-Graded Sand (SP)
	5		N=17	7									Stratum III Boring Terminated @ 5 ft
	10												
	15												
	20												
	25												

DRILLING METHOD(S): Dry Augered 0-5 ft

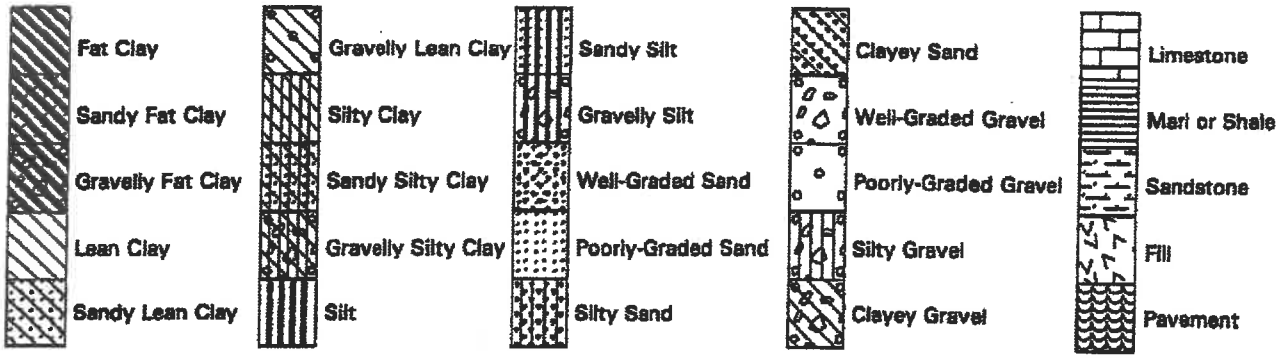
GROUNDWATER INFORMATION: No groundwater encountered during drilling.

N - STANDARD PENETRATION TEST RESISTANCE
TC - THD CONE PENETRATION RESISTANCE
P - POCKET PENETROMETER RESISTANCE
R - PERCENTAGE OF ROCK CORE RECOVERY
RQD - ROCK QUALITY DESIGNATION

REMARKS:

KEY TO SOIL CLASSIFICATION TERMS AND SYMBOLS

SOIL OR ROCK TYPES



CONSISTENCY OF COHESIVE SOILS
(MAJOR PORTION PASSING NO. 200 SIEVE)

PENETRATION RESISTANCE, blow per foot	UNCONFINED COMPRESSIVE STRENGTH, tsf	CONSISTENCY	PLASTICITY INDEX	DEGREE OF PLASTICITY
0 - 2	LESS THAN 0.25	VERY SOFT	0 - 5	NONE
2 - 4	0.25 TO 0.5	SOFT	5 - 10	LOW
4 - 8	0.5 TO 1.0	FIRM	10 - 20	MODERATE
8 - 15	1.0 TO 2.0	STIFF	20 - 40	PLASTIC
15 - 30	2.0 TO 4.0	VERY STIFF	> 40	HIGHLY PLASTIC
> 30	GREATER THAN 4.0	HARD		

RELATIVE DENSITY OF GRANULAR SOILS
(MAJOR PORTION RETAINED ON NO. 200 SIEVE)

PENETRATION RESISTANCE blow per foot	RELATIVE DENSITY
0 - 4	Very Loose
4 - 10	Loose
10 - 30	Medium Dense
30 - 50	Dense
> 50	Very Dense

TERMS DESCRIBING SOIL STRUCTURE

Parting: paper thin in thickness

Seam: 1/8" - 3" in thickness

Layer: greater than 3" in thickness

Calcareous: containing appreciable quanties of calcium carbonate

Ferrous: containing appreciable quantities of iron

Well-Graded: having wide range in grain size & similar proportions of all intermediate sizes

Poorly-Graded: predominately one grain size or having a range of sizes with few or no particles of some intermediate sizes

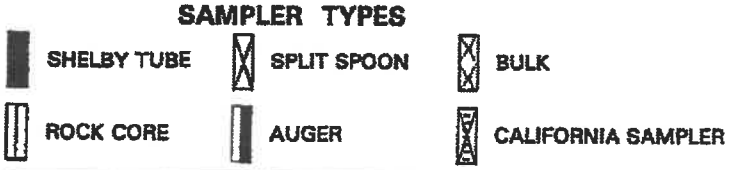
Fissured: containing shrinkage cracks, frequently filled with fine sand or silt, usually more or less vertical

Interbedded: composed of alternate layers of different soil types

Laminated: composed of thin layers of varying color and texture

Slickensided: having inclined planes of weakness that are slick & glossy in appearance

SAMPLER TYPES

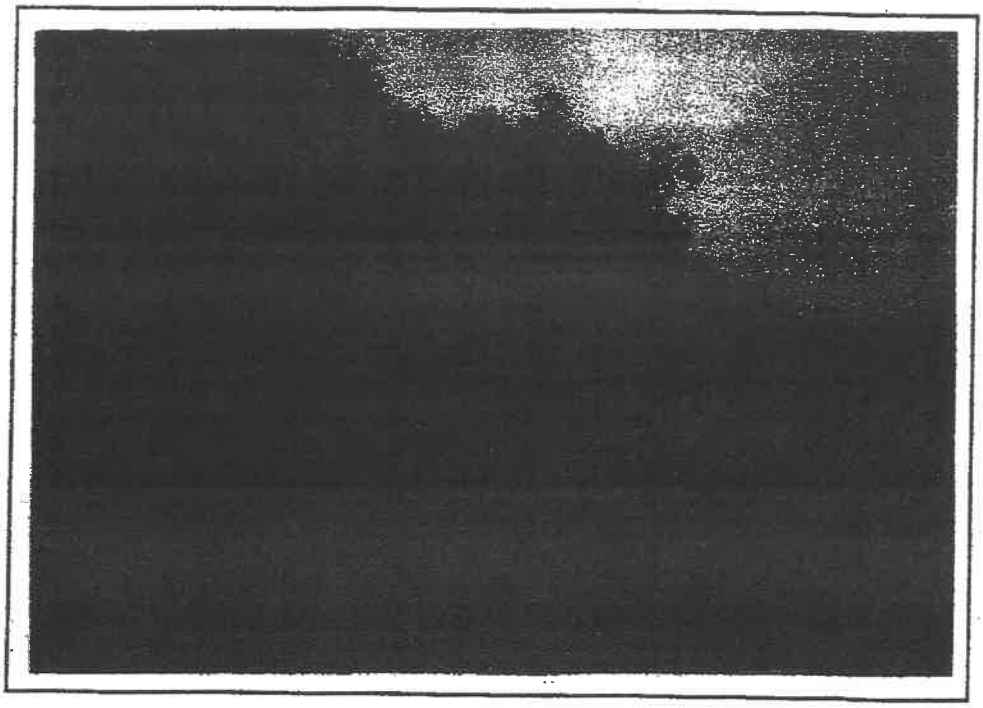


WATER LEVELS

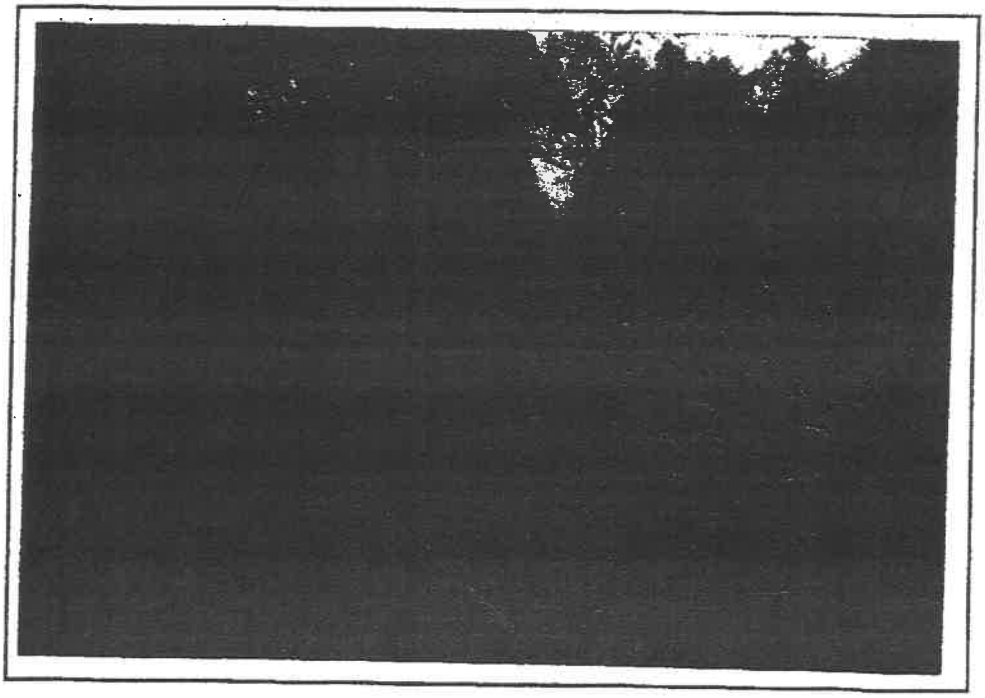
▽ - OBSERVED GROUNDWATER LEVEL DURING DRILLING

▼ - OBSERVED GROUNDWATER LEVEL AFTER MONITORING PERIOD

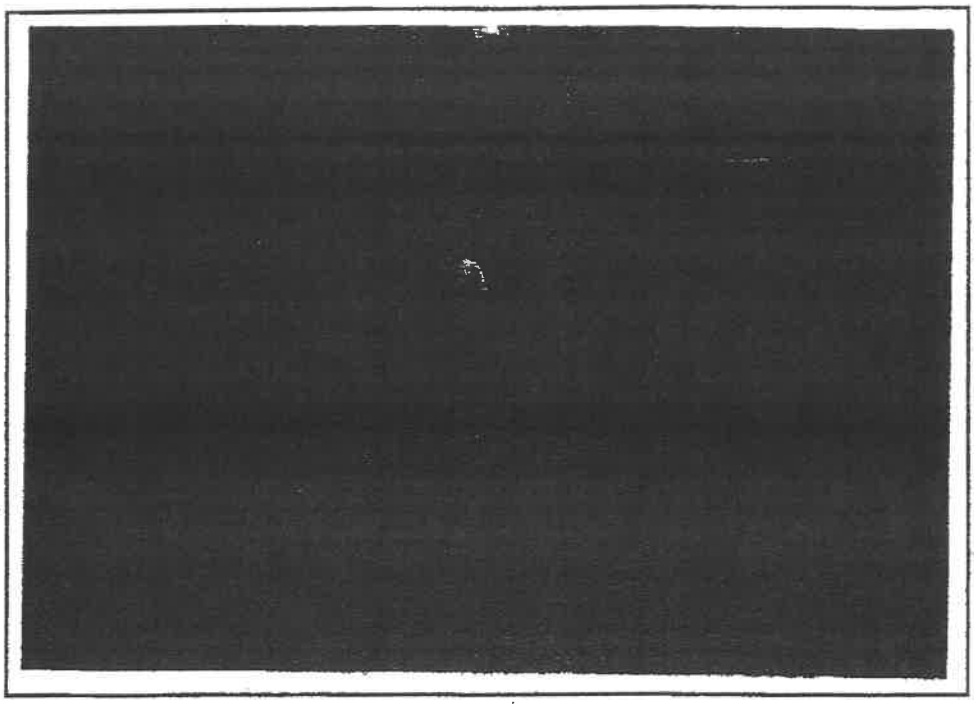
APPENDIX B
SITE PHOTOGRAPHS



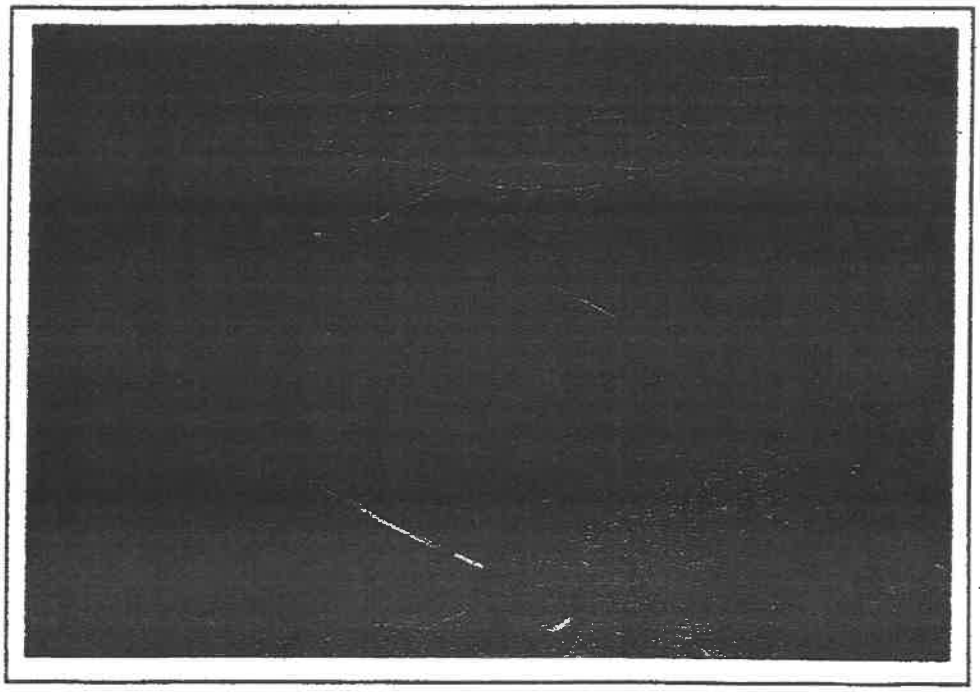
TYPICAL VIEW OF COUNTY ACCESS ROAD.



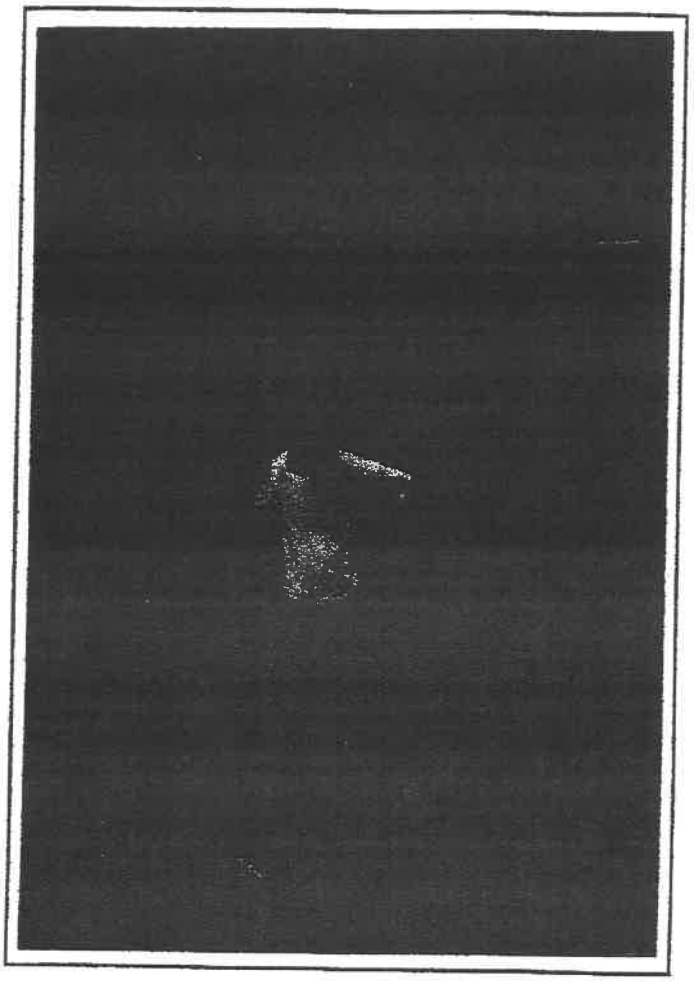
TYPICAL VIEW OF SITE VEGETATION.



TYPICAL VIEW OF ABANDONED MINE SHAFT.



TYPICAL VIEW OF SINKHOLE WITH HAND AUGER (5 FT. TALL) FOR SCALE.



TYPICAL VIEW OF SINKHOLE SHOWING METHANE GAS SURVEY.

APPENDIX C
ANALYTICAL REPORTS

MAXIM
CHNOLOGIES INC

12 Cavalcade P.O. Box 8768 * Houston, Texas 77249 * 713-692-9151

Client JOE LAIRD
MAXIM TECHNOLOGIES, INC.
P.O. BOX 17366
AUSTIN, TX 78760

Client No. 5058
Report No. 96-10-405
Report Date 11/22/96 09:03

Project WOOD RUN

Phone: 512-447-9081 Fax: 512-443-3442

Date Sampled 10/29/96

Sampled By MATT MAHONEY

Sample Type SOIL AND LIQUID SAMPLES

Transported by DELIVERY SERVICE

P.O. # 1805608557.10

Date Received 10/31/96

Lab No.	Sample Identification
96-10-405-01	SOIL #1 / 0-2'
96-10-405-02	SOIL #2 / 0-2'
96-10-405-03	SOIL #3 / 0-2'
96-10-405-04	WATER #1

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Reviewed By

MAXIM

CHRIS BARRY

TEST RESULTS BY SAMPLE

Sample: 01A SOIL #1 / 0-2' Collected: 10/29/96 15:30 Category: S

Test Name	Method	Result	Units	Detection Limit	Date Analyzed	Analyst
ARSENIC	SW-846 7060	2.85	mg/kg	1.00	11/11/96	JBA
B/N,ACID - SOIL - GC/MS	SW-846 8270	ENCLOSURE	DATE		11/05/96	RKW
BARIUM	SW-846 6010	109	mg/kg	20	11/07/96	JBA
BASE/NEUTRAL,ACID EXTRACT	EPA 625/8270	11/04/96	DATE		11/04/96	DSR
CADMIUM	SW-846 6010	<1.00	mg/kg	1.00	11/07/96	JBA
CHROMIUM	SW-846 6010	9.40	mg/kg	2.00	11/07/96	JBA
LEAD - SOLID SAMPLE	SW-846 7420	7.62	mg/kg	3.00	11/09/96	JBA
MERCURY	SW-846 7471	0.1	mg/kg	0.1	11/11/96	JBA
SELENIUM	SW-846 7740	3.30	mg/kg	1.00	11/11/96	JBA
SILVER	SW-846 7760	<5.00	mg/kg	5.00	11/07/96	JBA
VOLATILE ORGANICS - SOIL	SW-846 8260	ENCLOSURE	DATE		11/03/96	DBD

Sample: 02A SOIL #2 / 0-2' Collected: 10/29/96 14:45 Category: S

Test Name	Method	Result	Units	Detection Limit	Date Analyzed	Analyst
ARSENIC	SW-846 7060	3.35	mg/kg	1.00	11/11/96	JBA
BARIUM	SW-846 6010	98.7	mg/kg	20	11/07/96	JBA
CADMIUM	SW-846 6010	<1.00	mg/kg	1.00	11/07/96	JBA
CHROMIUM	SW-846 6010	8.54	mg/kg	2.00	11/07/96	JBA
LEAD - SOLID SAMPLE	SW-846 7420	19.8	mg/kg	3.00	11/09/96	JBA
MERCURY	SW-846 7471	<0.1	mg/kg	0.1	11/11/96	JBA
SELENIUM	SW-846 7740	<1.00	mg/kg	1.00	11/11/96	JBA
SILVER	SW-846 7760	<5.00	mg/kg	5.00	11/07/96	JBA
TOT.PET. HYDROCARBONS	EPA 418.1	< 25	mg/kg	25	11/07/96	DA

Sample: 03A SOIL #3 / 0-2' Collected: 10/29/96 15:05 Category: S

Test Name	Method	Result	Units	Detection Limit	Date Analyzed	Analyst
ARSENIC	SW-846 7060	<1.00	mg/kg	1.00	11/11/96	JBA
BARIUM	SW-846 6010	54.3	mg/kg	20	11/07/96	JBA
CADMIUM	SW-846 6010	<1.00	mg/kg	1.00	11/07/96	JBA
CHROMIUM	SW-846 6010	5.86	mg/kg	2.00	11/07/96	JBA
LEAD - SOLID SAMPLE	SW-846 7420	11.2	mg/kg	3.00	11/09/96	JBA
MERCURY	SW-846 7471	<0.1	mg/kg	0.1	11/11/96	JBA
SELENIUM	SW-846 7740	<1.00	mg/kg	1.00	11/11/96	JBA
SILVER	SW-846 7760	<5.00	mg/kg	5.00	11/07/96	JBA
TOT.PET. HYDROCARBONS	EPA 418.1	< 25	mg/kg	25	11/07/96	DA

Sample: 04A WATER #1 Collected: 10/29/96 16:20 Category: W

Test Name	Method	Result	Units	Detection Limit	Date Analyzed	Analyst
ARSENIC	EPA 206.2	0.010	mg/L	0.005	11/13/96	JBA
B/N,ACID - WATER - GC/MS	EPA 625/8270	ENCLOSURE	DATE		11/18/96	RKW
BARIUM	EPA 200.7	0.15	mg/L	0.01	11/12/96	JBA
BASE/NEUTRAL,ACID EXTRACT	EPA 625/8270	11/05/96	DATE		11/05/96	DSR
CADMIUM	EPA 200.7	<0.01	mg/L	0.01	11/12/96	JBA
CHROMIUM	EPA 200.7	<0.02	mg/L	0.02	11/12/96	JBA
LEAD	EPA 239.1	<0.10	mg/L	0.10	11/14/96	JBA
MERCURY	EPA 245.1	<0.0002	mg/L	0.0002	11/11/96	JBA
SELENIUM	EPA 270.2	<0.005	mg/L	0.005	11/13/96	JBA
SILVER	EPA 272.1	<0.02	mg/L	0.02	11/14/96	JBA
VOLATILE ORGANICS - WATER	EPA 624/8260	ENCLOSURE	DATE		11/05/96	DBD

Order # 96-10-405
11/22/96 09:03
Client: MAXIM TECHNOLOGIES, INC.

TEST RESULTS BY SAMPLE

Sample Description: SOIL #2 / 0-2'
Test Description: BTEX - SOIL SAMPLE
Collected: 10/29/96 14:45

Lab No: 02A
Method: SW-846 8020 Test Code: BTEX_S
Category: S

UNITS mg/kg METHOD SW-846 8020

PARAMETER	RESULT	LIMIT	INJECTED	ANALYST
Benzene	< 0.018	0.018	11/05/96	JFG
Toluene	< 0.018	0.018	11/05/96	JFG
Ethylbenzene	< 0.018	0.018	11/05/96	JFG
Xylenes	< 0.018	0.018	11/05/96	JFG

Sample Description: SOIL #3 / 0-2'
Test Description: BTEX - SOIL SAMPLE
Collected: 10/29/96 15:05

Lab No: 03A
Method: SW-846 8020 Test Code: BTEX_S
Category: S

UNITS mg/kg METHOD SW-846 8020

PARAMETER	RESULT	LIMIT	INJECTED	ANALYST
Benzene	< 0.016	0.016	11/05/96	JFG
Toluene	< 0.016	0.016	11/05/96	JFG
Ethylbenzene	< 0.016	0.016	11/05/96	JFG
Xylenes	< 0.016	0.016	11/05/96	JFG

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 8260 / SW-846 - EPA METHOD 624

CASE NO 110396 LABORATORY SWL - Houston CONTRACT WOOD RUN
SAS NO VOLATILES REPORTED 11/18/96 10:17 CUSTOMER SWL AUSTIN

FILE NAME I110303 SAMPLE ID SOIL 1 0-2 FT LEVEL LOW
TYPE LAB SAMP ID 9610405-01A MATRIX SOIL
INST FINN ANALYZED 11/04/96 04:54 UNITS ug/Kg

CODE	CAS NO	COMPOUND	TYPES	CONC	FLAGS
C010	74-87-3	Chloromethane		6.22	U
C015	74-83-9	Bromomethane		6.22	U
C020	75-01-4	Vinyl Chloride		6.22	U
C025	75-00-3	Chloroethane		6.22	U
C030	75-09-2	Methylene Chloride		6.22	U
C035	67-64-1	Acetone		62.2	U
C040	75-15-0	Carbon Disulfide		6.22	U
C045	75-35-4	1,1-Dichloroethene		6.22	U
C050	75-34-3	1,1-Dichloroethane		6.22	U
C053	156-60-5	trans-1,2-Dichloroethene		6.22	U
C060	67-66-3	Chloroform		6.22	U
C065	107-06-2	1,2-Dichloroethane		6.22	U
C110	78-93-3	Methylethyl ketone (MEK)		62.2	U
C115	71-55-6	1,1,1-Trichloroethane		6.22	U
C120	56-23-5	Carbon Tetrachloride		6.22	U
C125	108-05-4	Vinyl Acetate		62.2	U
C130	75-27-4	Bromodichloromethane		6.22	U
C140	78-87-5	1,2-Dichloropropane		6.22	U
C143	10061-01-5	cis-1,3-Dichloropropene		6.22	U
C150	79-01-6	Trichloroethene		6.22	U
C155	124-48-1	Dibromochloromethane		6.22	U
C160	79-00-5	1,1,2-Trichloroethane		6.22	U
C165	71-43-2	Benzene		6.22	U
C172	10061-02-6	trans-1,3-Dichloropropene		6.22	U
C175	110-75-8	2-Chloroethylvinylether		62.2	U
C180	75-25-2	Bromoform		6.22	U
C205	108-10-1	4-Methyl-2-Pentanone		12.4	U
C210	591-78-6	2-Hexanone		12.4	U
C220	127-18-4	Tetrachloroethene		6.22	U
C225	79-34-5	1,1,2,2-Tetrachloroethane		6.22	U
C230	108-88-3	Toluene		6.22	U
C235	108-90-7	Chlorobenzene		6.22	U
C240	100-41-4	Ethylbenzene		6.22	U
C245	100-42-5	Styrene		6.22	U
C250	1330-20-7	Xylene (total)		6.22	U
C263	107-02-8	Acrolein		62.2	U
C264	107-13-1	Acrylonitrile		62.2	U
C277	106-46-7	1,4-Dichlorobenzene		6.22	U

1A

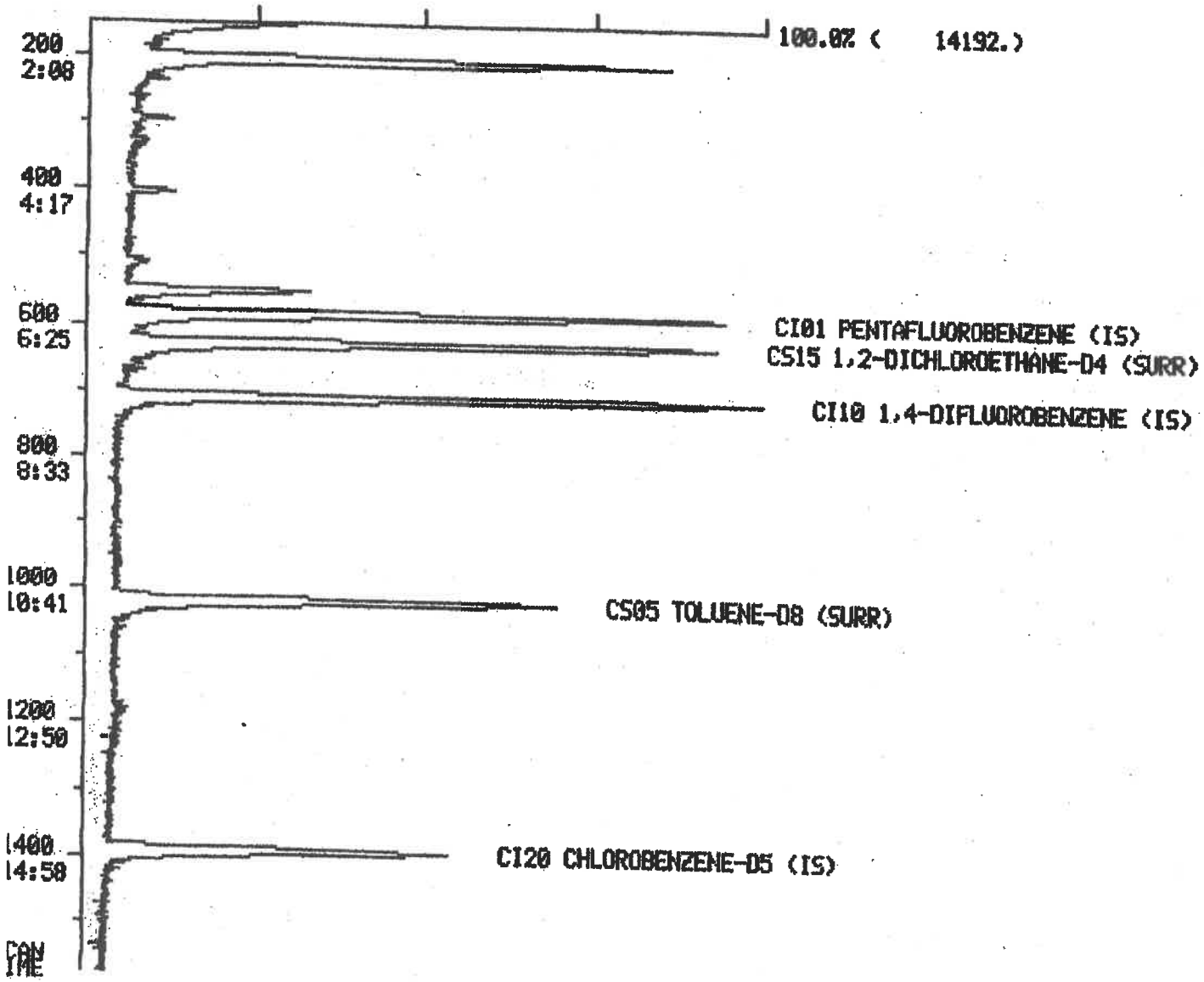
VOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 8260 / SW-846 - EPA METHOD 624

CASE NO 110396 LABORATORY SwL - Houston CONTRACT WOOD RUN
SAS NO VOLATILES REPORTED 11/18/96 10:17 CUSTOMER SWL AUSTIN

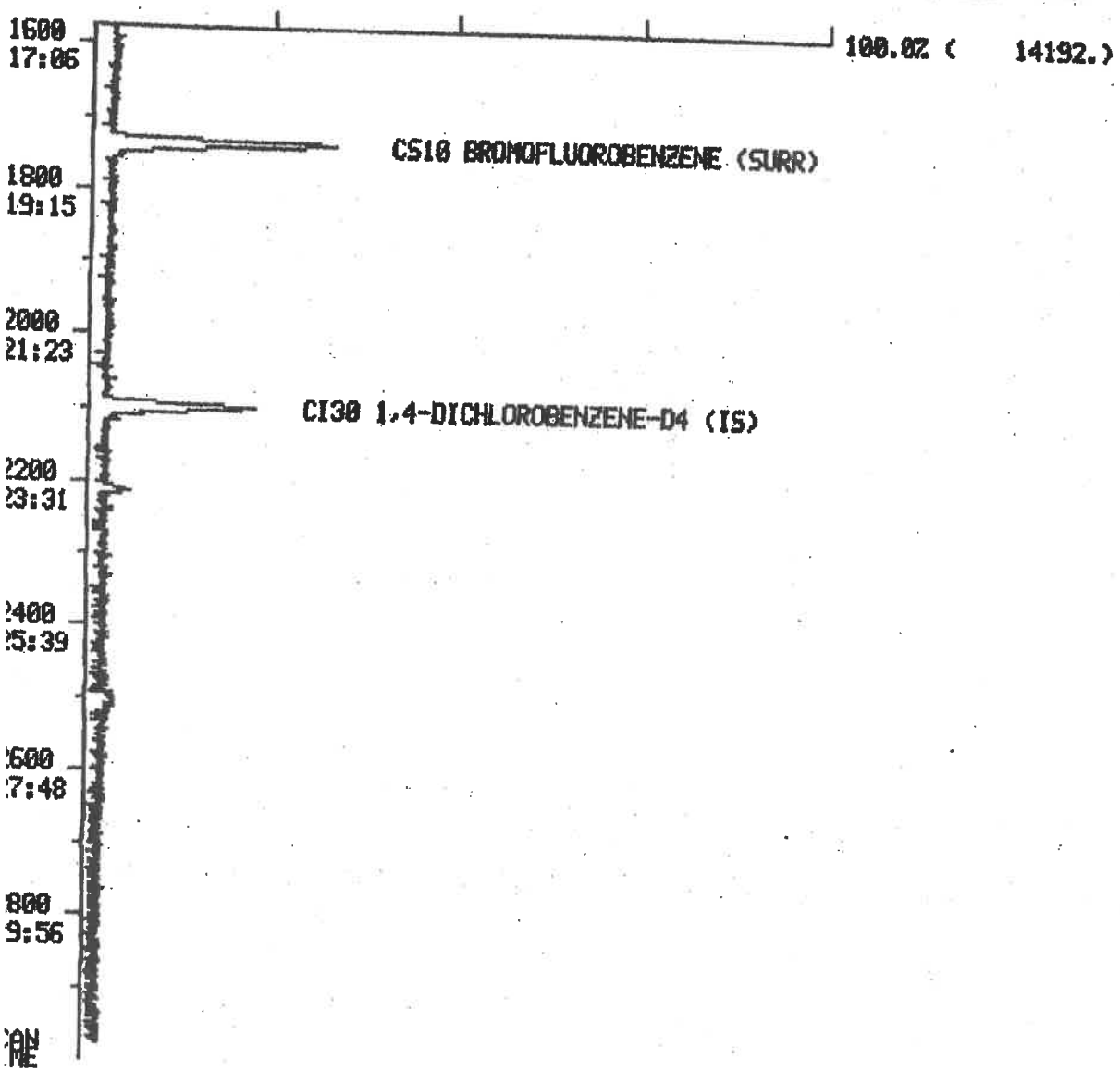
CODE	CAS NO	COMPOUND	TYPES	CONC	FLAGS
C280	156-59-2	cis-1,2-Dichloroethene		6.22	U
C281	541-73-1	1,3-Dichlorobenzene		6.22	U
C292	95-50-1	1,2-Dichlorobenzene		6.22	U

Notes and summary data for this report.
U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

DATA FROM FILE: I110303 SCANS 150 TO 1575 ACQUIRED: 11/04/96 4:54:00
CALI: I110303 #3 OUT OF 150 TO 2975
SAMPLE: 9610405-01A SWL AUSTIN/WOOD RUN SOIL #1 / 0-2 FEET 5 GM
CONDS.: 45(3) 45-160 @ 4/MIN SOIL/SLUDGE MATRIX-40 DEGREE HEATED PURGE



DATA FROM FILE: I110303 SCANS 1575 TO 2975 ACQUIRED: 11/04/96 4:54:00
CALI: I110303 #3 OUT OF 150 TO 2975
SAMPLE: 9610405-01A SWL AUSTIN/WOOD RUN SOIL #1 / 0-2 FEET 5 GM
CONDS.: 45(3) 45-160 @ 4/MIN SOIL/SLUDGE MATRIX-40 DEGREE HEATED PURGE



1A

VOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 8260 / SW-846 - EPA METHOD 624

CASE NO 110596 | LABORATORY SwL - Houston | CONTRACT WOOD RUN
SAS NO VOLATILES | REPORTED 11/14/96 17:14 | CUSTOMER SWL AUSTIN

FILE NAME I110501 | SAMPLE ID WATER NO 1 | LEVEL LOW
TYPE | LAB SAMP ID 9610405-04A | MATRIX WATER
INST FINN | ANALYZED 11/05/96 22:01 | UNITS ug/L

CODE	CAS NO	COMPOUND	TYPES	CONC	FLAGS
010	74-87-3	Chloromethane		5.00	U
015	74-83-9	Bromomethane		5.00	U
020	75-01-4	Vinyl Chloride		5.00	U
025	75-00-3	Chloroethane		5.00	U
030	75-09-2	Methylene Chloride		5.00	U
035	67-64-1	Acetone		50.0	U
040	75-15-0	Carbon Disulfide		5.00	U
5	75-35-4	1,1-Dichloroethene		5.00	U
0	75-34-3	1,1-Dichloroethane		5.00	U
053	156-60-5	trans-1,2-Dichloroethene		5.00	U
060	67-66-3	Chloroform		5.00	U
065	107-06-2	1,2-Dichloroethane		5.00	U
110	78-93-3	Methylethyl ketone (MEK)		50.0	U
115	71-55-6	1,1,1-Trichloroethane		5.00	U
120	56-23-5	Carbon Tetrachloride		5.00	U
125	108-05-4	Vinyl Acetate		50.0	U
130	75-27-4	Bromodichloromethane		5.00	U
140	78-87-5	1,2-Dichloropropane		5.00	U
143	10061-01-5	cis-1,3-Dichloropropene		5.00	U
150	79-01-6	Trichloroethene		5.00	U
155	124-48-1	Dibromochloromethane		5.00	U
160	79-00-5	1,1,2-Trichloroethane		5.00	U
165	71-43-2	Benzene		5.00	U
172	10061-02-6	trans-1,3-Dichloropropene		5.00	U
175	110-75-8	2-Chloroethylvinylether		5.00	U
180	75-25-2	Bromoform		5.00	U
205	108-10-1	4-Methyl-2-Pentanone		10.0	U
210	591-78-6	2-Hexanone		10.0	U
220	127-18-4	Tetrachloroethene		5.00	U
225	79-34-5	1,1,2,2-Tetrachloroethane		5.00	U
230	108-88-3	Toluene		29.5	
235	108-90-7	Chlorobenzene		5.00	U
240	100-41-4	Ethylbenzene		5.00	U
5	100-42-5	Styrene		5.00	U
250	1330-20-7	Xylene (total)		5.00	U
263	107-02-8	Acrolein		50.0	U
264	107-13-1	Acrylonitrile		50.0	U
277	106-46-7	1,4-Dichlorobenzene		5.00	U

1A

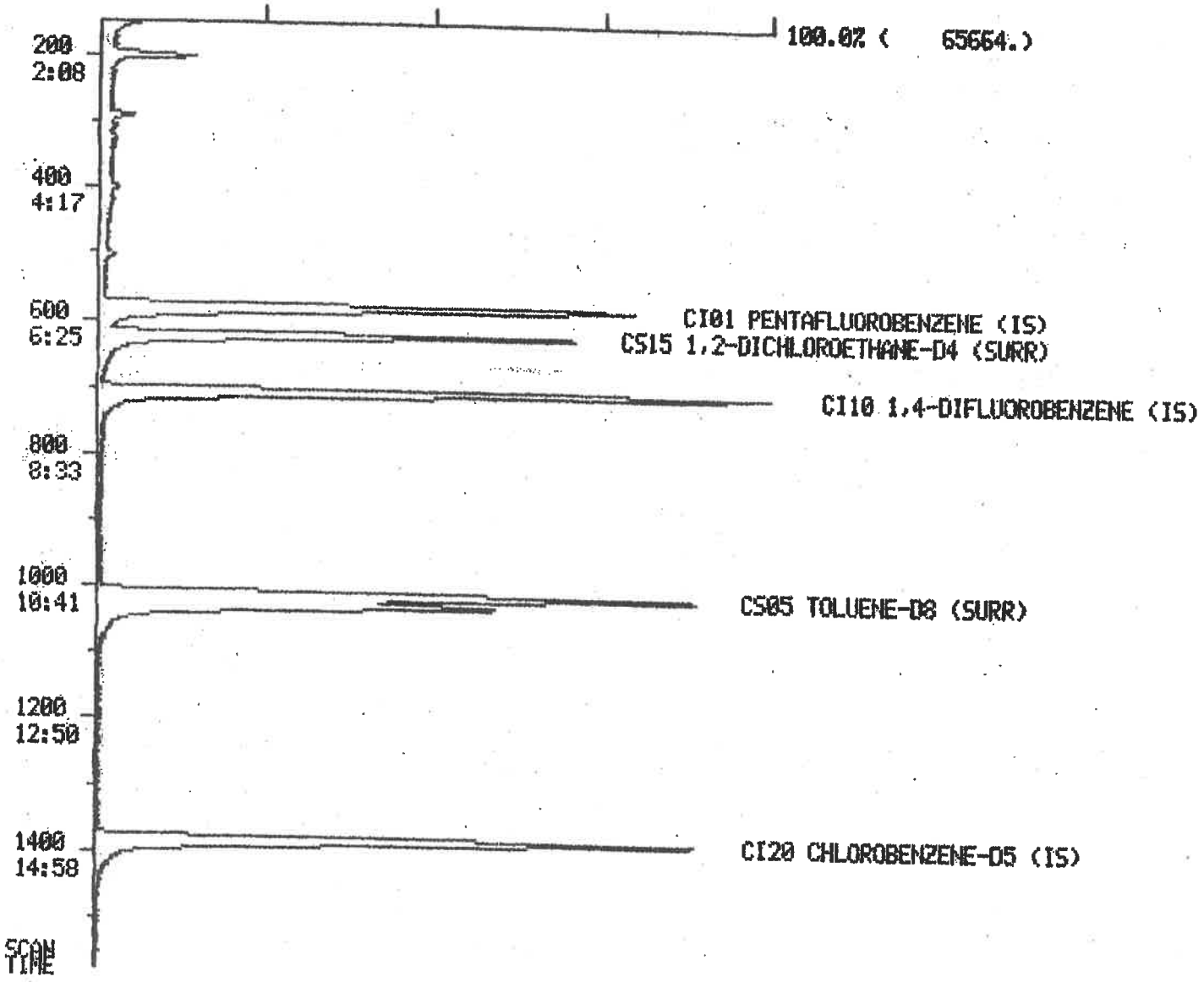
VOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 8260 / SW-846 - EPA METHOD 624

CASE NO 110596 LABORATORY SwL - Houston CONTRACT WOOD RUN
SAS NO VOLATILES REPORTED 11/14/96 17:14 CUSTOMER SWL AUSTIN

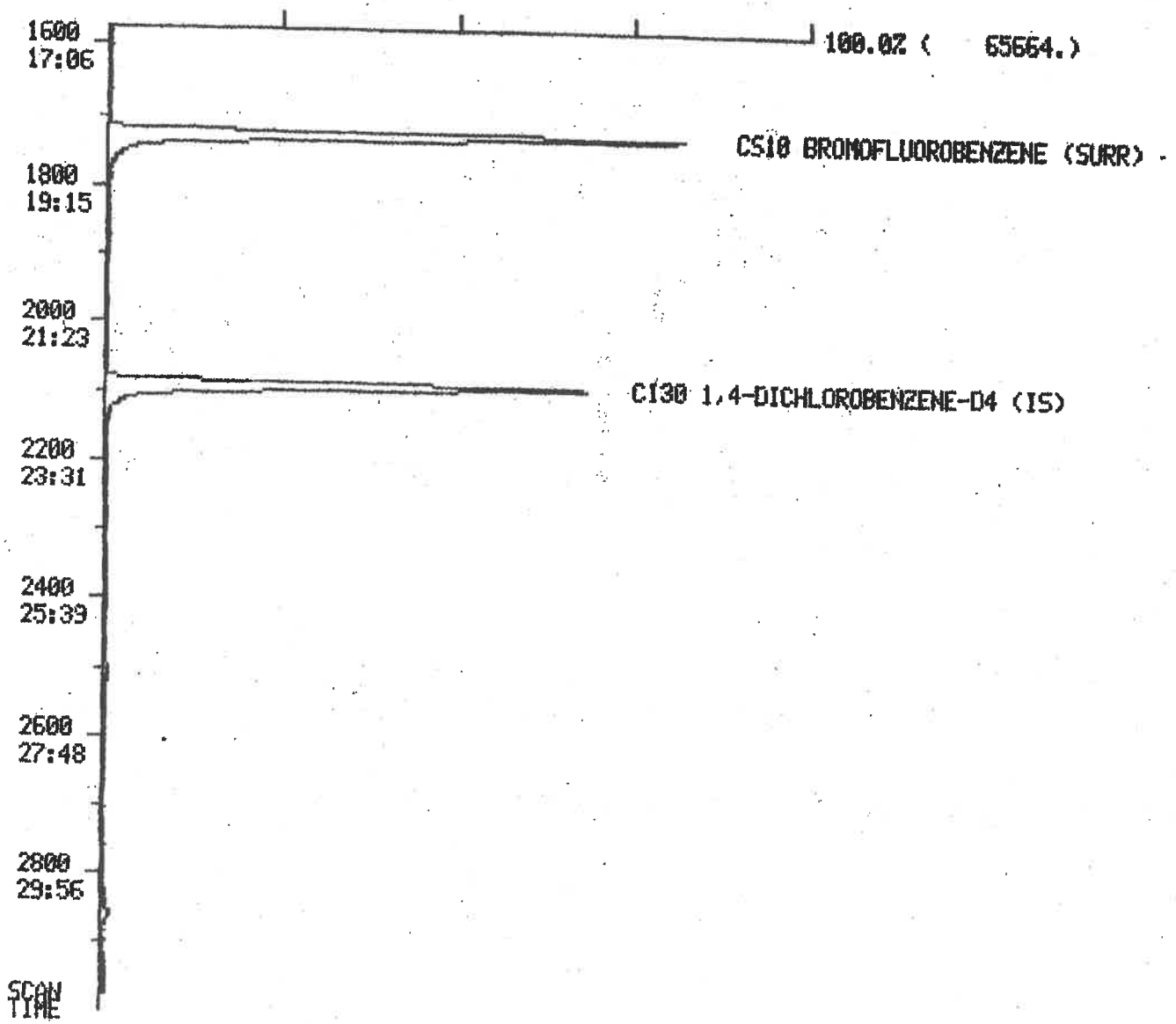
CODE	CAS NO	COMPOUND	TYPES	CONC	FLAGS
C280	156-59-2	cis-1,2-Dichloroethene		5.00	U
C281	541-73-1	1,3-Dichlorobenzene		5.00	U
C292	95-50-1	1,2-Dichlorobenzene		5.00	U

Notes and summary data for this report.
U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

DATA FROM FILE: I110501 SCANS 150 TO 1575 ACQUIRED: 11/05/96 22:01:00
CALI: I110501 #3 OUT OF 150 TO 2975
SAMPLE: 9610405-04A SWL AUSTIN/WOOD RUN WATER #1
CONDS.: 45(3) 45-160 @ 4/MIN WATER/MEDIUM SOIL MATRIX 5.0 ML PURGE



DATA FROM FILE: I110501 SCANS 1575 TO 2975 ACQUIRED: 11/05/96 22:01:00
CAL.I: I110501 #3 OUT OF 150 TO 2975
SAMPLE: 9610405-04A SWL AUSTIN/WOOD RUN WATER #1
CONDS.: 45(3) 45-160 @ 4/MIN WATER/MEDIUM SOIL MATRIX 5.0 ML PURGE



SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 625 - WATER
EPA METHOD 8270 - SOIL/WASTE

CASE NO 110596 | LABORATORY SwL - Houston | CONTRACT WOOD RUN
SAS NO | REPORTED 11/21/96 14:02 | CUSTOMER SWL AUSTIN

FILE NAME X1105005 | SAMPLE ID SOIL-1 0-2 | LEVEL LOW
TYPE EPA | LAB SAMP ID 9610405-01A | MATRIX SOIL
INST FINN | ANALYZED 11/05/96 20:44 | UNITS ug/Kg

ODE	CAS NO	COMPOUND	TYPES	CONC	FLAGS
310	62-75-9	N-Nitrosodimethylamine		209	U
315	108-95-2	Phenol		209	U
320	62-53-3	Aniline		209	U
322	110-86-1	Pyridine		209	U
325	111-44-4	bis(2-Chloroethyl)Ether		209	U
330	95-57-8	2-Chlorophenol		209	U
5	541-73-1	1,3-Dichlorobenzene		209	U
340	106-46-7	1,4-Dichlorobenzene		209	U
345	100-51-6	Benzyl Alcohol		209	U
350	95-50-1	1,2-Dichlorobenzene		209	U
355	95-48-7	2-Methylphenol		209	U
360	39638-32-9	bis(2-Chloroisopropyl)Ether		209	U
365	106-44-5	4-Methylphenol		209	U
370	621-64-7	N-Nitroso-Di-n-Propylamine		209	U
375	67-72-1	Hexachloroethane		209	U
410	98-95-3	Nitrobenzene		209	U
415	78-59-1	Isophorone		209	U
420	88-75-5	2-Nitrophenol		209	U
425	105-67-9	2,4-Dimethylphenol		209	U
430	65-85-0	Benzoic Acid		1010	U
435	111-91-1	bis(2-Chloroethoxy)Methane		209	U
440	120-83-2	2,4-Dichlorophenol		209	U
445	120-82-1	1,2,4-Trichlorobenzene		209	U
450	91-20-3	Naphthalene		209	U
455	106-47-8	4-Chloroaniline		209	U
460	87-68-3	Hexachlorobutadiene		209	U
465	59-50-7	4-Chloro-3-Methylphenol		209	U
470	91-57-6	2-Methylnaphthalene		209	U
510	77-47-4	Hexachlorocyclopentadiene		209	U
515	88-06-2	2,4,6-Trichlorophenol		209	U
520	95-95-4	2,4,5-Trichlorophenol		209	U
5	91-58-7	2-Chloronaphthalene		209	U
0	88-74-4	2-Nitroaniline		1010	U
535	131-11-3	Dimethylphthalate		209	U
540	208-96-8	Acenaphthylene		209	U
543	606-20-2	2,6-Dinitrotoluene		209	U
545	99-09-2	3-Nitroaniline		1010	U
550	83-32-9	Acenaphthene		209	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 625 - WATER
EPA METHOD 8270 - SOIL/WASTE

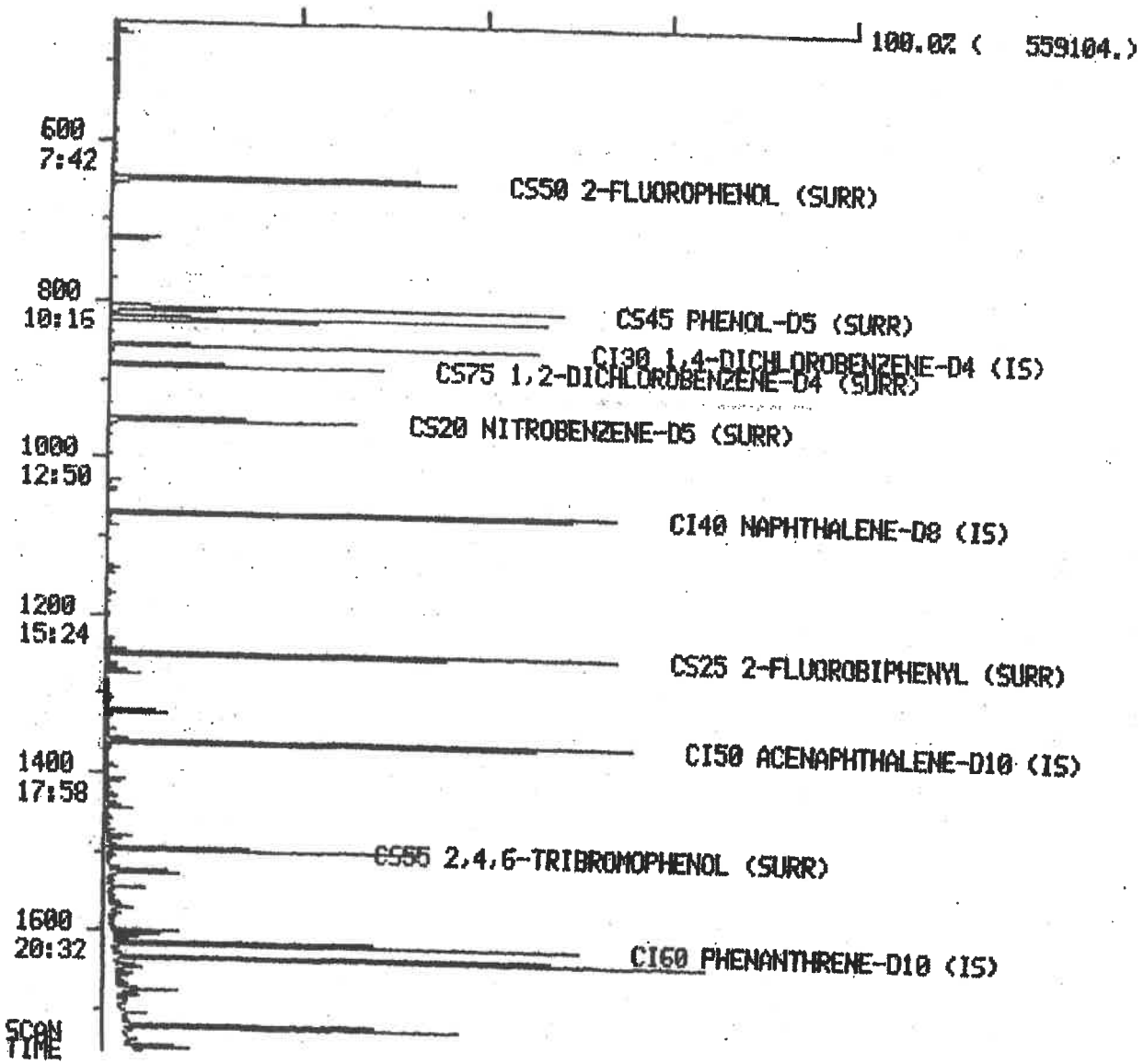
CASE NO 110596 LABORATORY SwL - Houston CONTRACT WOOD RUN
SAS NO _____ REPORTED 11/21/96 14:02 CUSTOMER SWL AUSTIN

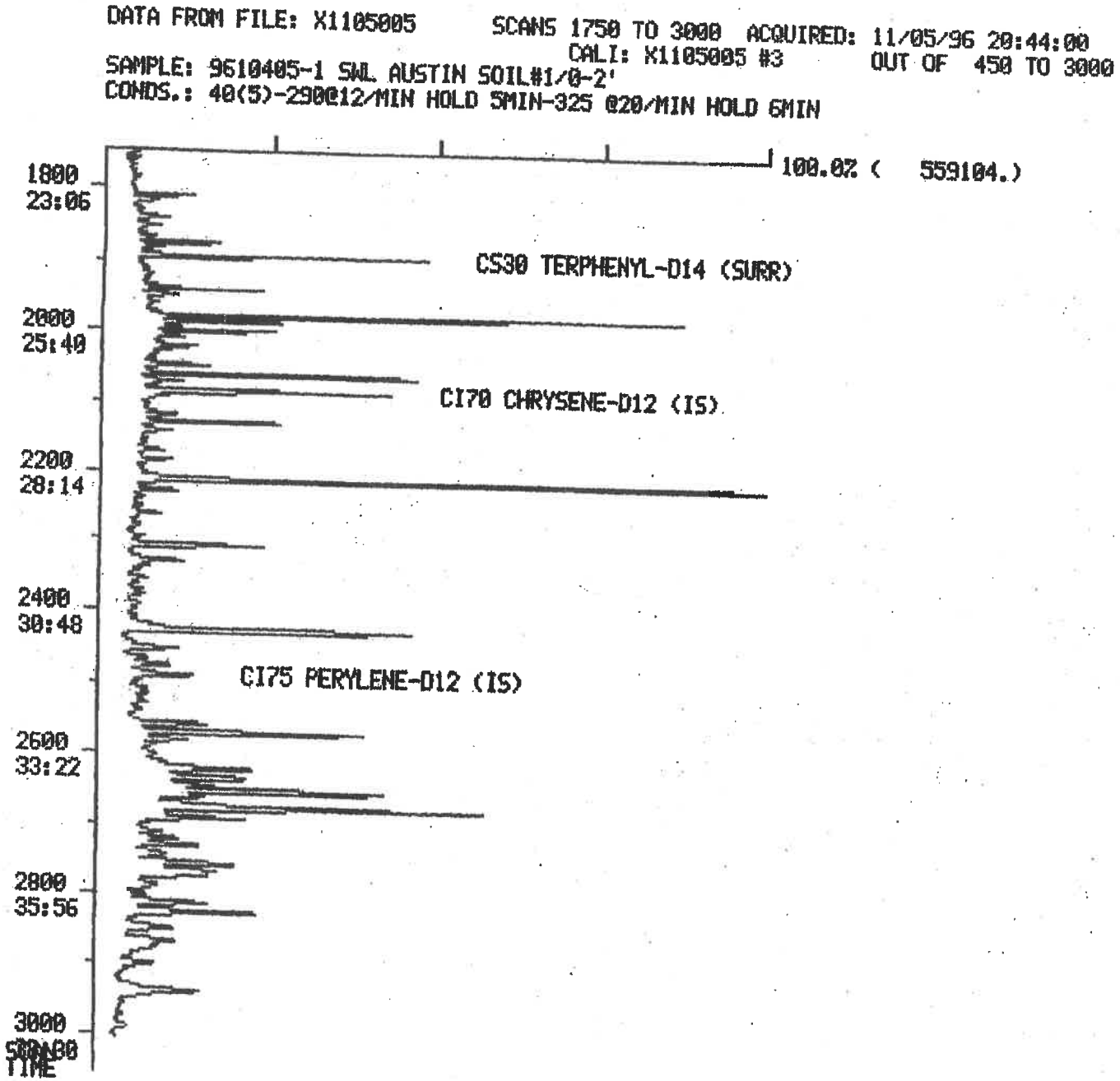
ODE	CAS NO	COMPOUND	TYPES	CONC	FLAGS
555	51-28-5	2,4-Dinitrophenol		1010	U
560	100-02-7	4-Nitrophenol		1010	U
565	132-64-9	Dibenzofuran		209	U
570	121-14-2	2,4-Dinitrotoluene		209	U
576	103-33-3	Azobenzene(1,2-Diphhydrzine)		209	U
580	84-66-2	Diethylphthalate		209	U
585	7005-72-3	4-Chlorophenyl-phenylether		209	U
590	86-73-7	Fluorene		209	U
595	100-01-6	4-Nitroaniline		1010	U
610	534-52-1	4,6-Dinitro-2-Methylphenol		418	U
615	86-30-6	N-Nitrosodiphenylamine (1)		209	U
625	101-55-3	4-Bromophenyl-phenylether		209	U
630	118-74-1	Hexachlorobenzene		209	U
635	87-86-5	Pentachlorophenol		1010	U
0	85-01-8	Phenanthrene		209	U
3	120-12-7	Anthracene		209	U
647	86-74-8	Carbazole		209	U
650	84-74-2	Di-n-Butylphthalate		209	U
655	206-44-0	Fluoranthene		209	U
707	90-12-0	1-Methylnaphthalene		209	U
710	92-87-5	Benzidine		835	U
715	129-00-0	Pyrene		209	U
720	85-68-7	Butylbenzylphthalate		209	U
725	91-94-1	3,3'-Dichlorobenzidine		418	U
730	56-55-3	Benzo(a)Anthracene		209	U
740	218-01-9	Chrysene		209	U
745	117-81-7	bis(2-Ethylhexyl)Phthalate		209	U
760	117-84-0	Di-n-Octyl Phthalate		209	U
765	205-99-2	Benzo(b)Fluoranthene		209	U
770	207-08-9	Benzo(k)Fluoranthene		209	U
775	50-32-8	Benzo(a)Pyrene		209	U
780	193-39-5	Indeno(1,2,3-cd)Pyrene		209	U
785	53-70-3	Dibenz(a,h)Anthracene		209	U
790	191-24-2	Benzo(g,h,i)Perylene		209	U

tes and summary data for this report.

U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

DATA FROM FILE: X1105005 SCANS 450 TO 1750 ACQUIRED: 11/05/96 20:44:00
CALI: X1105005 #3 OUT OF 450 TO 3000
SAMPLE: 9610405-1 SWL AUSTIN SOIL#1/0-2'
CONDS.: 40(5)-290@12/MIN HOLD 5MIN-325 @20/MIN HOLD 6MIN




DATA FROM FILE: X1105005
SCANS 1750 TO 3000 ACQUIRED: 11/05/96 20:44:00
CALI: X1105005 #3
OUT OF 450 TO 3000
SAMPLE: 9610405-1 SWL AUSTIN SOIL#1/0-2'
CONDS.: 40(5)-290@12/MIN HOLD 5MIN-325 @20/MIN HOLD 6MIN
100.0% (559104.)
1800
23:06
CS30 TERPHENYL-D14 (SURR)
2000
25:40
CI70 CHRYSENE-D12 (IS)
2200
28:14
2400
30:48
CI75 PERYLENE-D12 (IS)
2600
33:22
2800
35:56
3000
TIME

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 625 - WATER
EPA METHOD 8270 - SOIL/WASTE

CASE NO 111896 LABORATORY SwL - Houston CONTRACT WOOD RUN
SAS NO REPORTED 11/21/96 14:01 CUSTOMER SWL AUSTIN

FILE NAME X1118003 SAMPLE ID WATER-1 LEVEL LOW
TYPE EPA LAB SAMP ID 9610405-04A MATRIX WATER
INST FINN ANALYZED 11/18/96 16:03 UNITS ug/L

DE	CAS NO	COMPOUND	TYPES	CONC	FLAGS
10	62-75-9	N-Nitrosodimethylamine		10.0	U
15	108-95-2	Phenol		10.0	U
20	62-53-3	Aniline		10.0	U
22	110-86-1	Pyridine		10.0	U
25	111-44-4	bis(2-Chloroethyl)Ether		10.0	U
30	95-57-8	2-Chlorophenol		10.0	U
5	541-73-1	1,3-Dichlorobenzene		10.0	U
40	106-46-7	1,4-Dichlorobenzene		10.0	U
45	100-51-6	Benzyl Alcohol		10.0	U
50	95-50-1	1,2-Dichlorobenzene		10.0	U
55	95-48-7	2-Methylphenol		10.0	U
60	39638-32-9	bis(2-Chloroisopropyl)Ether		10.0	U
65	106-44-5	4-Methylphenol		10.0	U
70	621-64-7	N-Nitroso-Di-n-Propylamine		10.0	U
75	67-72-1	Hexachloroethane		20.0	U
10	98-95-3	Nitrobenzene		10.0	U
15	78-59-1	Isophorone		10.0	U
20	88-75-5	2-Nitrophenol		10.0	U
25	105-67-9	2,4-Dimethylphenol		10.0	U
30	65-85-0	Benzoic Acid		50.0	U
35	111-91-1	bis(2-Chloroethoxy)Methane		10.0	U
40	120-83-2	2,4-Dichlorophenol		10.0	U
45	120-82-1	1,2,4-Trichlorobenzene		10.0	U
50	91-20-3	Naphthalene		10.0	U
55	106-47-8	4-Chloroaniline		10.0	U
60	87-68-3	Hexachlorobutadiene		10.0	U
65	59-50-7	4-Chloro-3-Methylphenol		10.0	U
70	91-57-6	2-Methylnaphthalene		10.0	U
10	77-47-4	Hexachlorocyclopentadiene		10.0	U
15	88-06-2	2,4,6-Trichlorophenol		10.0	U
20	95-95-4	2,4,5-Trichlorophenol		10.0	U
25	91-58-7	2-Chloronaphthalene		10.0	U
0	88-74-4	2-Nitroaniline		50.0	U
35	131-11-3	Dimethylphthalate		10.0	U
40	208-96-8	Acenaphthylene		10.0	U
43	606-20-2	2,6-Dinitrotoluene		10.0	U
45	99-09-2	3-Nitroaniline		50.0	U
50	83-32-9	Acenaphthene		10.0	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 625 - WATER
EPA METHOD 8270 - SOIL/WASTE

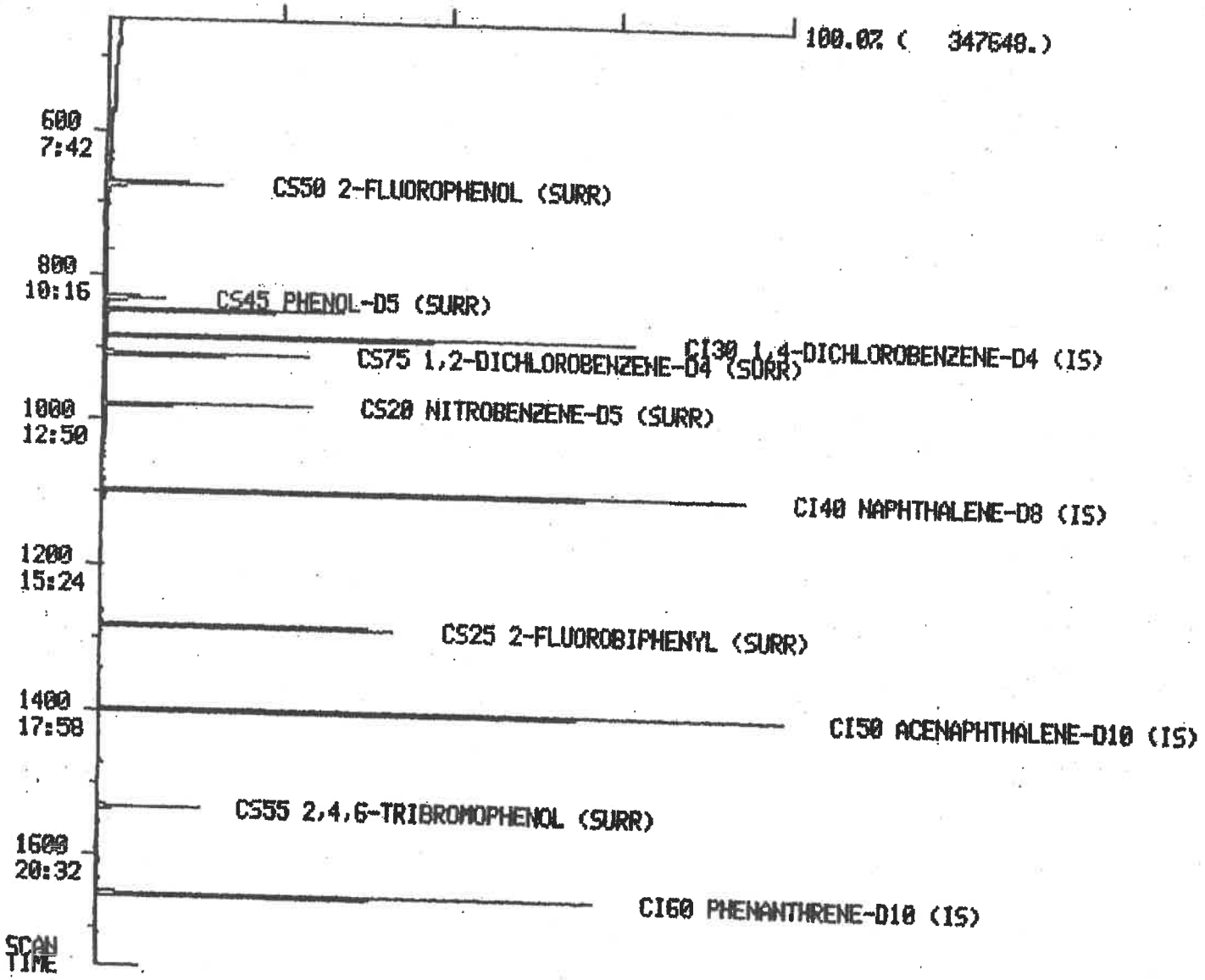
CASE NO 111896 SAS NO _____ LABORATORY SwL - Houston REPORTED 11/21/96 14:01 CONTRACT WOOD RUN CUSTOMER SWL AUSTIN

DE	CAS NO	COMPOUND	TYPES	CONC	FLAGS
55	51-28-5	2,4-Dinitrophenol		50.0	U
60	100-02-7	4-Nitrophenol		50.0	U
65	132-64-9	Dibenzofuran		10.0	U
70	121-14-2	2,4-Dinitrotoluene		10.0	U
76	103-33-3	Azobenzene(1,2-Diphhydrzine)		10.0	U
80	84-66-2	Diethylphthalate		10.0	U
85	7005-72-3	4-Chlorophenyl-phenylether		10.0	U
90	86-73-7	Fluorene		10.0	U
95	100-01-6	4-Nitroaniline		50.0	U
10	534-52-1	4,6-Dinitro-2-Methylphenol		20.0	U
15	86-30-6	N-Nitrosodiphenylamine (1)		10.0	U
25	101-55-3	4-Bromophenyl-phenylether		10.0	U
30	118-74-1	Hexachlorobenzene		10.0	U
35	87-86-5	Pentachlorophenol		20.0	U
9	85-01-8	Phenanthrene		10.0	U
	120-12-7	Anthracene		10.0	U
47	86-74-8	Carbazole		10.0	U
50	84-74-2	Di-n-Butylphthalate		10.0	U
55	206-44-0	Fluoranthene		10.0	U
07	90-12-0	1-Methylnaphthalene		10.0	U
10	92-87-5	Benzidine		50.0	U
15	129-00-0	Pyrene		10.0	U
20	85-68-7	Butylbenzylphthalate		10.0	U
25	91-94-1	3,3'-Dichlorobenzidine		20.0	U
30	56-55-3	Benzo(a)Anthracene		10.0	U
40	218-01-9	Chrysene		10.0	U
45	117-81-7	bis(2-Ethylhexyl)Phthalate		10.0	U
60	117-84-0	Di-n-Octyl Phthalate		10.0	U
65	205-99-2	Benzo(b)Fluoranthene		10.0	U
70	207-08-9	Benzo(k)Fluoranthene		10.0	U
75	50-32-8	Benzo(a)Pyrene		10.0	U
80	193-39-5	Indeno(1,2,3-cd)Pyrene		10.0	U
85	53-70-3	Dibenz(a,h)Anthracene		10.0	U
90	191-24-2	Benzo(g,h,i)Perylene		10.0	U

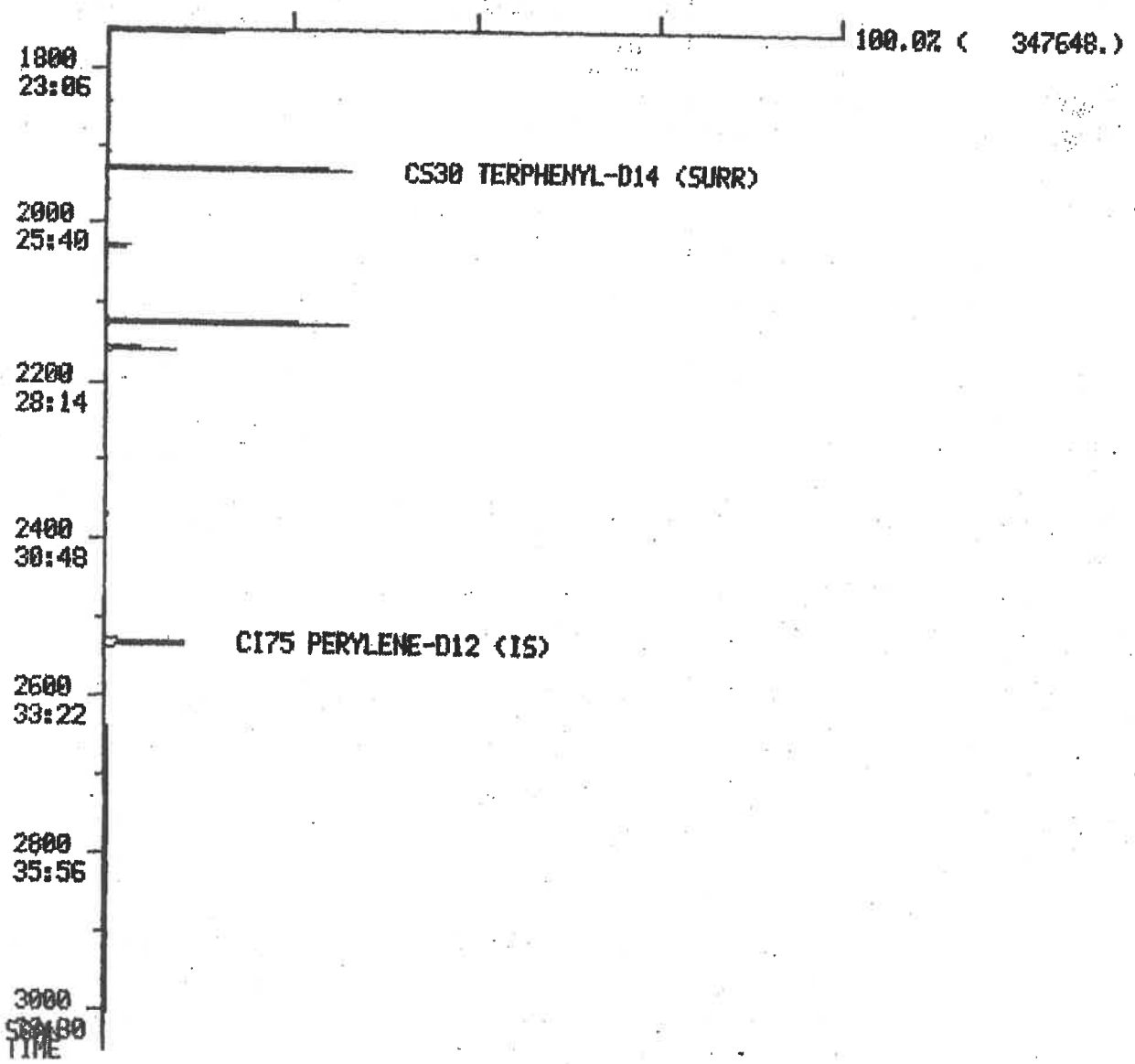
tes and summary data for this report.

U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

DATA FROM FILE: X1118003 SCANS 450 TO 1750 ACQUIRED: 11/18/96 16:03:00
CALI: X1118003 #3 OUT OF 450 TO 3000
SAMPLE: 9610405-4 SWL AUSTIN WATER#1
CONDS.: 40(5)-290@12/MIN HOLD 5MIN-325 @20/MIN HOLD 6MIN



DATA FROM FILE: X1118003 SCANS 1750 TO 3000 ACQUIRED: 11/18/96 16:03:00
CALI: X1118003 #3 OUT OF 450 TO 3000
SAMPLE: 9610405-4 SWL AUSTIN WATER#1
CONDS.: 40(5)-290@12/MIN HOLD 5MIN-325 @20/MIN HOLD 6MIN



Analysis Request and Chain of Custody Record

Page 1 of 1

MAXIM TECHNOLOGIES INC

- ☑ HOUSTON EAS 222 CAVALCADE ST., HOUSTON, TEXAS 77009 (713) 692-9151
- ☐ DALLAS EAS 2575 LONE STAR DR., DALLAS, TEXAS 75212 (214) 631-2700
- ☐ MIDLAND EAS 1703 WEST INDUSTRIAL, MIDLAND, TEXAS 79701 (915) 683-3349

Project no.: 180560855710

Client/Project: WOOD RVN

P.O.#:

Lab ID No.	Field Sample No./ Identification	Date and Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
	SOIL # 1 / 0-2'	10/29/96 15:30		X	1-16 oz 1-402 GLASS	SOIL	—	VOC / SVOC / 8 RCRA TOTAL METALS	
	SOIL # 2 / 0-2'	10/29/96 14:45		X	1-402 1-8 oz glass	SOIL	—	BTEX / TPH / 8 RCRA TOTAL METALS	
	SOIL # 3 / 0-2'	10/29/96 15:05		X	1-402 1-8 oz glass	SOIL	—	BTEX / TPH / 8 RCRA TOTAL METALS	
	WATER # 1	10/29/96 16:20	X		2-40 ml glass 1-500 ml plastic 1-HR glass	LIQUID	HNO3 HCL	VOC / SVOC / 8 RCRA TOTAL METALS	

Samplers: (Print): M. MANNING

Affiliation: MAXIM - AUSTIN

Results by: _____

Rush Charges Authorized: Yes _____ No _____

Relinquished by: (Signature) — Date: 10/30/96 Time: 16:50

Relinquished by: (Signature) — Date: Time:

Relinquished by: (Signature) — Date: Time:

REMARKS: PROVIDE QA/QC

Received by: (Signature) — Date: Time:

Received by: (Signature) — Date: Time:

Received by Laboratory: (Signature) — Date: 10/31/96 Time: 0730

Data Results To:

1. JOE LAIRD

2.

COC Seal No.:

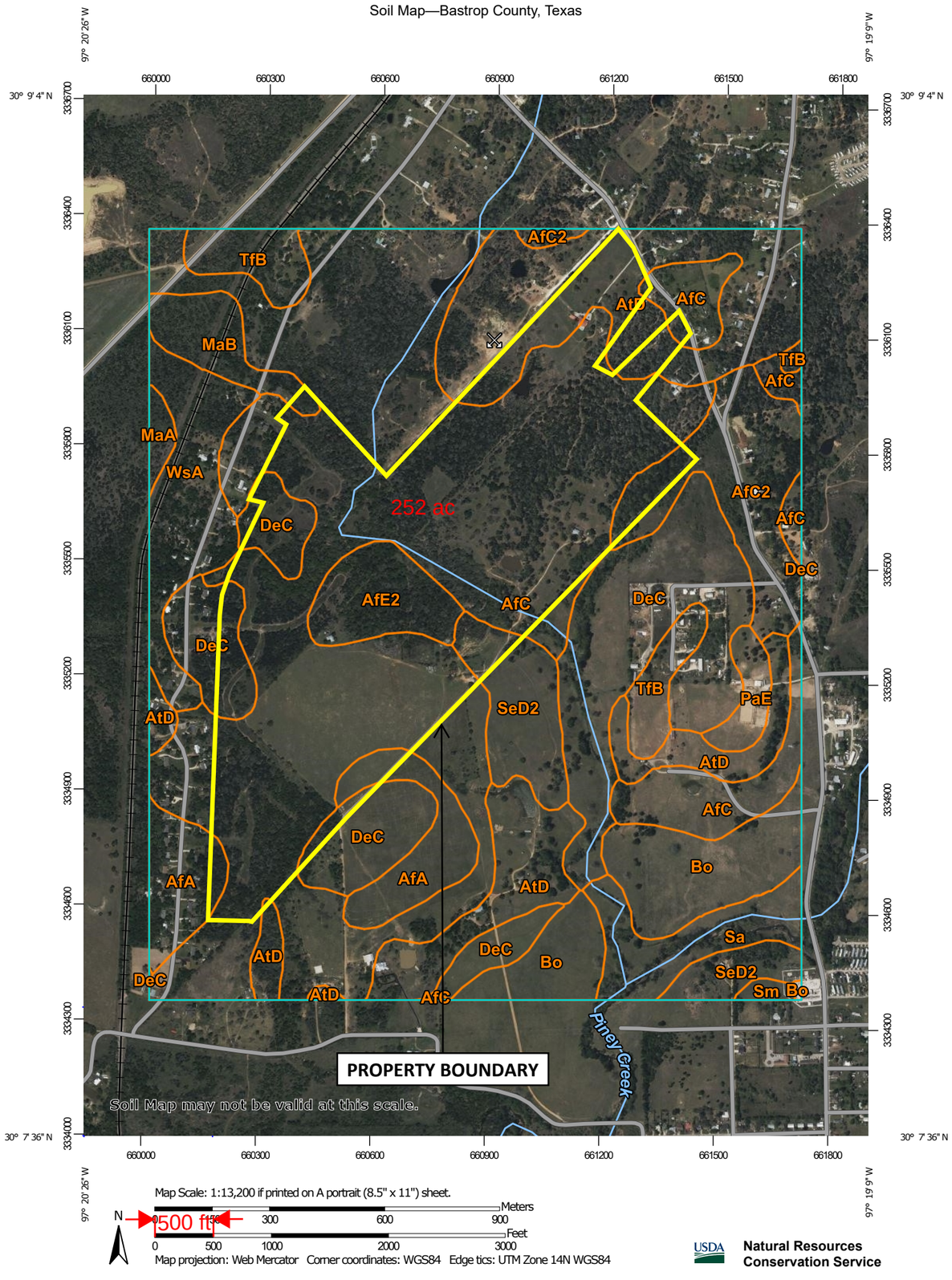
REC'D. ON ICE: Yes ✓ No _____

Intact: N/A

Laboratory No.: 96-10-405

ATTACHMENT 11

SOIL MAP



USDA **Natural Resources Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AfA	Axtell fine sandy loam, 0 to 1 percent slopes	33.7	3.9%
AfC	Edge fine sandy loam, 1 to 5 percent slopes	357.3	41.9%
AfC2	Edge fine sandy loam, 2 to 5 percent slopes, moderately eroded	39.6	4.7%
AfE2	Edge fine sandy loam, 5 to 12 percent slopes, eroded	18.8	2.2%
AtD	Edge gravelly fine sandy loam, 3 to 8 percent slopes	116.9	13.7%
Bo	Bosque loam, 0 to 1 percent slopes, occasionally flooded	43.3	5.1%
DeC	Robco-Tanglewood complex, 1 to 5 percent slopes	109.8	12.9%
MaA	Mabank loam, 0 to 1 percent slopes	3.1	0.4%
MaB	Mabank loam, 1 to 3 percent slopes	14.4	1.7%
PaE	Padina fine sand, 1 to 12 percent slopes	7.3	0.9%
Sa	Sayers fine sandy loam, 0 to 1 percent slopes, occasionally flooded	21.3	2.5%
SeD2	Shep clay loam, 3 to 8 percent slopes, eroded	30.8	3.6%
Sm	Smithville fine sandy loam, 0 to 1 percent slopes	1.7	0.2%
TfB	Tabor fine sandy loam, 1 to 3 percent slopes	21.6	2.5%
WsA	Wilson clay loam, 0 to 1 percent slopes	32.6	3.8%
Totals for Area of Interest		**852.3**	**100.0%**

reUse ENGINEERING
4411 SIH 35, Suite 100
Georgetown, TX 78626
TX Firm No. 21880

ALTO PICCO BASTROP LLC
SAYERS RANCH WWTP
BASTROP COUNTY, TEXAS

SOILS MAP

Attachment 11

ATTACHMENT 12

SOIL ANALYSES

SOIL SAMPLE LABORATORY REPORT OF ANALYSIS
SAYERS RANCH WWTF
BASTROP COUNTY, TEXAS

	SAMPLE ID	TP-1 A	TP-1 B	TP-2 A	TP-2 B
	SOIL TYPE	AfC	AfC	AfE2	AfE2
	DEPTH (Inches)	0 to 12	12 to 24	0 to 14	14 to 36
ANALYTE					
Sodium Absorption Ratio (SAR)	**UNITS**				
Sodium (Na)	mg/L	25.9	23.4	4.97	2.61
Calcium (Ca)	mg/L	23.5	23.6	65.4	27.5
Magnesium (Mg)	mg/L	3.47	3.30	2.19	0.796
Potassium (K)	mg/L	6.66	7.32	3.20	2.72
SAR	None	1.32	1.20	1.65	0.134
Metals					
Calcium	mg/Kg	1,980	1,520	8,660	13,300
Magnesium	mg/Kg	197	143	163	140
Phosphorus	mg/Kg	10.0	12.4	4.15	3.99
Potassium	mg/Kg	148	127	256	216
Sodium	mg/Kg	61.8	43.1	<4.98	6.91
Sulfur	mg/Kg	15.1	11.9	12.8	10.5
General Chemistry					
Nitrogen, Kjeldahl	mg/Kg	927	336	364	763
Nitrate Nitrite as N	mg/Kg	1.38	0.159	<1.00	<0.100
Nitrite as N	mg/Kg	<0.980	<0.978	<0.977	<0.980
pH	SU	6.2	6.6	7.3	7.8
Temperature	Deg. C	20.2	20.2	20.2	20.2
Corrosivity	SU	6.2	6.6	7.3	7.8
Nitrate as N	mg/Kg	1.38	<1.00	<1.00	<1.00
Specific Conductance	umho/cm @ 25C	577	846	955	552
Nitrogen, Total	mg/Kg	928	336	364	763

Notes:

AfC - Edge fine sandy loam, 1 to 5 percent slopes
AfE2 -Edge fine sandy loam, 5 to 12 percent slopes, eroded
mg/L - milligram per Liter
mg/Kg - milligram per Kilogram
SU - Standard Unit
umho/cm @ 25C -micromhos per centimer at 25 degrees C
<0.980 - indicates analyte was analyzed but not detected at the noted reporting limit
pH, Temperature, and Corrosivity, - the holding time for these three analytes is 15 minutes; thus, the laboratory reported the results with the qualifier HF.

ALTO PICCO BASTROP LLC
SAYERS RANCH WWTP
BASTROP COUNTY, TEXAS

SOIL ANALYSIS

Attachment 12

ANALYTICAL REPORT

PREPARED FOR

Attn: Mr. Rane A. Wilson
reUse Engineering
4411 S. Interstate 35,
Suite 100
Georgetown, Texas 78626

Generated 6/16/2025 5:38:42 PM

JOB DESCRIPTION

Sayer's Ranch

JOB NUMBER

870-36865-1

Eurofins Dallas
9701 Harry Hines Blvd
Dallas TX 75220

See page two for job notes and contact information.

my EOL

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



Generated
6/16/2025 5:38:42 PM

Authorized for release by
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Definitions/Glossary

Client: reUse Engineering
Project/Site: Sayer's Ranch

Job ID: 870-36865-1

Qualifiers

Metals

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
HF	Parameter with a holding time of 15 minutes. Test performed by laboratory at client's request. Sample was analyzed outside of hold time.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job Narrative
870-36865-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 6/5/2025 12:43 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 8.5°C.

Metals
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry
Method 351.2: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 860-241823 and 860-242059 and analytical batch 860-242354 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample ID: TP-1 A HDR

Lab Sample ID: 870-36865-1

Date Collected: 06/02/25 14:15

Matrix: Solid

Date Received: 06/05/25 12:43

Method: LA 29B SAR - Sodium Adsorption Ratio

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Na	25.9		0.500		mg/L		06/11/25 16:25	06/11/25 18:18	1
Ca	23.5		0.200		mg/L		06/11/25 16:25	06/11/25 18:18	1
Mg	3.47		0.400		mg/L		06/11/25 16:25	06/11/25 18:18	1
K	6.66		0.500		mg/L		06/11/25 16:25	06/11/25 18:18	1
Sodium Adsorption Ratio	1.32		0.100		NONE		06/11/25 16:25	06/12/25 15:01	1

Method: SW846 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	1980		98.5		mg/Kg		06/11/25 12:57	06/11/25 13:46	50
Magnesium	197		1.97		mg/Kg		06/11/25 12:57	06/11/25 13:38	1
Phosphorus	10.0		0.394		mg/Kg		06/11/25 12:57	06/11/25 13:38	1
Potassium	148		4.93		mg/Kg		06/11/25 12:57	06/11/25 13:38	1
Sodium	61.8		4.93		mg/Kg		06/11/25 12:57	06/11/25 13:38	1
Sulfur	15.1		0.985		mg/Kg		06/11/25 12:57	06/11/25 13:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl (EPA 351.2)	927		112		mg/Kg		06/12/25 14:02	06/13/25 12:07	14.286
Nitrate Nitrite as N (EPA 353.2)	1.38		0.100		mg/Kg		06/16/25 15:49	06/16/25 16:56	1
Nitrite as N (EPA 353.2)	<0.980	U	0.980		mg/Kg		06/16/25 14:00	06/16/25 15:25	1
pH (SW846 9045D)	6.2	HF			SU			06/12/25 17:43	1
Temperature (SW846 9045D)	20.2	HF			Deg. C			06/12/25 17:43	1
Corrosivity (SW846 9045D)	6.2	HF			SU			06/12/25 17:43	1
Nitrate as N (SM Nitrate by calc)	1.38		1.00		mg/Kg			06/16/25 16:08	1
Specific Conductance (SM 2510B)	577		30.0		umho/cm @ 25C			06/12/25 17:54	1
Nitrogen, Total (EPA Total Nitrogen)	928		0.200		mg/Kg			06/13/25 14:50	1

Client Sample ID: TP-1 B HDR

Lab Sample ID: 870-36865-2

Date Collected: 06/02/25 14:17

Matrix: Solid

Date Received: 06/05/25 12:43

Method: LA 29B SAR - Sodium Adsorption Ratio

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Na	23.4		0.500		mg/L		06/11/25 16:25	06/11/25 18:21	1
Ca	23.6		0.200		mg/L		06/11/25 16:25	06/11/25 18:21	1
Mg	3.30		0.400		mg/L		06/11/25 16:25	06/11/25 18:21	1
K	7.32		0.500		mg/L		06/11/25 16:25	06/11/25 18:21	1
Sodium Adsorption Ratio	1.20		0.100		NONE		06/11/25 16:25	06/12/25 15:01	1

Method: SW846 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	1520		1.93		mg/Kg		06/11/25 12:57	06/11/25 13:42	1
Magnesium	143		1.93		mg/Kg		06/11/25 12:57	06/11/25 13:42	1
Phosphorus	12.4		0.386		mg/Kg		06/11/25 12:57	06/11/25 13:42	1
Potassium	127		4.83		mg/Kg		06/11/25 12:57	06/11/25 13:42	1
Sodium	43.1		4.83		mg/Kg		06/11/25 12:57	06/11/25 13:42	1
Sulfur	11.9		0.966		mg/Kg		06/11/25 12:57	06/11/25 13:42	1

Client Sample ID: TP-1 B HDR

Lab Sample ID: 870-36865-2

Date Collected: 06/02/25 14:17

Matrix: Solid

Date Received: 06/05/25 12:43

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl (EPA 351.2)	336		38.5		mg/Kg		06/12/25 14:02	06/13/25 12:30	5
Nitrate Nitrite as N (EPA 353.2)	0.159		0.100		mg/Kg		06/16/25 15:49	06/16/25 16:20	1
Nitrite as N (EPA 353.2)	<0.978	U	0.978		mg/Kg		06/16/25 14:00	06/16/25 15:27	1
pH (SW846 9045D)	6.6	HF			SU			06/12/25 17:43	1
Temperature (SW846 9045D)	20.2	HF			Deg. C			06/12/25 17:43	1
Corrosivity (SW846 9045D)	6.6	HF			SU			06/12/25 17:43	1
Nitrate as N (SM Nitrate by calc)	<1.00	U	1.00		mg/Kg			06/16/25 16:08	1
Specific Conductance (SM 2510B)	846		30.0		umho/cm @ 25C			06/12/25 17:54	1
Nitrogen, Total (EPA Total Nitrogen)	336		0.200		mg/Kg			06/13/25 14:50	1

Client Sample ID: TP-2 A HDR

Lab Sample ID: 870-36865-3

Date Collected: 06/03/25 10:40

Matrix: Solid

Date Received: 06/05/25 12:43

Method: LA 29B SAR - Sodium Adsorption Ratio

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Na	4.97		0.500		mg/L		06/11/25 16:25	06/11/25 18:23	1
Ca	65.4		0.200		mg/L		06/11/25 16:25	06/11/25 18:23	1
Mg	2.19		0.400		mg/L		06/11/25 16:25	06/11/25 18:23	1
K	3.20		0.500		mg/L		06/11/25 16:25	06/11/25 18:23	1
Sodium Adsorption Ratio	0.165		0.100		NONE		06/11/25 16:25	06/12/25 15:01	1

Method: SW846 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	8660		99.5		mg/Kg		06/11/25 12:57	06/11/25 13:51	50
Magnesium	163		1.99		mg/Kg		06/11/25 12:57	06/11/25 13:44	1
Phosphorus	4.15		0.398		mg/Kg		06/11/25 12:57	06/11/25 13:44	1
Potassium	256		4.98		mg/Kg		06/11/25 12:57	06/11/25 13:44	1
Sodium	<4.98	U	4.98		mg/Kg		06/11/25 12:57	06/11/25 13:44	1
Sulfur	12.8		0.995		mg/Kg		06/11/25 12:57	06/11/25 13:44	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl (EPA 351.2)	364		39.2		mg/Kg		06/12/25 14:02	06/13/25 12:30	5
Nitrate Nitrite as N (EPA 353.2)	<0.100	U	0.100		mg/Kg		06/16/25 15:49	06/16/25 16:27	1
Nitrite as N (EPA 353.2)	<0.977	U	0.977		mg/Kg		06/16/25 14:00	06/16/25 15:28	1
pH (SW846 9045D)	7.3	HF			SU			06/12/25 17:43	1
Temperature (SW846 9045D)	20.2	HF			Deg. C			06/12/25 17:43	1
Corrosivity (SW846 9045D)	7.3	HF			SU			06/12/25 17:43	1
Nitrate as N (SM Nitrate by calc)	<1.00	U	1.00		mg/Kg			06/16/25 16:08	1
Specific Conductance (SM 2510B)	955		30.0		umho/cm @ 25C			06/12/25 17:54	1
Nitrogen, Total (EPA Total Nitrogen)	364		0.200		mg/Kg			06/13/25 14:50	1

Client: reUse Engineering
Project/Site: Sayer's Ranch

Job ID: 870-36865-1

Client Sample ID: TP-2 B HDR

Lab Sample ID: 870-36865-4

Date Collected: 06/03/25 10:42

Matrix: Solid

Date Received: 06/05/25 12:43

Method: LA 29B SAR - Sodium Adsorption Ratio

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Na	2.61		0.500		mg/L		06/11/25 16:25	06/11/25 18:35	1
Ca	27.5		0.200		mg/L		06/11/25 16:25	06/11/25 18:35	1
Mg	0.796		0.400		mg/L		06/11/25 16:25	06/11/25 18:35	1
K	2.72		0.500		mg/L		06/11/25 16:25	06/11/25 18:35	1
Sodium Adsorption Ratio	0.134		0.100		NONE		06/11/25 16:25	06/12/25 15:01	1

Method: SW846 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	13300		97.6		mg/Kg		06/11/25 12:57	06/11/25 13:59	50
Magnesium	140		1.95		mg/Kg		06/11/25 12:57	06/11/25 13:57	1
Phosphorus	3.99		0.390		mg/Kg		06/11/25 12:57	06/11/25 13:57	1
Potassium	216		4.88		mg/Kg		06/11/25 12:57	06/11/25 13:57	1
Sodium	6.91		4.88		mg/Kg		06/11/25 12:57	06/11/25 13:57	1
Sulfur	10.5		0.976		mg/Kg		06/11/25 12:57	06/11/25 13:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl (EPA 351.2)	763		85.5		mg/Kg		06/12/25 14:02	06/13/25 12:31	11.111
Nitrate Nitrite as N (EPA 353.2)	<0.100	U	0.100		mg/Kg		06/16/25 15:49	06/16/25 16:29	1
Nitrite as N (EPA 353.2)	<0.980	U	0.980		mg/Kg		06/16/25 14:00	06/16/25 15:29	1
pH (SW846 9045D)	7.8	HF			SU			06/12/25 17:43	1
Temperature (SW846 9045D)	20.2	HF			Deg. C			06/12/25 17:43	1
Corrosivity (SW846 9045D)	7.8	HF			SU			06/12/25 17:43	1
Nitrate as N (SM Nitrate by calc)	<1.00	U	1.00		mg/Kg			06/16/25 16:08	1
Specific Conductance (SM 2510B)	552		30.0		umho/cm @ 25C			06/12/25 17:54	1
Nitrogen, Total (EPA Total Nitrogen)	763		0.200		mg/Kg			06/13/25 14:50	1

Method: 29B SAR - Sodium Adsorption Ratio

Lab Sample ID: 870-36865-1 DU
Matrix: Solid
Analysis Batch: 242080

Client Sample ID: TP-1 A HDR
Prep Type: Total/NA
Prep Batch: 241833

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Na	25.9		26.20		mg/L		1	
Ca	23.5		25.00		mg/L		6	
Mg	3.47		3.680		mg/L		6	
K	6.66		6.770		mg/L		2	

Lab Sample ID: MB 860-241833/1-A
Matrix: Solid
Analysis Batch: 242080

Client Sample ID: Method Blank
Prep Type: Soluble
Prep Batch: 241833

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Na	<0.500	U	0.500		mg/L		06/11/25 16:25	06/11/25 18:16	1
Ca	<0.200	U	0.200		mg/L		06/11/25 16:25	06/11/25 18:16	1
Mg	<0.400	U	0.400		mg/L		06/11/25 16:25	06/11/25 18:16	1
K	<0.500	U	0.500		mg/L		06/11/25 16:25	06/11/25 18:16	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 860-241770/1-A
Matrix: Solid
Analysis Batch: 242079

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 241770

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	<2.00	U	2.00		mg/Kg		06/11/25 12:56	06/11/25 13:36	1
Magnesium	<2.00	U	2.00		mg/Kg		06/11/25 12:56	06/11/25 13:36	1
Phosphorus	<0.400	U	0.400		mg/Kg		06/11/25 12:56	06/11/25 13:36	1
Potassium	<5.00	U	5.00		mg/Kg		06/11/25 12:56	06/11/25 13:36	1
Sodium	<5.00	U	5.00		mg/Kg		06/11/25 12:56	06/11/25 13:36	1
Sulfur	<1.00	U	1.00		mg/Kg		06/11/25 12:56	06/11/25 13:36	1

Lab Sample ID: 870-36865-1 DU
Matrix: Solid
Analysis Batch: 242079

Client Sample ID: TP-1 A HDR
Prep Type: Total/NA
Prep Batch: 241770

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Magnesium	197		200.0		mg/Kg		1	20
Phosphorus	10.0		12.87		mg/Kg		25	25
Potassium	148		149.5		mg/Kg		1	20
Sodium	61.8		59.70		mg/Kg		3	20
Sulfur	15.1		14.46		mg/Kg		4	20

Lab Sample ID: 870-36865-1 DU
Matrix: Solid
Analysis Batch: 242079

Client Sample ID: TP-1 A HDR
Prep Type: Total/NA
Prep Batch: 241770

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Calcium	1980		1985		mg/Kg		0.5	20
Magnesium	229		232.2		mg/Kg		1	20
Phosphorus	<19.7	U	<19.8	U	mg/Kg		NC	25
Potassium	<246	U	<248	U	mg/Kg		NC	20
Sodium	<246	U	<248	U	mg/Kg		NC	20

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 870-36865-1 DU — **Client Sample ID: TP-1 A HDR**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 242079 — **Prep Batch: 241770**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfur	<49.3	U	<49.5	U	mg/Kg		NC	20

Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: MB 860-242059/26-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 242354 — **Prep Batch: 242059**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	<7.84	U	7.84		mg/Kg		06/12/25 14:01	06/13/25 11:46	1

Lab Sample ID: MB 860-242059/4-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 242354 — **Prep Batch: 242059**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	<0.200	U	0.200		mg/Kg		06/12/25 14:01	06/13/25 11:35	1

Lab Sample ID: LCS 860-242059/27-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 242354 — **Prep Batch: 242059**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Kjeldahl	76.9	75.24		mg/Kg		98	90 - 110

Lab Sample ID: LCS 860-242059/6-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 242354 — **Prep Batch: 242059**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Kjeldahl	2.00	1.938		mg/Kg		97	90 - 110

Lab Sample ID: LCSD 860-242059/28-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 242354 — **Prep Batch: 242059**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrogen, Kjeldahl	74.1	70.91		mg/Kg		96	90 - 110	6	20

Lab Sample ID: LCSD 860-242059/7-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 242354 — **Prep Batch: 242059**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrogen, Kjeldahl	2.00	1.963		mg/Kg		98	90 - 110	1	20

Method: 351.2 - Nitrogen, Total Kjeldahl (Continued)

Lab Sample ID: 870-36865-1 MS — **Client Sample ID: TP-1 A HDR**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 242354 — **Prep Batch: 242059**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Kjeldahl	927		72.7	847.2	4	mg/Kg		-109	90 - 110

Lab Sample ID: 870-36865-1 MSD — **Client Sample ID: TP-1 A HDR**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 242354 — **Prep Batch: 242059**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrogen, Kjeldahl	927		75.5	855.0	4	mg/Kg		-95	90 - 110	1	20

Method: 353.2 - Nitrogen, Nitrite

Lab Sample ID: MB 860-242776/9 — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 242776

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	<0.100	U	0.100		mg/Kg			06/16/25 15:22	1

Lab Sample ID: LCS 860-242776/10 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 242776

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrite as N	1.00	0.9752		mg/Kg		98	90 - 110

Lab Sample ID: LCSD 860-242776/11 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 242776

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrite as N	1.00	0.9627		mg/Kg		96	90 - 110	1	20

Lab Sample ID: 870-36865-1 MS — **Client Sample ID: TP-1 A HDR**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 242776 — **Prep Batch: 242783**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrite as N	<0.980	U	9.80	9.332		mg/Kg		95	90 - 110

Lab Sample ID: 870-36865-1 MSD — **Client Sample ID: TP-1 A HDR**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 242776 — **Prep Batch: 242783**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrite as N	<0.980	U	9.80	9.539		mg/Kg		97	90 - 110	2	20

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: 870-36865-2 MS
Matrix: Solid
Analysis Batch: 242818

Client Sample ID: TP-1 B HDR
Prep Type: Total/NA
Prep Batch: 242781

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate Nitrite as N	0.159		1.00	1.130		mg/Kg		97	90 - 110

Lab Sample ID: 870-36865-2 MSD
Matrix: Solid
Analysis Batch: 242818

Client Sample ID: TP-1 B HDR
Prep Type: Total/NA
Prep Batch: 242781

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrate Nitrite as N	0.159		1.00	1.158		mg/Kg		100	90 - 110	2	20

Lab Sample ID: MB 860-242818/3
Matrix: Solid
Analysis Batch: 242818

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	<0.100	U	0.100		mg/Kg			06/16/25 16:15	1

Lab Sample ID: LCS 860-242818/4
Matrix: Solid
Analysis Batch: 242818

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate Nitrite as N	1.00	1.023		mg/Kg		102	90 - 110

Lab Sample ID: LCSD 860-242818/5
Matrix: Solid
Analysis Batch: 242818

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrate Nitrite as N	1.00	1.052		mg/Kg		105	90 - 110	3	20

Method: 9045D - pH

Lab Sample ID: 870-36865-1 DU
Matrix: Solid
Analysis Batch: 242149

Client Sample ID: TP-1 A HDR
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	6.2	HF	6.2		SU		0.2	20
Temperature	20.2	HF	20.2		Deg. C		0	25
Corrosivity	6.2	HF	6.2		SU		0.2	20

Method: SM 2510B - Conductivity, Specific Conductance

Lab Sample ID: MB 860-242153/2
Matrix: Solid
Analysis Batch: 242153

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	<10.0	U	10.0		umho/cm @ 25C			06/12/25 17:54	1

Method: SM 2510B - Conductivity, Specific Conductance (Continued)

Lab Sample ID: 870-36865-1 DU
Matrix: Solid
Analysis Batch: 242153

Client Sample ID: TP-1 A HDR
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Specific Conductance	577			565.8		umho/cm @ 25C				2	20

Metals

Prep Batch: 241770

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	MEHL Prep	
870-36865-2	TP-1 B HDR	Total/NA	Solid	MEHL Prep	
870-36865-3	TP-2 A HDR	Total/NA	Solid	MEHL Prep	
870-36865-4	TP-2 B HDR	Total/NA	Solid	MEHL Prep	
MB 860-241770/1-A	Method Blank	Total/NA	Solid	MEHL Prep	
870-36865-1 DU	TP-1 A HDR	Total/NA	Solid	MEHL Prep	

Prep Batch: 241820

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	29B	
870-36865-2	TP-1 B HDR	Total/NA	Solid	29B	
870-36865-3	TP-2 A HDR	Total/NA	Solid	29B	
870-36865-4	TP-2 B HDR	Total/NA	Solid	29B	
870-36865-1 DU	TP-1 A HDR	Total/NA	Solid	29B	

Prep Batch: 241833

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	29B	241820
870-36865-2	TP-1 B HDR	Total/NA	Solid	29B	241820
870-36865-3	TP-2 A HDR	Total/NA	Solid	29B	241820
870-36865-4	TP-2 B HDR	Total/NA	Solid	29B	241820
MB 860-241833/1-A	Method Blank	Soluble	Solid	29B	
870-36865-1 DU	TP-1 A HDR	Total/NA	Solid	29B	241820

Analysis Batch: 242079

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	6010C	241770
870-36865-1	TP-1 A HDR	Total/NA	Solid	6010C	241770
870-36865-2	TP-1 B HDR	Total/NA	Solid	6010C	241770
870-36865-3	TP-2 A HDR	Total/NA	Solid	6010C	241770
870-36865-3	TP-2 A HDR	Total/NA	Solid	6010C	241770
870-36865-4	TP-2 B HDR	Total/NA	Solid	6010C	241770
870-36865-4	TP-2 B HDR	Total/NA	Solid	6010C	241770
MB 860-241770/1-A	Method Blank	Total/NA	Solid	6010C	241770
870-36865-1 DU	TP-1 A HDR	Total/NA	Solid	6010C	241770
870-36865-1 DU	TP-1 A HDR	Total/NA	Solid	6010C	241770

Analysis Batch: 242080

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	29B SAR	241833
870-36865-2	TP-1 B HDR	Total/NA	Solid	29B SAR	241833
870-36865-3	TP-2 A HDR	Total/NA	Solid	29B SAR	241833
870-36865-4	TP-2 B HDR	Total/NA	Solid	29B SAR	241833
MB 860-241833/1-A	Method Blank	Soluble	Solid	29B SAR	241833
870-36865-1 DU	TP-1 A HDR	Total/NA	Solid	29B SAR	241833

Analysis Batch: 242085

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	29B SAR	241833
870-36865-2	TP-1 B HDR	Total/NA	Solid	29B SAR	241833
870-36865-3	TP-2 A HDR	Total/NA	Solid	29B SAR	241833

Metals (Continued)

Analysis Batch: 242085 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-4	TP-2 B HDR	Total/NA	Solid	29B SAR	241833

General Chemistry

Leach Batch: 241230

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	Dry and Grind	
870-36865-2	TP-1 B HDR	Total/NA	Solid	Dry and Grind	
870-36865-3	TP-2 A HDR	Total/NA	Solid	Dry and Grind	
870-36865-4	TP-2 B HDR	Total/NA	Solid	Dry and Grind	
870-36865-1 DU	TP-1 A HDR	Total/NA	Solid	Dry and Grind	

Leach Batch: 241557

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	DI Leach	241230
870-36865-2	TP-1 B HDR	Total/NA	Solid	DI Leach	241230
870-36865-3	TP-2 A HDR	Total/NA	Solid	DI Leach	241230
870-36865-4	TP-2 B HDR	Total/NA	Solid	DI Leach	241230
870-36865-1 DU	TP-1 A HDR	Total/NA	Solid	DI Leach	241230

Leach Batch: 241558

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	DI Leach	241230
870-36865-2	TP-1 B HDR	Total/NA	Solid	DI Leach	241230
870-36865-3	TP-2 A HDR	Total/NA	Solid	DI Leach	241230
870-36865-4	TP-2 B HDR	Total/NA	Solid	DI Leach	241230
870-36865-1 DU	TP-1 A HDR	Total/NA	Solid	DI Leach	241230

Leach Batch: 241823

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	Dry and Grind	
870-36865-2	TP-1 B HDR	Total/NA	Solid	Dry and Grind	
870-36865-3	TP-2 A HDR	Total/NA	Solid	Dry and Grind	
870-36865-4	TP-2 B HDR	Total/NA	Solid	Dry and Grind	
870-36865-1 MS	TP-1 A HDR	Total/NA	Solid	Dry and Grind	
870-36865-1 MSD	TP-1 A HDR	Total/NA	Solid	Dry and Grind	

Prep Batch: 242059

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	351.2	241823
870-36865-2	TP-1 B HDR	Total/NA	Solid	351.2	241823
870-36865-3	TP-2 A HDR	Total/NA	Solid	351.2	241823
870-36865-4	TP-2 B HDR	Total/NA	Solid	351.2	241823
MB 860-242059/26-A	Method Blank	Total/NA	Solid	351.2	
MB 860-242059/4-A	Method Blank	Total/NA	Solid	351.2	
LCS 860-242059/27-A	Lab Control Sample	Total/NA	Solid	351.2	
LCS 860-242059/6-A	Lab Control Sample	Total/NA	Solid	351.2	
LCSD 860-242059/28-A	Lab Control Sample Dup	Total/NA	Solid	351.2	
LCSD 860-242059/7-A	Lab Control Sample Dup	Total/NA	Solid	351.2	
870-36865-1 MS	TP-1 A HDR	Total/NA	Solid	351.2	241823
870-36865-1 MSD	TP-1 A HDR	Total/NA	Solid	351.2	241823

General Chemistry

Analysis Batch: 242149

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	9045D	241557
870-36865-2	TP-1 B HDR	Total/NA	Solid	9045D	241557
870-36865-3	TP-2 A HDR	Total/NA	Solid	9045D	241557
870-36865-4	TP-2 B HDR	Total/NA	Solid	9045D	241557
870-36865-1 DU	TP-1 A HDR	Total/NA	Solid	9045D	241557

Analysis Batch: 242153

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	SM 2510B	241558
870-36865-2	TP-1 B HDR	Total/NA	Solid	SM 2510B	241558
870-36865-3	TP-2 A HDR	Total/NA	Solid	SM 2510B	241558
870-36865-4	TP-2 B HDR	Total/NA	Solid	SM 2510B	241558
MB 860-242153/2	Method Blank	Total/NA	Solid	SM 2510B	
LCS 860-242153/3	Lab Control Sample	Total/NA	Solid	SM 2510B	
LCSD 860-242153/4	Lab Control Sample Dup	Total/NA	Solid	SM 2510B	
870-36865-1 DU	TP-1 A HDR	Total/NA	Solid	SM 2510B	241558

Analysis Batch: 242354

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	351.2	242059
870-36865-2	TP-1 B HDR	Total/NA	Solid	351.2	242059
870-36865-3	TP-2 A HDR	Total/NA	Solid	351.2	242059
870-36865-4	TP-2 B HDR	Total/NA	Solid	351.2	242059
MB 860-242059/26-A	Method Blank	Total/NA	Solid	351.2	242059
MB 860-242059/4-A	Method Blank	Total/NA	Solid	351.2	242059
LCS 860-242059/27-A	Lab Control Sample	Total/NA	Solid	351.2	242059
LCS 860-242059/6-A	Lab Control Sample	Total/NA	Solid	351.2	242059
LCSD 860-242059/28-A	Lab Control Sample Dup	Total/NA	Solid	351.2	242059
LCSD 860-242059/7-A	Lab Control Sample Dup	Total/NA	Solid	351.2	242059
870-36865-1 MS	TP-1 A HDR	Total/NA	Solid	351.2	242059
870-36865-1 MSD	TP-1 A HDR	Total/NA	Solid	351.2	242059

Analysis Batch: 242369

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	Total Nitrogen	
870-36865-2	TP-1 B HDR	Total/NA	Solid	Total Nitrogen	
870-36865-3	TP-2 A HDR	Total/NA	Solid	Total Nitrogen	
870-36865-4	TP-2 B HDR	Total/NA	Solid	Total Nitrogen	

Leach Batch: 242519

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	Dry and Grind	
870-36865-2	TP-1 B HDR	Total/NA	Solid	Dry and Grind	
870-36865-3	TP-2 A HDR	Total/NA	Solid	Dry and Grind	
870-36865-4	TP-2 B HDR	Total/NA	Solid	Dry and Grind	
870-36865-1 MS	TP-1 A HDR	Total/NA	Solid	Dry and Grind	
870-36865-1 MSD	TP-1 A HDR	Total/NA	Solid	Dry and Grind	
870-36865-2 MS	TP-1 B HDR	Total/NA	Solid	Dry and Grind	
870-36865-2 MSD	TP-1 B HDR	Total/NA	Solid	Dry and Grind	

General Chemistry

Analysis Batch: 242776

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	353.2	242783
870-36865-2	TP-1 B HDR	Total/NA	Solid	353.2	242783
870-36865-3	TP-2 A HDR	Total/NA	Solid	353.2	242783
870-36865-4	TP-2 B HDR	Total/NA	Solid	353.2	242783
MB 860-242776/9	Method Blank	Total/NA	Solid	353.2	
LCS 860-242776/10	Lab Control Sample	Total/NA	Solid	353.2	
LCSD 860-242776/11	Lab Control Sample Dup	Total/NA	Solid	353.2	
870-36865-1 MS	TP-1 A HDR	Total/NA	Solid	353.2	242783
870-36865-1 MSD	TP-1 A HDR	Total/NA	Solid	353.2	242783

Prep Batch: 242781

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	KCl Extract	242519
870-36865-2	TP-1 B HDR	Total/NA	Solid	KCl Extract	242519
870-36865-3	TP-2 A HDR	Total/NA	Solid	KCl Extract	242519
870-36865-4	TP-2 B HDR	Total/NA	Solid	KCl Extract	242519
870-36865-2 MS	TP-1 B HDR	Total/NA	Solid	KCl Extract	242519
870-36865-2 MSD	TP-1 B HDR	Total/NA	Solid	KCl Extract	242519

Prep Batch: 242783

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	KCl Extract	242519
870-36865-2	TP-1 B HDR	Total/NA	Solid	KCl Extract	242519
870-36865-3	TP-2 A HDR	Total/NA	Solid	KCl Extract	242519
870-36865-4	TP-2 B HDR	Total/NA	Solid	KCl Extract	242519
870-36865-1 MS	TP-1 A HDR	Total/NA	Solid	KCl Extract	242519
870-36865-1 MSD	TP-1 A HDR	Total/NA	Solid	KCl Extract	242519

Analysis Batch: 242793

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	Nitrate by calc	
870-36865-2	TP-1 B HDR	Total/NA	Solid	Nitrate by calc	
870-36865-3	TP-2 A HDR	Total/NA	Solid	Nitrate by calc	
870-36865-4	TP-2 B HDR	Total/NA	Solid	Nitrate by calc	

Analysis Batch: 242818

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	353.2	242781
870-36865-2	TP-1 B HDR	Total/NA	Solid	353.2	242781
870-36865-3	TP-2 A HDR	Total/NA	Solid	353.2	242781
870-36865-4	TP-2 B HDR	Total/NA	Solid	353.2	242781
MB 860-242818/3	Method Blank	Total/NA	Solid	353.2	
LCS 860-242818/4	Lab Control Sample	Total/NA	Solid	353.2	
LCSD 860-242818/5	Lab Control Sample Dup	Total/NA	Solid	353.2	
870-36865-2 MS	TP-1 B HDR	Total/NA	Solid	353.2	242781
870-36865-2 MSD	TP-1 B HDR	Total/NA	Solid	353.2	242781

Client Sample ID: TP-1 A HDR

Lab Sample ID: 870-36865-1

Date Collected: 06/02/25 14:15

Matrix: Solid

Date Received: 06/05/25 12:43

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	29B			76.7 g	68.16 g	241820	06/11/25 15:49	PB	EET HOU
Total/NA	Prep	29B			30 g	30 mL	241833	06/11/25 16:25	PB	EET HOU
Total/NA	Analysis	29B SAR		1			242080	06/11/25 18:18	JDM	EET HOU
Total/NA	Prep	29B			76.7 g	68.16 g	241820	06/11/25 15:49	PB	EET HOU
Total/NA	Prep	29B			30 g	30 mL	241833	06/11/25 16:25	PB	EET HOU
Total/NA	Analysis	29B SAR		1			242085	06/12/25 15:01	JDM	EET HOU
Total/NA	Prep	MEHL Prep			2.03 g	20 mL	241770	06/11/25 12:57	PB	EET HOU
Total/NA	Analysis	6010C		1			242079	06/11/25 13:38	JDM	EET HOU
Total/NA	Prep	MEHL Prep			2.03 g	20 mL	241770	06/11/25 12:57	PB	EET HOU
Total/NA	Analysis	6010C		50			242079	06/11/25 13:46	JDM	EET HOU
Total/NA	Leach	Dry and Grind			1.0 g	1.0 g	241823	06/11/25 15:52	JC	EET HOU
Total/NA	Prep	351.2			0.51 g	20 mL	242059	06/12/25 14:02	CT	EET HOU
Total/NA	Analysis	351.2		14.286			242354	06/13/25 12:07	MLEI	EET HOU
Total/NA	Leach	Dry and Grind			1.0 g	1.0 g	242519	06/14/25 15:56	MLEI	EET HOU
Total/NA	Prep	KCl Extract			5.10 g	50 mL	242783	06/16/25 14:00	ALL	EET HOU
Total/NA	Analysis	353.2		1	10 mL	10 mL	242776	06/16/25 15:25	ALL	EET HOU
Total/NA	Leach	Dry and Grind			1.0 g	1.0 g	242519	06/14/25 15:56	MLEI	EET HOU
Total/NA	Prep	KCl Extract			5.10 g	5.10 g	242781	06/16/25 15:49	ALL	EET HOU
Total/NA	Analysis	353.2		1	10 mL	10 mL	242818	06/16/25 16:56	ALL	EET HOU
Total/NA	Leach	Dry and Grind			86.49 g	1.0 g	241230	06/09/25 16:51	CT	EET HOU
Total/NA	Leach	DI Leach			15 g	45 mL	241557	06/10/25 17:31	CT	EET HOU
Total/NA	Analysis	9045D		1	15 g	45 mL	242149	06/12/25 17:43	CT	EET HOU
Total/NA	Analysis	Nitrate by calc		1			242793	06/16/25 16:08	MC	EET HOU
Total/NA	Leach	Dry and Grind			86.49 g	1.0 g	241230	06/09/25 16:51	CT	EET HOU
Total/NA	Leach	DI Leach			15 g	45 mL	241558	06/10/25 17:33	CT	EET HOU
Total/NA	Analysis	SM 2510B		1			242153	06/12/25 17:54	CT	EET HOU
Total/NA	Analysis	Total Nitrogen		1			242369	06/13/25 14:50	RJD	EET HOU

Client Sample ID: TP-1 B HDR

Lab Sample ID: 870-36865-2

Date Collected: 06/02/25 14:17

Matrix: Solid

Date Received: 06/05/25 12:43

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	29B			68.58 g	64.72 g	241820	06/11/25 15:49	PB	EET HOU
Total/NA	Prep	29B			30 g	30 mL	241833	06/11/25 16:25	PB	EET HOU
Total/NA	Analysis	29B SAR		1			242080	06/11/25 18:21	JDM	EET HOU
Total/NA	Prep	29B			68.58 g	64.72 g	241820	06/11/25 15:49	PB	EET HOU
Total/NA	Prep	29B			30 g	30 mL	241833	06/11/25 16:25	PB	EET HOU
Total/NA	Analysis	29B SAR		1			242085	06/12/25 15:01	JDM	EET HOU
Total/NA	Prep	MEHL Prep			2.07 g	20 mL	241770	06/11/25 12:57	PB	EET HOU
Total/NA	Analysis	6010C		1			242079	06/11/25 13:42	JDM	EET HOU
Total/NA	Leach	Dry and Grind			1.0 g	1.0 g	241823	06/11/25 15:52	JC	EET HOU
Total/NA	Prep	351.2			0.52 g	20 mL	242059	06/12/25 14:02	CT	EET HOU
Total/NA	Analysis	351.2		5			242354	06/13/25 12:30	MLEI	EET HOU

Client Sample ID: TP-1 B HDR

Lab Sample ID: 870-36865-2

Date Collected: 06/02/25 14:17

Matrix: Solid

Date Received: 06/05/25 12:43

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Leach	Dry and Grind			1.0 g	1.0 g	242519	06/14/25 15:56	MLEI	EET HOU
Total/NA	Prep	KCl Extract			5.11 g	50 mL	242783	06/16/25 14:00	ALL	EET HOU
Total/NA	Analysis	353.2		1	10 mL	10 mL	242776	06/16/25 15:27	ALL	EET HOU
Total/NA	Leach	Dry and Grind			1.0 g	1.0 g	242519	06/14/25 15:56	MLEI	EET HOU
Total/NA	Prep	KCl Extract			5.11 g	5.11 g	242781	06/16/25 15:49	ALL	EET HOU
Total/NA	Analysis	353.2		1	10 mL	10 mL	242818	06/16/25 16:20	ALL	EET HOU
Total/NA	Leach	Dry and Grind			81.69 g	1.0 g	241230	06/09/25 16:51	CT	EET HOU
Total/NA	Leach	DI Leach			15 g	45 mL	241557	06/10/25 17:31	CT	EET HOU
Total/NA	Analysis	9045D		1	15 g	45 mL	242149	06/12/25 17:43	CT	EET HOU
Total/NA	Analysis	Nitrate by calc		1			242793	06/16/25 16:08	MC	EET HOU
Total/NA	Leach	Dry and Grind			81.69 g	1.0 g	241230	06/09/25 16:51	CT	EET HOU
Total/NA	Leach	DI Leach			15 g	45 mL	241558	06/10/25 17:33	CT	EET HOU
Total/NA	Analysis	SM 2510B		1			242153	06/12/25 17:54	CT	EET HOU
Total/NA	Analysis	Total Nitrogen		1			242369	06/13/25 14:50	RJD	EET HOU

Client Sample ID: TP-2 A HDR

Lab Sample ID: 870-36865-3

Date Collected: 06/03/25 10:40

Matrix: Solid

Date Received: 06/05/25 12:43

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	29B			62.12 g	59.41 g	241820	06/11/25 15:49	PB	EET HOU
Total/NA	Prep	29B			30 g	30 mL	241833	06/11/25 16:25	PB	EET HOU
Total/NA	Analysis	29B SAR		1			242080	06/11/25 18:23	JDM	EET HOU
Total/NA	Prep	29B			62.12 g	59.41 g	241820	06/11/25 15:49	PB	EET HOU
Total/NA	Prep	29B			30 g	30 mL	241833	06/11/25 16:25	PB	EET HOU
Total/NA	Analysis	29B SAR		1			242085	06/12/25 15:01	JDM	EET HOU
Total/NA	Prep	MEHL Prep			2.01 g	20 mL	241770	06/11/25 12:57	PB	EET HOU
Total/NA	Analysis	6010C		1			242079	06/11/25 13:44	JDM	EET HOU
Total/NA	Prep	MEHL Prep			2.01 g	20 mL	241770	06/11/25 12:57	PB	EET HOU
Total/NA	Analysis	6010C		50			242079	06/11/25 13:51	JDM	EET HOU
Total/NA	Leach	Dry and Grind			1.0 g	1.0 g	241823	06/11/25 15:52	JC	EET HOU
Total/NA	Prep	351.2			0.51 g	20 mL	242059	06/12/25 14:02	CT	EET HOU
Total/NA	Analysis	351.2		5			242354	06/13/25 12:30	MLEI	EET HOU
Total/NA	Leach	Dry and Grind			1.0 g	1.0 g	242519	06/14/25 15:56	MLEI	EET HOU
Total/NA	Prep	KCl Extract			5.12 g	50 mL	242783	06/16/25 14:00	ALL	EET HOU
Total/NA	Analysis	353.2		1	10 mL	10 mL	242776	06/16/25 15:28	ALL	EET HOU
Total/NA	Leach	Dry and Grind			1.0 g	1.0 g	242519	06/14/25 15:56	MLEI	EET HOU
Total/NA	Prep	KCl Extract			5.12 g	5.12 g	242781	06/16/25 15:49	ALL	EET HOU
Total/NA	Analysis	353.2		1	10 mL	10 mL	242818	06/16/25 16:27	ALL	EET HOU
Total/NA	Leach	Dry and Grind			110.48 g	1.0 g	241230	06/09/25 16:51	CT	EET HOU
Total/NA	Leach	DI Leach			15 g	45 mL	241557	06/10/25 17:31	CT	EET HOU
Total/NA	Analysis	9045D		1	15 g	45 mL	242149	06/12/25 17:43	CT	EET HOU
Total/NA	Analysis	Nitrate by calc		1			242793	06/16/25 16:08	MC	EET HOU

Lab Chronicle

Client: reUse Engineering
Project/Site: Sayer's Ranch

Job ID: 870-36865-1

Client Sample ID: TP-2 A HDR

Lab Sample ID: 870-36865-3

Date Collected: 06/03/25 10:40
Matrix: Solid
Date Received: 06/05/25 12:43

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Leach	Dry and Grind			110.48 g	1.0 g	241230	06/09/25 16:51	CT	EET HOU
Total/NA	Leach	DI Leach			15 g	45 mL	241558	06/10/25 17:33	CT	EET HOU
Total/NA	Analysis	SM 2510B		1			242153	06/12/25 17:54	CT	EET HOU
Total/NA	Analysis	Total Nitrogen		1			242369	06/13/25 14:50	RJD	EET HOU

Client Sample ID: TP-2 B HDR

Lab Sample ID: 870-36865-4

Date Collected: 06/03/25 10:42
Matrix: Solid
Date Received: 06/05/25 12:43

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	29B			98.34 g	92.34 g	241820	06/11/25 15:49	PB	EET HOU
Total/NA	Prep	29B			30 g	30 mL	241833	06/11/25 16:25	PB	EET HOU
Total/NA	Analysis	29B SAR		1			242080	06/11/25 18:35	JDM	EET HOU
Total/NA	Prep	29B			98.34 g	92.34 g	241820	06/11/25 15:49	PB	EET HOU
Total/NA	Prep	29B			30 g	30 mL	241833	06/11/25 16:25	PB	EET HOU
Total/NA	Analysis	29B SAR		1			242085	06/12/25 15:01	JDM	EET HOU
Total/NA	Prep	MEHL Prep			2.05 g	20 mL	241770	06/11/25 12:57	PB	EET HOU
Total/NA	Analysis	6010C		1			242079	06/11/25 13:57	JDM	EET HOU
Total/NA	Prep	MEHL Prep			2.05 g	20 mL	241770	06/11/25 12:57	PB	EET HOU
Total/NA	Analysis	6010C		50			242079	06/11/25 13:59	JDM	EET HOU
Total/NA	Leach	Dry and Grind			1.0 g	1.0 g	241823	06/11/25 15:52	JC	EET HOU
Total/NA	Prep	351.2			0.52 g	20 mL	242059	06/12/25 14:02	CT	EET HOU
Total/NA	Analysis	351.2		11.111			242354	06/13/25 12:31	MLEI	EET HOU
Total/NA	Leach	Dry and Grind			1.0 g	1.0 g	242519	06/14/25 15:56	MLEI	EET HOU
Total/NA	Prep	KCl Extract			5.10 g	50 mL	242783	06/16/25 14:00	ALL	EET HOU
Total/NA	Analysis	353.2		1	10 mL	10 mL	242776	06/16/25 15:29	ALL	EET HOU
Total/NA	Leach	Dry and Grind			1.0 g	1.0 g	242519	06/14/25 15:56	MLEI	EET HOU
Total/NA	Prep	KCl Extract			5.10 g	5.10 g	242781	06/16/25 15:49	ALL	EET HOU
Total/NA	Analysis	353.2		1	10 mL	10 mL	242818	06/16/25 16:29	ALL	EET HOU
Total/NA	Leach	Dry and Grind			93.82 g	1.0 g	241230	06/09/25 16:51	CT	EET HOU
Total/NA	Leach	DI Leach			15 g	45 mL	241557	06/10/25 17:31	CT	EET HOU
Total/NA	Analysis	9045D		1	15 g	45 mL	242149	06/12/25 17:43	CT	EET HOU
Total/NA	Analysis	Nitrate by calc		1			242793	06/16/25 16:08	MC	EET HOU
Total/NA	Leach	Dry and Grind			93.82 g	1.0 g	241230	06/09/25 16:51	CT	EET HOU
Total/NA	Leach	DI Leach			15 g	45 mL	241558	06/10/25 17:33	CT	EET HOU
Total/NA	Analysis	SM 2510B		1			242153	06/12/25 17:54	CT	EET HOU
Total/NA	Analysis	Total Nitrogen		1			242369	06/13/25 14:50	RJD	EET HOU

Laboratory References:

EET HOU = Eurofins Houston, 4145 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200

Accreditation/Certification Summary

Client: reUse Engineering
Project/Site: Sayer's Ranch

Job ID: 870-36865-1

Laboratory: Eurofins Houston

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704215	06-30-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
29B SAR	29B	Solid	Ca
29B SAR	29B	Solid	K
29B SAR	29B	Solid	Mg
29B SAR	29B	Solid	Na
29B SAR	29B	Solid	Sodium Adsorption Ratio
351.2	351.2	Solid	Nitrogen, Kjeldahl
6010C	MEHL Prep	Solid	Sulfur
9045D		Solid	Temperature
Nitrate by calc		Solid	Nitrate as N
Total Nitrogen		Solid	Nitrogen, Total

Method Summary

Client: reUse Engineering
Project/Site: Sayer's Ranch

Job ID: 870-36865-1

Method	Method Description	Protocol	Laboratory
29B SAR	Sodium Adsorption Ratio	LA	EET HOU
6010C	Metals (ICP)	SW846	EET HOU
351.2	Nitrogen, Total Kjeldahl	EPA	EET HOU
353.2	Nitrogen, Nitrate-Nitrite	EPA	EET HOU
353.2	Nitrogen, Nitrite	EPA	EET HOU
9045D	pH	SW846	EET HOU
Nitrate by calc	Nitrogen, Nitrate-Nitrite	SM	EET HOU
SM 2510B	Conductivity, Specific Conductance	SM	EET HOU
Total Nitrogen	Nitrogen, Total	EPA	EET HOU
29B	Preparation, Dry, Grind and Sieve	LA	EET HOU
29B	Preparation, Sodium Absorption Ratio	LA	EET HOU
351.2	Nitrogen, Total Kjeldahl	EPA	EET HOU
DI Leach	Deionized Water Leaching Procedure	ASTM	EET HOU
Dry and Grind	Preparation, Dry and Grind	None	EET HOU
KCl Extract	Potassium chloride Extraction	EPA	EET HOU
KCL Extraction	Potassium chloride Extraction - Auto Complete	EPA	EET HOU
MEHL Prep	Preparation, MEHL	None	EET HOU

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

LA = Statewide Order No. 29-B, State Of Louisianna

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET HOU = Eurofins Houston, 4145 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200

Sample Summary

Client: reUse Engineering
Project/Site: Sayer's Ranch

Job ID: 870-36865-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
870-36865-1	TP-1 A HDR	Solid	06/02/25 14:15	06/05/25 12:43
870-36865-2	TP-1 B HDR	Solid	06/02/25 14:17	06/05/25 12:43
870-36865-3	TP-2 A HDR	Solid	06/03/25 10:40	06/05/25 12:43
870-36865-4	TP-2 B HDR	Solid	06/03/25 10:42	06/05/25 12:43

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Chain of Custody

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334
EL Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199
Little Rock, AR (501) 224-5060

Work Order No: _____

Page _____ of _____

Project Manager:	RANE WILSON	Bill to: (if different)	
Company Name:	REUSE ENGINEERING	Company Name:	
Address:	4411 S. IH-35, STE 100	Address:	
City, State ZIP:	GEORGETOWN, TX 78626	City, State ZIP:	
Phone:	(570) 567-4297	Email:	RANE@REUSEENG.COM

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting: Level II ☐ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	SAYER'S RANCH	Turn Around	☐ Routine ☐ Rush
Project Number:			
Project Location:		Due Date:	
Sampler's Name:		TAT starts the day received by the lab, if received by 4:30pm	
PO #:			

SAMPLE RECEIPT			
Temp Blank:	Yes (No)	Wet Ice:	(Yes) No
Samples Received Intact:	(Yes) No	Thermometer ID:	THM-035
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	+0.1
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	8.4
Total Containers:		Corrected Temperature:	8.5

ANALYSIS REQUEST

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/Comp	# of Cont	pH	CONDUCTIVITY	SAR	TKN + TOTAL NITROGEN	PHOSPHORUS - MEHLICH	METALS	NITRATES	Sample Comments
TP-1 A HOR		6/2/25	1415											
TP-1 B HOR		6/2/25	1417											
TP-2 A HOR		6/3/25	1040											
TP-2 B HOR		6/3/25	1042											

Preservative Codes

None: NO — DI Water: H_2O
Cool: Cool — MeOH: Me
HCL: HC — HNO_3
H_2SO_4: H_2 — NaOH: Na
H_3PO_4: HP
$NaHSO_4$: NABIS
$Na_2S_2O_3$: $NaSO_3$
Zn Acetate+NaOH: Zn
NaOH+Ascorbic Acid: SAPC

870-36865 Chain of Custody

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO_2 Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010:** 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U Hg: 1631 / 245.1 / 7470 / 7471

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Eurofins Xenco. A minimum charge of $85.00 will be applied to each project and a charge of $5 for each sample submitted to Eurofins Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 [signature]	K Whitlock	6/5/25 1243	2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Eurofins Dallas
9701 Harry Hines Blvd
Dallas, TX 75220
Phone: 214-902-0300

Chain of Custody Record

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6/16/2025

Client Information (Sub Contract Lab)	Sampler: N/A	Lab PM: Galvan, Rebecca	Carrier Tracking No(s): N/A	COC No: 870-8481 1
Client Contact: Shipping/Receiving	Phone: N/A	E-Mail: Rebecca.Galvan@et.eurofinsus.com	State of Origin: Texas	Page: Page 1 of 1
Company: Eurofins Environment Testing South Centr		Accreditations Required (See note): NELAP Texas		Job #: 870-36865-1
Address: 4145 Greenbriar Dr	Due Date Requested: 6/16/2025			
City: Stafford	TAT Requested (days): N/A			
State, Zip: TX, 77477				
Phone: 281-240-4200(Tel)	PO #: N/A			
Email: N/A	WO #: N/A			
Project Name: Sayer's Ranch	Project #: 87002443			
Site: N/A	SSOW#: N/A			

Analysis Requested

Sample Identification Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	351.2/Dry_Grind 351.2 Total Kjeldahl Nitrogen (TKN)	353.2/Dry_Grind 353.2 Nitrogen, Nitrate-Nitrite	353.2_Nitrite/Dry_Grind 353.2 Nitrogen, Nitrite	Nitrogen,Total/ Nitrogen, Total	Nitrate_Calc/KCL_Ext_AC Nitrogen, Nitrate-Nitrite	9045D/Dry_Grind 9045D pH	2510B/Dry_Grind 2510B Specific Conductance	29B_SAR_Calc/29B_Prep_Solid 29B Sodium Adsorption Ratio	6010C/MEHL_Prep 6010 Plant Metals (6)					Total Number of containers	Special Instructions/Note:
			Preservation Code:																		
TP-1 A HDR (870-36865-1)	6/2/25	14.15 Central	G	Solid			X	X	X	X	X	X	X	X	X					2	
TP-1 B HDR (870-36865-2)	6/2/25	14:17 Central	G	Solid			X	X	X	X	X	X	X	X	X					2	
TP-2 A HDR (870-36865-3)	6/3/25	10:40 Central	G	Solid			X	X	X	X	X	X	X	X	X					2	
TP-2 B HDR (870-36865-4)	6/3/25	10:42 Central	G	Solid			X	X	X	X	X	X	X	X	X					2	

Other: N/A

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing South Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing South Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing South Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central, LLC.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time: 06/05/25 1700	Company	Received by: TPX	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time	Company

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.	Cooler Temperature(s) °C and Other Remarks: 23.7

RECEIVED JUN 2025

Login Sample Receipt Checklist

Client: reUse Engineering

Job Number: 870-36865-1

Login Number: 36865

List Source: Eurofins Dallas

List Number: 1

Creator: Bodnarchuk, Andrew G

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

Login Sample Receipt Checklist

Client: reUse Engineering

Job Number: 870-36865-1

Login Number: 36865
List Number: 2
Creator: Torrez, Lisandra

List Source: Eurofins Houston
List Creation: 06/06/25 09:20 AM

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	

ATTACHMENT 13

ALTERNATIVE HYDRAULIC APPLICATION RATE

TABLE OF CONTENTS

I. Introduction
II. Onsite Soils Investigation
III. Proposed Hydraulic Application Rate
IV. Conclusion
V. Appendix 13-A: Field Data & Calculations

Introduction

Per Title 30 of the Texas Administrative Code (30 TAC) §222.83, the maximum application rate that may be used for a subsurface area drip dispersal system (SADDS) in this region is 0.1 gallons per day/square foot (gpd/SF). However, an applicant may request a higher hydraulic application rate if an alternative method for calculating the application rate is approved by the TCEQ executive director (30 TAC §222.83(a)(4)).

Onsite Soils Investigation

In order to determine a reasonable hydraulic application rate, two areas onsite were tested with Amoozemeters, compact constant head permeameters (Figure 1). Five shallow 2-inch diameter borings were dug in Area A, and six shallow 2-inch diameter borings were dug in Area B to evaluate the saturated hydraulic conductivity (Ksat) of soils at the Sayers Ranch site.

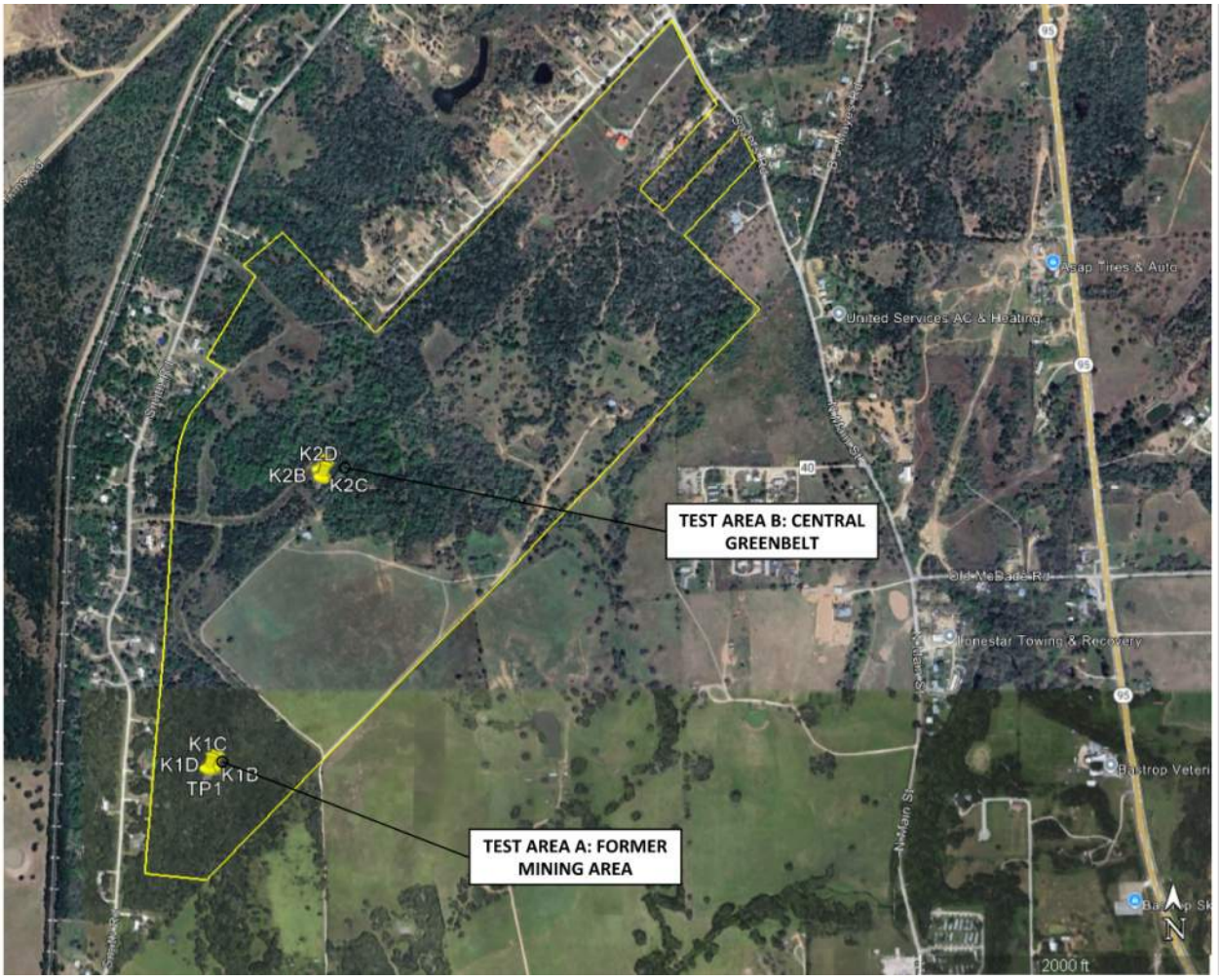

Figure 1. Map of Soil Testing Areas.

A common practice for estimating in situ Ksat of a soil is to take a percentage of field-measured saturated hydraulic conductivity values. An average value of 10% Ksat was used to estimate the required acreage for subsurface drip disposal at Sayers Ranch (See Appendix 13-A for field data and detailed calculations).

Proposed Hydraulic Application Rate

The results show that onsite soils have an average 10% Ksat value of 0.36 gpd/SF in the southwest region (Area A), and 2.34 gpd/SF in the central greenbelt (Area B) area (Table 1).

Table 1. Sayers Ranch Permeability Test Results.

Amoozemeter ID	Latitude (degrees)	Longitude (degrees)	K_{sat} @ 10% (gpd/SF)
K1B	30.133857	-97.336062	0.12
K1C	30.13385	-97.336106	0.10
K1D	30.133863	-97.33606	0.05
K1E	30.133821	-97.336055	0.11
K1F	30.133816	-97.336099	1.40
		Average:	**0.36**
K2A	30.139371	-97.333653	2.80
K2B	30.139342	-97.333707	6.72
K2C	30.139326	-97.333688	1.26
K2D	30.139345	-97.333691	3.50
K2E	30.139472	-97.333728	3.50
K2F	30.139472	-97.333728	0.63
		Average (excluding outlier):	**2.34**

K1 corresponds to Area A: Former Mining Area. K2 corresponds to Area B: Central Greenbelt.

These Ksat values would require 12.9 acres in Area A and approximately 2 acres in Area B for the SADDS. Reducing the lowest average Ksat value by 30% results in a 10% Ksat value of **0.25 gpd/SF**. The applicant proposes to apply this conservative Ksat value to both soil areas, requiring a total of 18.4 acres for drip irrigation to serve the full 200,000 gpd development (Figure 2). Area A (Former Mining Area) can accommodate 16.7 acres of subsurface drip disposal if the entire area is utilized. The remaining 1.7 acres of the drip system would be located in Area B (Central Greenbelt) as illustrated on the concept site plan in Figure 2. The applicant proposes to plant native grasses over seeded with a cool season grass during the winter months in the proposed SADDS areas. Usage of native grasses in this manner should not necessitate a lower hydraulic application rate.

A rate of 0.25 gpd/SF is further supported as a reasonable hydraulic application rate for this site in light of the infiltration rate for this system. Tech Report 10054 §3.3 (2)(B) details the

irrigation operations onsite. Application of 200,000 gpd (138.9 gpm) over an area of 18.4 acres (801,504 SF) equates to an infiltration rate of:

$$\frac{138.9\ gpm}{801{,}504\ SF} \times \frac{12\ in/ft \times 60\ min/hr}{7.48\ gal/CF} = \mathbf{0.0167\ in/hr}$$

Converting 0.25 gpd/SF yields 0.0167 in/hr. The proposed application rate is equivalent to the infiltration rate.



Figure 2. Map of Potential Drip Irrigation Areas.

Conclusion

The Sayers Ranch site soils can handle greater than 0.1 gpd/SF of applied subsurface irrigation, as indicated by onsite soil tests. The applicant is requesting that the executive director consider approving a higher hydraulic application rate of **0.25 gpd/SF** for the proposed SADDS at this site.

Respectfully Submitted,

Lauren B. Wahl, PE
reUse Engineering, Inc.



Appendix 13-A: Field Data & Calculations

SAYERS RANCH

Bastrop, Tx 2025

TABLE NO. 3-A, Hydraulic Conductivity Results

Conditions: CLEAR

Site K1B

Soil notes: Bt1

Location		CM.	
Hole depth	48	water h	15
Reference	10	d	42
D	58	H1	42

Ameter config.	Valve On	A (cm^-2)	Conver. Factor	DTW (cm)		Time	
				Initial:	43	Test Start:	
1	1	0.001056	20	Final:	42	SS Start:	
						Test Stop:	

time (min)	dt (min)	Res (cm)	dR (cm)	DTW (cm)	H (cm)	FLOW (cm^3)	Q (cm^3/m)	Q (cm^3/hr)	K (cm/hr)	K (in/hr)	L (ft/d)	LTAR (gpd/sf)
11:40	0	42.4	0	43	14	20.0						
11:45	5	41.4	1.00	42	15	20.0	4.000	240.0	0.253	0.100	0.20	0.15
11:50	5	39.5	1.90	42	15	20.0	7.600	456.0	0.482	0.190	0.38	0.28
11:55	5	39.4	0.10	42	15	20.0	0.400	24.0	0.025	0.010	0.02	0.01
12:00	5	39.3	0.10	42	15	20.0	0.400	24.0	0.025	0.010	0.02	0.01
											Ksat:	**0.116**

Average of all 10% Ksat values at this test pit

Site K1C

Soil notes: Bt1

Location		CM.	
Hole depth	79	water h	16
Reference	10	d	74
D	89	H1	74

Ameter config.	Valve On	A (cm^-2)	Conver. Factor	DTW (cm)	68	Time	
				Initial:	75	Test Start:	
1	1	0.001056	20	Final:	74	SS Start:	
						Test Stop:	

time (min)	dt (min)	Res (cm)	dR (cm)	DTW (cm)	H (cm)	FLOW (cm^3)	Q (cm^3/m)	Q (cm^3/hr)	K (cm/hr)	K (in/hr)	L (ft/d)	LTAR (gpd/sf)
12:20	0	33.1	0	75	14	20.0						
12:25	5	32.2	0.9	74	15	20.0	3.600	216.0	0.228	0.090	0.18	0.134
12:30	5	31.3	0.9	74	15	20.0	3.600	216.0	0.228	0.090	0.18	0.134
12:35	5	30.8	0.5	74	15	20.0	2.000	120.0	0.127	0.050	0.10	0.075
12:40	5	30.4	0.4	74	15	20.0	1.600	96.0	0.101	0.040	0.08	0.060
											Ksat:	**0.101**

Average of all 10% Ksat values at this test pit

SAYERS RANCH

Bastrop, Tx 2025

TABLE NO. 3-B, Hydraulic Conductivity Results

Conditions: CLEAR

Site K1D

Soil notes: Bt

Location		CM.	
Hole depth	88	water h	15
Reference	10	d	83
D	98	H1	83

Ameter config.	Valve On	A (cm^-2)	Conver. Factor	DTW (cm) Initial:	84	Time Test Start:	0:00
1	1	0.001056	20	Final:	83	SS Start:	0:00
						Test Stop:	0:00

time (min)	dt (min)	Res (cm)	dR (cm)	DTW (cm)	H (cm)	FLOW (cm^3)	Q (cm^3/m)	Q (cm^3/hr)	K (cm/hr)	K (in/hr)	L (ft/d)	LTAR (gpd/sf)
13:30	0	44.3		84	14	20.0						
13:40	10	43.5	0.8	83	15	20.0	1.600	96.0	0.101	0.040	0.08	0.060
13:50	10	43.1	0.4	83	15	20.0	0.800	48.0	0.051	0.020	0.04	0.030
14:00	10	42.4	0.7	83	15	20.0	1.400	84.0	0.089	0.035	0.07	0.052
14:10	10	41.4	1	83	15	20.0	2.000	120.0	0.127	0.050	0.10	0.075
											Ksat:	**0.054**

Average of all 10% Ksat values at this test pit

Site K1E

Soil notes: Bt

Location		CM.	
Hole depth	45	water h	16
Reference	10	d	40
D	55	H1	40

Ameter config.	Valve On	A (cm^-2)	Conver. Factor	DTW (cm) Initial:	68 41	Time Test Start:	16:00
1	1	0.001056	20	Final:	40	SS Start:	9:45
						Test Stop:	9:55

time (min)	dt (min)	Res (cm)	dR (cm)	DTW (cm)	H (cm)	FLOW (cm^3)	Q (cm^3/m)	Q (cm^3/hr)	K (cm/hr)	K (in/hr)	L (ft/d)	LTAR (gpd/sf)
13:35	0	43.4	0	41	14	20.0						
13:40	5	42.8	0.6	40	15	20.0	2.400	144.0	0.152	0.060	0.12	0.090
13:45	5	42.0	0.8	40	15	20.0	3.200	192.0	0.203	0.080	0.16	0.119
13:50	5	41.4	0.6	40	15	20.0	2.400	144.0	0.152	0.060	0.12	0.090
13:55	5	40.5	0.9	40	15	20.0	3.600	216.0	0.228	0.090	0.18	0.134
											Ksat:	**0.108**

Average of all 10% Ksat values at this test pit

SAYERS RANCH

Bastrop, Tx 2025

TABLE NO. 3-C, Hydraulic Conductivity Results

Conditions: CLEAR

Site K1F

Soil notes: A

Location		CM.	
Hole depth	19	water h	15
Reference	10	d	14
D	29	H1	14

Ameter config.	Valve On	A (cm^-2)	Conver. Factor	DTW (cm)		Time	
				Initial:	15	Test Start:	0:00
2	2	0.001056	150	Final:	14	SS Start:	0:00
						Test Stop:	0:00

time (min)	dt (min)	Res (cm)	dR (cm)	DTW (cm)	H (cm)	FLOW (cm^3)	Q (cm^3/m)	Q (cm^3/hr)	K (cm/hr)	K (in/hr)	L (ft/d)	LTAR (gpd/sf)
14:15	0	40.3		15	14	150.0						
14:20	5	39.4	0.9	14	15	150.0	27.000	1,620.0	1.711	0.674	1.35	1.008
14:25	5	37.8	1.6	14	15	150.0	48.000	2,880.0	3.041	1.197	2.39	1.791
14:30	5	36.6	1.2	14	15	150.0	36.000	2,160.0	2.281	0.898	1.80	1.344
14:35	5	35.3	1.3	14	15	150.0	39.000	2,340.0	2.471	0.973	1.95	1.455
											Ksat:	**1.400**

Average of all 10% Ksat values at this test pit

Site K2A

Soil notes: Bt

Location		CM.	
Hole depth	25	water h	15
Reference	10	d	15
D	35	H1	15

Ameter config.	Valve On	A (cm^-2)	Conver. Factor	DTW (cm)		Time	
				Initial:	16	Test Start:	
2	2	0.001056	150	Final:	15	SS Start:	
						Test Stop:	

time (min)	dt (min)	Res (cm)	dR (cm)	DTW (cm)	H (cm)	FLOW (cm^3)	Q (cm^3/m)	Q (cm^3/hr)	K (cm/hr)	K (in/hr)	L (ft/d)	LTAR (gpd/sf)
8:18	0	27.8	0	41	14	150.0						
8:19	1	27.3	0.5	40	15	150.0	75.000	4,500.0	4.752	1.871	3.74	2.799
8:20	1	26.88	0.42	40	15	150.0	63.000	3,780.0	3.992	1.572	3.14	2.351
8:21	1	26.3	0.58	40	15	150.0	87.000	5,220.0	5.512	2.170	4.34	3.247
8:22	1	25.8	0.5	40	15	150.0	75.000	4,500.0	4.752	1.871	3.74	2.799
											Ksat:	**2.799**

Average of all 10% Ksat values at this test pit

SAYERS RANCH

Bastrop, Tx 2025

TABLE NO. 3-D, Hydraulic Conductivity Results

Conditions: CLEAR

Site K2B

Soil notes: Bt1

Location		CM.	
Hole depth	42	water h	15
Reference	10	d	37
D	52	H1	37

Ameter config.	Valve On	A (cm^-2)	Conver. Factor	DTW (cm) Initial:	38	Time Test Start:	0:00
2	2	0.001056	150	Final:	37	SS Start:	0:00
						Test Stop:	0:00

time (min)	dt (min)	Res (cm)	dR (cm)	DTW (cm)	H (cm)	FLOW (cm^3)	Q (cm^3/m)	Q (cm^3/hr)	K (cm/hr)	K (in/hr)	L (ft/d)	LTAR (gpd/sf)
8:41	1	30.4		38	14	150.0						
8:42	1	28.9	1.5	37	15	150.0	225.000	13,500.0	14.256	5.613	11.23	8.397
8:43	1	27.8	1.1	37	15	150.0	165.000	9,900.0	10.454	4.116	8.23	6.158
8:44	1	26.7	1.1	37	15	150.0	165.000	9,900.0	10.454	4.116	8.23	6.158
8:45	1	25.6	1.1	37	15	150.0	165.000	9,900.0	10.454	4.116	8.23	6.158
											Ksat:	**6.718**

Average of all 10% Ksat values at this test pit

Site K2C

Soil notes: A

Location		CM.	
Hole depth	30	water h	15
Reference	10	d	25
D	40	H1	25

Ameter config.	Valve On	A (cm^-2)	Conver. Factor	DTW (cm) Initial:	26	Time Test Start:	
2	2	0.001056	150	Final:	25	SS Start:	
						Test Stop:	

time (min)	dt (min)	Res (cm)	dR (cm)	DTW (cm)	H (cm)	FLOW (cm^3)	Q (cm^3/m)	Q (cm^3/hr)	K (cm/hr)	K (in/hr)	L (ft/d)	LTAR (gpd/sf)
9:00	0	38.8	0	26	14	150.0						
9:02	2	38.5	0.3	25	15	150.0	22.500	1,350.0	1.426	0.561	1.12	0.840
9:04	2	38.0	0.5	25	15	150.0	37.500	2,250.0	2.376	0.935	1.87	1.400
9:06	2	37.5	0.5	25	15	150.0	37.500	2,250.0	2.376	0.935	1.87	1.400
9:08	2	37.0	0.5	25	15	150.0	37.500	2,250.0	2.376	0.935	1.87	1.400
											Ksat:	**1.260**

Average of all 10% Ksat values at this test pit

SAYERS RANCH

Bastrop, Tx 2025

TABLE NO. 3-E, Hydraulic Conductivity Results

Conditions: CLEAR

Site K2D

Soil notes: Bt

Location		CM.	
Hole depth	78	water h	15
Reference	12	d	75
D	90	H1	75

Ameter config.	Valve On	A (cm^-2)	Conver. Factor	DTW (cm)		Time	
				Initial:	76	Test Start:	0:00
2	2	0.001056	150	Final:	75	SS Start:	0:00
						Test Stop:	0:00

time (min)	dt (min)	Res (cm)	dR (cm)	DTW (cm)	H (cm)	FLOW (cm^3)	Q (cm^3/m)	Q (cm^3/hr)	K (cm/hr)	K (in/hr)	L (ft/d)	LTAR (gpd/sf)
9:34	1	26.6		76	14	150.0						
9:35	1	26.0	0.6	75	15	150.0	90.000	5,400.0	5.702	2.245	4.49	3.359
9:36	1	25.3	0.7	75	15	150.0	105.000	6,300.0	6.653	2.619	5.24	3.919
9:37	1	24.7	0.6	75	15	150.0	90.000	5,400.0	5.702	2.245	4.49	3.359
9:38	1	24.1	0.6	75	15	150.0	90.000	5,400.0	5.702	2.245	4.49	3.359
											Ksat:	**3.499**

Average of all 10% Ksat values at this test pit

Site K2E

Soil notes: C/B Test performed at the bottom of TP2, 156 cm bgs.

Location		CM.	
Hole depth	30	water h	15
Reference	10	d	25
D	40	H1	25

Ameter config.	Valve On	A (cm^-2)	Conver. Factor	DTW (cm)		Time	
				Initial:	26	Test Start:	
2	2	0.001056	150	Final:	25	SS Start:	
						Test Stop:	

time (min)	dt (min)	Res (cm)	dR (cm)	DTW (cm)	H (cm)	FLOW (cm^3)	Q (cm^3/m)	Q (cm^3/hr)	K (cm/hr)	K (in/hr)	L (ft/d)	LTAR (gpd/sf)
10:03	0	41.3	0	26	14	150.0						
10:04	1	40.7	0.6	25	15	150.0	90.000	5,400.0	5.702	2.245	4.49	3.359
10:05	1	40.0	0.7	25	15	150.0	105.000	6,300.0	6.653	2.619	5.24	3.919
10:06	1	39.5	0.5	25	15	150.0	75.000	4,500.0	4.752	1.871	3.74	2.799
10:07	1	38.8	0.7	25	15	150.0	105.000	6,300.0	6.653	2.619	5.24	3.919
											Ksat:	**3.499**

Average of all 10% Ksat values at this test pit

SAYERS RANCH

Bastrop, Tx 2025

TABLE NO. 3-F, Hydraulic Conductivity Results

Conditions: CLEAR

Site K2F

Soil notes: B Test performed at the bottom of TP2, 156 cm bgs.

Location		CM.	
Hole depth	80	water h	15
Reference	10	d	75
D	90	H1	75

Ameter config.	Valve On	A (cm^-2)	Conver. Factor	DTW (cm)		Time	
				Initial:	76	Test Start:	0:00
2	2	0.001056	150	Final:	75	SS Start:	0:00
						Test Stop:	0:00

time (min)	dt (min)	Res (cm)	dR (cm)	DTW (cm)	H (cm)	FLOW (cm^3)	Q (cm^3/m)	Q (cm^3/hr)	K (cm/hr)	K (in/hr)	L (ft/d)	LTAR (gpd/sf)
10:25	0	25.0		76	14	150.0						
10:27	2	24.4	0.6	75	15	150.0	45.000	2,700	2.851	1.123	2.25	1.679
10:29	2	24.3	0.1	75	15	150.0	7.500	450.0	0.475	0.187	0.37	0.280
10:31	2	24.2	0.1	75	15	150.0	7.500	450.0	0.475	0.187	0.37	0.280
10:33	2	24.1	0.1	75	15	150.0	7.500	450.0	0.475	0.187	0.37	0.280
											Ksat:	**0.630**

Average of all 10% Ksat values at this test pit

ATTACHMENT 12

SOIL ANALYSES

SOIL SAMPLE LABORATORY REPORT OF ANALYSIS
SAYERS RANCH WWTF
BASTROP COUNTY, TEXAS

	SAMPLE ID	TP-1 A	TP-1 B	TP-2 A	TP-2 B
	SOIL TYPE	AfC	AfC	AfE2	AfE2
	DEPTH (Inches)	0 to 12	12 to 24	0 to 14	14 to 36
ANALYTE					
Sodium Absorption Ratio (SAR)	**UNITS**				
Sodium (Na)	mg/L	25.9	23.4	4.97	2.61
Calcium (Ca)	mg/L	23.5	23.6	65.4	27.5
Magnesium (Mg)	mg/L	3.47	3.30	2.19	0.796
Potassium (K)	mg/L	6.66	7.32	3.20	2.72
SAR	None	1.32	1.20	1.65	0.134
Metals					
Calcium	mg/Kg	1,980	1,520	8,660	13,300
Magnesium	mg/Kg	197	143	163	140
Phosphorus	mg/Kg	10.0	12.4	4.15	3.99
Potassium	mg/Kg	148	127	256	216
Sodium	mg/Kg	61.8	43.1	<4.98	6.91
Sulfur	mg/Kg	15.1	11.9	12.8	10.5
General Chemistry					
Nitrogen, Kjeldahl	mg/Kg	927	336	364	763
Nitrate Nitrite as N	mg/Kg	1.38	0.159	<1.00	<0.100
Nitrite as N	mg/Kg	<0.980	<0.978	<0.977	<0.980
pH	SU	6.2	6.6	7.3	7.8
Temperature	Deg. C	20.2	20.2	20.2	20.2
Corrosivity	SU	6.2	6.6	7.3	7.8
Nitrate as N	mg/Kg	1.38	<1.00	<1.00	<1.00
Specific Conductance	umho/cm @ 25C	577	846	955	552
Nitrogen, Total	mg/Kg	928	336	364	763

Notes:

AfC - Edge fine sandy loam, 1 to 5 percent slopes
AfE2 -Edge fine sandy loam, 5 to 12 percent slopes, eroded
mg/L - milligram per Liter
mg/Kg - milligram per Kilogram
SU - Standard Unit
umho/cm @ 25C -micromhos per centimer at 25 degrees C
<0.980 - indicates analyte was analyzed but not detected at the noted reporting limit
pH, Temperature, and Corrosivity, - the holding time for these three analytes is 15 minutes; thus, the laboratory reported the results with the qualifier HF.

ALTO PICCO BASTROP LLC
SAYERS RANCH WWTP
BASTROP COUNTY, TEXAS

SOIL ANALYSIS

Attachment 12

ANALYTICAL REPORT

PREPARED FOR

Attn: Mr. Rane A. Wilson
reUse Engineering
4411 S. Interstate 35,
Suite 100
Georgetown, Texas 78626

Generated 6/16/2025 5:38:42 PM

JOB DESCRIPTION

Sayer's Ranch

JOB NUMBER

870-36865-1

Eurofins Dallas
9701 Harry Hines Blvd
Dallas TX 75220

See page two for job notes and contact information.

my EOL

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



Generated
6/16/2025 5:38:42 PM

Authorized for release by
Rebecca Galvan, Project Manager I
Rebecca.Galvan@et.eurofinsus.com
(361)289-2471

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Definitions/Glossary

Client: reUse Engineering
Project/Site: Sayer's Ranch

Job ID: 870-36865-1

Qualifiers

Metals

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
HF	Parameter with a holding time of 15 minutes. Test performed by laboratory at client's request. Sample was analyzed outside of hold time.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job Narrative
870-36865-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 6/5/2025 12:43 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 8.5°C.

Metals
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry
Method 351.2: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 860-241823 and 860-242059 and analytical batch 860-242354 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample ID: TP-1 A HDR

Lab Sample ID: 870-36865-1

Date Collected: 06/02/25 14:15

Matrix: Solid

Date Received: 06/05/25 12:43

Method: LA 29B SAR - Sodium Adsorption Ratio

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Na	25.9		0.500		mg/L		06/11/25 16:25	06/11/25 18:18	1
Ca	23.5		0.200		mg/L		06/11/25 16:25	06/11/25 18:18	1
Mg	3.47		0.400		mg/L		06/11/25 16:25	06/11/25 18:18	1
K	6.66		0.500		mg/L		06/11/25 16:25	06/11/25 18:18	1
Sodium Adsorption Ratio	1.32		0.100		NONE		06/11/25 16:25	06/12/25 15:01	1

Method: SW846 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	1980		98.5		mg/Kg		06/11/25 12:57	06/11/25 13:46	50
Magnesium	197		1.97		mg/Kg		06/11/25 12:57	06/11/25 13:38	1
Phosphorus	10.0		0.394		mg/Kg		06/11/25 12:57	06/11/25 13:38	1
Potassium	148		4.93		mg/Kg		06/11/25 12:57	06/11/25 13:38	1
Sodium	61.8		4.93		mg/Kg		06/11/25 12:57	06/11/25 13:38	1
Sulfur	15.1		0.985		mg/Kg		06/11/25 12:57	06/11/25 13:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl (EPA 351.2)	927		112		mg/Kg		06/12/25 14:02	06/13/25 12:07	14.286
Nitrate Nitrite as N (EPA 353.2)	1.38		0.100		mg/Kg		06/16/25 15:49	06/16/25 16:56	1
Nitrite as N (EPA 353.2)	<0.980	U	0.980		mg/Kg		06/16/25 14:00	06/16/25 15:25	1
pH (SW846 9045D)	6.2	HF			SU			06/12/25 17:43	1
Temperature (SW846 9045D)	20.2	HF			Deg. C			06/12/25 17:43	1
Corrosivity (SW846 9045D)	6.2	HF			SU			06/12/25 17:43	1
Nitrate as N (SM Nitrate by calc)	1.38		1.00		mg/Kg			06/16/25 16:08	1
Specific Conductance (SM 2510B)	577		30.0		umho/cm @ 25C			06/12/25 17:54	1
Nitrogen, Total (EPA Total Nitrogen)	928		0.200		mg/Kg			06/13/25 14:50	1

Client Sample ID: TP-1 B HDR

Lab Sample ID: 870-36865-2

Date Collected: 06/02/25 14:17

Matrix: Solid

Date Received: 06/05/25 12:43

Method: LA 29B SAR - Sodium Adsorption Ratio

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Na	23.4		0.500		mg/L		06/11/25 16:25	06/11/25 18:21	1
Ca	23.6		0.200		mg/L		06/11/25 16:25	06/11/25 18:21	1
Mg	3.30		0.400		mg/L		06/11/25 16:25	06/11/25 18:21	1
K	7.32		0.500		mg/L		06/11/25 16:25	06/11/25 18:21	1
Sodium Adsorption Ratio	1.20		0.100		NONE		06/11/25 16:25	06/12/25 15:01	1

Method: SW846 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	1520		1.93		mg/Kg		06/11/25 12:57	06/11/25 13:42	1
Magnesium	143		1.93		mg/Kg		06/11/25 12:57	06/11/25 13:42	1
Phosphorus	12.4		0.386		mg/Kg		06/11/25 12:57	06/11/25 13:42	1
Potassium	127		4.83		mg/Kg		06/11/25 12:57	06/11/25 13:42	1
Sodium	43.1		4.83		mg/Kg		06/11/25 12:57	06/11/25 13:42	1
Sulfur	11.9		0.966		mg/Kg		06/11/25 12:57	06/11/25 13:42	1

Client Sample ID: TP-1 B HDR

Lab Sample ID: 870-36865-2

Date Collected: 06/02/25 14:17

Matrix: Solid

Date Received: 06/05/25 12:43

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl (EPA 351.2)	336		38.5		mg/Kg		06/12/25 14:02	06/13/25 12:30	5
Nitrate Nitrite as N (EPA 353.2)	0.159		0.100		mg/Kg		06/16/25 15:49	06/16/25 16:20	1
Nitrite as N (EPA 353.2)	<0.978	U	0.978		mg/Kg		06/16/25 14:00	06/16/25 15:27	1
pH (SW846 9045D)	6.6	HF			SU			06/12/25 17:43	1
Temperature (SW846 9045D)	20.2	HF			Deg. C			06/12/25 17:43	1
Corrosivity (SW846 9045D)	6.6	HF			SU			06/12/25 17:43	1
Nitrate as N (SM Nitrate by calc)	<1.00	U	1.00		mg/Kg			06/16/25 16:08	1
Specific Conductance (SM 2510B)	846		30.0		umho/cm @ 25C			06/12/25 17:54	1
Nitrogen, Total (EPA Total Nitrogen)	336		0.200		mg/Kg			06/13/25 14:50	1

Client Sample ID: TP-2 A HDR

Lab Sample ID: 870-36865-3

Date Collected: 06/03/25 10:40

Matrix: Solid

Date Received: 06/05/25 12:43

Method: LA 29B SAR - Sodium Adsorption Ratio

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Na	4.97		0.500		mg/L		06/11/25 16:25	06/11/25 18:23	1
Ca	65.4		0.200		mg/L		06/11/25 16:25	06/11/25 18:23	1
Mg	2.19		0.400		mg/L		06/11/25 16:25	06/11/25 18:23	1
K	3.20		0.500		mg/L		06/11/25 16:25	06/11/25 18:23	1
Sodium Adsorption Ratio	0.165		0.100		NONE		06/11/25 16:25	06/12/25 15:01	1

Method: SW846 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	8660		99.5		mg/Kg		06/11/25 12:57	06/11/25 13:51	50
Magnesium	163		1.99		mg/Kg		06/11/25 12:57	06/11/25 13:44	1
Phosphorus	4.15		0.398		mg/Kg		06/11/25 12:57	06/11/25 13:44	1
Potassium	256		4.98		mg/Kg		06/11/25 12:57	06/11/25 13:44	1
Sodium	<4.98	U	4.98		mg/Kg		06/11/25 12:57	06/11/25 13:44	1
Sulfur	12.8		0.995		mg/Kg		06/11/25 12:57	06/11/25 13:44	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl (EPA 351.2)	364		39.2		mg/Kg		06/12/25 14:02	06/13/25 12:30	5
Nitrate Nitrite as N (EPA 353.2)	<0.100	U	0.100		mg/Kg		06/16/25 15:49	06/16/25 16:27	1
Nitrite as N (EPA 353.2)	<0.977	U	0.977		mg/Kg		06/16/25 14:00	06/16/25 15:28	1
pH (SW846 9045D)	7.3	HF			SU			06/12/25 17:43	1
Temperature (SW846 9045D)	20.2	HF			Deg. C			06/12/25 17:43	1
Corrosivity (SW846 9045D)	7.3	HF			SU			06/12/25 17:43	1
Nitrate as N (SM Nitrate by calc)	<1.00	U	1.00		mg/Kg			06/16/25 16:08	1
Specific Conductance (SM 2510B)	955		30.0		umho/cm @ 25C			06/12/25 17:54	1
Nitrogen, Total (EPA Total Nitrogen)	364		0.200		mg/Kg			06/13/25 14:50	1

Client: reUse Engineering
Project/Site: Sayer's Ranch

Job ID: 870-36865-1

Client Sample ID: TP-2 B HDR

Lab Sample ID: 870-36865-4

Date Collected: 06/03/25 10:42

Matrix: Solid

Date Received: 06/05/25 12:43

Method: LA 29B SAR - Sodium Adsorption Ratio

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Na	2.61		0.500		mg/L		06/11/25 16:25	06/11/25 18:35	1
Ca	27.5		0.200		mg/L		06/11/25 16:25	06/11/25 18:35	1
Mg	0.796		0.400		mg/L		06/11/25 16:25	06/11/25 18:35	1
K	2.72		0.500		mg/L		06/11/25 16:25	06/11/25 18:35	1
Sodium Adsorption Ratio	0.134		0.100		NONE		06/11/25 16:25	06/12/25 15:01	1

Method: SW846 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	13300		97.6		mg/Kg		06/11/25 12:57	06/11/25 13:59	50
Magnesium	140		1.95		mg/Kg		06/11/25 12:57	06/11/25 13:57	1
Phosphorus	3.99		0.390		mg/Kg		06/11/25 12:57	06/11/25 13:57	1
Potassium	216		4.88		mg/Kg		06/11/25 12:57	06/11/25 13:57	1
Sodium	6.91		4.88		mg/Kg		06/11/25 12:57	06/11/25 13:57	1
Sulfur	10.5		0.976		mg/Kg		06/11/25 12:57	06/11/25 13:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl (EPA 351.2)	763		85.5		mg/Kg		06/12/25 14:02	06/13/25 12:31	11.111
Nitrate Nitrite as N (EPA 353.2)	<0.100	U	0.100		mg/Kg		06/16/25 15:49	06/16/25 16:29	1
Nitrite as N (EPA 353.2)	<0.980	U	0.980		mg/Kg		06/16/25 14:00	06/16/25 15:29	1
pH (SW846 9045D)	7.8	HF			SU			06/12/25 17:43	1
Temperature (SW846 9045D)	20.2	HF			Deg. C			06/12/25 17:43	1
Corrosivity (SW846 9045D)	7.8	HF			SU			06/12/25 17:43	1
Nitrate as N (SM Nitrate by calc)	<1.00	U	1.00		mg/Kg			06/16/25 16:08	1
Specific Conductance (SM 2510B)	552		30.0		umho/cm @ 25C			06/12/25 17:54	1
Nitrogen, Total (EPA Total Nitrogen)	763		0.200		mg/Kg			06/13/25 14:50	1

Method: 29B SAR - Sodium Adsorption Ratio

Lab Sample ID: 870-36865-1 DU
Matrix: Solid
Analysis Batch: 242080

Client Sample ID: TP-1 A HDR
Prep Type: Total/NA
Prep Batch: 241833

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Na	25.9		26.20		mg/L		1	
Ca	23.5		25.00		mg/L		6	
Mg	3.47		3.680		mg/L		6	
K	6.66		6.770		mg/L		2	

Lab Sample ID: MB 860-241833/1-A
Matrix: Solid
Analysis Batch: 242080

Client Sample ID: Method Blank
Prep Type: Soluble
Prep Batch: 241833

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Na	<0.500	U	0.500		mg/L		06/11/25 16:25	06/11/25 18:16	1
Ca	<0.200	U	0.200		mg/L		06/11/25 16:25	06/11/25 18:16	1
Mg	<0.400	U	0.400		mg/L		06/11/25 16:25	06/11/25 18:16	1
K	<0.500	U	0.500		mg/L		06/11/25 16:25	06/11/25 18:16	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 860-241770/1-A
Matrix: Solid
Analysis Batch: 242079

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 241770

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	<2.00	U	2.00		mg/Kg		06/11/25 12:56	06/11/25 13:36	1
Magnesium	<2.00	U	2.00		mg/Kg		06/11/25 12:56	06/11/25 13:36	1
Phosphorus	<0.400	U	0.400		mg/Kg		06/11/25 12:56	06/11/25 13:36	1
Potassium	<5.00	U	5.00		mg/Kg		06/11/25 12:56	06/11/25 13:36	1
Sodium	<5.00	U	5.00		mg/Kg		06/11/25 12:56	06/11/25 13:36	1
Sulfur	<1.00	U	1.00		mg/Kg		06/11/25 12:56	06/11/25 13:36	1

Lab Sample ID: 870-36865-1 DU
Matrix: Solid
Analysis Batch: 242079

Client Sample ID: TP-1 A HDR
Prep Type: Total/NA
Prep Batch: 241770

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Magnesium	197		200.0		mg/Kg		1	20
Phosphorus	10.0		12.87		mg/Kg		25	25
Potassium	148		149.5		mg/Kg		1	20
Sodium	61.8		59.70		mg/Kg		3	20
Sulfur	15.1		14.46		mg/Kg		4	20

Lab Sample ID: 870-36865-1 DU
Matrix: Solid
Analysis Batch: 242079

Client Sample ID: TP-1 A HDR
Prep Type: Total/NA
Prep Batch: 241770

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Calcium	1980		1985		mg/Kg		0.5	20
Magnesium	229		232.2		mg/Kg		1	20
Phosphorus	<19.7	U	<19.8	U	mg/Kg		NC	25
Potassium	<246	U	<248	U	mg/Kg		NC	20
Sodium	<246	U	<248	U	mg/Kg		NC	20

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 870-36865-1 DU — **Client Sample ID: TP-1 A HDR**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 242079 — **Prep Batch: 241770**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfur	<49.3	U	<49.5	U	mg/Kg		NC	20

Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: MB 860-242059/26-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 242354 — **Prep Batch: 242059**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	<7.84	U	7.84		mg/Kg		06/12/25 14:01	06/13/25 11:46	1

Lab Sample ID: MB 860-242059/4-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 242354 — **Prep Batch: 242059**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	<0.200	U	0.200		mg/Kg		06/12/25 14:01	06/13/25 11:35	1

Lab Sample ID: LCS 860-242059/27-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 242354 — **Prep Batch: 242059**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Kjeldahl	76.9	75.24		mg/Kg		98	90 - 110

Lab Sample ID: LCS 860-242059/6-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 242354 — **Prep Batch: 242059**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Kjeldahl	2.00	1.938		mg/Kg		97	90 - 110

Lab Sample ID: LCSD 860-242059/28-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 242354 — **Prep Batch: 242059**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrogen, Kjeldahl	74.1	70.91		mg/Kg		96	90 - 110	6	20

Lab Sample ID: LCSD 860-242059/7-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 242354 — **Prep Batch: 242059**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrogen, Kjeldahl	2.00	1.963		mg/Kg		98	90 - 110	1	20

Method: 351.2 - Nitrogen, Total Kjeldahl (Continued)

Lab Sample ID: 870-36865-1 MS — **Client Sample ID: TP-1 A HDR**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 242354 — **Prep Batch: 242059**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Kjeldahl	927		72.7	847.2	4	mg/Kg		-109	90 - 110

Lab Sample ID: 870-36865-1 MSD — **Client Sample ID: TP-1 A HDR**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 242354 — **Prep Batch: 242059**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrogen, Kjeldahl	927		75.5	855.0	4	mg/Kg		-95	90 - 110	1	20

Method: 353.2 - Nitrogen, Nitrite

Lab Sample ID: MB 860-242776/9 — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 242776

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	<0.100	U	0.100		mg/Kg			06/16/25 15:22	1

Lab Sample ID: LCS 860-242776/10 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 242776

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrite as N	1.00	0.9752		mg/Kg		98	90 - 110

Lab Sample ID: LCSD 860-242776/11 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 242776

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrite as N	1.00	0.9627		mg/Kg		96	90 - 110	1	20

Lab Sample ID: 870-36865-1 MS — **Client Sample ID: TP-1 A HDR**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 242776 — **Prep Batch: 242783**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrite as N	<0.980	U	9.80	9.332		mg/Kg		95	90 - 110

Lab Sample ID: 870-36865-1 MSD — **Client Sample ID: TP-1 A HDR**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 242776 — **Prep Batch: 242783**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrite as N	<0.980	U	9.80	9.539		mg/Kg		97	90 - 110	2	20

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: 870-36865-2 MS
Matrix: Solid
Analysis Batch: 242818

Client Sample ID: TP-1 B HDR
Prep Type: Total/NA
Prep Batch: 242781

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate Nitrite as N	0.159		1.00	1.130		mg/Kg		97	90 - 110

Lab Sample ID: 870-36865-2 MSD
Matrix: Solid
Analysis Batch: 242818

Client Sample ID: TP-1 B HDR
Prep Type: Total/NA
Prep Batch: 242781

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrate Nitrite as N	0.159		1.00	1.158		mg/Kg		100	90 - 110	2	20

Lab Sample ID: MB 860-242818/3
Matrix: Solid
Analysis Batch: 242818

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	<0.100	U	0.100		mg/Kg			06/16/25 16:15	1

Lab Sample ID: LCS 860-242818/4
Matrix: Solid
Analysis Batch: 242818

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate Nitrite as N	1.00	1.023		mg/Kg		102	90 - 110

Lab Sample ID: LCSD 860-242818/5
Matrix: Solid
Analysis Batch: 242818

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrate Nitrite as N	1.00	1.052		mg/Kg		105	90 - 110	3	20

Method: 9045D - pH

Lab Sample ID: 870-36865-1 DU
Matrix: Solid
Analysis Batch: 242149

Client Sample ID: TP-1 A HDR
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	6.2	HF	6.2		SU		0.2	20
Temperature	20.2	HF	20.2		Deg. C		0	25
Corrosivity	6.2	HF	6.2		SU		0.2	20

Method: SM 2510B - Conductivity, Specific Conductance

Lab Sample ID: MB 860-242153/2
Matrix: Solid
Analysis Batch: 242153

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	<10.0	U	10.0		umho/cm @ 25C			06/12/25 17:54	1

Method: SM 2510B - Conductivity, Specific Conductance (Continued)

Lab Sample ID: 870-36865-1 DU
Matrix: Solid
Analysis Batch: 242153

Client Sample ID: TP-1 A HDR
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Specific Conductance	577			565.8		umho/cm @ 25C				2	20

Metals

Prep Batch: 241770

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	MEHL Prep	
870-36865-2	TP-1 B HDR	Total/NA	Solid	MEHL Prep	
870-36865-3	TP-2 A HDR	Total/NA	Solid	MEHL Prep	
870-36865-4	TP-2 B HDR	Total/NA	Solid	MEHL Prep	
MB 860-241770/1-A	Method Blank	Total/NA	Solid	MEHL Prep	
870-36865-1 DU	TP-1 A HDR	Total/NA	Solid	MEHL Prep	

Prep Batch: 241820

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	29B	
870-36865-2	TP-1 B HDR	Total/NA	Solid	29B	
870-36865-3	TP-2 A HDR	Total/NA	Solid	29B	
870-36865-4	TP-2 B HDR	Total/NA	Solid	29B	
870-36865-1 DU	TP-1 A HDR	Total/NA	Solid	29B	

Prep Batch: 241833

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	29B	241820
870-36865-2	TP-1 B HDR	Total/NA	Solid	29B	241820
870-36865-3	TP-2 A HDR	Total/NA	Solid	29B	241820
870-36865-4	TP-2 B HDR	Total/NA	Solid	29B	241820
MB 860-241833/1-A	Method Blank	Soluble	Solid	29B	
870-36865-1 DU	TP-1 A HDR	Total/NA	Solid	29B	241820

Analysis Batch: 242079

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	6010C	241770
870-36865-1	TP-1 A HDR	Total/NA	Solid	6010C	241770
870-36865-2	TP-1 B HDR	Total/NA	Solid	6010C	241770
870-36865-3	TP-2 A HDR	Total/NA	Solid	6010C	241770
870-36865-3	TP-2 A HDR	Total/NA	Solid	6010C	241770
870-36865-4	TP-2 B HDR	Total/NA	Solid	6010C	241770
870-36865-4	TP-2 B HDR	Total/NA	Solid	6010C	241770
MB 860-241770/1-A	Method Blank	Total/NA	Solid	6010C	241770
870-36865-1 DU	TP-1 A HDR	Total/NA	Solid	6010C	241770
870-36865-1 DU	TP-1 A HDR	Total/NA	Solid	6010C	241770

Analysis Batch: 242080

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	29B SAR	241833
870-36865-2	TP-1 B HDR	Total/NA	Solid	29B SAR	241833
870-36865-3	TP-2 A HDR	Total/NA	Solid	29B SAR	241833
870-36865-4	TP-2 B HDR	Total/NA	Solid	29B SAR	241833
MB 860-241833/1-A	Method Blank	Soluble	Solid	29B SAR	241833
870-36865-1 DU	TP-1 A HDR	Total/NA	Solid	29B SAR	241833

Analysis Batch: 242085

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	29B SAR	241833
870-36865-2	TP-1 B HDR	Total/NA	Solid	29B SAR	241833
870-36865-3	TP-2 A HDR	Total/NA	Solid	29B SAR	241833

Metals (Continued)

Analysis Batch: 242085 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-4	TP-2 B HDR	Total/NA	Solid	29B SAR	241833

General Chemistry

Leach Batch: 241230

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	Dry and Grind	
870-36865-2	TP-1 B HDR	Total/NA	Solid	Dry and Grind	
870-36865-3	TP-2 A HDR	Total/NA	Solid	Dry and Grind	
870-36865-4	TP-2 B HDR	Total/NA	Solid	Dry and Grind	
870-36865-1 DU	TP-1 A HDR	Total/NA	Solid	Dry and Grind	

Leach Batch: 241557

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	DI Leach	241230
870-36865-2	TP-1 B HDR	Total/NA	Solid	DI Leach	241230
870-36865-3	TP-2 A HDR	Total/NA	Solid	DI Leach	241230
870-36865-4	TP-2 B HDR	Total/NA	Solid	DI Leach	241230
870-36865-1 DU	TP-1 A HDR	Total/NA	Solid	DI Leach	241230

Leach Batch: 241558

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	DI Leach	241230
870-36865-2	TP-1 B HDR	Total/NA	Solid	DI Leach	241230
870-36865-3	TP-2 A HDR	Total/NA	Solid	DI Leach	241230
870-36865-4	TP-2 B HDR	Total/NA	Solid	DI Leach	241230
870-36865-1 DU	TP-1 A HDR	Total/NA	Solid	DI Leach	241230

Leach Batch: 241823

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	Dry and Grind	
870-36865-2	TP-1 B HDR	Total/NA	Solid	Dry and Grind	
870-36865-3	TP-2 A HDR	Total/NA	Solid	Dry and Grind	
870-36865-4	TP-2 B HDR	Total/NA	Solid	Dry and Grind	
870-36865-1 MS	TP-1 A HDR	Total/NA	Solid	Dry and Grind	
870-36865-1 MSD	TP-1 A HDR	Total/NA	Solid	Dry and Grind	

Prep Batch: 242059

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	351.2	241823
870-36865-2	TP-1 B HDR	Total/NA	Solid	351.2	241823
870-36865-3	TP-2 A HDR	Total/NA	Solid	351.2	241823
870-36865-4	TP-2 B HDR	Total/NA	Solid	351.2	241823
MB 860-242059/26-A	Method Blank	Total/NA	Solid	351.2	
MB 860-242059/4-A	Method Blank	Total/NA	Solid	351.2	
LCS 860-242059/27-A	Lab Control Sample	Total/NA	Solid	351.2	
LCS 860-242059/6-A	Lab Control Sample	Total/NA	Solid	351.2	
LCSD 860-242059/28-A	Lab Control Sample Dup	Total/NA	Solid	351.2	
LCSD 860-242059/7-A	Lab Control Sample Dup	Total/NA	Solid	351.2	
870-36865-1 MS	TP-1 A HDR	Total/NA	Solid	351.2	241823
870-36865-1 MSD	TP-1 A HDR	Total/NA	Solid	351.2	241823

General Chemistry

Analysis Batch: 242149

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	9045D	241557
870-36865-2	TP-1 B HDR	Total/NA	Solid	9045D	241557
870-36865-3	TP-2 A HDR	Total/NA	Solid	9045D	241557
870-36865-4	TP-2 B HDR	Total/NA	Solid	9045D	241557
870-36865-1 DU	TP-1 A HDR	Total/NA	Solid	9045D	241557

Analysis Batch: 242153

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	SM 2510B	241558
870-36865-2	TP-1 B HDR	Total/NA	Solid	SM 2510B	241558
870-36865-3	TP-2 A HDR	Total/NA	Solid	SM 2510B	241558
870-36865-4	TP-2 B HDR	Total/NA	Solid	SM 2510B	241558
MB 860-242153/2	Method Blank	Total/NA	Solid	SM 2510B	
LCS 860-242153/3	Lab Control Sample	Total/NA	Solid	SM 2510B	
LCSD 860-242153/4	Lab Control Sample Dup	Total/NA	Solid	SM 2510B	
870-36865-1 DU	TP-1 A HDR	Total/NA	Solid	SM 2510B	241558

Analysis Batch: 242354

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	351.2	242059
870-36865-2	TP-1 B HDR	Total/NA	Solid	351.2	242059
870-36865-3	TP-2 A HDR	Total/NA	Solid	351.2	242059
870-36865-4	TP-2 B HDR	Total/NA	Solid	351.2	242059
MB 860-242059/26-A	Method Blank	Total/NA	Solid	351.2	242059
MB 860-242059/4-A	Method Blank	Total/NA	Solid	351.2	242059
LCS 860-242059/27-A	Lab Control Sample	Total/NA	Solid	351.2	242059
LCS 860-242059/6-A	Lab Control Sample	Total/NA	Solid	351.2	242059
LCSD 860-242059/28-A	Lab Control Sample Dup	Total/NA	Solid	351.2	242059
LCSD 860-242059/7-A	Lab Control Sample Dup	Total/NA	Solid	351.2	242059
870-36865-1 MS	TP-1 A HDR	Total/NA	Solid	351.2	242059
870-36865-1 MSD	TP-1 A HDR	Total/NA	Solid	351.2	242059

Analysis Batch: 242369

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	Total Nitrogen	
870-36865-2	TP-1 B HDR	Total/NA	Solid	Total Nitrogen	
870-36865-3	TP-2 A HDR	Total/NA	Solid	Total Nitrogen	
870-36865-4	TP-2 B HDR	Total/NA	Solid	Total Nitrogen	

Leach Batch: 242519

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	Dry and Grind	
870-36865-2	TP-1 B HDR	Total/NA	Solid	Dry and Grind	
870-36865-3	TP-2 A HDR	Total/NA	Solid	Dry and Grind	
870-36865-4	TP-2 B HDR	Total/NA	Solid	Dry and Grind	
870-36865-1 MS	TP-1 A HDR	Total/NA	Solid	Dry and Grind	
870-36865-1 MSD	TP-1 A HDR	Total/NA	Solid	Dry and Grind	
870-36865-2 MS	TP-1 B HDR	Total/NA	Solid	Dry and Grind	
870-36865-2 MSD	TP-1 B HDR	Total/NA	Solid	Dry and Grind	

General Chemistry

Analysis Batch: 242776

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	353.2	242783
870-36865-2	TP-1 B HDR	Total/NA	Solid	353.2	242783
870-36865-3	TP-2 A HDR	Total/NA	Solid	353.2	242783
870-36865-4	TP-2 B HDR	Total/NA	Solid	353.2	242783
MB 860-242776/9	Method Blank	Total/NA	Solid	353.2	
LCS 860-242776/10	Lab Control Sample	Total/NA	Solid	353.2	
LCSD 860-242776/11	Lab Control Sample Dup	Total/NA	Solid	353.2	
870-36865-1 MS	TP-1 A HDR	Total/NA	Solid	353.2	242783
870-36865-1 MSD	TP-1 A HDR	Total/NA	Solid	353.2	242783

Prep Batch: 242781

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	KCl Extract	242519
870-36865-2	TP-1 B HDR	Total/NA	Solid	KCl Extract	242519
870-36865-3	TP-2 A HDR	Total/NA	Solid	KCl Extract	242519
870-36865-4	TP-2 B HDR	Total/NA	Solid	KCl Extract	242519
870-36865-2 MS	TP-1 B HDR	Total/NA	Solid	KCl Extract	242519
870-36865-2 MSD	TP-1 B HDR	Total/NA	Solid	KCl Extract	242519

Prep Batch: 242783

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	KCl Extract	242519
870-36865-2	TP-1 B HDR	Total/NA	Solid	KCl Extract	242519
870-36865-3	TP-2 A HDR	Total/NA	Solid	KCl Extract	242519
870-36865-4	TP-2 B HDR	Total/NA	Solid	KCl Extract	242519
870-36865-1 MS	TP-1 A HDR	Total/NA	Solid	KCl Extract	242519
870-36865-1 MSD	TP-1 A HDR	Total/NA	Solid	KCl Extract	242519

Analysis Batch: 242793

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	Nitrate by calc	
870-36865-2	TP-1 B HDR	Total/NA	Solid	Nitrate by calc	
870-36865-3	TP-2 A HDR	Total/NA	Solid	Nitrate by calc	
870-36865-4	TP-2 B HDR	Total/NA	Solid	Nitrate by calc	

Analysis Batch: 242818

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-36865-1	TP-1 A HDR	Total/NA	Solid	353.2	242781
870-36865-2	TP-1 B HDR	Total/NA	Solid	353.2	242781
870-36865-3	TP-2 A HDR	Total/NA	Solid	353.2	242781
870-36865-4	TP-2 B HDR	Total/NA	Solid	353.2	242781
MB 860-242818/3	Method Blank	Total/NA	Solid	353.2	
LCS 860-242818/4	Lab Control Sample	Total/NA	Solid	353.2	
LCSD 860-242818/5	Lab Control Sample Dup	Total/NA	Solid	353.2	
870-36865-2 MS	TP-1 B HDR	Total/NA	Solid	353.2	242781
870-36865-2 MSD	TP-1 B HDR	Total/NA	Solid	353.2	242781

Client Sample ID: TP-1 A HDR

Lab Sample ID: 870-36865-1

Date Collected: 06/02/25 14:15

Matrix: Solid

Date Received: 06/05/25 12:43

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	29B			76.7 g	68.16 g	241820	06/11/25 15:49	PB	EET HOU
Total/NA	Prep	29B			30 g	30 mL	241833	06/11/25 16:25	PB	EET HOU
Total/NA	Analysis	29B SAR		1			242080	06/11/25 18:18	JDM	EET HOU
Total/NA	Prep	29B			76.7 g	68.16 g	241820	06/11/25 15:49	PB	EET HOU
Total/NA	Prep	29B			30 g	30 mL	241833	06/11/25 16:25	PB	EET HOU
Total/NA	Analysis	29B SAR		1			242085	06/12/25 15:01	JDM	EET HOU
Total/NA	Prep	MEHL Prep			2.03 g	20 mL	241770	06/11/25 12:57	PB	EET HOU
Total/NA	Analysis	6010C		1			242079	06/11/25 13:38	JDM	EET HOU
Total/NA	Prep	MEHL Prep			2.03 g	20 mL	241770	06/11/25 12:57	PB	EET HOU
Total/NA	Analysis	6010C		50			242079	06/11/25 13:46	JDM	EET HOU
Total/NA	Leach	Dry and Grind			1.0 g	1.0 g	241823	06/11/25 15:52	JC	EET HOU
Total/NA	Prep	351.2			0.51 g	20 mL	242059	06/12/25 14:02	CT	EET HOU
Total/NA	Analysis	351.2		14.286			242354	06/13/25 12:07	MLEI	EET HOU
Total/NA	Leach	Dry and Grind			1.0 g	1.0 g	242519	06/14/25 15:56	MLEI	EET HOU
Total/NA	Prep	KCl Extract			5.10 g	50 mL	242783	06/16/25 14:00	ALL	EET HOU
Total/NA	Analysis	353.2		1	10 mL	10 mL	242776	06/16/25 15:25	ALL	EET HOU
Total/NA	Leach	Dry and Grind			1.0 g	1.0 g	242519	06/14/25 15:56	MLEI	EET HOU
Total/NA	Prep	KCl Extract			5.10 g	5.10 g	242781	06/16/25 15:49	ALL	EET HOU
Total/NA	Analysis	353.2		1	10 mL	10 mL	242818	06/16/25 16:56	ALL	EET HOU
Total/NA	Leach	Dry and Grind			86.49 g	1.0 g	241230	06/09/25 16:51	CT	EET HOU
Total/NA	Leach	DI Leach			15 g	45 mL	241557	06/10/25 17:31	CT	EET HOU
Total/NA	Analysis	9045D		1	15 g	45 mL	242149	06/12/25 17:43	CT	EET HOU
Total/NA	Analysis	Nitrate by calc		1			242793	06/16/25 16:08	MC	EET HOU
Total/NA	Leach	Dry and Grind			86.49 g	1.0 g	241230	06/09/25 16:51	CT	EET HOU
Total/NA	Leach	DI Leach			15 g	45 mL	241558	06/10/25 17:33	CT	EET HOU
Total/NA	Analysis	SM 2510B		1			242153	06/12/25 17:54	CT	EET HOU
Total/NA	Analysis	Total Nitrogen		1			242369	06/13/25 14:50	RJD	EET HOU

Client Sample ID: TP-1 B HDR

Lab Sample ID: 870-36865-2

Date Collected: 06/02/25 14:17

Matrix: Solid

Date Received: 06/05/25 12:43

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	29B			68.58 g	64.72 g	241820	06/11/25 15:49	PB	EET HOU
Total/NA	Prep	29B			30 g	30 mL	241833	06/11/25 16:25	PB	EET HOU
Total/NA	Analysis	29B SAR		1			242080	06/11/25 18:21	JDM	EET HOU
Total/NA	Prep	29B			68.58 g	64.72 g	241820	06/11/25 15:49	PB	EET HOU
Total/NA	Prep	29B			30 g	30 mL	241833	06/11/25 16:25	PB	EET HOU
Total/NA	Analysis	29B SAR		1			242085	06/12/25 15:01	JDM	EET HOU
Total/NA	Prep	MEHL Prep			2.07 g	20 mL	241770	06/11/25 12:57	PB	EET HOU
Total/NA	Analysis	6010C		1			242079	06/11/25 13:42	JDM	EET HOU
Total/NA	Leach	Dry and Grind			1.0 g	1.0 g	241823	06/11/25 15:52	JC	EET HOU
Total/NA	Prep	351.2			0.52 g	20 mL	242059	06/12/25 14:02	CT	EET HOU
Total/NA	Analysis	351.2		5			242354	06/13/25 12:30	MLEI	EET HOU

Client Sample ID: TP-1 B HDR

Lab Sample ID: 870-36865-2

Date Collected: 06/02/25 14:17

Matrix: Solid

Date Received: 06/05/25 12:43

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Leach	Dry and Grind			1.0 g	1.0 g	242519	06/14/25 15:56	MLEI	EET HOU
Total/NA	Prep	KCl Extract			5.11 g	50 mL	242783	06/16/25 14:00	ALL	EET HOU
Total/NA	Analysis	353.2		1	10 mL	10 mL	242776	06/16/25 15:27	ALL	EET HOU
Total/NA	Leach	Dry and Grind			1.0 g	1.0 g	242519	06/14/25 15:56	MLEI	EET HOU
Total/NA	Prep	KCl Extract			5.11 g	5.11 g	242781	06/16/25 15:49	ALL	EET HOU
Total/NA	Analysis	353.2		1	10 mL	10 mL	242818	06/16/25 16:20	ALL	EET HOU
Total/NA	Leach	Dry and Grind			81.69 g	1.0 g	241230	06/09/25 16:51	CT	EET HOU
Total/NA	Leach	DI Leach			15 g	45 mL	241557	06/10/25 17:31	CT	EET HOU
Total/NA	Analysis	9045D		1	15 g	45 mL	242149	06/12/25 17:43	CT	EET HOU
Total/NA	Analysis	Nitrate by calc		1			242793	06/16/25 16:08	MC	EET HOU
Total/NA	Leach	Dry and Grind			81.69 g	1.0 g	241230	06/09/25 16:51	CT	EET HOU
Total/NA	Leach	DI Leach			15 g	45 mL	241558	06/10/25 17:33	CT	EET HOU
Total/NA	Analysis	SM 2510B		1			242153	06/12/25 17:54	CT	EET HOU
Total/NA	Analysis	Total Nitrogen		1			242369	06/13/25 14:50	RJD	EET HOU

Client Sample ID: TP-2 A HDR

Lab Sample ID: 870-36865-3

Date Collected: 06/03/25 10:40

Matrix: Solid

Date Received: 06/05/25 12:43

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	29B			62.12 g	59.41 g	241820	06/11/25 15:49	PB	EET HOU
Total/NA	Prep	29B			30 g	30 mL	241833	06/11/25 16:25	PB	EET HOU
Total/NA	Analysis	29B SAR		1			242080	06/11/25 18:23	JDM	EET HOU
Total/NA	Prep	29B			62.12 g	59.41 g	241820	06/11/25 15:49	PB	EET HOU
Total/NA	Prep	29B			30 g	30 mL	241833	06/11/25 16:25	PB	EET HOU
Total/NA	Analysis	29B SAR		1			242085	06/12/25 15:01	JDM	EET HOU
Total/NA	Prep	MEHL Prep			2.01 g	20 mL	241770	06/11/25 12:57	PB	EET HOU
Total/NA	Analysis	6010C		1			242079	06/11/25 13:44	JDM	EET HOU
Total/NA	Prep	MEHL Prep			2.01 g	20 mL	241770	06/11/25 12:57	PB	EET HOU
Total/NA	Analysis	6010C		50			242079	06/11/25 13:51	JDM	EET HOU
Total/NA	Leach	Dry and Grind			1.0 g	1.0 g	241823	06/11/25 15:52	JC	EET HOU
Total/NA	Prep	351.2			0.51 g	20 mL	242059	06/12/25 14:02	CT	EET HOU
Total/NA	Analysis	351.2		5			242354	06/13/25 12:30	MLEI	EET HOU
Total/NA	Leach	Dry and Grind			1.0 g	1.0 g	242519	06/14/25 15:56	MLEI	EET HOU
Total/NA	Prep	KCl Extract			5.12 g	50 mL	242783	06/16/25 14:00	ALL	EET HOU
Total/NA	Analysis	353.2		1	10 mL	10 mL	242776	06/16/25 15:28	ALL	EET HOU
Total/NA	Leach	Dry and Grind			1.0 g	1.0 g	242519	06/14/25 15:56	MLEI	EET HOU
Total/NA	Prep	KCl Extract			5.12 g	5.12 g	242781	06/16/25 15:49	ALL	EET HOU
Total/NA	Analysis	353.2		1	10 mL	10 mL	242818	06/16/25 16:27	ALL	EET HOU
Total/NA	Leach	Dry and Grind			110.48 g	1.0 g	241230	06/09/25 16:51	CT	EET HOU
Total/NA	Leach	DI Leach			15 g	45 mL	241557	06/10/25 17:31	CT	EET HOU
Total/NA	Analysis	9045D		1	15 g	45 mL	242149	06/12/25 17:43	CT	EET HOU
Total/NA	Analysis	Nitrate by calc		1			242793	06/16/25 16:08	MC	EET HOU

Lab Chronicle

Client: reUse Engineering
Project/Site: Sayer's Ranch

Job ID: 870-36865-1

Client Sample ID: TP-2 A HDR

Lab Sample ID: 870-36865-3

Date Collected: 06/03/25 10:40
Matrix: Solid
Date Received: 06/05/25 12:43

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Leach	Dry and Grind			110.48 g	1.0 g	241230	06/09/25 16:51	CT	EET HOU
Total/NA	Leach	DI Leach			15 g	45 mL	241558	06/10/25 17:33	CT	EET HOU
Total/NA	Analysis	SM 2510B		1			242153	06/12/25 17:54	CT	EET HOU
Total/NA	Analysis	Total Nitrogen		1			242369	06/13/25 14:50	RJD	EET HOU

Client Sample ID: TP-2 B HDR

Lab Sample ID: 870-36865-4

Date Collected: 06/03/25 10:42
Matrix: Solid
Date Received: 06/05/25 12:43

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	29B			98.34 g	92.34 g	241820	06/11/25 15:49	PB	EET HOU
Total/NA	Prep	29B			30 g	30 mL	241833	06/11/25 16:25	PB	EET HOU
Total/NA	Analysis	29B SAR		1			242080	06/11/25 18:35	JDM	EET HOU
Total/NA	Prep	29B			98.34 g	92.34 g	241820	06/11/25 15:49	PB	EET HOU
Total/NA	Prep	29B			30 g	30 mL	241833	06/11/25 16:25	PB	EET HOU
Total/NA	Analysis	29B SAR		1			242085	06/12/25 15:01	JDM	EET HOU
Total/NA	Prep	MEHL Prep			2.05 g	20 mL	241770	06/11/25 12:57	PB	EET HOU
Total/NA	Analysis	6010C		1			242079	06/11/25 13:57	JDM	EET HOU
Total/NA	Prep	MEHL Prep			2.05 g	20 mL	241770	06/11/25 12:57	PB	EET HOU
Total/NA	Analysis	6010C		50			242079	06/11/25 13:59	JDM	EET HOU
Total/NA	Leach	Dry and Grind			1.0 g	1.0 g	241823	06/11/25 15:52	JC	EET HOU
Total/NA	Prep	351.2			0.52 g	20 mL	242059	06/12/25 14:02	CT	EET HOU
Total/NA	Analysis	351.2		11.111			242354	06/13/25 12:31	MLEI	EET HOU
Total/NA	Leach	Dry and Grind			1.0 g	1.0 g	242519	06/14/25 15:56	MLEI	EET HOU
Total/NA	Prep	KCl Extract			5.10 g	50 mL	242783	06/16/25 14:00	ALL	EET HOU
Total/NA	Analysis	353.2		1	10 mL	10 mL	242776	06/16/25 15:29	ALL	EET HOU
Total/NA	Leach	Dry and Grind			1.0 g	1.0 g	242519	06/14/25 15:56	MLEI	EET HOU
Total/NA	Prep	KCl Extract			5.10 g	5.10 g	242781	06/16/25 15:49	ALL	EET HOU
Total/NA	Analysis	353.2		1	10 mL	10 mL	242818	06/16/25 16:29	ALL	EET HOU
Total/NA	Leach	Dry and Grind			93.82 g	1.0 g	241230	06/09/25 16:51	CT	EET HOU
Total/NA	Leach	DI Leach			15 g	45 mL	241557	06/10/25 17:31	CT	EET HOU
Total/NA	Analysis	9045D		1	15 g	45 mL	242149	06/12/25 17:43	CT	EET HOU
Total/NA	Analysis	Nitrate by calc		1			242793	06/16/25 16:08	MC	EET HOU
Total/NA	Leach	Dry and Grind			93.82 g	1.0 g	241230	06/09/25 16:51	CT	EET HOU
Total/NA	Leach	DI Leach			15 g	45 mL	241558	06/10/25 17:33	CT	EET HOU
Total/NA	Analysis	SM 2510B		1			242153	06/12/25 17:54	CT	EET HOU
Total/NA	Analysis	Total Nitrogen		1			242369	06/13/25 14:50	RJD	EET HOU

Laboratory References:

EET HOU = Eurofins Houston, 4145 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200

Accreditation/Certification Summary

Client: reUse Engineering
Project/Site: Sayer's Ranch

Job ID: 870-36865-1

Laboratory: Eurofins Houston

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704215	06-30-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
29B SAR	29B	Solid	Ca
29B SAR	29B	Solid	K
29B SAR	29B	Solid	Mg
29B SAR	29B	Solid	Na
29B SAR	29B	Solid	Sodium Adsorption Ratio
351.2	351.2	Solid	Nitrogen, Kjeldahl
6010C	MEHL Prep	Solid	Sulfur
9045D		Solid	Temperature
Nitrate by calc		Solid	Nitrate as N
Total Nitrogen		Solid	Nitrogen, Total

Method Summary

Client: reUse Engineering
Project/Site: Sayer's Ranch

Job ID: 870-36865-1

Method	Method Description	Protocol	Laboratory
29B SAR	Sodium Adsorption Ratio	LA	EET HOU
6010C	Metals (ICP)	SW846	EET HOU
351.2	Nitrogen, Total Kjeldahl	EPA	EET HOU
353.2	Nitrogen, Nitrate-Nitrite	EPA	EET HOU
353.2	Nitrogen, Nitrite	EPA	EET HOU
9045D	pH	SW846	EET HOU
Nitrate by calc	Nitrogen, Nitrate-Nitrite	SM	EET HOU
SM 2510B	Conductivity, Specific Conductance	SM	EET HOU
Total Nitrogen	Nitrogen, Total	EPA	EET HOU
29B	Preparation, Dry, Grind and Sieve	LA	EET HOU
29B	Preparation, Sodium Absorption Ratio	LA	EET HOU
351.2	Nitrogen, Total Kjeldahl	EPA	EET HOU
DI Leach	Deionized Water Leaching Procedure	ASTM	EET HOU
Dry and Grind	Preparation, Dry and Grind	None	EET HOU
KCl Extract	Potassium chloride Extraction	EPA	EET HOU
KCL Extraction	Potassium chloride Extraction - Auto Complete	EPA	EET HOU
MEHL Prep	Preparation, MEHL	None	EET HOU

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

LA = Statewide Order No. 29-B, State Of Louisianna

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET HOU = Eurofins Houston, 4145 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200

Sample Summary

Client: reUse Engineering
Project/Site: Sayer's Ranch

Job ID: 870-36865-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
870-36865-1	TP-1 A HDR	Solid	06/02/25 14:15	06/05/25 12:43
870-36865-2	TP-1 B HDR	Solid	06/02/25 14:17	06/05/25 12:43
870-36865-3	TP-2 A HDR	Solid	06/03/25 10:40	06/05/25 12:43
870-36865-4	TP-2 B HDR	Solid	06/03/25 10:42	06/05/25 12:43

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Chain of Custody

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334
EL Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199
Little Rock, AR (501) 224-5060

Work Order No: _____

Page _____ of _____

Project Manager:	RANE WILSON	Bill to: (if different)	
Company Name:	REUSE ENGINEERING	Company Name:	
Address:	4411 S. IH-35, STE 100	Address:	
City, State ZIP:	GEORGETOWN, TX 78626	City, State ZIP:	
Phone:	(570) 567-4297	Email:	RANE@REUSEENG.COM

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting: Level II ☐ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	SAYER'S RANCH	Turn Around	
Project Number:		☐ Routine ☐ Rush	
Project Location:		Due Date:	
Sampler's Name:		TAT starts the day received by the lab, if received by 4:30pm	
PO #:			

SAMPLE RECEIPT			
Temp Blank:	Yes (No)	Wet Ice:	(Yes) No
Samples Received Intact:	(Yes) No	Thermometer ID:	THM-035
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	+0.1
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	8.4
Total Containers:		Corrected Temperature:	8.5

ANALYSIS REQUEST

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/Comp	# of Cont	pH	CONDUCTIVITY	SAR	TKN + TOTAL NITROGEN	PHOSPHORUS - MEHLICH	METALS	NITRATES	Sample Comments
TP-1 A HOR		6/2/25	1415											
TP-1 B HOR		6/2/25	1417											
TP-2 A HOR		6/3/25	1040											
TP-2 B HOR		6/3/25	1042											

Pres. Code / Parameters

Preservative Codes

None: NO — DI Water: H_2O
Cool: Cool — MeOH: Me
HCL: HC — HNO_3
H_2SO_4: H_2 — NaOH: Na
H_3PO_4: HP
$NaHSO_4$: NABIS
$Na_2S_2O_3$: $NaSO_3$
Zn Acetate+NaOH: Zn
NaOH+Ascorbic Acid: SAPC

870-36865 Chain of Custody

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO_2 Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010:** 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U Hg: 1631 / 245.1 / 7470 / 7471

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Eurofins Xenco. A minimum charge of $85.00 will be applied to each project and a charge of $5 for each sample submitted to Eurofins Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 [signature]	K Whitlock	6/5/25 1243	2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Eurofins Dallas
9701 Harry Hines Blvd
Dallas, TX 75220
Phone: 214-902-0300

Chain of Custody Record

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6/16/2025

Client Information (Sub Contract Lab)	Sampler: N/A	Lab PM: Galvan, Rebecca	Carrier Tracking No(s): N/A	COC No: 870-8481 1
Client Contact: Shipping/Receiving	Phone: N/A	E-Mail: Rebecca.Galvan@et.eurofinsus.com	State of Origin: Texas	Page: Page 1 of 1
Company: Eurofins Environment Testing South Centr		Accreditations Required (See note): NELAP Texas		Job #: 870-36865-1
Address: 4145 Greenbriar Dr	Due Date Requested: 6/16/2025			
City: Stafford	TAT Requested (days): N/A			
State, Zip: TX, 77477				
Phone: 281-240-4200(Tel)	PO #: N/A			
Email: N/A	WO #: N/A			
Project Name: Sayer's Ranch	Project #: 87002443			
Site: N/A	SSOW#: N/A			

Analysis Requested

Sample Identification Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	351.2/Dry_Grind 351.2 Total Kjeldahl Nitrogen (TKN)	353.2/Dry_Grind 353.2 Nitrogen, Nitrate-Nitrite	353.2_Nitrite/Dry_Grind 353.2 Nitrogen, Nitrite	Nitrogen,Total/ Nitrogen, Total	Nitrate_Calc/KCL_Ext_AC Nitrogen, Nitrate-Nitrite	9045D/Dry_Grind 9045D pH	2510B/Dry_Grind 2510B Specific Conductance	29B_SAR_Calc/29B_Prep_Solid 29B Sodium Adsorption Ratio	6010C/MEHL_Prep 6010 Plant Metals (6)					Total Number of containers	Special Instructions/Note:
			Preservation Code:																		
TP-1 A HDR (870-36865-1)	6/2/25	14.15 Central	G	Solid			X	X	X	X	X	X	X	X	X					2	
TP-1 B HDR (870-36865-2)	6/2/25	14:17 Central	G	Solid			X	X	X	X	X	X	X	X	X					2	
TP-2 A HDR (870-36865-3)	6/3/25	10:40 Central	G	Solid			X	X	X	X	X	X	X	X	X					2	
TP-2 B HDR (870-36865-4)	6/3/25	10:42 Central	G	Solid			X	X	X	X	X	X	X	X	X					2	

Other: N/A

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing South Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing South Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing South Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central, LLC.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time: 06/05/25 1700	Company	Received by: TPX	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time	Company

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.	Cooler Temperature(s) °C and Other Remarks: 23.7

RECEIVED JUN 2025

Login Sample Receipt Checklist

Client: reUse Engineering

Job Number: 870-36865-1

Login Number: 36865

List Source: Eurofins Dallas

List Number: 1

Creator: Bodnarchuk, Andrew G

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

Login Sample Receipt Checklist

Client: reUse Engineering

Job Number: 870-36865-1

Login Number: 36865
List Number: 2
Creator: Torrez, Lisandra

List Source: Eurofins Houston
List Creation: 06/06/25 09:20 AM

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	

ATTACHMENT 13

ALTERNATIVE HYDRAULIC APPLICATION RATE

TABLE OF CONTENTS

I. Introduction
II. Onsite Soils Investigation
III. Proposed Hydraulic Application Rate
IV. Conclusion
V. Appendix 13-A: Field Data & Calculations

Introduction

Per Title 30 of the Texas Administrative Code (30 TAC) §222.83, the maximum application rate that may be used for a subsurface area drip dispersal system (SADDS) in this region is 0.1 gallons per day/square foot (gpd/SF). However, an applicant may request a higher hydraulic application rate if an alternative method for calculating the application rate is approved by the TCEQ executive director (30 TAC §222.83(a)(4)).

Onsite Soils Investigation

In order to determine a reasonable hydraulic application rate, two areas onsite were tested with Amoozemeters, compact constant head permeameters (Figure 1). Five shallow 2-inch diameter borings were dug in Area A, and six shallow 2-inch diameter borings were dug in Area B to evaluate the saturated hydraulic conductivity (Ksat) of soils at the Sayers Ranch site.

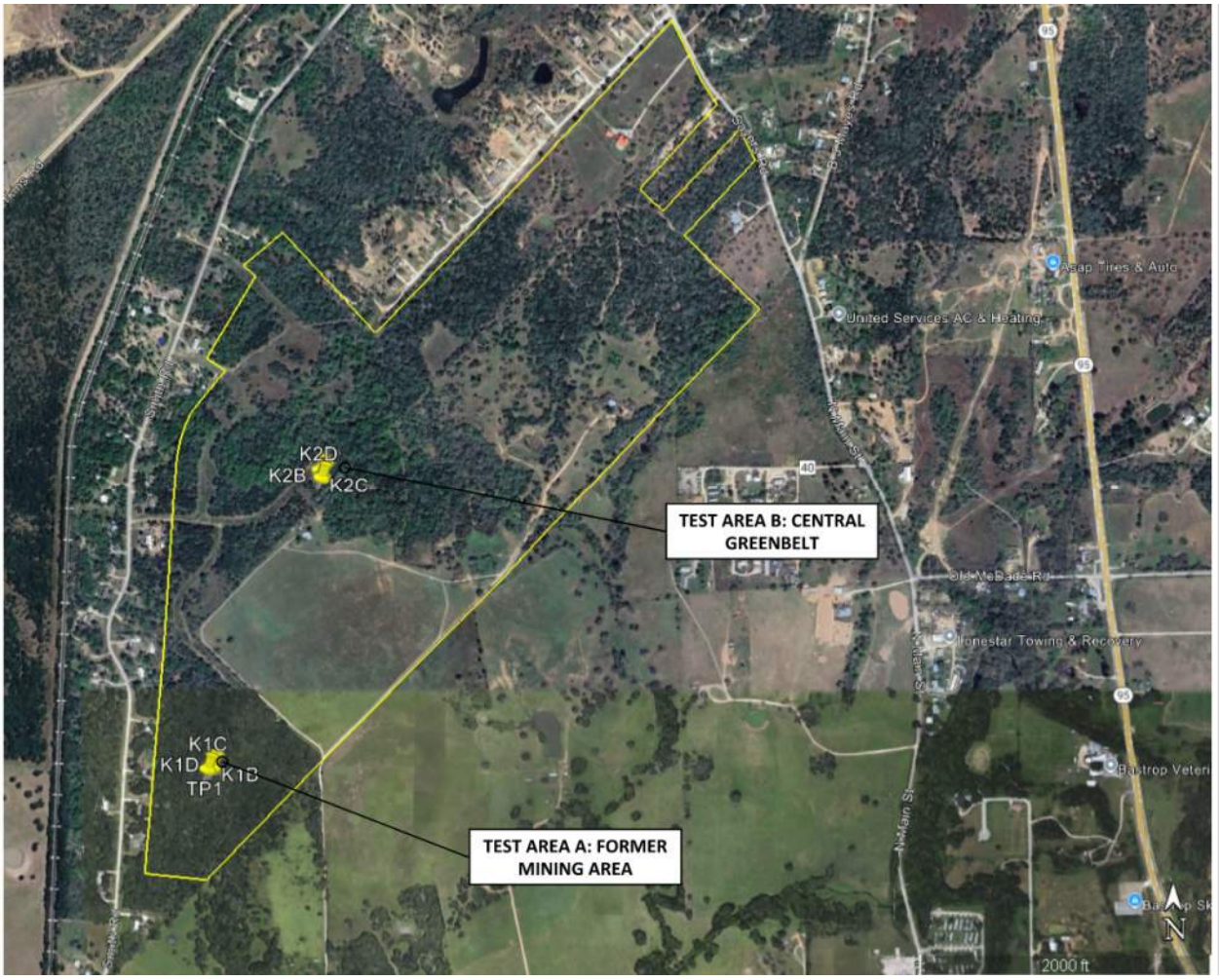

Figure 1. Map of Soil Testing Areas.

A common practice for estimating in situ Ksat of a soil is to take a percentage of field-measured saturated hydraulic conductivity values. An average value of 10% Ksat was used to estimate the required acreage for subsurface drip disposal at Sayers Ranch (See Appendix 13-A for field data and detailed calculations).

Proposed Hydraulic Application Rate

The results show that onsite soils have an average 10% Ksat value of 0.36 gpd/SF in the southwest region (Area A), and 2.34 gpd/SF in the central greenbelt (Area B) area (Table 1).

Table 1. Sayers Ranch Permeability Test Results.

Amoozemeter ID	Latitude (degrees)	Longitude (degrees)	K_{sat} @ 10% (gpd/SF)
K1B	30.133857	-97.336062	0.12
K1C	30.13385	-97.336106	0.10
K1D	30.133863	-97.33606	0.05
K1E	30.133821	-97.336055	0.11
K1F	30.133816	-97.336099	1.40
		Average:	**0.36**
K2A	30.139371	-97.333653	2.80
K2B	30.139342	-97.333707	6.72
K2C	30.139326	-97.333688	1.26
K2D	30.139345	-97.333691	3.50
K2E	30.139472	-97.333728	3.50
K2F	30.139472	-97.333728	0.63
		Average (excluding outlier):	**2.34**

K1 corresponds to Area A: Former Mining Area. K2 corresponds to Area B: Central Greenbelt.

These Ksat values would require 12.9 acres in Area A and approximately 2 acres in Area B for the SADDS. Reducing the lowest average Ksat value by 30% results in a 10% Ksat value of **0.25 gpd/SF**. The applicant proposes to apply this conservative Ksat value to both soil areas, requiring a total of 18.4 acres for drip irrigation to serve the full 200,000 gpd development (Figure 2). Area A (Former Mining Area) can accommodate 16.7 acres of subsurface drip disposal if the entire area is utilized. The remaining 1.7 acres of the drip system would be located in Area B (Central Greenbelt) as illustrated on the concept site plan in Figure 2. The applicant proposes to plant native grasses over seeded with a cool season grass during the winter months in the proposed SADDS areas. Usage of native grasses in this manner should not necessitate a lower hydraulic application rate.

A rate of 0.25 gpd/SF is further supported as a reasonable hydraulic application rate for this site in light of the infiltration rate for this system. Tech Report 10054 §3.3 (2)(B) details the

irrigation operations onsite. Application of 200,000 gpd (138.9 gpm) over an area of 18.4 acres (801,504 SF) equates to an infiltration rate of:

$$\frac{138.9\ gpm}{801{,}504\ SF} \times \frac{12\ in/ft \times 60\ min/hr}{7.48\ gal/CF} = \mathbf{0.0167\ in/hr}$$

Converting 0.25 gpd/SF yields 0.0167 in/hr. The proposed application rate is equivalent to the infiltration rate.



Figure 2. Map of Potential Drip Irrigation Areas.

Conclusion

The Sayers Ranch site soils can handle greater than 0.1 gpd/SF of applied subsurface irrigation, as indicated by onsite soil tests. The applicant is requesting that the executive director consider approving a higher hydraulic application rate of **0.25 gpd/SF** for the proposed SADDS at this site.

Respectfully Submitted,

Lauren B. Wahl, PE
reUse Engineering, Inc.



Appendix 13-A: Field Data & Calculations

SAYERS RANCH

Bastrop, Tx 2025

TABLE NO. 3-A, Hydraulic Conductivity Results

Conditions: CLEAR

Site K1B

Soil notes: Bt1

Location		CM.	
Hole depth	48	water h	15
Reference	10	d	42
D	58	H1	42

Ameter config.	Valve On	A (cm^-2)	Conver. Factor	DTW (cm)		Time	
				Initial:	43	Test Start:	
1	1	0.001056	20	Final:	42	SS Start:	
						Test Stop:	

time (min)	dt (min)	Res (cm)	dR (cm)	DTW (cm)	H (cm)	FLOW (cm^3)	Q (cm^3/m)	Q (cm^3/hr)	K (cm/hr)	K (in/hr)	L (ft/d)	LTAR (gpd/sf)
11:40	0	42.4	0	43	14	20.0						
11:45	5	41.4	1.00	42	15	20.0	4.000	240.0	0.253	0.100	0.20	0.15
11:50	5	39.5	1.90	42	15	20.0	7.600	456.0	0.482	0.190	0.38	0.28
11:55	5	39.4	0.10	42	15	20.0	0.400	24.0	0.025	0.010	0.02	0.01
12:00	5	39.3	0.10	42	15	20.0	0.400	24.0	0.025	0.010	0.02	0.01
											Ksat:	**0.116**

Average of all 10% Ksat values at this test pit

Site K1C

Soil notes: Bt1

Location		CM.	
Hole depth	79	water h	16
Reference	10	d	74
D	89	H1	74

Ameter config.	Valve On	A (cm^-2)	Conver. Factor	DTW (cm)	68	Time	
				Initial:	75	Test Start:	
1	1	0.001056	20	Final:	74	SS Start:	
						Test Stop:	

time (min)	dt (min)	Res (cm)	dR (cm)	DTW (cm)	H (cm)	FLOW (cm^3)	Q (cm^3/m)	Q (cm^3/hr)	K (cm/hr)	K (in/hr)	L (ft/d)	LTAR (gpd/sf)
12:20	0	33.1	0	75	14	20.0						
12:25	5	32.2	0.9	74	15	20.0	3.600	216.0	0.228	0.090	0.18	0.134
12:30	5	31.3	0.9	74	15	20.0	3.600	216.0	0.228	0.090	0.18	0.134
12:35	5	30.8	0.5	74	15	20.0	2.000	120.0	0.127	0.050	0.10	0.075
12:40	5	30.4	0.4	74	15	20.0	1.600	96.0	0.101	0.040	0.08	0.060
											Ksat:	**0.101**

Average of all 10% Ksat values at this test pit

SAYERS RANCH

Bastrop, Tx 2025

TABLE NO. 3-B, Hydraulic Conductivity Results

Conditions: CLEAR

Site K1D

Soil notes: Bt

Location		CM.	
Hole depth	88	water h	15
Reference	10	d	83
D	98	H1	83

Ameter config.	Valve On	A (cm^-2)	Conver. Factor	DTW (cm) Initial:	84	Time Test Start:	0:00
1	1	0.001056	20	Final:	83	SS Start:	0:00
						Test Stop:	0:00

time (min)	dt (min)	Res (cm)	dR (cm)	DTW (cm)	H (cm)	FLOW (cm^3)	Q (cm^3/m)	Q (cm^3/hr)	K (cm/hr)	K (in/hr)	L (ft/d)	LTAR (gpd/sf)
13:30	0	44.3		84	14	20.0						
13:40	10	43.5	0.8	83	15	20.0	1.600	96.0	0.101	0.040	0.08	0.060
13:50	10	43.1	0.4	83	15	20.0	0.800	48.0	0.051	0.020	0.04	0.030
14:00	10	42.4	0.7	83	15	20.0	1.400	84.0	0.089	0.035	0.07	0.052
14:10	10	41.4	1	83	15	20.0	2.000	120.0	0.127	0.050	0.10	0.075
											Ksat:	**0.054**

Average of all 10% Ksat values at this test pit

Site K1E

Soil notes: Bt

Location		CM.	
Hole depth	45	water h	16
Reference	10	d	40
D	55	H1	40

Ameter config.	Valve On	A (cm^-2)	Conver. Factor	DTW (cm) Initial:	68 41	Time Test Start:	16:00
1	1	0.001056	20	Final:	40	SS Start:	9:45
						Test Stop:	9:55

time (min)	dt (min)	Res (cm)	dR (cm)	DTW (cm)	H (cm)	FLOW (cm^3)	Q (cm^3/m)	Q (cm^3/hr)	K (cm/hr)	K (in/hr)	L (ft/d)	LTAR (gpd/sf)
13:35	0	43.4	0	41	14	20.0						
13:40	5	42.8	0.6	40	15	20.0	2.400	144.0	0.152	0.060	0.12	0.090
13:45	5	42.0	0.8	40	15	20.0	3.200	192.0	0.203	0.080	0.16	0.119
13:50	5	41.4	0.6	40	15	20.0	2.400	144.0	0.152	0.060	0.12	0.090
13:55	5	40.5	0.9	40	15	20.0	3.600	216.0	0.228	0.090	0.18	0.134
											Ksat:	**0.108**

Average of all 10% Ksat values at this test pit

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Bastrop, Tx 2025

TABLE NO. 3-C, Hydraulic Conductivity Results

Conditions: CLEAR

Site K1F

Soil notes: A

Location		CM.	
Hole depth	19	water h	15
Reference	10	d	14
D	29	H1	14

Ameter config.	Valve On	A (cm^-2)	Conver. Factor	DTW (cm)		Time	
				Initial:	15	Test Start:	0:00
2	2	0.001056	150	Final:	14	SS Start:	0:00
						Test Stop:	0:00

time (min)	dt (min)	Res (cm)	dR (cm)	DTW (cm)	H (cm)	FLOW (cm^3)	Q (cm^3/m)	Q (cm^3/hr)	K (cm/hr)	K (in/hr)	L (ft/d)	LTAR (gpd/sf)
14:15	0	40.3		15	14	150.0						
14:20	5	39.4	0.9	14	15	150.0	27.000	1,620.0	1.711	0.674	1.35	1.008
14:25	5	37.8	1.6	14	15	150.0	48.000	2,880.0	3.041	1.197	2.39	1.791
14:30	5	36.6	1.2	14	15	150.0	36.000	2,160.0	2.281	0.898	1.80	1.344
14:35	5	35.3	1.3	14	15	150.0	39.000	2,340.0	2.471	0.973	1.95	1.455
											Ksat:	**1.400**

Average of all 10% Ksat values at this test pit

Site K2A

Soil notes: Bt

Location		CM.	
Hole depth	25	water h	15
Reference	10	d	15
D	35	H1	15

Ameter config.	Valve On	A (cm^-2)	Conver. Factor	DTW (cm)		Time	
				Initial:	16	Test Start:	
2	2	0.001056	150	Final:	15	SS Start:	
						Test Stop:	

time (min)	dt (min)	Res (cm)	dR (cm)	DTW (cm)	H (cm)	FLOW (cm^3)	Q (cm^3/m)	Q (cm^3/hr)	K (cm/hr)	K (in/hr)	L (ft/d)	LTAR (gpd/sf)
8:18	0	27.8	0	41	14	150.0						
8:19	1	27.3	0.5	40	15	150.0	75.000	4,500.0	4.752	1.871	3.74	2.799
8:20	1	26.88	0.42	40	15	150.0	63.000	3,780.0	3.992	1.572	3.14	2.351
8:21	1	26.3	0.58	40	15	150.0	87.000	5,220.0	5.512	2.170	4.34	3.247
8:22	1	25.8	0.5	40	15	150.0	75.000	4,500.0	4.752	1.871	3.74	2.799
											Ksat:	**2.799**

Average of all 10% Ksat values at this test pit

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Bastrop, Tx 2025

TABLE NO. 3-D, Hydraulic Conductivity Results

Conditions: CLEAR

Site K2B

Soil notes: Bt1

Location		CM.	
Hole depth	42	water h	15
Reference	10	d	37
D	52	H1	37

Ameter config.	Valve On	A (cm^-2)	Conver. Factor	DTW (cm) Initial:	38	Time Test Start:	0:00
2	2	0.001056	150	Final:	37	SS Start:	0:00
						Test Stop:	0:00

time (min)	dt (min)	Res (cm)	dR (cm)	DTW (cm)	H (cm)	FLOW (cm^3)	Q (cm^3/m)	Q (cm^3/hr)	K (cm/hr)	K (in/hr)	L (ft/d)	LTAR (gpd/sf)
8:41	1	30.4		38	14	150.0						
8:42	1	28.9	1.5	37	15	150.0	225.000	13,500.0	14.256	5.613	11.23	8.397
8:43	1	27.8	1.1	37	15	150.0	165.000	9,900.0	10.454	4.116	8.23	6.158
8:44	1	26.7	1.1	37	15	150.0	165.000	9,900.0	10.454	4.116	8.23	6.158
8:45	1	25.6	1.1	37	15	150.0	165.000	9,900.0	10.454	4.116	8.23	6.158
											Ksat:	**6.718**

Average of all 10% Ksat values at this test pit

Site K2C

Soil notes: A

Location		CM.	
Hole depth	30	water h	15
Reference	10	d	25
D	40	H1	25

Ameter config.	Valve On	A (cm^-2)	Conver. Factor	DTW (cm) Initial:	26	Time Test Start:	
2	2	0.001056	150	Final:	25	SS Start:	
						Test Stop:	

time (min)	dt (min)	Res (cm)	dR (cm)	DTW (cm)	H (cm)	FLOW (cm^3)	Q (cm^3/m)	Q (cm^3/hr)	K (cm/hr)	K (in/hr)	L (ft/d)	LTAR (gpd/sf)
9:00	0	38.8	0	26	14	150.0						
9:02	2	38.5	0.3	25	15	150.0	22.500	1,350.0	1.426	0.561	1.12	0.840
9:04	2	38.0	0.5	25	15	150.0	37.500	2,250.0	2.376	0.935	1.87	1.400
9:06	2	37.5	0.5	25	15	150.0	37.500	2,250.0	2.376	0.935	1.87	1.400
9:08	2	37.0	0.5	25	15	150.0	37.500	2,250.0	2.376	0.935	1.87	1.400
											Ksat:	**1.260**

Average of all 10% Ksat values at this test pit

SAYERS RANCH

Bastrop, Tx 2025

TABLE NO. 3-E, Hydraulic Conductivity Results

Conditions: CLEAR

Site K2D

Soil notes: Bt

Location		CM.	
Hole depth	78	water h	15
Reference	12	d	75
D	90	H1	75

Ameter config.	Valve On	A (cm^-2)	Conver. Factor	DTW (cm)		Time	
				Initial:	76	Test Start:	0:00
2	2	0.001056	150	Final:	75	SS Start:	0:00
						Test Stop:	0:00

time (min)	dt (min)	Res (cm)	dR (cm)	DTW (cm)	H (cm)	FLOW (cm^3)	Q (cm^3/m)	Q (cm^3/hr)	K (cm/hr)	K (in/hr)	L (ft/d)	LTAR (gpd/sf)
9:34	1	26.6		76	14	150.0						
9:35	1	26.0	0.6	75	15	150.0	90.000	5,400.0	5.702	2.245	4.49	3.359
9:36	1	25.3	0.7	75	15	150.0	105.000	6,300.0	6.653	2.619	5.24	3.919
9:37	1	24.7	0.6	75	15	150.0	90.000	5,400.0	5.702	2.245	4.49	3.359
9:38	1	24.1	0.6	75	15	150.0	90.000	5,400.0	5.702	2.245	4.49	3.359
											Ksat:	**3.499**

Average of all 10% Ksat values at this test pit

Site K2E

Soil notes: C/B Test performed at the bottom of TP2, 156 cm bgs.

Location		CM.	
Hole depth	30	water h	15
Reference	10	d	25
D	40	H1	25

Ameter config.	Valve On	A (cm^-2)	Conver. Factor	DTW (cm)		Time	
				Initial:	26	Test Start:	
2	2	0.001056	150	Final:	25	SS Start:	
						Test Stop:	

time (min)	dt (min)	Res (cm)	dR (cm)	DTW (cm)	H (cm)	FLOW (cm^3)	Q (cm^3/m)	Q (cm^3/hr)	K (cm/hr)	K (in/hr)	L (ft/d)	LTAR (gpd/sf)
10:03	0	41.3	0	26	14	150.0						
10:04	1	40.7	0.6	25	15	150.0	90.000	5,400.0	5.702	2.245	4.49	3.359
10:05	1	40.0	0.7	25	15	150.0	105.000	6,300.0	6.653	2.619	5.24	3.919
10:06	1	39.5	0.5	25	15	150.0	75.000	4,500.0	4.752	1.871	3.74	2.799
10:07	1	38.8	0.7	25	15	150.0	105.000	6,300.0	6.653	2.619	5.24	3.919
											Ksat:	**3.499**

Average of all 10% Ksat values at this test pit

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TABLE NO. 3-F, Hydraulic Conductivity Results

Conditions: CLEAR

Site K2F

Soil notes: B Test performed at the bottom of TP2, 156 cm bgs.

Location		CM.	
Hole depth	80	water h	15
Reference	10	d	75
D	90	H1	75

Ameter config.	Valve On	A (cm^-2)	Conver. Factor	DTW (cm)		Time	
				Initial:	76	Test Start:	0:00
2	2	0.001056	150	Final:	75	SS Start:	0:00
						Test Stop:	0:00

time (min)	dt (min)	Res (cm)	dR (cm)	DTW (cm)	H (cm)	FLOW (cm^3)	Q (cm^3/m)	Q (cm^3/hr)	K (cm/hr)	K (in/hr)	L (ft/d)	LTAR (gpd/sf)
10:25	0	25.0		76	14	150.0						
10:27	2	24.4	0.6	75	15	150.0	45.000	2,700	2.851	1.123	2.25	1.679
10:29	2	24.3	0.1	75	15	150.0	7.500	450.0	0.475	0.187	0.37	0.280
10:31	2	24.2	0.1	75	15	150.0	7.500	450.0	0.475	0.187	0.37	0.280
10:33	2	24.1	0.1	75	15	150.0	7.500	450.0	0.475	0.187	0.37	0.280
											Ksat:	**0.630**

Average of all 10% Ksat values at this test pit

ATTACHMENT 14

RECHARGE FEATURE PLAN

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RECHARGE FEATURE PLAN

Domestic Wastewater Permit Application

Worksheet 3.3 Section 3

Recharge features were not identified on the tract of land that will be used as part of the proposed WWTF or its application areas. Sources used to note the lack of recharge features include review of:

- Railroad Commission of Texas web viewer,
- Texas Water Development Boards web viewer,
- Historic topographic maps of the site,
- Lost Pines Groundwater Conservation Districts accessible web-based data, and
- A cursory site visit in the area of the Amoozemeter borings and test pits.

Geologic and groundwater details are provided in Attachment 10. Groundwater Quality Technical Report. In summary, the southernmost portion of the site is underlain by fluviatile terrace deposits and the northern-central portion of the site is underlain by the Calvert Bluff Formation. The Calvert Bluff Formation is the uppermost unit within the Wilcox Group, which is part of the Carrizo-Wilcox Aquifer. Depth to groundwater in adjacent domestic water wells is approximately 55 feet below ground surface and the anticipated groundwater flow direction is southeast.

Measures are not anticipated to be required to protect or monitor groundwater as recharge features were not identified. Additionally, and as detailed in Attachment 10:

- The quality of the wastewater treatment facility's discharge is Type 1 water or better;
- All adjacent domestic water wells have been constructed with at least 200 feet of casing, and
- The shallowest groundwater reported in domestic water wells and/or borings is 27 feet below ground surface (bgs).

Groundwater was reported in a soil boring completed on the site in November 2024, northeast of the proposed northern Area A application area, at a depth of 27 feet bgs. The boring log notes the presence of groundwater "first encountered" but does not reference the groundwater depth or presence at completion of the boring. Depth to groundwater in the 18 onsite/adjacent domestic water wells range from 55 to 174 feet bls. Given the depth to groundwater and the quality of the WWTF's effluent, groundwater monitoring is not being proposed.

ATTACHMENT 15

SOIL EVALUATION

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TECHNICAL REPORT 10054
WORKSHEET 3.3, SECTION 3 – REQUIRED PLANS

SOIL EVALUATION

A United States Department of Agricultural (USDA), Natural Resources Conservation Services (NRCS) soil map is included as Attachment 13. As noted on this map, soils underlying the proposed application areas are primarily identified as the Edge fine sandy loam, 1 to 5 percent slopes (AfC) and Edge fine sandy loam, 5 to 12 percent slopes, eroded (AfE2). Two additional soils, representing approximately <5% of the proposed application area, include the Axtell fine sandy loam, 0 to 1 percent slopes (AfA) and Robco-Tanglewood complex, 1 to 5 percent slopes (DeC). The USDA NCRS unit descriptions for each of these soils are included as Exhibit 15-A. NRCS's Available Water Supply 0 to 150 centimeters (0 to 59 inches) and Available Water Capacity (0 to 152 centimeters or 0 to 60 inches) for these soils are included as Exhibit 15-B and Exhibit 15-C, respectively.

As noted in Exhibit 15-A, all four (4) soil units are:

- Considered fine sandy loam or loamy fine sand from 0 to at least 9 inches below land surface (bls) with sandy clay loam to clay to approximately 50 inches bls;
- Well drained or moderately well drained; and
- Considered hydrologic soil group C excluding DeC which is soil group A.

Additionally, the soils are reported to have saturated hydraulic conductivities (Ksat) for the most limiting layer of 0.06 to 0.20 inch per hour (in/hr) with DeC having Ksat of 0.57 to 1.98 in/hr. The reported available water supply ranged from 7.3 inches to 8.8 inches and available water capacity ranging from 0.12 to 0.15 cm/cm.

To determine a reasonable hydraulic application rate, two areas onsite were tested with Amoozemeters, compact constant head permeameters, (Figure 1). The Amoozemeter, being a constant head permeameter, measures saturated hydraulic conductivity (Ksat) by maintaining a constant water level in the borehole and measuring the steady-state rate of water flow into the soil. In early June 2025, five (5) shallow 2-inch diameter borings were advanced in Area A and six (6) 2-inch diameter shallow borings were advanced in Area B to evaluate Ksat of the soil in the proposed application areas at Sayers Ranch.

Results of the Amoozemeter tests are summarized in Table 1. Field data maintained throughout the tests is also provided as Exhibit 15-D. The Ksat values presented in the following table represent only 10% of the actual Ksat values obtained during testing.

1 The Geological Society of American, 8th printing, 1995, Rock-Color Chart with genuine Munsell color chips

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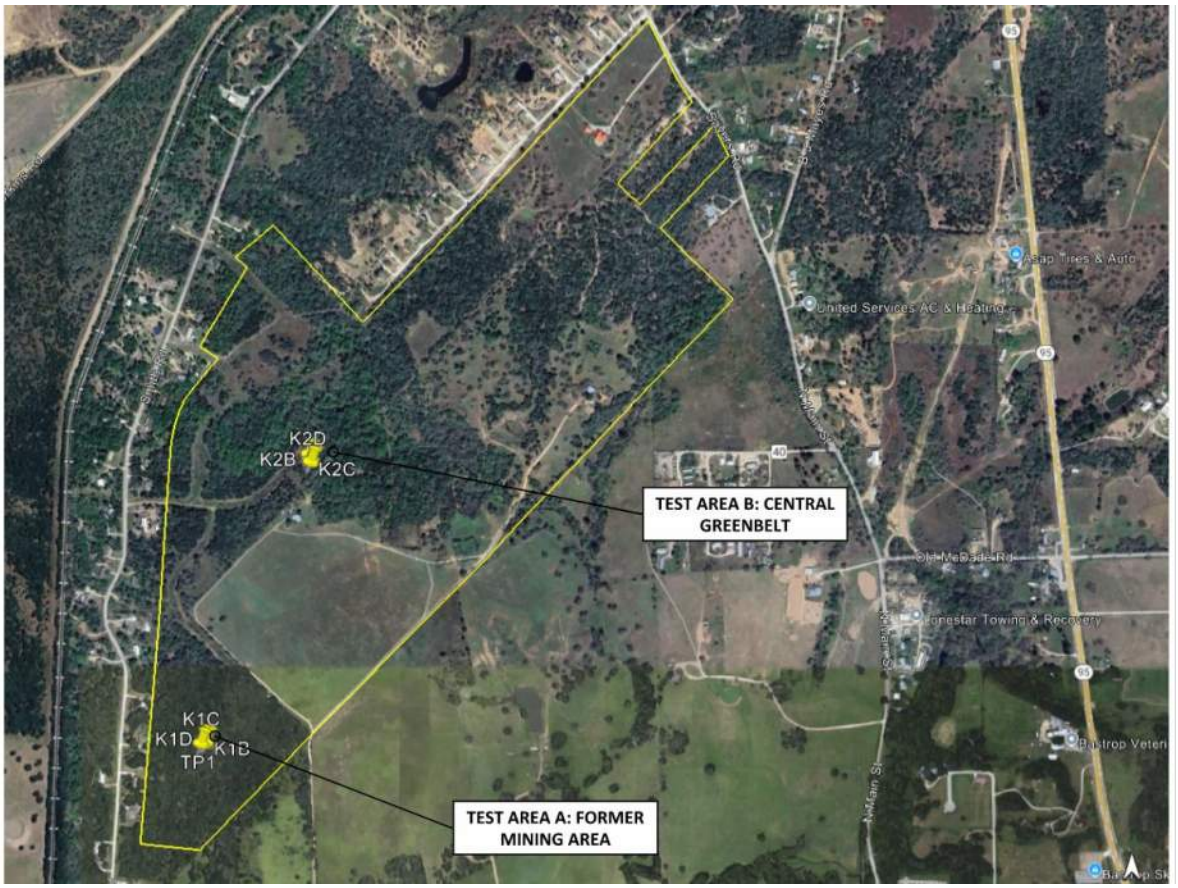

Figure 1. Soil Test Areas.

Table 1. Soil Test Results.

Amoozemeter ID	Latitude (deg)	Longitude (deg)	10% K_{sat} (gpd/SF)
K1B	30.133857	-97.336062	0.12
K1C	30.13385	-97.336106	0.10
K1D	30.133863	-97.33606	0.05
K1E	30.133821	-97.336055	0.11
K1F	30.133816	-97.336099	1.40
		Average:	**0.36**
K2A	30.139371	-97.333653	2.80
K2B	30.139342	-97.333707	6.72
K2C	30.139326	-97.333688	1.26
K2D	30.139345	-97.333691	3.50
K2E	30.139472	-97.333728	3.50
K2F	30.139472	-97.333728	0.63
		Average (excluding outlier):	**2.34**

K1 corresponds to Area A: Former Mining Area. K2 corresponds to Area B: Central Greenbelt.

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In addition to the Amoozemeter tests, two test pits were excavated in early June 2025. The test pits were located immediately adjacent to the Amoozemeter test locations. Two soil samples were collected from each test pit (TP-1A, 0 to 12 inches; TP-1B, 12 to 24 inches; TP-2A, 0 to 14 inches; and TP-2B, 14 to 36 inches). The samples were analyzed for the same suite of analytes listed in the Domestic Wastewater Permit Application, Worksheet 3.0 – Land Application of Effluent, Section 8 Soil Map and Soil Analysis.

Findings from the test pits are summarized below:

TEST PIT 1
Coordinates: 30.133807 and -97.336181
Excavation Date: June 2, 2025
Soil Type: AfC – Edge fine sandy loam, 1 to 5 percent slopes (USDA, NRCS)
Depth: 42 inches
Primary rooting depth: 0 to 18 inches
Secondary rooting depth: 18 to 36 inches
Horizons:

- Horizon A: 0 to 12 inches
  - Moderate orange pink (10R 7/4)[1] clayey sand loam, subangular blocky structure, little mottling near base of horizon, and little (<10%) coarse fragments.
- Horizon B: 12 to 42 inches
  - Moderate reddish orange (10R 6/6)[1] clay loam, blocky structure grading to prismatic, little to no mottling, and little (<10%) coarse fragments.

Restrictive horizons, potential water bearing zones, and active water bearing zones were not identified in the test pit.

TEST PIT 2
Coordinates: 30.139475 and -97.333733
Excavation Date: June 3, 2025
Soil Type: AfE2 – Edge fine sandy loam, 5 to 12 percent slopes (USDA, NRCS)
Depth: 60 inches
Primary rooting depth: 0 to 14 inches
Secondary rooting depth: 14 to 55 inches
Horizons:

- Horizon A: 0 to 14 inches
  - Moderate orange pink (10R 7/4)[1] clayey sand loam, subangular block structure, little mottling, and less than 5% coarse fragments.
- Horizon B: 14 to 60 inches

- Moderate reddish orange (10R 6/6) [1] clay loam, blocky structure, mottled with white streaks at 14 to 60 inches, and less than 5% coarse fragments.

Restrictive horizons, potential water bearing zones, and active water bearing zones were not identified in the test pit.

Photographs of the two test pits are included as Exhibit 15-E and the laboratory report of analysis and summary table are included as Attachment 12 of the TLAP application.

In addition to the two test pits excavated in early June 2025, a geotechnical investigation was performed in November 2024. The investigation included the advancement of eight (8) soil borings and six (6) test pits across the site. The borings were advanced to depths of 20 feet (6 borings) and 50 feet (2 borings) below ground surface (bgs). The test pits were excavated to a depth of five (5) feet bgs. Groundwater was observed in one (1) of the 50-foot borings at a depth of 27 feet bgs. The draft report of the geotechnical investigation is included as Exhibit 15-F.

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EXHIBIT 15-A

USDA NRCS UNIT DESCRIPTIONS

Bastrop County, Texas

AfC—Edge fine sandy loam, 1 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2shgf
Elevation: 280 to 600 feet
Mean annual precipitation: 34 to 45 inches
Mean annual air temperature: 66 to 69 degrees F
Frost-free period: 240 to 270 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Edge and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Edge

Setting

Landform: Ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Loamy and clayey residuum derived from eocene age, stratified, sandstone and mudstone

Typical profile

A - 0 to 12 inches: fine sandy loam
Bt1 - 12 to 34 inches: clay
Bt2 - 34 to 46 inches: clay loam
BCt - 46 to 50 inches: clay loam
C/B - 50 to 74 inches: loam
C - 74 to 80 inches: silt loam

Properties and qualities

Slope: 1 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0

Available water supply, 0 to 60 inches: Moderate (about 8.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R087AY003TX - Claypan Savannah
Hydric soil rating: No

Minor Components

Crockett

Percent of map unit: 10 percent
Landform: Ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R086AY004TX - Southern Claypan Prairie
Hydric soil rating: No

Data Source Information

Soil Survey Area: Bastrop County, Texas
Survey Area Data: Version 22, Aug 30, 2024

Bastrop County, Texas

AfE2—Edge fine sandy loam, 5 to 12 percent slopes, eroded

Map Unit Setting

National map unit symbol: 2shgj
Elevation: 270 to 590 feet
Mean annual precipitation: 34 to 36 inches
Mean annual air temperature: 68 to 69 degrees F
Frost-free period: 240 to 270 days
Farmland classification: Not prime farmland

Map Unit Composition

Edge, eroded, and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Edge, Eroded

Setting

Landform: Ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Loamy and clayey residuum derived from eocene age, stratified, sandstone and mudstone

Typical profile

A - 0 to 11 inches: fine sandy loam
Bt1 - 11 to 29 inches: clay
Bt2 - 29 to 43 inches: clay loam
BCt - 43 to 48 inches: sandy clay loam
C/B - 48 to 75 inches: loam
C - 75 to 80 inches: silt loam

Properties and qualities

Slope: 5 to 12 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0

Available water supply, 0 to 60 inches: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: R087AY003TX - Claypan Savannah
Hydric soil rating: No

Minor Components

Normangee

Percent of map unit: 10 percent
Landform: Ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R086BY002TX - Claypan Prairie
Hydric soil rating: No

Data Source Information

Soil Survey Area: Bastrop County, Texas
Survey Area Data: Version 22, Aug 30, 2024

Bastrop County, Texas

AfA—Axtell fine sandy loam, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2shg5
Elevation: 190 to 720 feet
Mean annual precipitation: 37 to 41 inches
Mean annual air temperature: 64 to 70 degrees F
Frost-free period: 240 to 270 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Axtell and similar soils: 92 percent
Minor components: 8 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Axtell

Setting

Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey alluvium of pleistocene age derived from mudstone

Typical profile

A - 0 to 9 inches: fine sandy loam
Btss - 9 to 32 inches: clay
Btk1 - 32 to 60 inches: clay
Btk2 - 60 to 80 inches: clay loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Gypsum, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water supply, 0 to 60 inches: Moderate (about 7.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: C
Ecological site: R087AY003TX - Claypan Savannah
Hydric soil rating: No

Minor Components

Wilson

Percent of map unit: 5 percent
Landform: Stream terraces, stream terraces, stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear, concave
Across-slope shape: Concave, linear, convex
Ecological site: R086BY002TX - Claypan Prairie
Hydric soil rating: No

Rader

Percent of map unit: 3 percent
Landform: Stream terraces, stream terraces, stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear, concave
Across-slope shape: Convex, concave, linear
Ecological site: R087AY005TX - Sandy Loam
Hydric soil rating: No

Data Source Information

Soil Survey Area: Bastrop County, Texas
Survey Area Data: Version 22, Aug 30, 2024

Bastrop County, Texas

DeC—Robco-Tanglewood complex, 1 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2wg9h
Elevation: 220 to 610 feet
Mean annual precipitation: 35 to 45 inches
Mean annual air temperature: 67 to 69 degrees F
Frost-free period: 252 to 275 days
Farmland classification: Farmland of statewide importance, if drained

Map Unit Composition

Robco and similar soils: 46 percent
Tanglewood and similar soils: 25 percent
Minor components: 29 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Robco

Setting

Landform: Ridges
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Sandy, clayey, and loamy residuum weathered from sandstone, claystone, and shale of eocene age

Typical profile

A - 0 to 11 inches: loamy fine sand
E - 11 to 26 inches: loamy fine sand
Btg1 - 26 to 31 inches: sandy clay loam
Btg2 - 31 to 39 inches: sandy clay loam
Bt/C - 39 to 80 inches: sandy clay loam

Properties and qualities

Slope: 1 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 18 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: A
Ecological site: R087AY006TX - Sandy
Hydric soil rating: No

Description of Tanglewood

Setting

Landform: Ridges
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Sandy, clayey, and loamy residuum weathered from sandstone, claystone, and shale of eocene age

Typical profile

A - 0 to 5 inches: loamy fine sand
E - 5 to 23 inches: loamy fine sand
Btg1 - 23 to 33 inches: sandy clay loam
Btg2 - 33 to 68 inches: clay
Btg3 - 68 to 80 inches: sandy clay loam

Properties and qualities

Slope: 1 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 20 to 46 inches
Frequency of flooding: None
Frequency of ponding: None
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.0 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C/D
Ecological site: R087AY006TX - Sandy
Hydric soil rating: No

Minor Components

Rader

Percent of map unit: 5 percent
Landform: Stream terraces

Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R087AY005TX - Sandy Loam
Hydric soil rating: No

Tabor

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R087AY005TX - Sandy Loam
Hydric soil rating: No

Straber

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R087AY006TX - Sandy
Hydric soil rating: No

Edge

Percent of map unit: 5 percent
Landform: Ridges, ridges
Landform position (two-dimensional): Backslope, summit, shoulder
Landform position (three-dimensional): Side slope, interfluve
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R087AY003TX - Claypan Savannah
Hydric soil rating: No

Silstid

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R087AY006TX - Sandy
Hydric soil rating: No

Gasil

Percent of map unit: 2 percent
Landform: Ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R087AY005TX - Sandy Loam

Hydric soil rating: No

Padina

Percent of map unit: 2 percent
Landform: Ridges
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R087AY007TX - Deep Sand
Hydric soil rating: No

Data Source Information

Soil Survey Area: Bastrop County, Texas
Survey Area Data: Version 22, Aug 30, 2024

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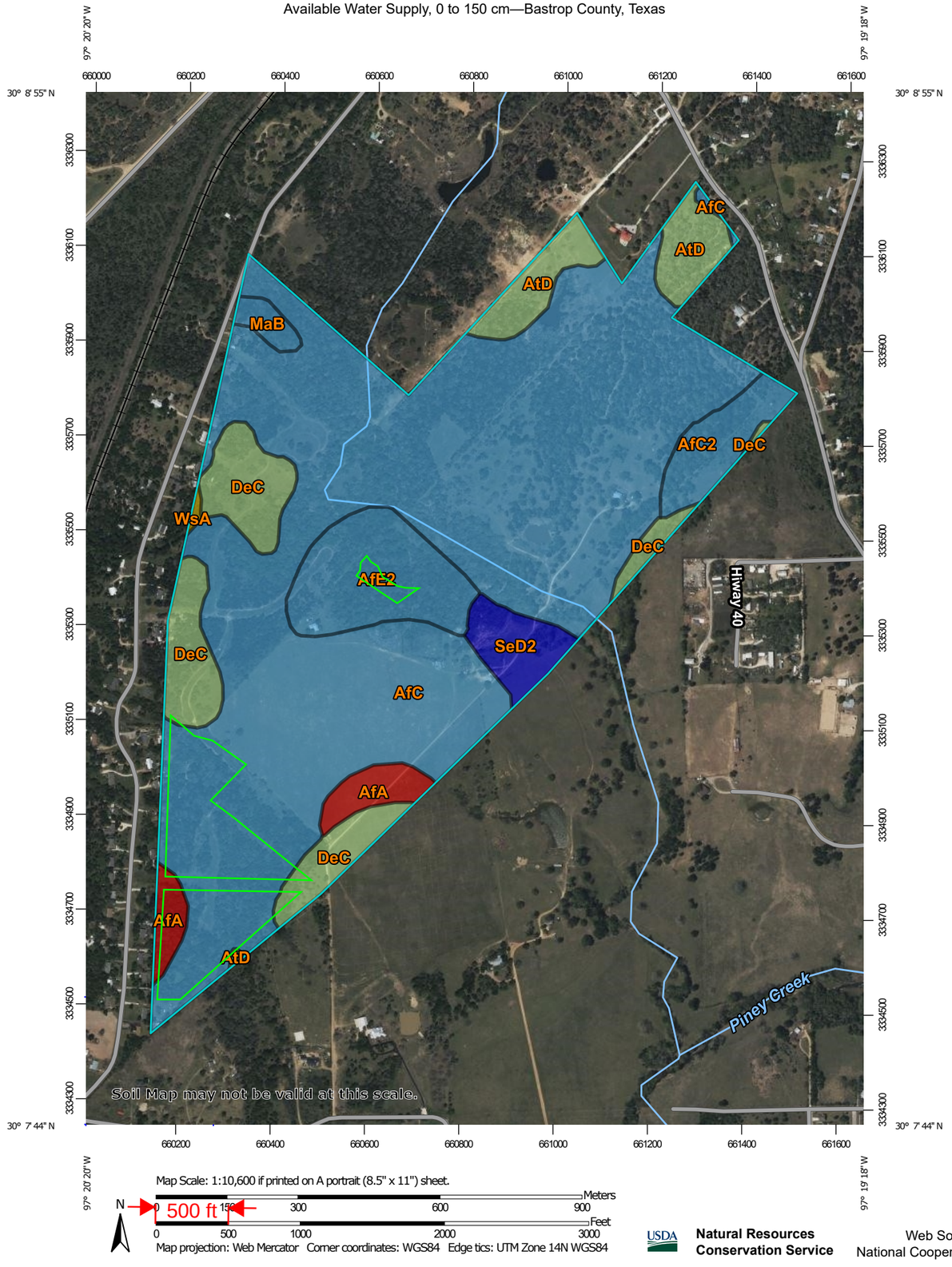
EXHIBIT 15-B

AVAILABLE WATER SUPPLY
(0 to 150 centimeters)



Available Water Supply, 0 to 150 cm

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
AfA	Axtell fine sandy loam, 0 to 1 percent slopes	18.23	7.4	2.6%
AfC	Edge fine sandy loam, 1 to 5 percent slopes	21.98	205.1	71.4%
AfC2	Edge fine sandy loam, 2 to 5 percent slopes, moderately eroded	21.82	8.6	3.0%
AfE2	Edge fine sandy loam, 5 to 12 percent slopes, eroded	21.82	18.8	6.6%
AtD	Edge gravelly fine sandy loam, 3 to 8 percent slopes	20.49	12.6	4.4%
DeC	Robco-Tanglewood complex, 1 to 5 percent slopes	20.50	24.9	8.7%
MaB	Mabank loam, 1 to 3 percent slopes	22.20	2.3	0.8%
SeD2	Shep clay loam, 3 to 8 percent slopes, eroded	23.52	7.1	2.5%
WsA	Wilson clay loam, 0 to 1 percent slopes	19.09	0.4	0.1%
Totals for Area of Interest			**287.3**	**100.0%**

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- <= 18.23
- > 18.23 and <= 19.09
- > 19.09 and <= 20.50
- > 20.50 and <= 22.20
- > 22.20 and <= 23.52
- Not rated or not available

Soil Rating Lines

- <= 18.23
- > 18.23 and <= 19.09
- > 19.09 and <= 20.50
- > 20.50 and <= 22.20
- > 22.20 and <= 23.52
- Not rated or not available

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TX Firm No. 21880

PATHWAY LAND DEVELOPMENT
SAYERS RANCH WWTF
BASTROP COUNTY, TEXAS

AVAILABLE WATER SUPPLY SOIL EVALUATION

EXHIBIT 2

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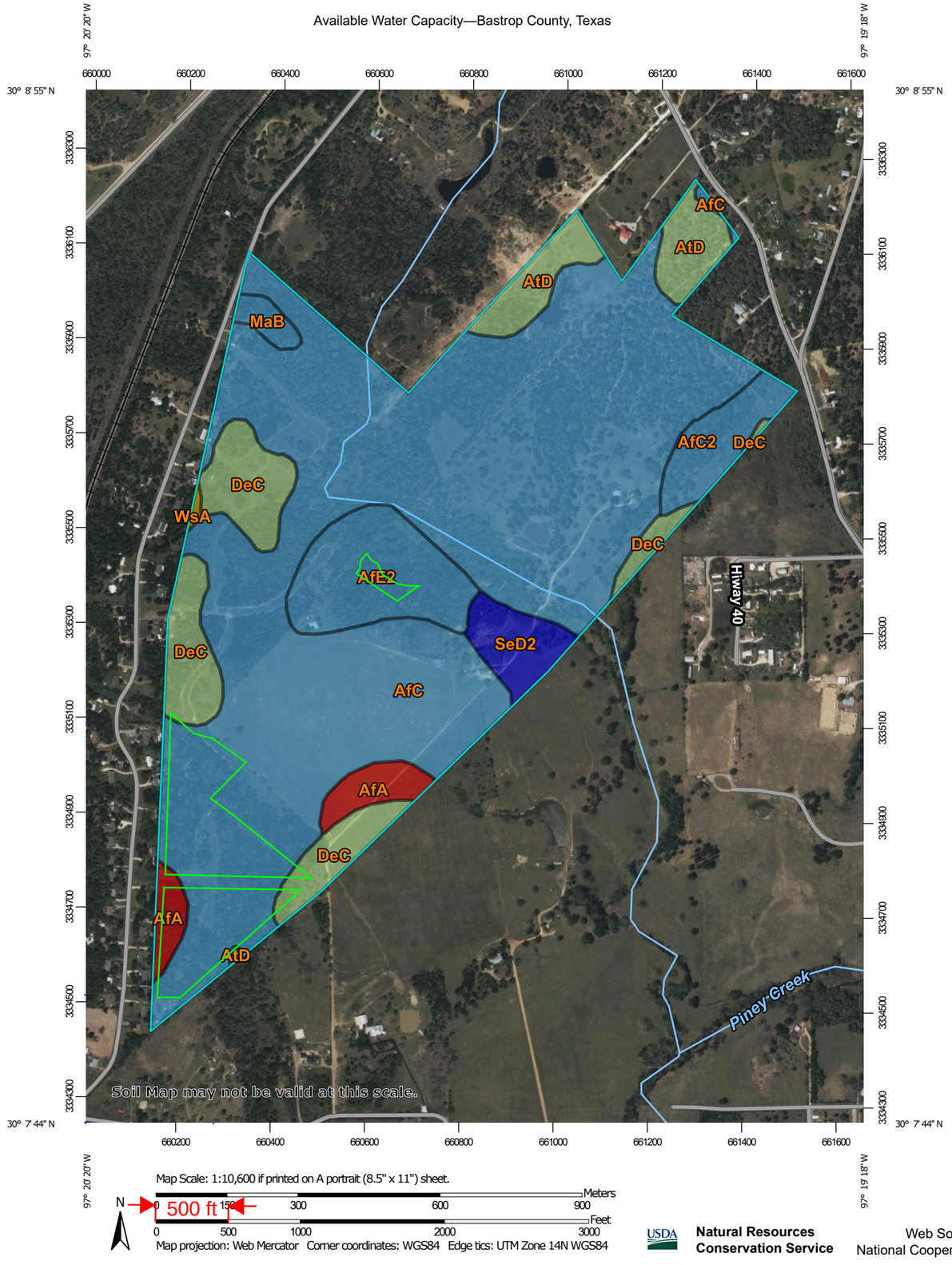
EXHIBIT 15-C

AVAILABLE WATER CAPACITY
(0 to 152 centimeters)



Available Water Capacity

Map unit symbol	Map unit name	Rating (centimeters per centimeter)	Acres in AOI	Percent of AOI
AfA	Axtell fine sandy loam, 0 to 1 percent slopes	0.12	7.4	2.6%
AfC	Edge fine sandy loam, 1 to 5 percent slopes	0.15	205.1	71.4%
AfC2	Edge fine sandy loam, 2 to 5 percent slopes, moderately eroded	0.15	8.6	3.0%
AfE2	Edge fine sandy loam, 5 to 12 percent slopes, eroded	0.15	18.8	6.6%
AtD	Edge gravelly fine sandy loam, 3 to 8 percent slopes	0.14	12.6	4.4%
DeC	Robco-Tanglewood complex, 1 to 5 percent slopes	0.14	24.9	8.7%
MaB	Mabank loam, 1 to 3 percent slopes	0.15	2.3	0.8%
SeD2	Shep clay loam, 3 to 8 percent slopes, eroded	0.16	7.1	2.5%
WsA	Wilson clay loam, 0 to 1 percent slopes	0.13	0.4	0.1%
Totals for Area of Interest			**287.3**	**100.0%**

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- <= 0.12
- > 0.12 and <= 0.13
- > 0.13 and <= 0.14
- > 0.14 and <= 0.15
- > 0.15 and <= 0.16
- Not rated or not available

Soil Rating Lines

- <= 0.12
- > 0.12 and <= 0.13
- > 0.13 and <= 0.14
- > 0.14 and <= 0.15
- > 0.15 and <= 0.16
- Not rated or not available

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PATHWAY LAND DEVELOPMENT
SAYERS RANCH WWTF
BASTROP COUNTY, TEXAS

AVAILABLE WATER CAPACITY SOIL EVALUATION

EXHIBIT 3

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EXHIBIT 15-D

AMOOZEMETER FIELD DATA

SAYERS RANCH

Bastrop, Tx 2025

TABLE NO. 3-A, Hydraulic Conductivity Results

Conditions: CLEAR

Site K1B

Soil notes: Bt1

Location		CM.	
Hole depth	48	water h	15
Reference	10	d	42
D	58	H1	42

Ameter config.	Valve On	A (cm^-2)	Conver. Factor	DTW (cm)		Time	
				Initial:	43	Test Start:	
1	1	0.001056	20	Final:	42	SS Start:	
						Test Stop:	

time (min)	dt (min)	Res (cm)	dR (cm)	DTW (cm)	H (cm)	FLOW (cm^3)	Q (cm^3/m)	Q (cm^3/hr)	K (cm/hr)	K (in/hr)	L (ft/d)	LTAR (gpd/sf)
11:40	0	42.4	0	43	14	20.0						
11:45	5	41.4	1.00	42	15	20.0	4.000	240.0	0.253	0.100	0.20	0.15
11:50	5	39.5	1.90	42	15	20.0	7.600	456.0	0.482	0.190	0.38	0.28
11:55	5	39.4	0.10	42	15	20.0	0.400	24.0	0.025	0.010	0.02	0.01
12:00	5	39.3	0.10	42	15	20.0	0.400	24.0	0.025	0.010	0.02	0.01
											Ksat:	**0.116**

Average of all 10% Ksat values at this test pit

Site K1C

Soil notes: Bt1

Location		CM.	
Hole depth	79	water h	16
Reference	10	d	74
D	89	H1	74

Ameter config.	Valve On	A (cm^-2)	Conver. Factor	DTW (cm)	68	Time	
				Initial:	75	Test Start:	
1	1	0.001056	20	Final:	74	SS Start:	
						Test Stop:	

time (min)	dt (min)	Res (cm)	dR (cm)	DTW (cm)	H (cm)	FLOW (cm^3)	Q (cm^3/m)	Q (cm^3/hr)	K (cm/hr)	K (in/hr)	L (ft/d)	LTAR (gpd/sf)
12:20	0	33.1	0	75	14	20.0						
12:25	5	32.2	0.9	74	15	20.0	3.600	216.0	0.228	0.090	0.18	0.134
12:30	5	31.3	0.9	74	15	20.0	3.600	216.0	0.228	0.090	0.18	0.134
12:35	5	30.8	0.5	74	15	20.0	2.000	120.0	0.127	0.050	0.10	0.075
12:40	5	30.4	0.4	74	15	20.0	1.600	96.0	0.101	0.040	0.08	0.060
											Ksat:	**0.101**

Average of all 10% Ksat values at this test pit

SAYERS RANCH

Bastrop, Tx 2025

TABLE NO. 3-B, Hydraulic Conductivity Results

Conditions: CLEAR

Site K1D

Soil notes: Bt

Location		CM.	
Hole depth	88	water h	15
Reference	10	d	83
D	98	H1	83

Ameter config.	Valve On	A (cm^-2)	Conver. Factor	DTW (cm) Initial:	84	Time Test Start:	0:00
1	1	0.001056	20	Final:	83	SS Start:	0:00
						Test Stop:	0:00

time (min)	dt (min)	Res (cm)	dR (cm)	DTW (cm)	H (cm)	FLOW (cm^3)	Q (cm^3/m)	Q (cm^3/hr)	K (cm/hr)	K (in/hr)	L (ft/d)	LTAR (gpd/sf)
13:30	0	44.3		84	14	20.0						
13:40	10	43.5	0.8	83	15	20.0	1.600	96.0	0.101	0.040	0.08	0.060
13:50	10	43.1	0.4	83	15	20.0	0.800	48.0	0.051	0.020	0.04	0.030
14:00	10	42.4	0.7	83	15	20.0	1.400	84.0	0.089	0.035	0.07	0.052
14:10	10	41.4	1	83	15	20.0	2.000	120.0	0.127	0.050	0.10	0.075
											Ksat:	**0.054**

Average of all 10% Ksat values at this test pit

Site K1E

Soil notes: Bt

Location		CM.	
Hole depth	45	water h	16
Reference	10	d	40
D	55	H1	40

Ameter config.	Valve On	A (cm^-2)	Conver. Factor	DTW (cm) Initial:	68 41	Time Test Start:	16:00
1	1	0.001056	20	Final:	40	SS Start:	9:45
						Test Stop:	9:55

time (min)	dt (min)	Res (cm)	dR (cm)	DTW (cm)	H (cm)	FLOW (cm^3)	Q (cm^3/m)	Q (cm^3/hr)	K (cm/hr)	K (in/hr)	L (ft/d)	LTAR (gpd/sf)
13:35	0	43.4	0	41	14	20.0						
13:40	5	42.8	0.6	40	15	20.0	2.400	144.0	0.152	0.060	0.12	0.090
13:45	5	42.0	0.8	40	15	20.0	3.200	192.0	0.203	0.080	0.16	0.119
13:50	5	41.4	0.6	40	15	20.0	2.400	144.0	0.152	0.060	0.12	0.090
13:55	5	40.5	0.9	40	15	20.0	3.600	216.0	0.228	0.090	0.18	0.134
											Ksat:	**0.108**

Average of all 10% Ksat values at this test pit

SAYERS RANCH

Bastrop, Tx 2025

TABLE NO. 3-C, Hydraulic Conductivity Results

Conditions: CLEAR

Site K1F

Soil notes: A

Location		CM.	
Hole depth	19	water h	15
Reference	10	d	14
D	29	H1	14

Ameter config.	Valve On	A (cm^-2)	Conver. Factor	DTW (cm)		Time	
				Initial:	15	Test Start:	0:00
2	2	0.001056	150	Final:	14	SS Start:	0:00
						Test Stop:	0:00

time (min)	dt (min)	Res (cm)	dR (cm)	DTW (cm)	H (cm)	FLOW (cm^3)	Q (cm^3/m)	Q (cm^3/hr)	K (cm/hr)	K (in/hr)	L (ft/d)	LTAR (gpd/sf)
14:15	0	40.3		15	14	150.0						
14:20	5	39.4	0.9	14	15	150.0	27.000	1,620.0	1.711	0.674	1.35	1.008
14:25	5	37.8	1.6	14	15	150.0	48.000	2,880.0	3.041	1.197	2.39	1.791
14:30	5	36.6	1.2	14	15	150.0	36.000	2,160.0	2.281	0.898	1.80	1.344
14:35	5	35.3	1.3	14	15	150.0	39.000	2,340.0	2.471	0.973	1.95	1.455
											Ksat:	**1.400**

Average of all 10% Ksat values at this test pit

Site K2A

Soil notes: Bt

Location		CM.	
Hole depth	25	water h	15
Reference	10	d	15
D	35	H1	15

Ameter config.	Valve On	A (cm^-2)	Conver. Factor	DTW (cm)		Time	
				Initial:	16	Test Start:	
2	2	0.001056	150	Final:	15	SS Start:	
						Test Stop:	

time (min)	dt (min)	Res (cm)	dR (cm)	DTW (cm)	H (cm)	FLOW (cm^3)	Q (cm^3/m)	Q (cm^3/hr)	K (cm/hr)	K (in/hr)	L (ft/d)	LTAR (gpd/sf)
8:18	0	27.8	0	41	14	150.0						
8:19	1	27.3	0.5	40	15	150.0	75.000	4,500.0	4.752	1.871	3.74	2.799
8:20	1	26.88	0.42	40	15	150.0	63.000	3,780.0	3.992	1.572	3.14	2.351
8:21	1	26.3	0.58	40	15	150.0	87.000	5,220.0	5.512	2.170	4.34	3.247
8:22	1	25.8	0.5	40	15	150.0	75.000	4,500.0	4.752	1.871	3.74	2.799
											Ksat:	**2.799**

Average of all 10% Ksat values at this test pit

SAYERS RANCH

Bastrop, Tx 2025

TABLE NO. 3-D, Hydraulic Conductivity Results

Conditions: CLEAR

Site K2B

Soil notes: Bt1

Location		CM.	
Hole depth	42	water h	15
Reference	10	d	37
D	52	H1	37

Ameter config.	Valve On	A (cm^-2)	Conver. Factor	DTW (cm) Initial:	38	Time Test Start:	0:00
2	2	0.001056	150	Final:	37	SS Start:	0:00
						Test Stop:	0:00

time (min)	dt (min)	Res (cm)	dR (cm)	DTW (cm)	H (cm)	FLOW (cm^3)	Q (cm^3/m)	Q (cm^3/hr)	K (cm/hr)	K (in/hr)	L (ft/d)	LTAR (gpd/sf)
8:41	1	30.4		38	14	150.0						
8:42	1	28.9	1.5	37	15	150.0	225.000	13,500.0	14.256	5.613	11.23	8.397
8:43	1	27.8	1.1	37	15	150.0	165.000	9,900.0	10.454	4.116	8.23	6.158
8:44	1	26.7	1.1	37	15	150.0	165.000	9,900.0	10.454	4.116	8.23	6.158
8:45	1	25.6	1.1	37	15	150.0	165.000	9,900.0	10.454	4.116	8.23	6.158
											Ksat:	**6.718**

Average of all 10% Ksat values at this test pit

Site K2C

Soil notes: A

Location		CM.	
Hole depth	30	water h	15
Reference	10	d	25
D	40	H1	25

Ameter config.	Valve On	A (cm^-2)	Conver. Factor	DTW (cm) Initial:	26	Time Test Start:	
2	2	0.001056	150	Final:	25	SS Start:	
						Test Stop:	

time (min)	dt (min)	Res (cm)	dR (cm)	DTW (cm)	H (cm)	FLOW (cm^3)	Q (cm^3/m)	Q (cm^3/hr)	K (cm/hr)	K (in/hr)	L (ft/d)	LTAR (gpd/sf)
9:00	0	38.8	0	26	14	150.0						
9:02	2	38.5	0.3	25	15	150.0	22.500	1,350.0	1.426	0.561	1.12	0.840
9:04	2	38.0	0.5	25	15	150.0	37.500	2,250.0	2.376	0.935	1.87	1.400
9:06	2	37.5	0.5	25	15	150.0	37.500	2,250.0	2.376	0.935	1.87	1.400
9:08	2	37.0	0.5	25	15	150.0	37.500	2,250.0	2.376	0.935	1.87	1.400
											Ksat:	**1.260**

Average of all 10% Ksat values at this test pit

SAYERS RANCH

Bastrop, Tx 2025

TABLE NO. 3-E, Hydraulic Conductivity Results

Conditions: CLEAR

Site K2D

Soil notes: Bt

Location		CM.	
Hole depth	78	water h	15
Reference	12	d	75
D	90	H1	75

Ameter config.	Valve On	A (cm^-2)	Conver. Factor	DTW (cm)		Time	
				Initial:	76	Test Start:	0:00
2	2	0.001056	150	Final:	75	SS Start:	0:00
						Test Stop:	0:00

time (min)	dt (min)	Res (cm)	dR (cm)	DTW (cm)	H (cm)	FLOW (cm^3)	Q (cm^3/m)	Q (cm^3/hr)	K (cm/hr)	K (in/hr)	L (ft/d)	LTAR (gpd/sf)
9:34	1	26.6		76	14	150.0						
9:35	1	26.0	0.6	75	15	150.0	90.000	5,400.0	5.702	2.245	4.49	3.359
9:36	1	25.3	0.7	75	15	150.0	105.000	6,300.0	6.653	2.619	5.24	3.919
9:37	1	24.7	0.6	75	15	150.0	90.000	5,400.0	5.702	2.245	4.49	3.359
9:38	1	24.1	0.6	75	15	150.0	90.000	5,400.0	5.702	2.245	4.49	3.359
											Ksat:	**3.499**

Average of all 10% Ksat values at this test pit

Site K2E

Soil notes: C/B Test performed at the bottom of TP2, 156 cm bgs.

Location		CM.	
Hole depth	30	water h	15
Reference	10	d	25
D	40	H1	25

Ameter config.	Valve On	A (cm^-2)	Conver. Factor	DTW (cm)		Time	
				Initial:	26	Test Start:	
2	2	0.001056	150	Final:	25	SS Start:	
						Test Stop:	

time (min)	dt (min)	Res (cm)	dR (cm)	DTW (cm)	H (cm)	FLOW (cm^3)	Q (cm^3/m)	Q (cm^3/hr)	K (cm/hr)	K (in/hr)	L (ft/d)	LTAR (gpd/sf)
10:03	0	41.3	0	26	14	150.0						
10:04	1	40.7	0.6	25	15	150.0	90.000	5,400.0	5.702	2.245	4.49	3.359
10:05	1	40.0	0.7	25	15	150.0	105.000	6,300.0	6.653	2.619	5.24	3.919
10:06	1	39.5	0.5	25	15	150.0	75.000	4,500.0	4.752	1.871	3.74	2.799
10:07	1	38.8	0.7	25	15	150.0	105.000	6,300.0	6.653	2.619	5.24	3.919
											Ksat:	**3.499**

Average of all 10% Ksat values at this test pit

SAYERS RANCH

Bastrop, Tx 2025

TABLE NO. 3-F, Hydraulic Conductivity Results

Conditions: CLEAR

Site K2F

Soil notes: B Test performed at the bottom of TP2, 156 cm bgs.

Location		CM.	
Hole depth	156	water h	15
Reference	10	d	75
D	90	H1	75

Ameter config.	Valve On	A (cm^-2)	Conver. Factor	DTW (cm)		Time	
				Initial:	76	Test Start:	0:00
2	2	0.001056	150	Final:	75	SS Start:	0:00
						Test Stop:	0:00

time (min)	dt (min)	Res (cm)	dR (cm)	DTW (cm)	H (cm)	FLOW (cm^3)	Q (cm^3/m)	Q (cm^3/hr)	K (cm/hr)	K (in/hr)	L (ft/d)	LTAR (gpd/sf)
10:25	0	25.0		76	14	150.0						
10:27	2	24.4	0.6	75	15	150.0	45.000	2,700	2.851	1.123	2.25	1.679
10:29	2	24.3	0.1	75	15	150.0	7.500	450.0	0.475	0.187	0.37	0.280
10:31	2	24.2	0.1	75	15	150.0	7.500	450.0	0.475	0.187	0.37	0.280
10:33	2	24.1	0.1	75	15	150.0	7.500	450.0	0.475	0.187	0.37	0.280
											Ksat:	**0.630**

Average of all 10% Ksat values at this test pit

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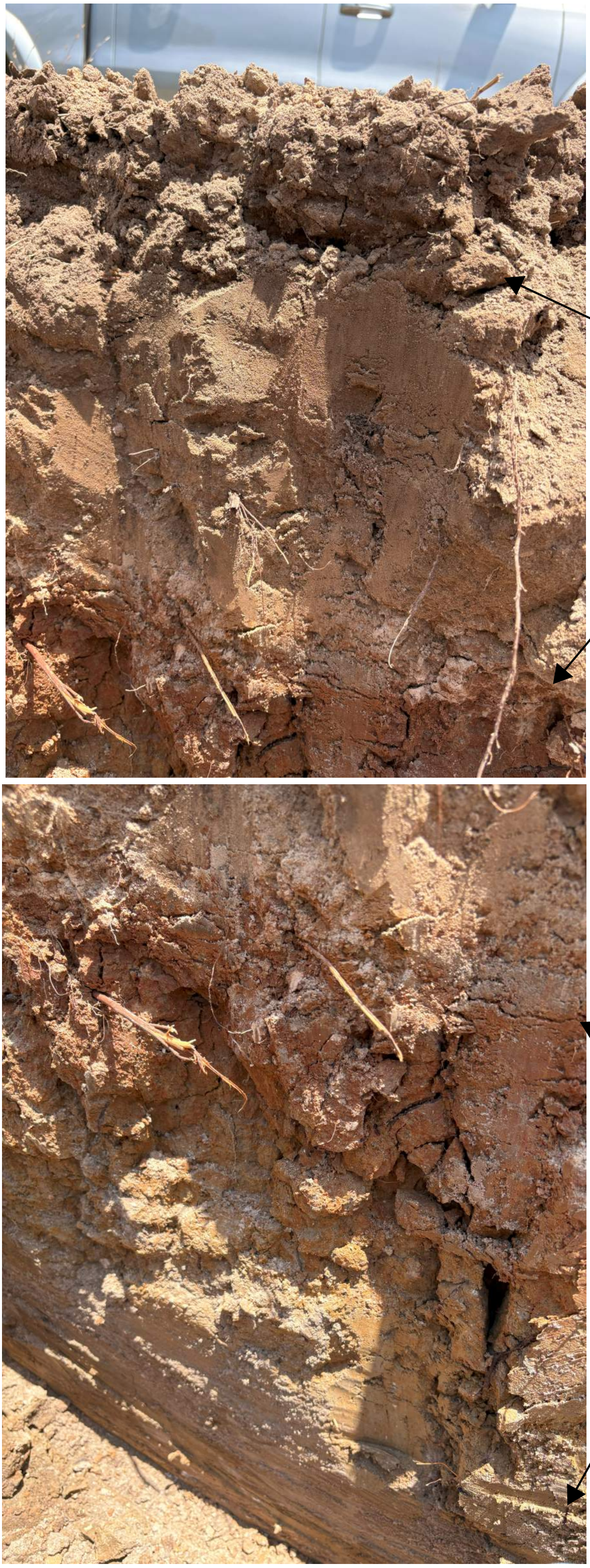
EXHIBIT 15-E

TEST PIT PHOTOGRAPHS

TEST PIT 1



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PATHWAY LAND DEVELOPMENT
SAYERS RANCH WWTF
BASTROP COUNTY, TEXAS

SOIL TEST PIT 1

Exhibit 5

TEST PIT 2



A HORIZON

B HORIZON

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PATHWAY LAND DEVELOPMENT
SAYERS RANCH WWTF
BASTROP COUNTY, TEXAS

SOIL TEST PIT 2

Exhibit 5

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EXHIBIT 15-F

DRAFT GEOTECHNICAL REPORT
NOVEMBER 2024

PROVIDED AS A SEPARATE FILE:

10054 X15b Draft Geotech Rpt

ATTACHMENT 16

SITE PREPARATION PLAN

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SITE PREPARATION PLAN

Domestic Wastewater Permit Application

Worksheet 3.3 Section 3

As documented in this TLAP application, three areas of the Sayers Ranch site are to be used for the proposed subsurface area drip dispersal system (SADDS), see Figure 1.



Figure 1. Map of Proposed SADDS Areas.

Topography in the southwestern portion of the site (6.82 acres and 10.12 acres) is very hummocky with slope generally to the east-southeast at approximately 1.25%; whereas, the topography in the central dispersal area (1.67 acres) is defined with a slope of 6.83% to the east-northeast. Cut-off trenches will be dug on the upgradient sides of all three dispersal areas to minimize rainfall run-on. The central dispersal area will shed rainfall run-off quickly due to the slope. Grading to reduce the hummocky nature of the two southwestern dispersal areas is anticipated to be completed; however, the slopes are so gradual shedding rainfall run-off is problematic at best.

As noted in the Soil Evaluation Plan (Attachment 15), restrictive horizons were not encountered in the two test pits excavated in early June 2025. Additionally, test pits excavated in November 2024 did not report any restrictive horizons in the three test pits excavated in the dispersal areas. Logs for these three test pits (TP-2, TP-3, and TP-5) can be found in Exhibit 15-F of the Soil Evaluation plan.

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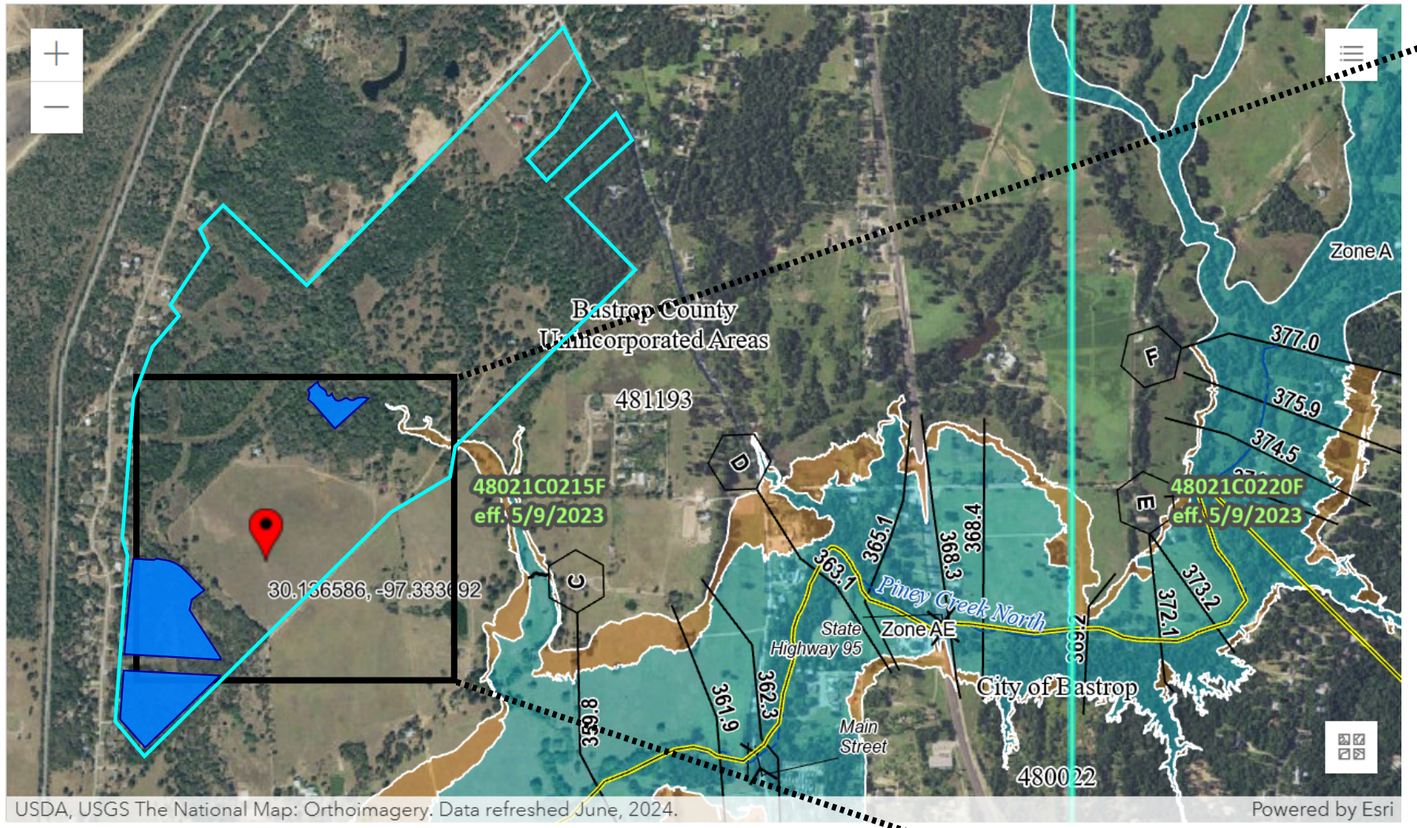
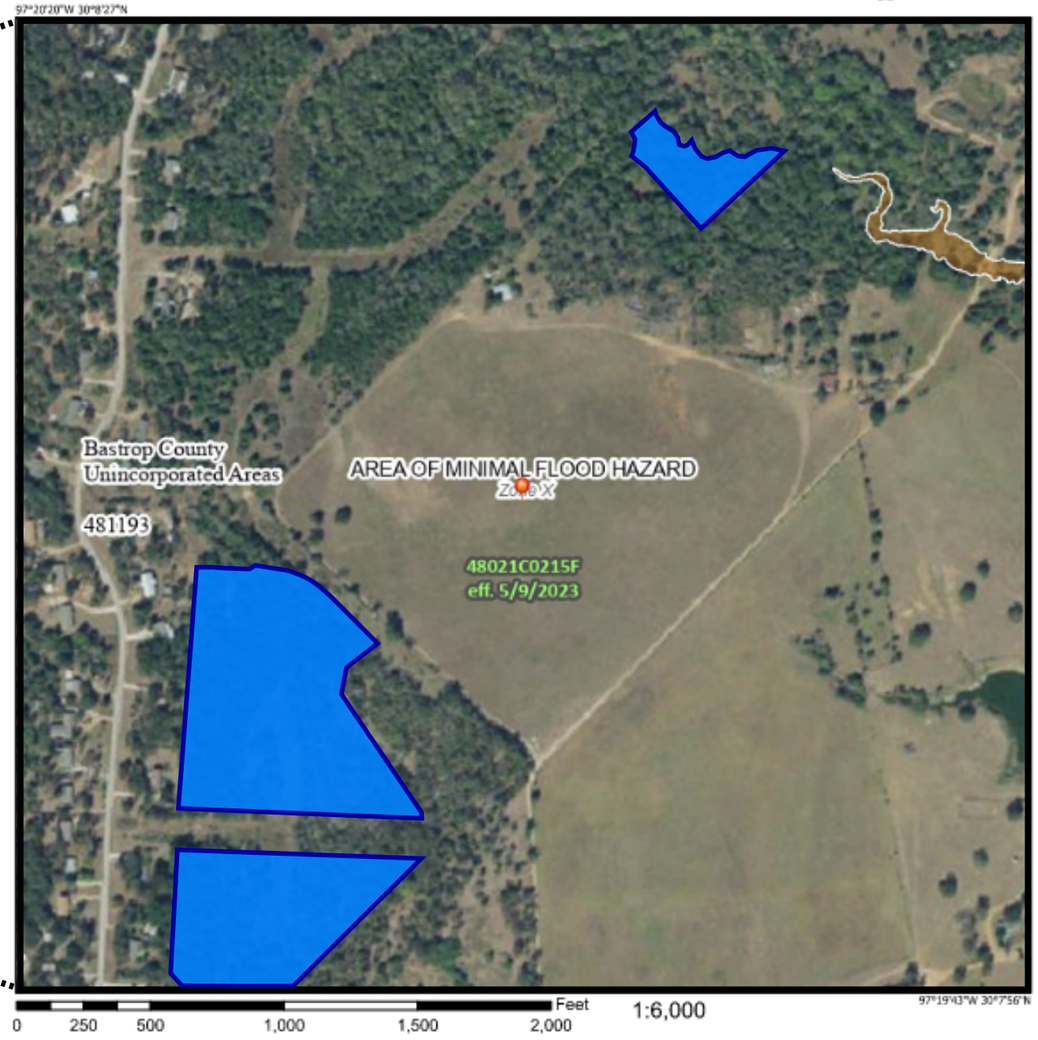
Soil importation is not anticipated as the Amoozemeter tests indicate the saturated hydraulic conductivity of the soil will readily transmit the injectant. However, in the event imported material is required the chemical and physical characteristics of this material will be provided to TCEQ.

All three dispersal areas are heavily vegetated; thus, clearing and grubbing will be performed. Small diameter trees including their root balls will be removed; however, larger diameter trees will be left in place, and the drip lines will be laid around them.

ATTACHMENT 17

FEMA FLOOD MAP





Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN — Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 — Cross Sections with 1% Annual Chance
- 17.5 — Water Surface Elevation
- Coastal Transect
- 513 — Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 6/24/2025 at 3:51 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

FEMA

Proposed SADDS Irrigation Areas

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TX Firm No. 21880

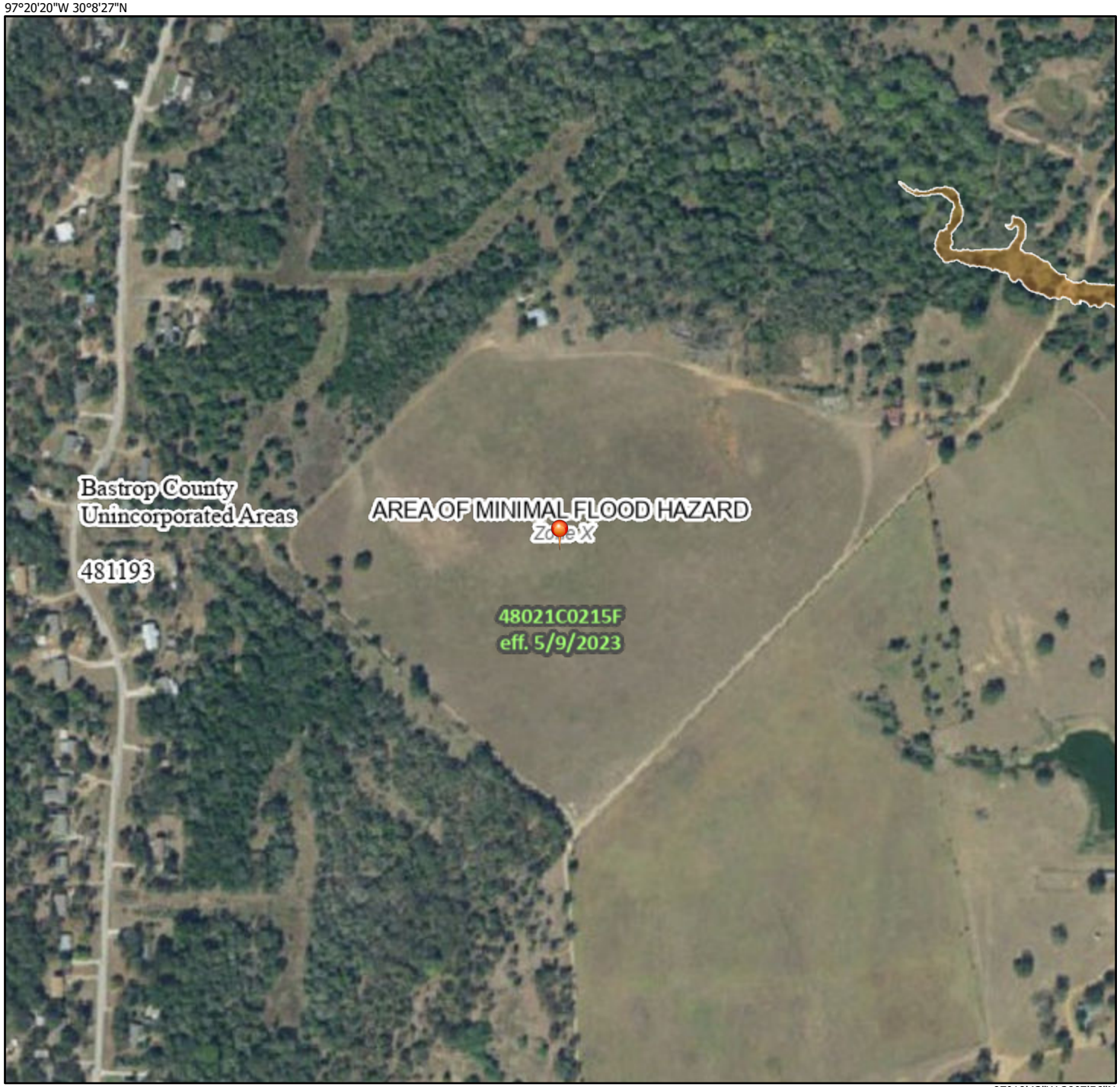
ALTO PICCO BASTROP LLC
SAYERS RANCH WWTP
BASTROP COUNTY, TEXAS

FEMA FLOOD MAP
Attachment 17

National Flood Hazard Layer FIRMette

FEMA

97°20'20"W 30°8'27"N



97°19'43"W 30°7'56"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

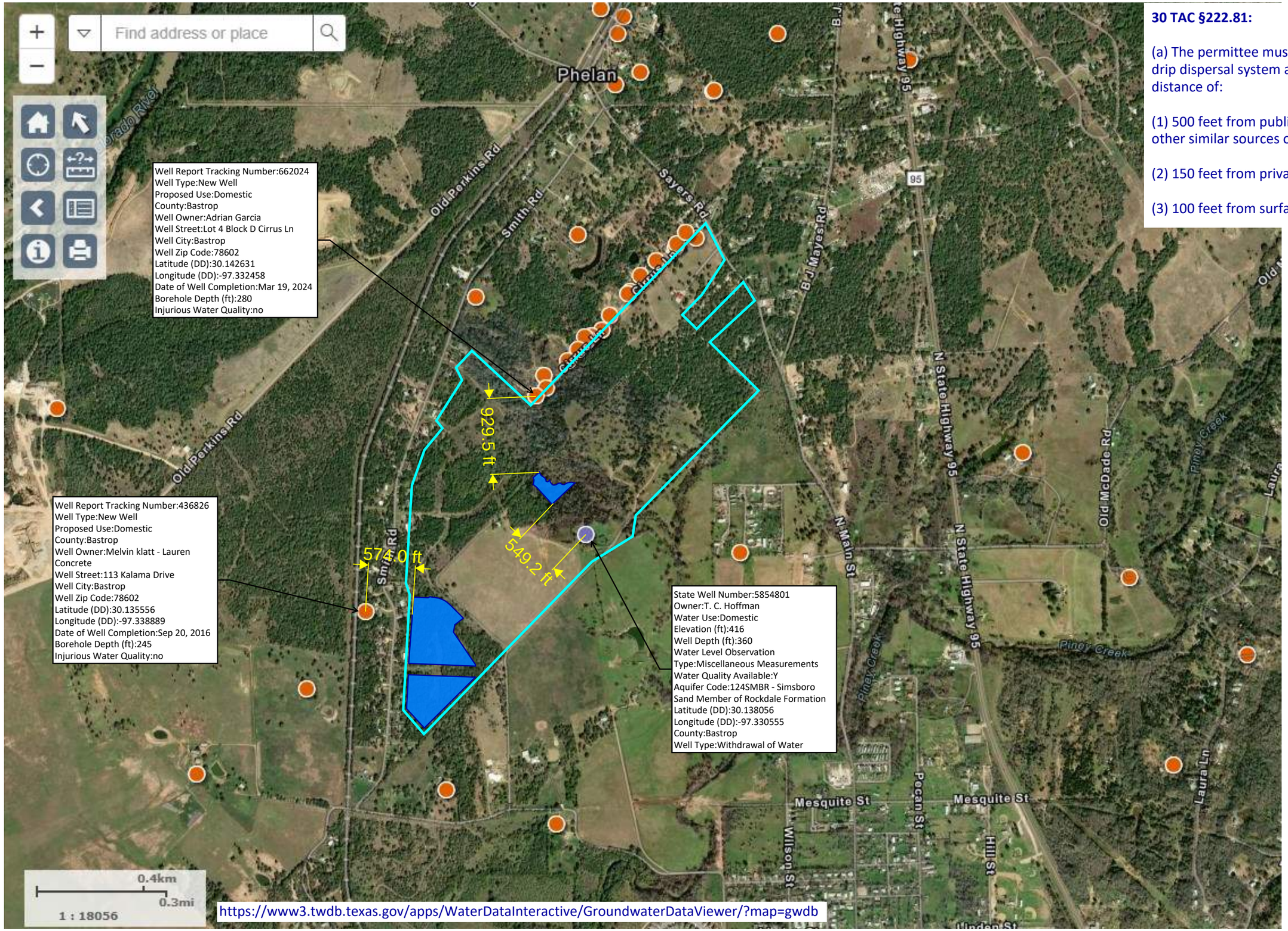
This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 6/24/2025 at 3:51 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

ATTACHMENT 18

SURFACE/GROUNDWATER BUFFER MAP



https://www3.twdb.texas.gov/apps/WaterDataInteractive/GroundwaterDataViewer/?map=gwdb

30 TAC §222.81:

(a) The permittee must locate the subsurface area drip dispersal system a minimum horizontal distance of:

(1) 500 feet from public water wells, springs, or other similar sources of public drinking water;

(2) 150 feet from private water wells; and

(3) 100 feet from surface water in the state.

Proposed SADDS Irrigation Areas

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Georgetown, TX 78626
TX Firm No. 21880

ALTO PICCO BASTROP LLC
SAYERS RANCH WWTP
BASTROP COUNTY, TEXAS

SURFACE & GROUNDWATER BUFFER MAP

Attachment 18

WORKSHEET 7.0

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

CLASS V INJECTION WELL INVENTORY/AUTHORIZATION FORM

Submit the completed form to:

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

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

Section 1. General Information (Instructions Page 90)

1. TCEQ Program Area

Program Area (PST, VCP, IHW, etc.): Click to enter text.

Program ID: Click to enter text.

Contact Name: Click to enter text.

Phone Number: Click to enter text.

2. Agent/Consultant Contact Information

Contact Name: Lauren Wahl, PE

Address: 4411 S IH-35 Ste 100

City, State, and Zip Code: Georgetown, TX 78626

Phone Number: 5127559962

3. Owner/Operator Contact Information

☒ Owner ☐ Operator

Owner/Operator Name: Alto Picco Bastrop LLC

Contact Name: Mr. Kacee Jackson

Address: 210 Lavaca St #2312

City, State, and Zip Code: Austin, TX 78701

Phone Number: 5127892833

4. Facility Contact Information

Facility Name: Sayers Ranch WWTP

Address: N/A

City, State, and Zip Code: N/A

Location description (if no address is available): ~4,600-ft S of Smith Rd and Sayers Ranch Rd intersection in Bastrop, TX

Facility Contact Person: Mr. Kacee Jackson

Phone Number: 5127892833

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

Latitude: 30.139347

Longitude: -97.329120

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

Attach topographic quadrangle map as attachment A.

6. **Well Information**

Type of Well Construction, select one:

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

Number of Injection Wells: Click to enter text.

7. **Purpose**

Detailed Description regarding purpose of Injection System:

Disposal of treated effluent from MBR WWTF via SADDS. Effluent will be Type 1 reclaimed water.

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

8. **Water Well Driller/Installer**

Water Well Driller/Installer Name: American Manufacturing Company Inc. will install the proposed SADDS, see Attachment 7-D.

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

Phone Number: Click to enter text.

License Number: Click to enter text.

Section 2. Proposed Down Hole Design

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

Table 7.0(1) – Down Hole Design Table

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

Section 3. Proposed Trench System, Subsurface Fluid Distribution System, or Infiltration Gallery

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

System(s) Dimensions: See Attachment 7-D

System(s) Construction: See Attachment 7-D

Section 4. Site Hydrogeological and Injection Zone Data

1. Name of Contaminated Aquifer: N/A

2. Receiving Formation Name of Injection Zone: Fluvial terrace deposits, Calvert Bluff Formation

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

4. Surface Elevation: 400 to 423 ft

5. Depth to Ground Water: 27 ft bgs

6. Injection Zone Depth: 48" or shallower

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

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

Name: N/A

Thickness: Click to enter text.

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

Attach as Attachment E.

9. Horizontal and Vertical extent of contamination and injection plume

Attach as Attachment F.

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

Attach as Attachment G.

11. Injection Fluid Chemistry in PPM at point of injection

Attach as Attachment H.

12. Lowest Known Depth of Ground Water with < 10,000 PPM TDS: N/A

13. Maximum injection Rate/Volume/Pressure: 0.25 gpd/SF hydraulic application rate, see Attachment 13.

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

15. Injection wells within 1/4 mile radius (attach map as Attachment J): N/A, no injection wells within ¼ mi

16. Monitor wells within 1/4 mile radius (attach drillers logs and map as Attachment K): N/A, no monitoring wells within ¼ mi

17. Sampling frequency: Click to enter text.

18. Known hazardous components in injection fluid: N/A, injectate will be type I reclaimed water

Section 5. Site History

1. Type of Facility: MBR WWTF to serve residential development
2. Contamination Dates: N/A
3. Original Contamination (VOCs, TPH, BTEX, etc.) and Concentrations (attach as Attachment L): N/A, no contamination identified
4. Previous Remediation (attach results of any previous remediation as attachment M): N/A

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

Class V Injection Well Designations

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

ATTACHMENT 7A

TLAP U.S. TOPOGRAPHIC MAP

LAKE BASTROP QUADRANGLE
TEXAS - BASTROP COUNTY
7.5-MINUTE SERIES

The National Map
US Topo

USGS
science for a changing world

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

Treatment Facility Boundary

Applicant Property Boundary

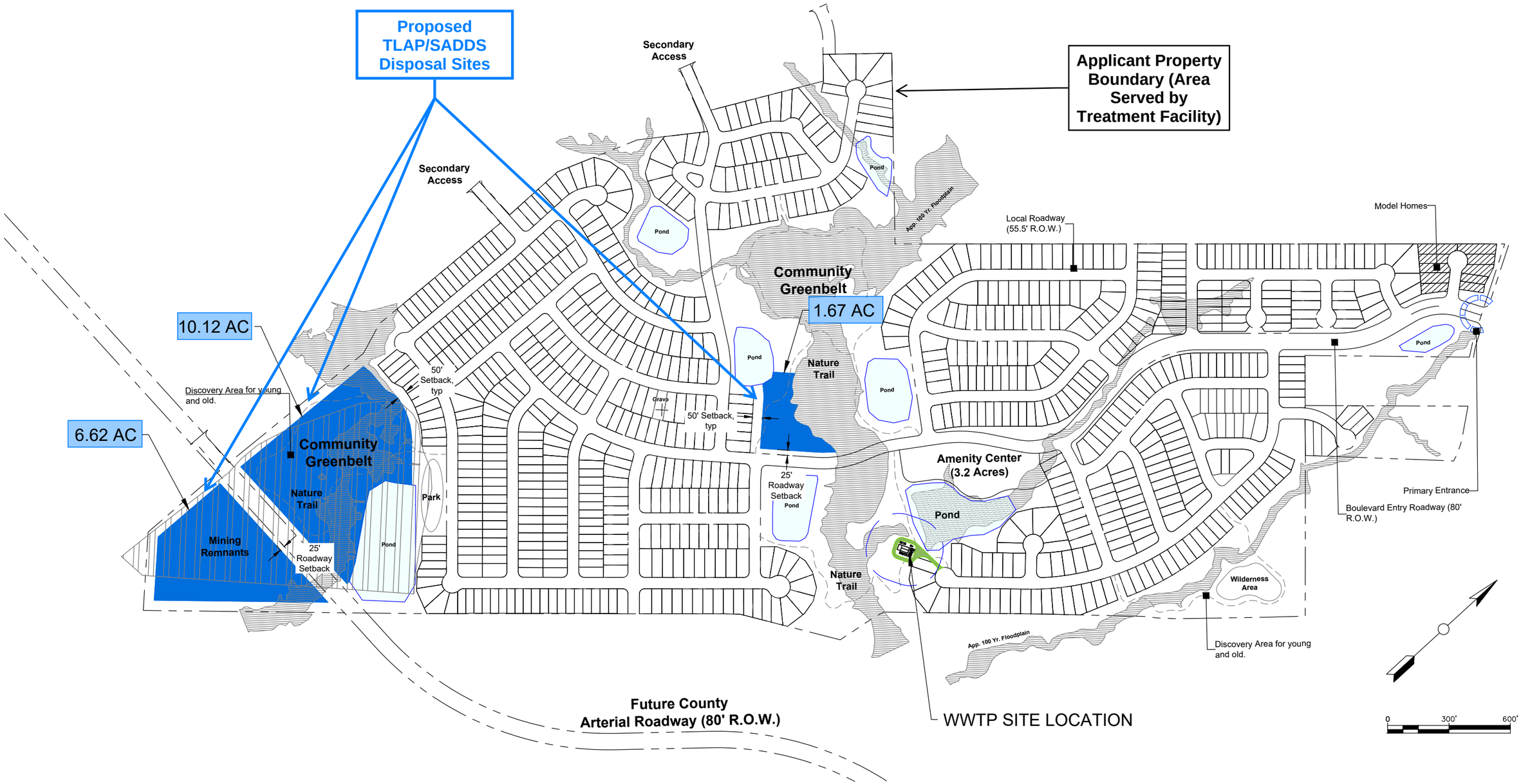
TLAP Effluent Disposal Site Boundaries

Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and 1 000-meter grid: Universal Transverse Mercator, Zone 14R
This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery	NAIP, September 2016 - November 2016	Roads	U.S. Census Bureau, TIGER/Line - 2018
Elevation	U.S. Census Bureau, TIGER - 2019	Names	GNIS, 1979 - 2022
Hydrography	National Hydrography Dataset - 2000 - 2018	Contours	National Elevation Dataset - 2008 - 2018
Boundaries	Multiple sources; see publication publication publication

ATTACHMENT 7B

SITE MAP



PRELIMINARY:
FOR REVIEW ONLY

This document is released for the purpose of interim review or permitting and it is not intended for Construction or bidding

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Georgetown, TX 78626
TX Firm No. 21880

ALTO PICCO BASTROP LLC
SAYERS RANCH WWTP
BASTROP COUNTY, TEXAS

CONCEPT SITE PLAN
Exhibit 7-B

ATTACHMENT 7C

NOT APPLICABLE TO THIS APPLICATION

ATTACHMENT 7D

PROPOSED FLUID DISTRIBUTION DIAGRAM

Proposed System Design

The proposed subsurface fluid distribution system is a subsurface area drip dispersal system (SADDS) that will utilize treated effluent from the onsite MBR Wastewater Treatment Facility (WWTF) to irrigate the areas indicated on **Exhibit 7-B** (Concept Site Plan). The effluent will be Type I Reclaimed Water. Per 30 TAC §210.32(1), Type I Reclaimed Water is treated water that meets quality limits which allow public contact with the reclaimed water. By this definition, treated effluent is qualified as safe and suitable to use for public contact purposes, such as residential irrigation, fire protection, or even irrigation of food crops. The proposed land use for the SADDS locations onsite will be green spaces with accessible nature trails for neighborhood residents.

The development will have a maximum daily flow of 200,000 gallons per day (gpd). Upon approval from the executive director, the SADDS will be designed with a hydraulic application rate of 0.25 gpd/square foot, requiring 18.4 acres of application area on the site. Details on the onsite soils, hydraulic application rate, and infiltration rate can be found in Technical Report 10054 **Attachment 13**.

The proposed SADDS system is the “Perc Rite” Drip Disposal System by American Manufacturing Company, Inc. Please see the attached proposal and details on design for this site.

Respectfully Submitted,

Lauren Wahl

Lauren B. Wahl, PE
reUse Engineering, Inc.

AMERICAN
Manufacturing Company, Inc.

July 16, 2025

Lauren Wahl, P.E.
ReUse Innovations, Inc.
4411 South IH-35, Suite 100
Georgetown, Texas 78626

Re: Sayers Ranch, Bastrop County, Texas
Proposed American Mfg. Co., Inc. "Perc-Rite®" Drip Dispersal System

Dear Lauren,

Thank you for your interest in the American "Perc-Rite®" Drip technology for your onsite dispersal system for the proposed Sayers Ranch Subdivision in Bastrop County, Texas. The following is based on the preliminary information you provided including an initial sizing estimate of 200,000 gpd peak design flow with a pretreatment device serving the same volume and an application rate of 0.25 gpd/sq ft (800,000 sq ft). The following hardware estimates are based on this preliminary information and could vary due to site conditions, landscape loading, topography, water mounding or nutrient loading.

Preliminary design sizing indicates a "Perc-Rite®" Model ASD250 - 250 gpm duplex pump and filter system using eighteen (18) drip zones and approximately 400,000 l.f. Each zone would have up to 23,100 l.f. of pressure compensating drip tubing. The drip tubing must be installed along contour.

The ASD250 is a 6' x 8' fully automatic disc filtration unit and will require a heated lighted enclosure. Zones will automatically forward flush at a minimum of 2.0 ft/sec every two weeks. The disc filters automatically backwash at preset flows or pressure intervals several times per day. Zones will dose two at a time but will forward flush individually.

Attached is an AutoCAD file with standard ASD250 details and a MS Word document with system specifications. Sample zone detail provided in the AutoCAD file.

<u>Typical Full Zone Sizes:</u>

300' (across contour) x 154'

150' x 308'

100' x 460'

22011 Greenhouse Road, Elkwood VA 22718
800-345-3132 / 540-825-7234 / FAX 540-829-1031
www.americanonsite.com

Half zones can be combined to create full size zones. Typical half zone sizes are:

300’ x 78’

150’ x 156’

100’ x 234’

Typical Quarter zone sizes:

150’ x 77’

100’ x 115’

75’ x 154’

The system would include full tech support to the design engineer, AutoCAD details, system start-up, training and an Operations Manual (to be provided at system start-up). The system does not include installation, pretreatment device(s), standard PVC pipe for any of the installation, electrical field wire, tankage or pump house building. Again, thank you for your interest and please contact me at 215-285-6363 with any questions.

Sincerely,

Bryan J. Allen

Bryan J. Allen, P.E.
American Manufacturing Co., Inc.

Enclosures

S:\Staff\BA\MS Word\inquiries25\Sayers Ranch, TX 7-16-25

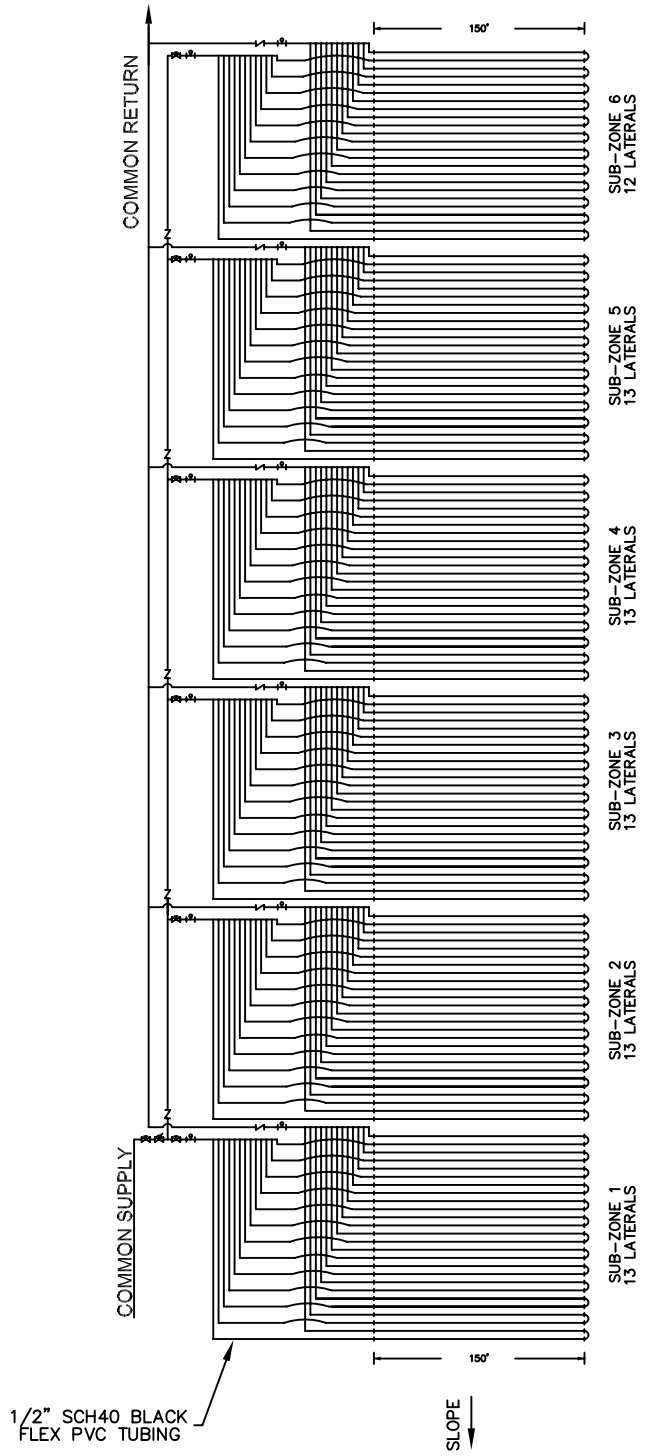
American Manufacturing Company, Inc.

P.O. Box 97 Elkwood, VA 22718-0097
1-800-345-3132

ASD 250 - 23,100 Linear Feet

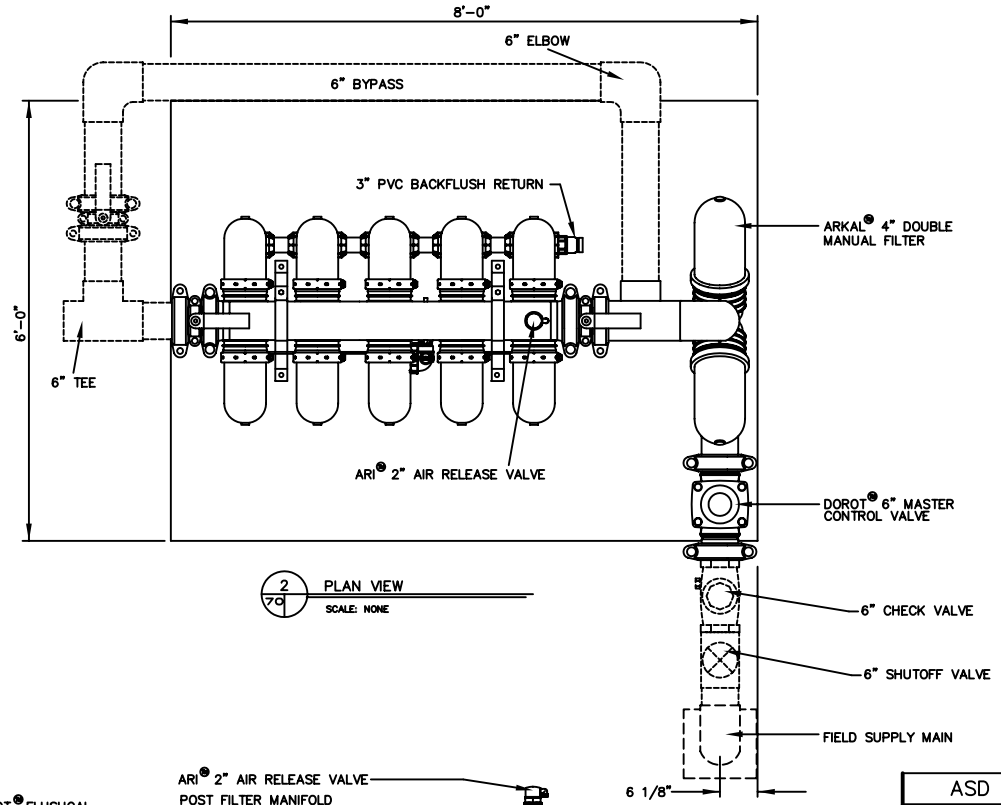
Legend	6 Subzones	Total	Dosing	Field Flush
- AIR RELEASE VALVE	5 Subzones w/ 13 Laterals	154 Runs	118 GPM	241 GPM
- CHECK VALVE	1 Subzones w/ 12 Laterals	77 Lats		35' Flushing
- SHUTOFF VALVE	2 Runs/Lateral	23,100 L.F.		Head Loss Tubing
- ZONE VALVE	Long Lat. 300'			

(10) Ten - (13) Thirteen Drop and (2) Two - (12) Twelve Drop Top Feed Manifolds (6 Supply, 6 Return)



Standard Zone Detail - 23,100 LF per Zone w/ 6 Subzones

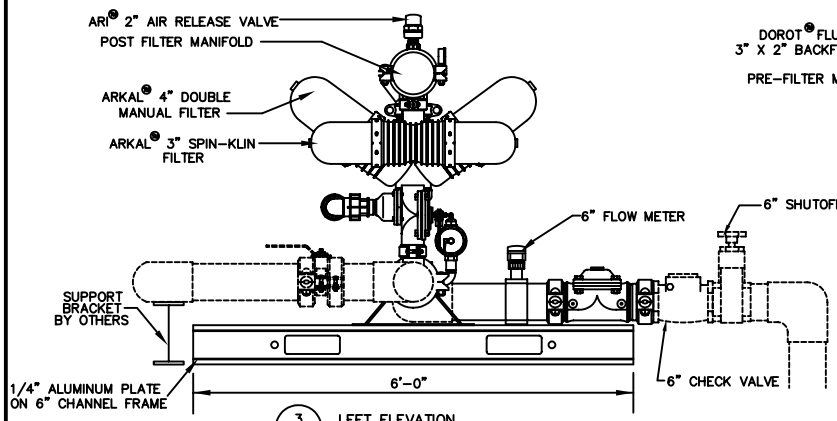
S:\6 Staff\Rodney\ZoneDetails\Printable\ASD_250.dwg



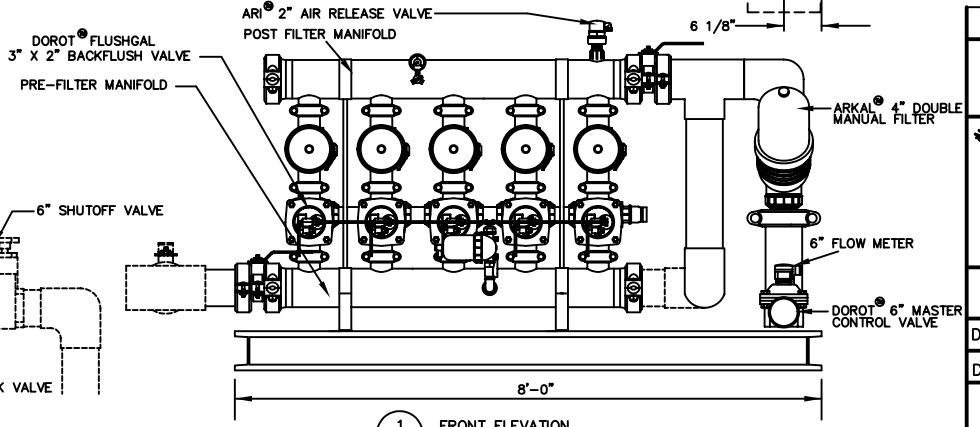
2 PLAN VIEW
SCALE: NONE

SCALE: 1/2" = 1'-0"

1' 9" 6" 3" 0 1' 2' 3' 4' 5'



3 LEFT ELEVATION
SCALE: NONE



1 FRONT ELEVATION
SCALE: NONE

* NOTE: CHECK AND SHUT OFF VALVES TO BE PLUMBED ON SITE.

S:\6 Staff\KevinU\AutoCAD\Hyd&Drip\ASD 250\ASD 250 6x8 no pumps.dwg

ASD 250 6x8 NO PMP.DWG

ASD-250
TYPICAL LAYOUT

AMERICAN MANUFACTURING CO.
5517 Wellington Road
Gainesville, Virginia 20155
(703) 754-0077
Fax (703) 754-0024
1-800-345-3132

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250 GPM FILTER UNIT
6x8 SKID

Drawn by: RJW	Checked by:
Date: 10/08/04	Date:

Application Note:
The suggested layouts are not finished fabrication drawings. The user of these plans is responsible for verifying that the suggested design of any substitutions or modifications meet all local building and enviromental codes and requirements, for verifying that the suggested design or any substitutions or modifications are consistant with conditions at the construction site, for proper construction and use of materials, and for the completed system. Check your suggested design requirements with Waste Water Systems or your Perc-Rite® distributor.

American Manufacturing Company, Inc.
P.O. Box 97, Elkwood, VA 22718
1-800-345-3132 www.americanonsite.com Fax 540-825-1785

PERC-RITE® DRIP SYSTEM

MODEL ASD250

STANDARD 4 ZONE COMMERCIAL DRIP SYSTEM

No.	DESCRIPTION	ITEM NO.	QUANTITY
1	150-250 GPM H.U. & CONTROLLER	ASD 250	1
2	10 HP, 460V, 3 PHASE	PUMP	2
3	3" FOOT STRAINER	STRAINER3	2
4	4 FLOAT SWTICH BAR	FLOATBAR4	1
5	Drip Tubing Per 1000 Ft Roll	BIOLINE1000	98
6	½ X 100 PVC Flex Tube	PVC12FLEX	14
7	¾ X 100 PVC Flex Tube	PVC34FLEX	14
8	Bioline Repair Coupling ½ in	BIOCOUP12	100
9	½ Bioline X ¾ MIP Drip Adapter	BIOINSERT12/34	1,300
10	½ X ¾ PVC Press S X FIP Adapter	PVCPRFIP12X34	650
11	¾ X ¾ PVC Press S X FIP Adapter	PVCPRFIP34X34	650
12	2" GUARDIAN AIR RELEASE VALVE	65ARIA2	40
13	4" 24V ZONE VALVE ASSEMBLY (Box, Riser, Unions & Shut-Off Valve)	ZONEVALVE4"	5
14	Top Feed Supply Manifolds W/Shutoff	DRIPTFMS DROP	20
15	Top Feed Return Manifolds	DRIPTFMR DROP	20
16	Swing Check Valve Kit	SWINGCHECK	36

MATERIALS FOR EACH ADDITIONAL ZONE 23,100 LF/Zone

No.	DESCRIPTION	ITEM NO.	QUANTITY
1	Drip Tubing Per 1000 Ft Roll	BIOLINE1000	25
2	½ X 100 PVC Flex Tube	PVC12FLEX	4
3	¾ X 100 PVC Flex Tube	PVC34FLEX	4
4	Bioline Repair Coupling ½ in	BIOCOUP12	25
5	½ Bioline X ¾ MIP Drip Adapter	BIOINSERT12/34	330
6	½ X ¾ PVC Press S X FIP Adapter	PVCPRFIP12X34	165
7	¾ X ¾ PVC Press S X FIP Adapter	PVCPRFIP34X34	165
8	2" GUARDIAN AIR RELEASE VALVE	65ARIA2	10
9	4" 24V ZONE VALVE ASSEMBLY (Box, Riser, Unions & Shut-Off Valve)	ZONEVALVE4"	1
10	Top Feed Supply Manifolds W/Shutoff	DRIPTFMS DROP	5
11	Top Feed Return Manifolds	DRIPTFMR DROP	5
12	Swing Check Valve Kit	65ARIA2	9

AMERICAN
Manufacturing Company, Inc.

DRIP DISPERSAL SYSTEMS

COMMUNITY & COMMERCIAL PERC-RITE®



LAND APPLICATION FOR DECENTRALIZED WASTEWATER

Simple, Economical & Innovative, Wastewater Dispersal Technology

PERC-RITE® DRIP SYSTEMS

PERC-RITE® drip dispersal systems provide the most flexible and economical system to return treated wastewater to the environment for final polishing and beneficial reuse.

Decentralized wastewater treatment and dispersal systems consist of a variety of approaches for collection, treatment and final dispersal of wastewater from small communities, cluster developments, industry and institutional facilities.

Cost savings range from 12% - 29% when comparing the total installed cost of a **PERC-RITE®** decentralized drip dispersal system with the cost of other decentralized land application systems including low pressure pipe, gravel trenches, beds and elevated systems.



Cost-Effective and economical

- Scalable
- Avoid large capital costs
- Reduced engineering time due to pre-engineered & integrated components
- Low operation and maintenance costs



Green and sustainable

- Low energy consumption
- Minimal site disturbance
- Reduces sediment runoff
- Groundwater recharge
- Nutrient reduction of TN & P

PERC-RITE® is a unique fluid handling system for the dispersal of septic tank effluent wastewater into soil. The system incorporates filtration, time dosing and low rate drip distribution tubing. In conditions where aerobic dispersal; such as low pressure distribution of septic effluent, is required or where land application with the use of conventional soil absorption fields is not acceptable, **PERC-RITE®** offers a method for subsurface & surface dispersal of the wastewater.

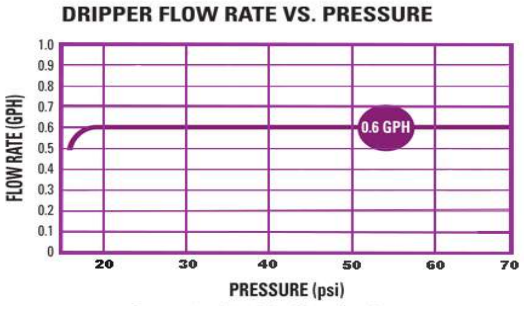
PERC-RITE® accommodates all pretreatment processes including septic tanks, aerobic treatment units, lagoon, and media filtration. Only primary treatment; the removal of large settled solids, of the sewage is necessary for the operation of the system. Local soil and site conditions may require additional

treatment for excessive organics, nutrients, F.O.G or other contaminants.

Patent Nos. 5,200,065 • No. 5,984,574B • 6,261,452B1

FOR WASTEWATER DISPERSAL

Bioline™ drip tubing regulates the amount of effluent to be discharged from each emitter. The emitters maintain a constant flow rate over pressure ranges of 7 to 70 psi which guarantees equal distribution across the dispersal area.





Disc Filtration is an innovative approach to solids removal from liquids. The unique structure allows for high efficiency filtration, low backwash volume, and reusable elements. The discs are flat, grooved plastic rings with a hole in the center. Rings are stacked together to form a cylindrical filter element. As effluent is pressurized into the filter, it compresses the rings. The grooves in the rings crisscross, forming a network that traps solid particles which are larger than the grooves. Filtered liquid exits from the inside of the cylinder providing reliable operation. Disc filters come in a full range of sizes and capacities for the various size systems.

On sites with discernable slopes, systems must be designed with the American Manufacturing Top Feed Manifolds system to control drain down, which may overload the lower laterals in a zone after the pump shuts off.



Patent No. 5,984,574



American Manufacturing will assist with the entire project; whether community, commercial or industrial, from engineering support, construction supervision, startup and ongoing technical support for the system operator.

American has staff professional engineers, designers, soil scientists, and technical trained sales people with state-of-the-art experience in all aspects of wastewater and water system technology.

CONTROLS

American Manufacturing Company, Inc. will design and build most any onsite wastewater or water system controller. Our staff is comprised of Professional Engineers, designers, soil scientists, and technically trained sales people with extensive experience in control systems.

Our objective is to provide reliable, economical, and efficient control device for fluid handling. We inventory many standard controls and are able to manufacture special panels in a very timely manner due to our modular design and manufacturing methods.

PACKAGES

American Manufacturing Company, Inc. manufactures many specialty On-Site Wastewater system packages including Recirculating Sand Filters, pump stations and the Perc-Rite® Drip Dispersal System. American can fabricate almost any skid mounted pump and control system, test it in house and ship the complete assembly ready for installation.

CATALOG

American Manufacturing Company, Inc. manufactures specialty On-Site Wastewater products including the Perc-Rite® Drip Dispersal System, Bull Run™ Valve, Dial-A-Flow™, Cool Guide™, Poly Distribution Boxes, accessories and Controls.



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"PERC-RITE®"

Onsite Wastewater Drip Dispersal Solutions

INNOVATIVE TECHNOLOGY FOR THE ENVIRONMENTAL AGE

~ Buy American ~



"Perc-Rite®" Drip Systems Protecting the Future of America

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Manufacturing Company, Inc.
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P.O. Box 97
Elkwood, VA 22718

"Perc-Rite®" ~ Setting the Industry Standard!

Why Drip Dispersal?

Drip Dispersal is a land application system for dispersal of wastewater effluent in decentralized environments. Drip utilizes time dosed, low volume, equally distributed doses over an entire absorption area while at the same time providing final treatment and recycle back into the environment. Drip provides optimum conditions for groundwater recharge to the receiving environment. It is ideal for any size system: single family homes, schools, churches, state parks, communities, commercial sites, etc. Drip systems are aesthetically pleasing and are installed subsurface utilizing the "out-of-site, out-of-mind" theory. Drip fields lend themselves to passive recreation with year round natural irrigation.

"Time dosed" systems provide for managing rest times between doses, peak flow notification, excess flow alarms and helps prevent soil saturation by maintaining an aerobic environment at the tubing interface. Drip is ideal for shallow installations, which maximizes the standoff to any site restrictions (i.e. rock, seasonal water table, etc.). Sloping sites and/or wooded sites are not a problem. Drip Dispersal is utilized in both warm and cold climates 365 days per year! Drip can reduce storage requirements and may offer a reduced area footprint compared to conventional systems. Drip is a reliable, proven *and* permanent option for *your* wastewater dispersal needs.

Why "Perc-Rite®" Drip?

The original drip technology! The world-renowned "Perc-Rite®" technology was the first drip dispersal system developed for use in wastewater applications. The "Perc-Rite®" Drip System is a complete wastewater dispersal system utilizing pressure compensating drip tubing, automatic disc filtration, automatic periodic forward field flushing and efficient effluent pumps with totalizing flow meter and state-of-the-art controls plus design standards for long term sustainable onsite wastewater installations.

The pressure compensating drip tubing allows for complete equal distribution of the effluent. Disc filtration provides the necessary protection for the drip emitters prior to the drip field. The disc filters automatically backwash at preset intervals.

The "Perc-Rite®" Drip System also automatically forward flushes the drip tubing ona periodic basis at the generally accepted engineering standard for minimum scouring velocity of 2.0 ft/sec. The "Perc-Rite®" System sets the standard for excellence in drip technology!

How much "Pretreatment" is required?

Primary settling is all that is required for the "Perc-Rite®" Drip technology. Drip dispersal is dependent on the soils and receiving environment, so specific site restrictions may dictate the quality and extent of any additional pretreatment that is required.

Why American Manufacturing?

With over 1 billion emitters installed in subsurface wastewater applications, "Perc-Rite®" is the largest *Drip System* name in North America. With American's in-house control panel fabrication we offer a single source complete "Perc-Rite®" Drip Dispersal System. We have over 100 years combined experience in the wastewater industry. Our technical support is first class and is unmatched. American continues to offer ongoing technical service even after the sale.



All wastewater systems require long-term operation and maintenance, so American Manufacturing provides complete O & M manuals for both owners and installers. All of our drips system models are available with Remote Operation and Monitoring capabilities and long-term call in tech support. We are an engineering-driven company staffed with Professional Engineers, Soil Scientists and designers to keep us a leader on the cutting edge of technology. We strive to provide our customers with proven, durable, and dependable *complete* systems to satisfy even the toughest onsite needs. American "Perc-Rite®" truly is the finest Drip Dispersal System available.

AMERICAN MANUFACTURING CO., INC.

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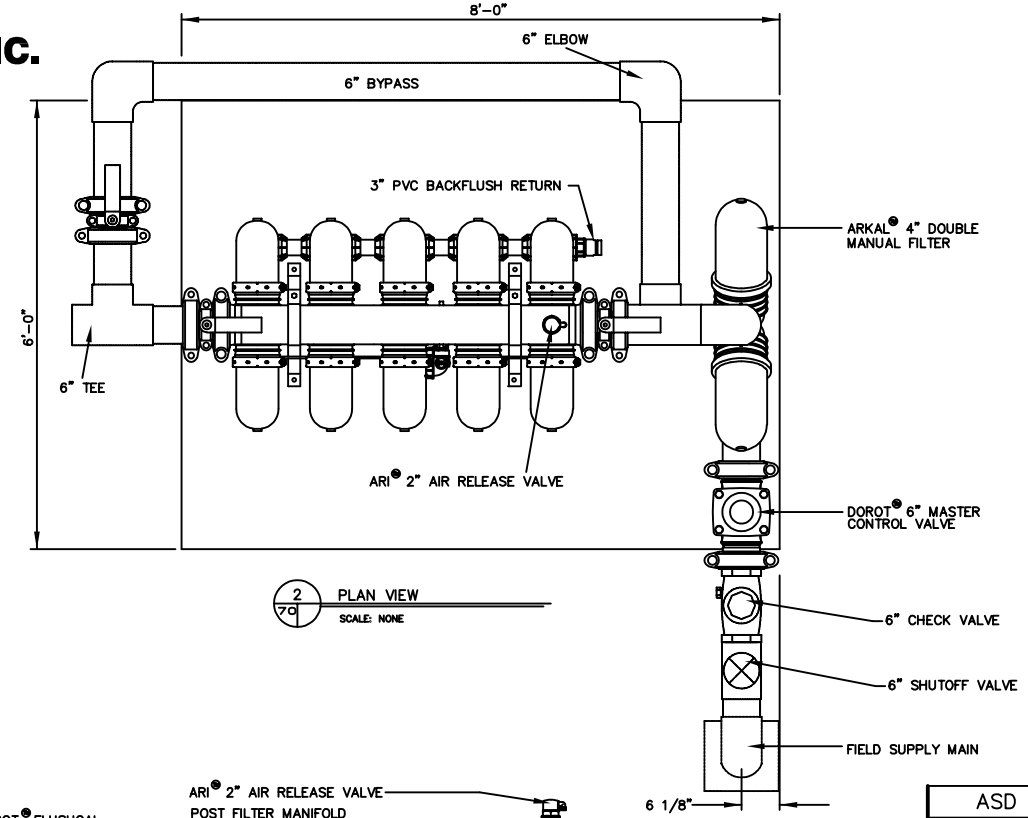
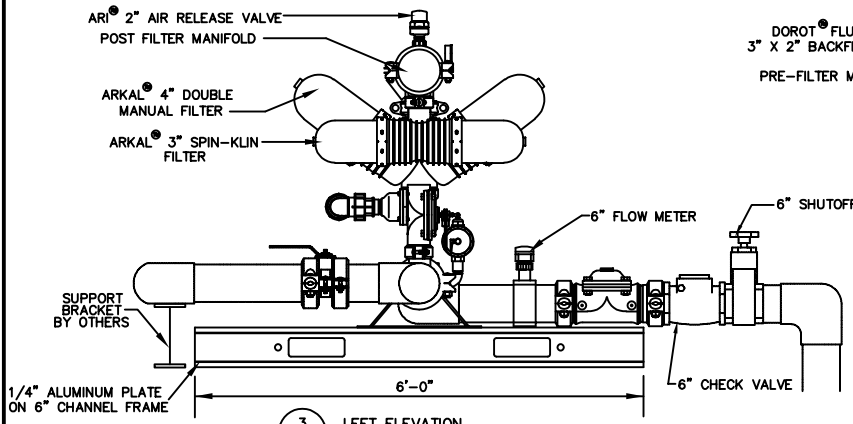
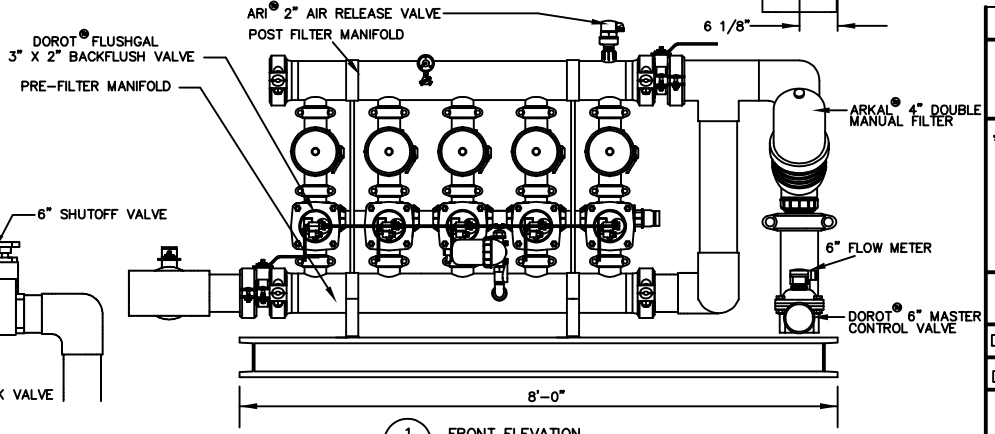
ASD250
HYDRAULIC UNIT



2/7Q PLAN VIEW
SCALE: NONE



3/7Q LEFT ELEVATION
SCALE: NONE



1/7Q FRONT ELEVATION
SCALE: NONE

* NOTE: CHECK AND SHUT OFF VALVES TO BE PLUMBED ON SITE.

S:\6 Staff\KevinU\AutoCAD\Hyd&Drip\ASD 250\ASD 250 6x8 no pumps.dwg

ASD 250 6x8 NO PMP.DWG

ASD-250
TYPICAL LAYOUT

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250 GPM FILTER UNIT
6x8 SKID

Drawn by: RJW	Checked by:
Date: 10/08/04	Date:

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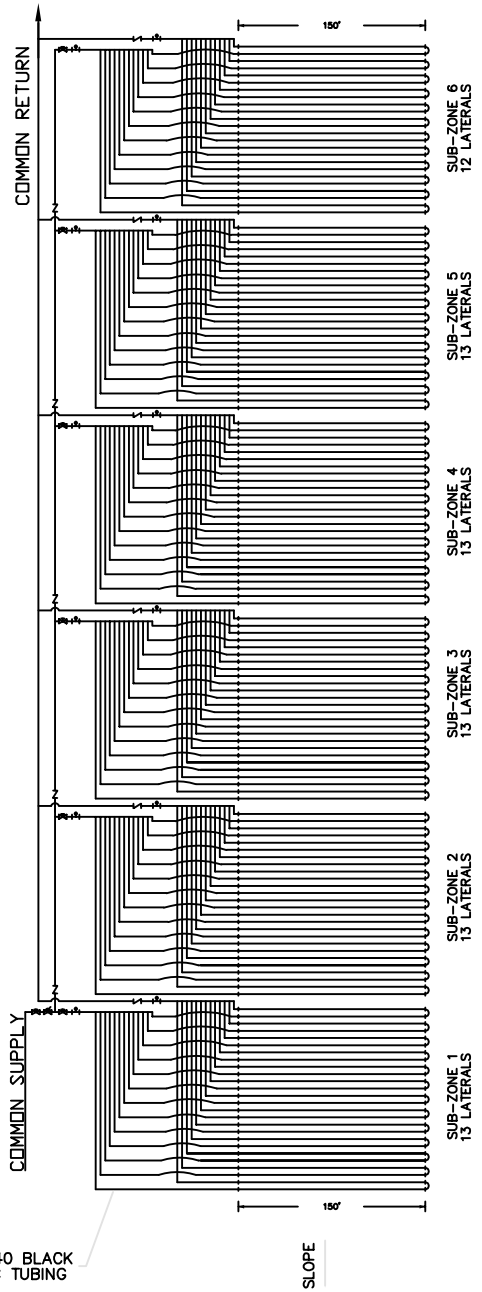
ASD 250 - 23,100 Linear Feet

Legend	6 Subzones	Total	Dosing	Field Flush
- AIR RELEASE VALVE	5 Subzones w/ 13 Laterals	154 Runs	118 GPM	241 GPM
- CHECK VALVE	1 Subzones w/ 12 Laterals	77 Lats		35' Flushing
- SHUTOFF VALVE	2 Runs/Lateral	23,100 L.F.		Head Loss Tubing
- ZONE VALVE	Long Lat. 300'			

(10) Ten - (13) Thirteen Drop and (2) Two - (12) Twelve Drop Top Feed Manifolds (6 Supply, 6 Return)



Standard Zone Detail - 23,100 LF per Zone w/ 6 Subzones

S:\6 Staff\Rodney\ZoneDetails\Printable\ASD_250.dwg

ZONE X - 22500 Linear Feet

Legend

- 24v ZONE VALVE
- CHECK VALVE
- SHUT-OFF VALVE
- AIR RELEASE VALVE

5 Subzone

5 Subzone w/ 15 Laterals
1 Runs/Lateral
Long Lat. 300'

Total

75 Runs
75 Lats
22500 L.F.

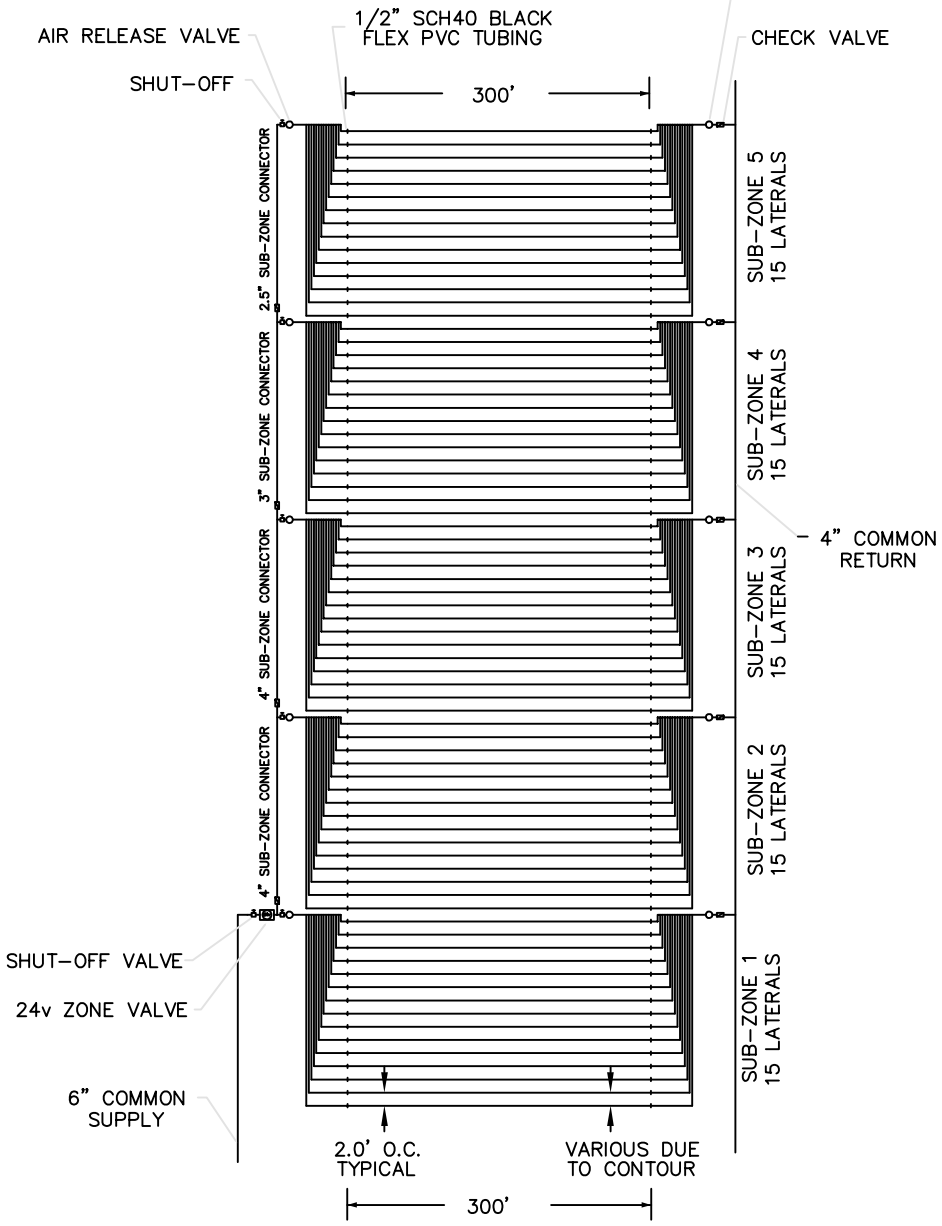
Dosing

114 GPM

Field Flush

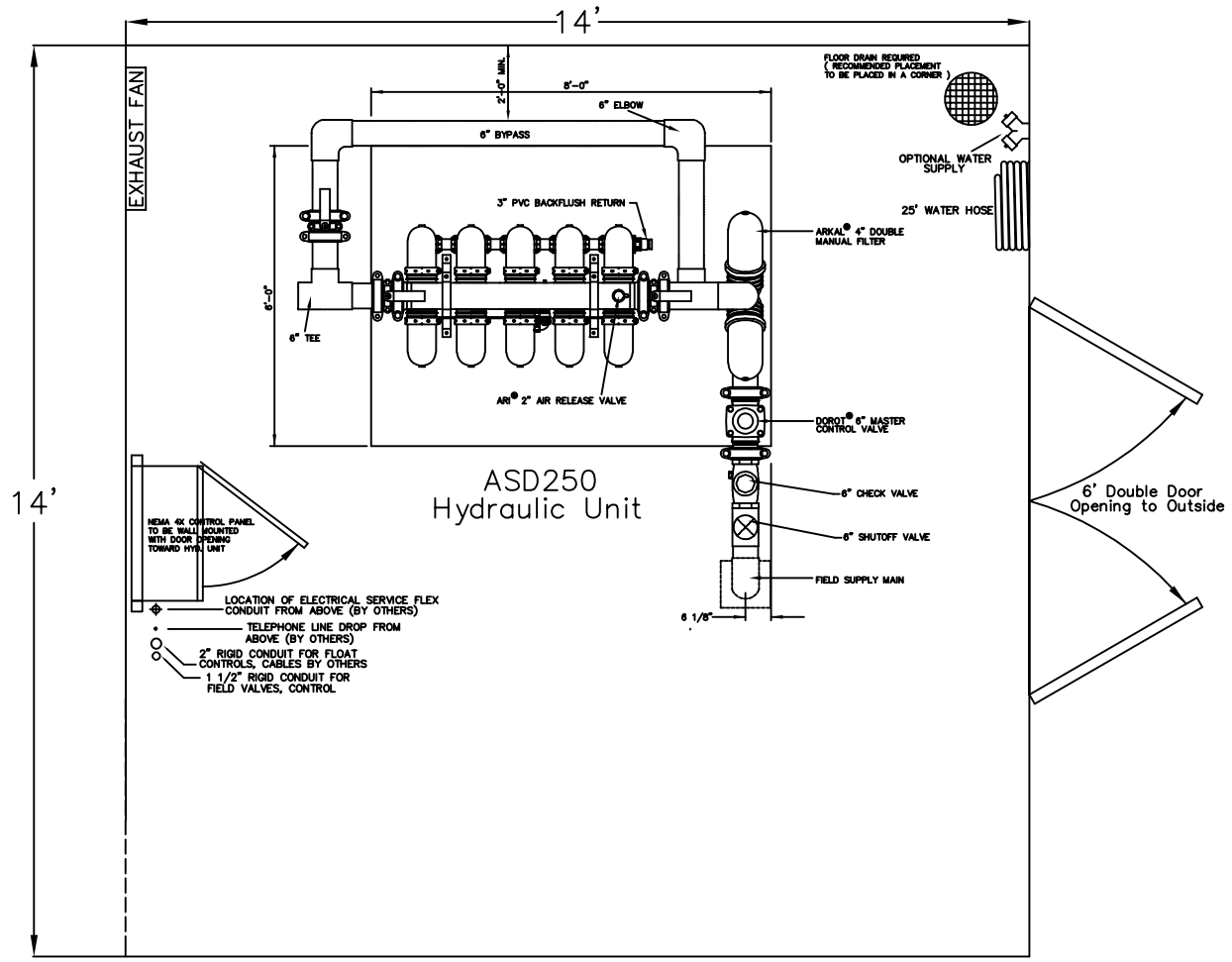
234 GPM
35' Flushing Head Loss Tubing

COMMON SUPPLY 6.0"
COMMON RETURN 4.0"
SUB ZONE CONNECTOR Varies



INSTALL ALL TUBING ALONG CONTOUR

TYPICAL CONTROL BUILDING LAYOUT
N.T.S.



MINIMUM CONTROL BUILDING REQUIREMENTS:

BUILDING ENCLOSURE FOR SKID UNIT TO BE SIZED TO FIT SKID UNIT, CONTROLLER, COMPUTER STATION AND WORK AREA. ENCLOSURE IS TO BE HEATED, LIGHTED AND HAVE A DEDICATED PHONE/DATA LINE FOR REMOTE MONITORING PURPOSES. ELECTRICAL REQUIREMENTS ARE TO BE DETERMINED PRIOR TO CONSTRUCTION OF SKID AND CONTROLLER.

CONTROL PANEL IS TO BE WALL MOUNTED.
FLOOR DRAIN REQUIRED. CORNER PLACEMENT NEAR SKID RECOMMENDED.

ACCESS/ENTRANCE TO BE SIZED ACCORDINGLY.

EXHAUST FAN WITH THERMOSTAT REQUIRED
TEMPERATURE CONTROLED: HEATING & AC REQUIRED

COLD WEATHER INSTALLATION NOTES

Minimum construction techniques for all American "Perc-Rite" Drip systems in cold weather climates:

"Top feed" manifolds should be used on all sites with a discernible slope to allow for proper drainage of the manifolds and the 3/4" and 1/2" lateral connectors into the drip tubing.
The main supply and return lines shall be installed below the frost line and shall feed the shallow "top feed" manifolds with a single vertical section of insulated sch 40 PVC pipe. Insulation shall be minimum 1/2" thick foam insulation (or equivalent).
On flat sites where "top feed" manifolds will not drain therefore requiring the use of side feed manifolds, 12" cover is recommended between highest point of 1/2" black flexible PVC pipe (non loop connections) and final grade. On drip tubing installations less than 12" this would require additional cover over the header ditch area to create the 12" separation. Any additional cover is it to be graded and tapered into landscape. Please see note on loop connections below.
Dense vegetation turf cover to be established over supply trench, return trench and tubing prior to 1st exposure to cold weather. If vegetation cannot be established, then trenches and tubing to be covered with a thick layer (minimum 6") of mulch, straw/hay, etc. until such turf cover is established. Cover must be stabilized and maintained until dense vegetative turf is established. Amount of cover may need to be adjusted to account for settling.
All valve boxes that house "remote zone valves" shall be insulated by contractor. Insulation to consist of either blue board, bagged Styrofoam peanuts or equivalent. If fiberglass insulation is used it must be sealed to prevent it from becoming saturated.
The "remote valves" shall be placed on a bed of gravel or screenings (4"-6"). Positive grade away from valve boxes is encouraged to reduce the volume of groundwater that may collect in valve box. Certain sites may require positive drains to daylight.
All loops connecting drip runs with 1/2" flexible PVC shall be slightly elevated (minimum 1"-2") so that they drain into the drip tubing after the pump shuts off. It is contractors responsibility to ensure these loops stay elevated during and after the loops are backfilled.
All main supply and return trenches to be installed below the local frost line. If this is not possible due to site restrictions then adequate soil must be added over the top of the trenches so that the effective depth remains below the frost line after settling occurs. The added soils must be prepared for turf cover and stabilized. If vegetation cannot be established then trenches are to be covered with an additional layer (minimum 6") of mulch, straw/hay, etc. until such turf cover is established.
Sufficient ground cover around the hydraulic unit is required to insulate the unit. All pipes entering and leaving the hydraulic unit shall elbow vertically down 90 degrees to a depth below the frost line prior to extending away from the unit horizontally.
Additional insulation inside the hydraulic unit is encouraged. Insulation to consist of either blue board, bagged Styrofoam peanuts or equivalent. If fiberglass insulation is used it must be sealed to prevent it from becoming saturated.
All conduit entering into the control panel shall be sealed to prevent condensation inside the panel.
Established vegetation height shall be minimum 4"-6" throughout winter months.
Air release valves shall be placed below the ground surface inside a valve box but at an elevation above the highest drip line in that particular zone.

SITE CLEARING GUIDELINES

General guidelines for preparing/clearing a site for installation of an American Mfg. "Perc-Rite®" Drip System:

GENERAL REQUIREMENTS:

The preservation of the original structure of the soil in the absorption area is essential to maintaining the percolative capacity of the soil. **No** activity other than the construction of the system is permitted within the absorption area. On sites where a majority of the vegetation needs to be removed, care must be taken to minimize the impact on the soils natural permeability. There shall be **no** cutting, filling, or storage of material on or within 20' of the adsorption area. Site clearing and preparation shall be performed by the installation contractor for the wastewater dispersal system.
The absorption system is **not** to be constructed during periods of wet weather when the soil is sufficiently wet at the depth of installation to exceed its plastic limit. The plastic limit is exceeded when the soil can be rolled between the palms of the hands to produce threads 1/8 inch in diameter without breaking and crumbling.
After installation of the dispersal system, or if after clearing installation is not to be performed for 60 days, seed the area liberally with native grasses. The standard Department Of Transportation specification is acceptable consisting of perennial rye and fescue. At all times protect the installation area from erosion. Local codes shall apply for best management practices to control runoff.

SHALLOW INSTALLATIONS (surface to 8"):

Clearing and removal should be by hand with minimal machine assistance and under optimum soil moisture conditions. Track machines are preferred to those with rubber tires and should only be used around edges of installation. Soil moisture conditions need to be confirmed prior to beginning clearing and system installation by the soil scientist of record.

MID RANGE INSTALLATIONS (12" TO 24"):

All trees and brush, as necessary, should be "pulled out" (grubbed out) or cut flush with the ground surface. Stumps may be ground to two inches below the installation depth and the hole backfilled with sandy material to 6" above installation depth and the remainder with natural soil. When the soil is disturbed at the installation depth by pulling a stump, backfill the hole with sandy material to 6" above installation depth and the remainder with natural soil. Digging and pushing over trees may be more detrimental to the soils infiltrative characteristics. Track machines are preferred to those with rubber tires and should only be used during optimal soil moisture conditions. Soil moisture conditions need to be confirmed prior to beginning clearing and system installation by the soil scientist of record.

DEEP INSTALLATIONS (30" and deeper):

All trees and brush, as necessary, should be removed. When the soil is disturbed at the installation depth, backfill the hole with sandy material to 6" above installation depth and the remainder with natural soil. Stumps may be ground to two inches below the installation depth and the hole backfilled with sandy material to 6" above installation depth and the remainder with natural soil. Digging and pushing over trees may be more detrimental to the soils infiltrative characteristics than "pulling" and are **not** recommended. Track machines are preferred to those with rubber tires and should only be used during optimal soil moisture conditions. Soil moisture conditions need to be confirmed prior to beginning clearing and system installation by the soil scientist of record.

LARGE SCALE INSTALLATION TESTING:

Larger systems typically do not have water available for zone installation testing on a timely manner. It is desirable to water test an installed zone while the supply and return manifold header ditches are exposed to better inspect for leaks. In order to facilitate site and equipment protection and erosion control, the installation contractor shall provide sufficient water and the means to deliver and monitor the water to both flush and leak test each zone or subzone prior to backfill. The flushing volume shall be five times the volume of the piping network being flushed. The flushing velocity shall be in excess of 2-1/2 feet per second. The leak testing volume shall be at least 3 times the volume of the pipe. The leak test shall continue until steady state flow is achieved and the flow rate is within 6% of the design flow rate or as approved by the manufacturer or engineer. After successful testing and inspection the supply and return pipe connection points shall be sealed and protected from dirt and debris from entering prior to final connection.

General Construction Notes
American Manufacturing "Perc-Rite®" Drip

1. All installation and construction techniques shall conform to state and county codes pertaining to on site sewage systems and the permit for this site.
2. The installation of this system shall be in accordance with specifications and procedures as supplied by the Manufacturer of the equipment.
3. The drip tubing shall be installed using a vibratory plow, trencher, or by hand.
4. All tubing to be installed along contour.
5. All PVC pipe and fittings shall be PVC SCH 40 Type 1 rated for pressure applications. All glued joints shall be cleaned and primed with purple (dyed) PVC primer prior to being glued.
6. All cutting of PVC pipe, flexible PVC and dripper tubing of size 1 1/2" or smaller shall be accomplished with pipe cutters approved by American Manufacturing Company, Inc. No sawing of PVC, flexible PVC or dripper tubing of size 1 1/2" or smaller allowed.
7. All PVC pipe, flexible PVC and dripper tubing in the work area shall have the ends covered with duct tape to prevent construction debris from entering the pipe. Prior to gluing, all joints shall be inspected for and cleared of any construction debris.
8. All automatic valves (zone valves & field flush return valves) shall be installed with isolation valves, bypass valves, and disconnects (i.e. unions, flanges) for manual field operation during field maintenance events. All valves must be provided with at-grade access.
9. Drain field supply and return lines and manifolds to be installed at adequate depth to prevent freezing. Horizontal spacing between the dripper lines and the installation depth to be as specified.
10. No activity on drain field area other than minimum required to install system. Do not park equipment, drive large equipment over or store materials on drain field area.
11. No wet weather installation is permitted.
12. The contractor shall be certified by American Manufacturing Company, Inc. to install this type of system and shall hold a pre-construction meeting with the individuals responsible for soil evaluation, permitting and inspections prior to site work beginning to insure protection of the site conditions and to ensure the system is installed according to design.
13. If site conditions are determined to require the installation of the system to deviate from these plans, all work shall stop immediately and the designer shall be notified. Any ongoing work shall be at the sole responsibility of the contractor.
14. All force mains shall be tested for leaks prior to drip tubing installation and prior to system startup. Uncovered force mains shall be visibly inspected for leaks. If a leak is suspected in covered force mains then the force main shall be re-tested at a minimum pressure of at least percent above the design operating pressure, for at least 30 minutes. There shall be no discernible leakage.
15. ASD15 & 25 Hydraulic units to be placed on a bed of gravel for drainage.
16. If standing groundwater is a problem a screened drain to daylight is required.

AMERICAN MANUFACTURING CO.
22011 GREENHOUSE ROAD, ELKWOOD VA 22718 PHONE : 540-825-7234

PROJECT NAME : JOB NAME	DRAFTER:	DATE: 03/20/06
	CHECKED:	DATE:
	APPROVED:	DATE:
COUNTY : COUNTY, STATE	TITLE : GENERAL CONSTRUCTION, COLD WEATHER INSTALLATION & SITE CLEARING NOTES	
FILE: S:\Residential_Plans\01DRIPRES15.dwg	SCALE : NTS	SHEET: 7 OF 7

AMERICAN MANUFACTURING - PERC RITE DRIP CONTROLS SCHEMATIC

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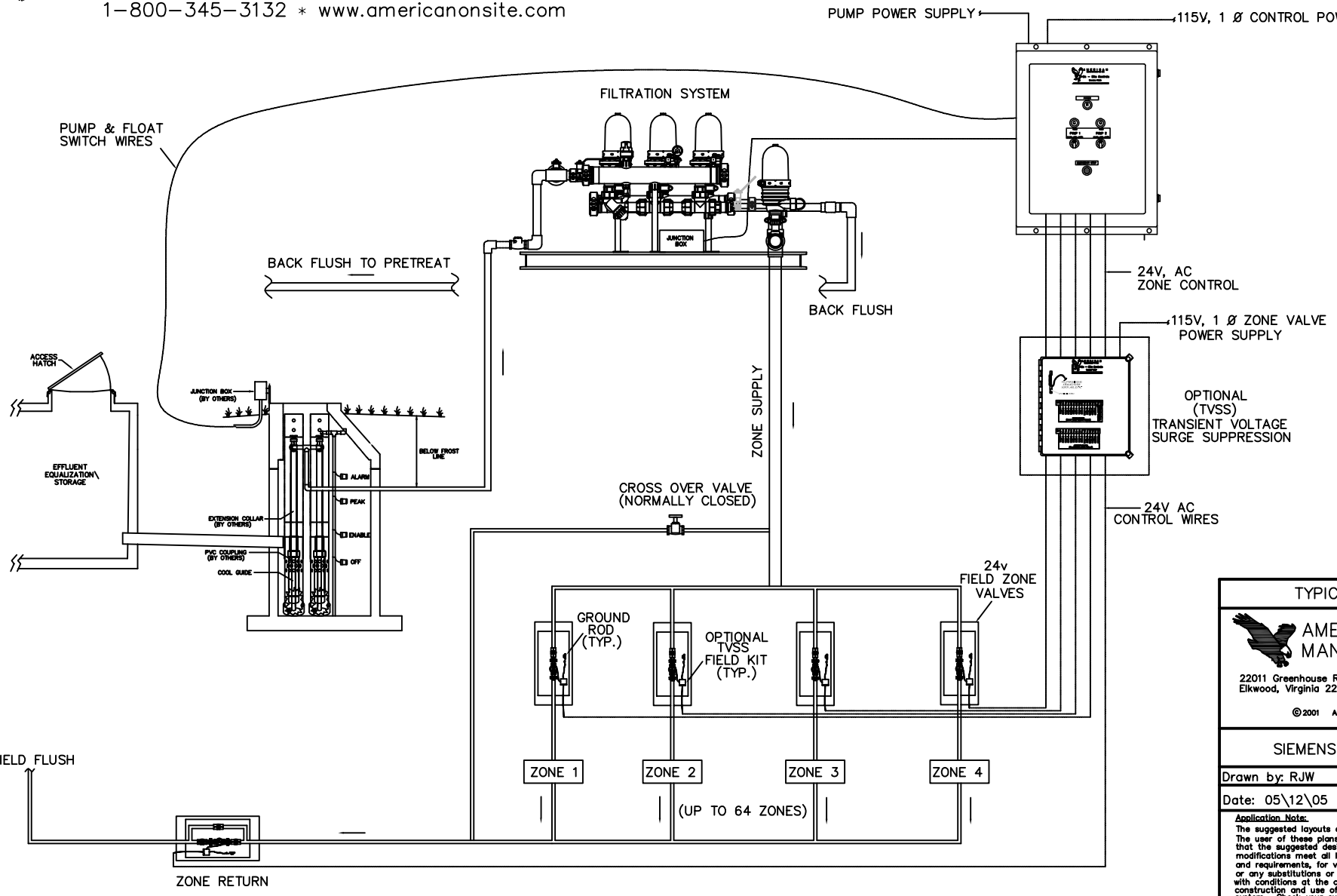

TYPICAL LAYOUT

AMERICAN MANUFACTURING CO.

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Elkwood, Virginia 22718

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Fax (540) 825-1785
1-800-345-3132

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SIEMENS ASD SCHEMATIC

Drawn by: RJW	Checked by: RBM
Date: 05\12\05	Date: 0

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AMERICAN MANUFACTURING - PIPING & VALVING DETAIL FOR BUILDING & FILTER UNIT

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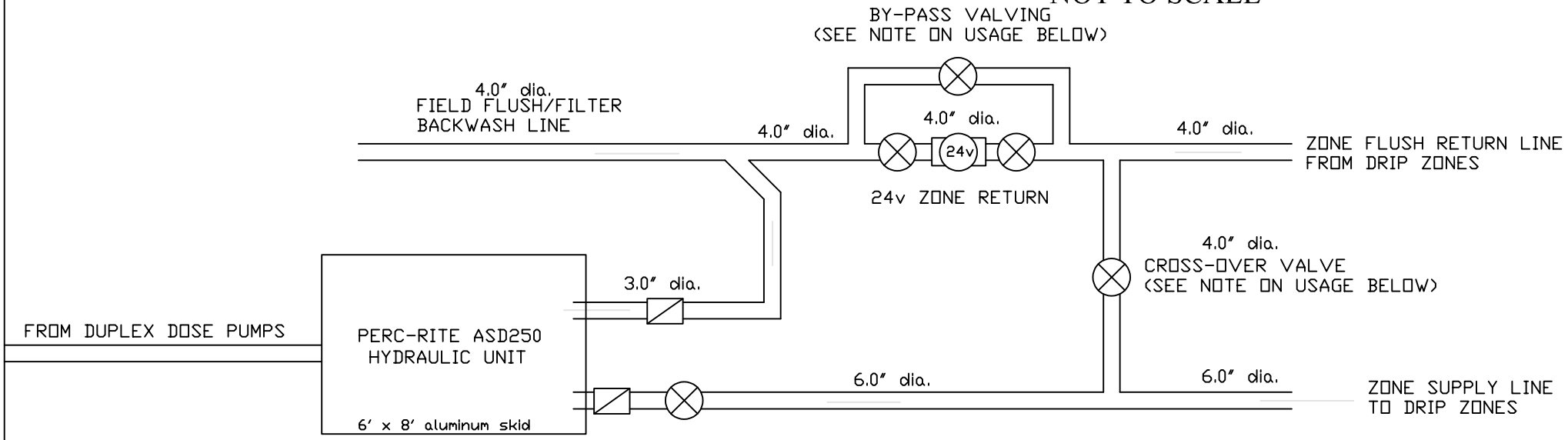
NOT TO SCALE



LEGEND

- CHECK VALVE BRONZE SWING
- SHUT-OFF VALVE
- 24v ZONE RETURN SOLENOID VALVE (w/ UNIONS FOR REMOVAL)

CROSS-OVER VALVE USEAGE (NORMALLY CLOSED VALVE)

CROSS-OVER VALVE IS USED FOR RETURN LINE CHECK VALVE TESTING. THIS VALVE CAN ALSO BE USED TO RECYCLE WASTEWATER BACK TO THE FRONT END OF THE PLANT.

BY-PASS VALVING USAGE

BY-PASS VALVES ARE USED TO ISOLATE AND REMOVE THE 24v ZONE RETURN SOLENOID VALVE (FOR REPAIR, REPLACEMENT, ETC.) BY DISCONNECTING THE UNIONS AND RETAIN THE ABILITY TO MANUALLY SIMULATE THE FORWARD FIELD FLUSH CYCLE.

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22011 GREENHOUSE ROAD, ELKWOOD, VA 22718 PHONE 800-345-3132

PROJECT NAME :	DRAFTER DATE
	CHECKED DATE
	APPROVED DATE
	TITLE : SIDE FEED MANIFOLD
DESIGNED BY:	

File: S:\Data\Admin C:\data\Acitwin\Packages\ASDSF\Asdsf-2.dwg | SCALE : NTS | SHEET OF

AMERICAN MANUFACTURING - TYPICAL TOP FEED DRIP MANIFOLD DETAILS

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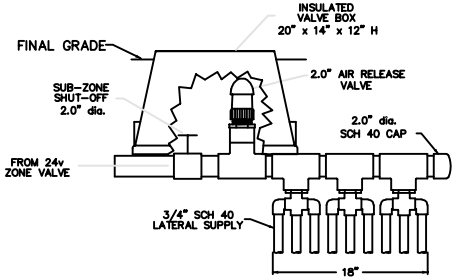
NOT TO SCALE

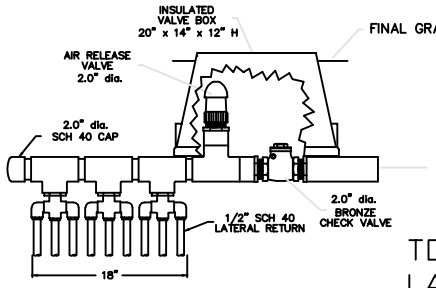
SCHEMATIC - NOT TO SCALE

TOP FEED MANIFOLD SCHEMATIC



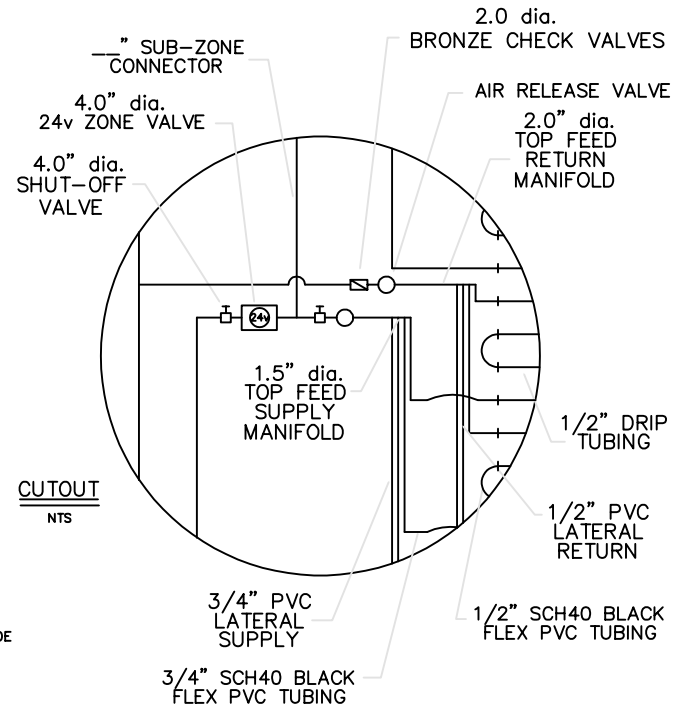
LATERAL SUPPLY
HEADER, 9 CONNECTIONS

NOTE: SCHEMATIC ONLY, SEE EACH ZONE DETAIL FOR ACTUAL NUMBER OF CONNECTIONS.



LATERAL RETURN
HEADER, 9 CONNECTIONS

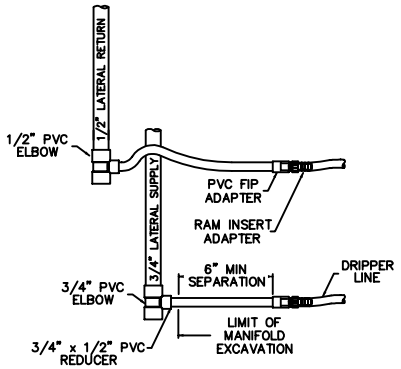
NOTE: SCHEMATIC ONLY, SEE EACH ZONE DETAIL FOR ACTUAL NUMBER OF CONNECTIONS.



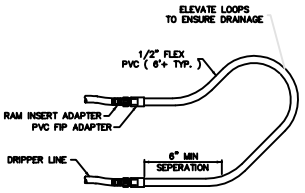
COMMON ZONE SUPPLY 6.0" dia.
COMMON ZONE RETURN 4.0" dia.
SUB-ZONE CONNECTORS: Various dia.

TOP FEED MANIFOLDS 2.0"
LATERAL SUPPLIES 3/4"
LATERAL RETURNS 1/2"

FOR TOP FEED MANIFOLDS



DRIP LINE CONNECTION TO MANIFOLD
NTS



TYPICAL DRIP LOOP CONNECTION
NTS

AMERICAN MANUFACTURING CO.
22011 GREENHOUSE ROAD, ELKWOOD VA 22718 PHONE : 540-825-7234

PROJECT NAME :	DRAFTER DATE
	CHECKED DATE
	APPROVED DATE
COUNTY :	TITLE : TOP FEED MANIFOLD
DESIGNED BY:	

File: S:\Data\Admin C:\data\Acltwin\Packages\ASDSF\Asdsf-2.dwg | SCALE : NTS | SHEET OF

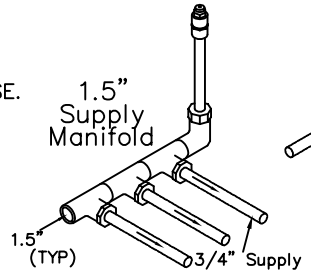
AMERICAN MANUFACTURING - TYPICAL TOP FEED DRIP MANIFOLD SCHEMATIC

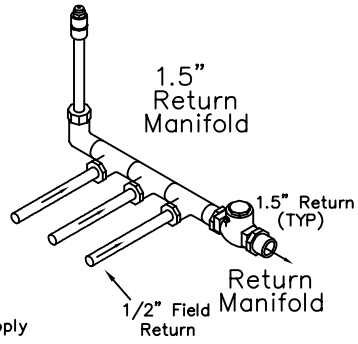
1–800–345–3132 * www.americanonsite.com

NOT TO SCALE

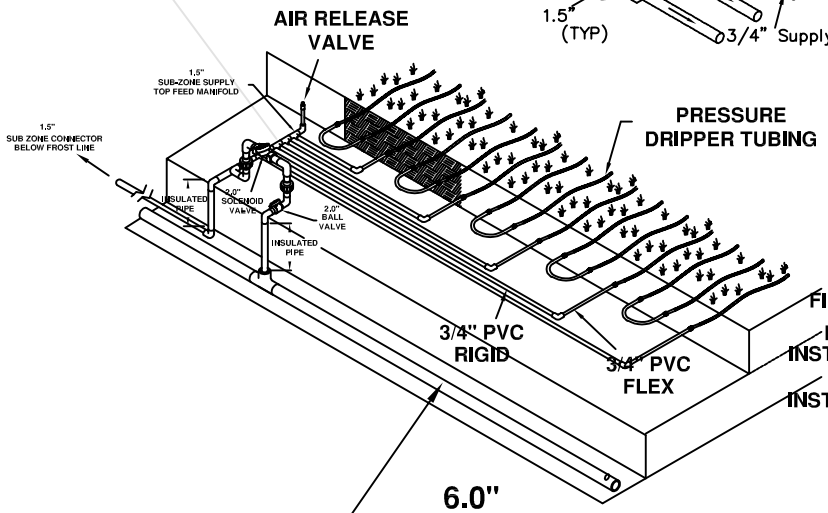
STANDARD DRIP SYSTEM DETAILS FOR SITES WITH DISCERNIBLE SLOPES

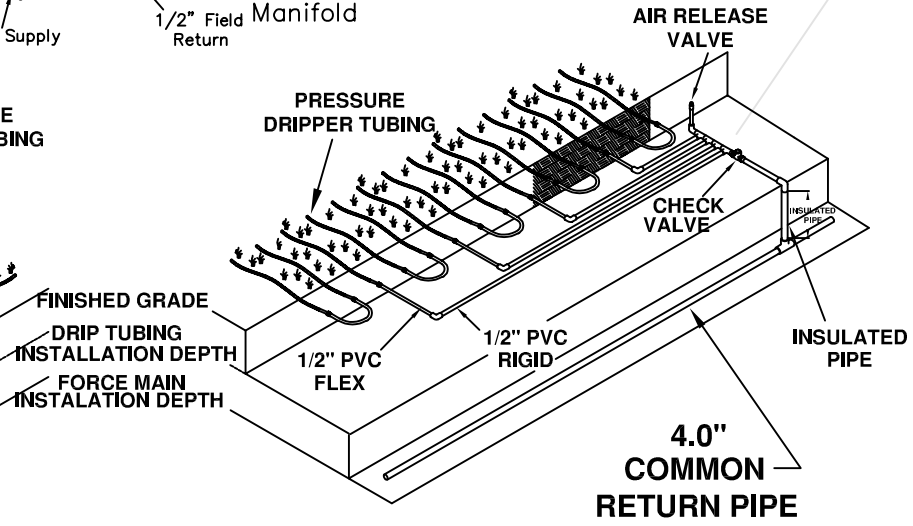
TOP FEED SUPPLY MANIFOLD AND 3/4" LATERAL FEEDS TO BE PLACED ABOVE DRIP TUBING AND MUST DRAIN INTO THE DRIP TUBING AFTER EACH DOSE.





TOP FEED RETURN MANIFOLD AND 1/2" LATERAL RETURNS TO BE PLACED ABOVE DRIP TUBING AND MUST DRAIN INTO THE DRIP TUBING AFTER EACH DOSE.





TOP FEED DROP MANIFOLD DETAIL

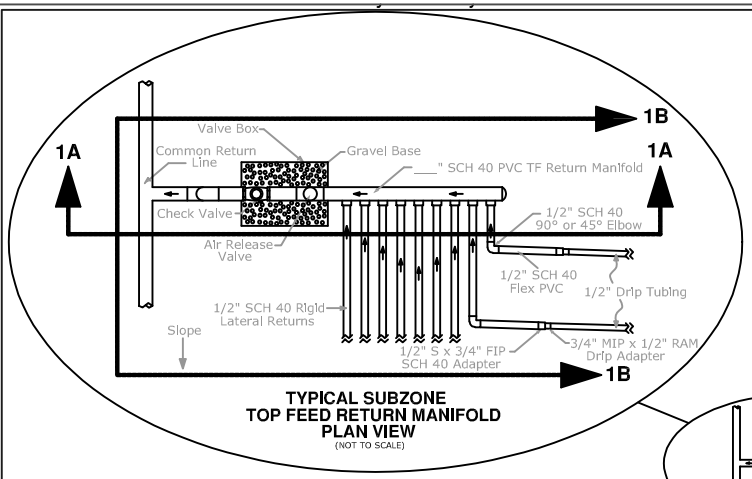
SCHEMATIC ONLY. SEE ZONE DETAILS FOR INDIVIDUAL ZONE MANIFOLD PIPING.

AMERICAN MANUFACTURING CO.

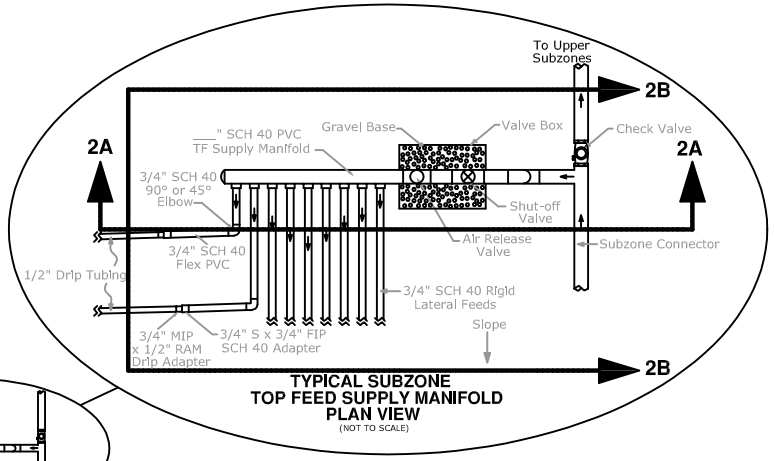
22011 GREENHOUSE ROAD, ELKWOOD VA 22718 PHONE : 540–825–7234

PROJECT NAME :	DRAFTER DATE
	CHECKED DATE
	APPROVED DATE
	TITLE : TOP FEED MANIFOLD
COUNTY :	
DESIGNED BY:	

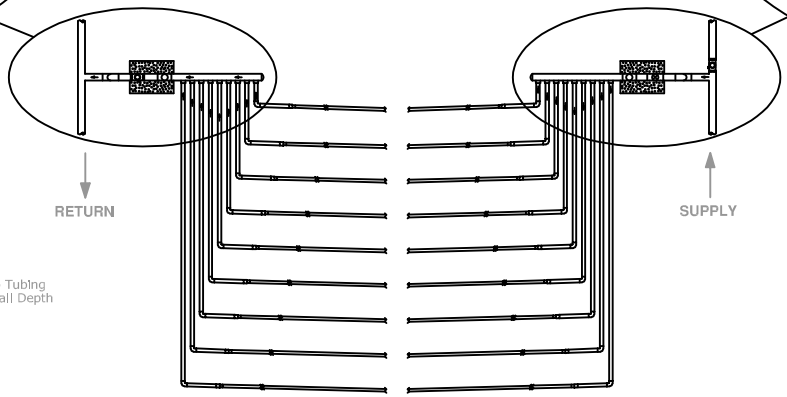
File: S:\Data\Admin C:\data\Acltwin\Packages\ASDSF\Asdsf–2.dwg | SCALE : NTS | SHEET OF



TYPICAL SUBZONE
TOP FEED RETURN MANIFOLD
PLAN VIEW
(NOT TO SCALE)

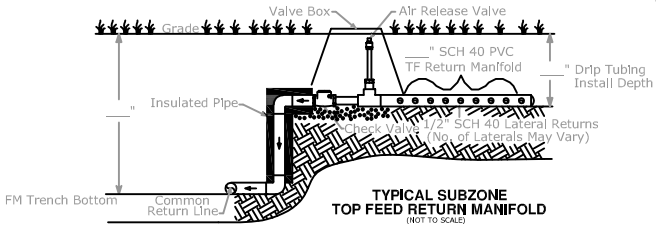


TYPICAL SUBZONE
TOP FEED SUPPLY MANIFOLD
PLAN VIEW
(NOT TO SCALE)



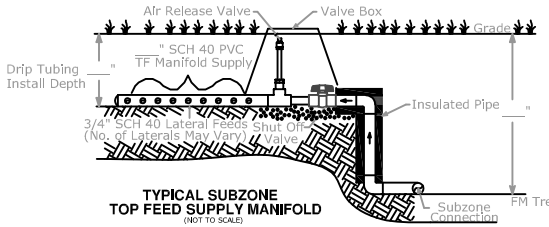
SUBZONE PLAN
(NOT TO SCALE)

SECTION 1A - 1A



TYPICAL SUBZONE
TOP FEED RETURN MANIFOLD
(NOT TO SCALE)

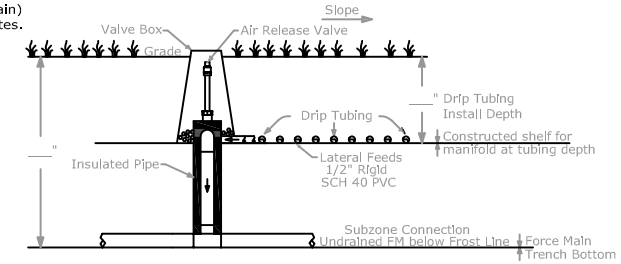
SECTION 2A - 2A



TYPICAL SUBZONE
TOP FEED SUPPLY MANIFOLD
(NOT TO SCALE)

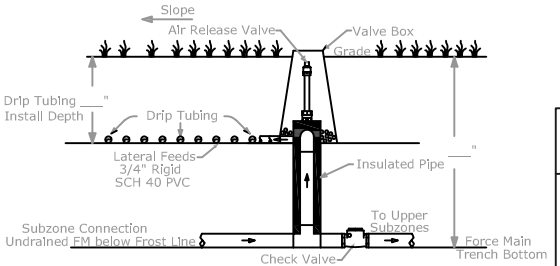
Note:
- T.F. Manifolds to be at same depth or above drip tubing.
- T.F. Manifolds are intended to drain into the drip tubing after each dose.
- Discernible slopes required for T.F. Manifold use.
- FM Trench bottom to be below frost line (It will not drain)
- Valve Boxes should be Insulated in cold weather climates.

SECTION 1B - 1B



TYPICAL SUBZONE
TOP FEED RETURN MANIFOLD
SIDE PROFILE
(NOT TO SCALE)

SECTION 2B - 2B



TYPICAL SUBZONE
TOP FEED SUPPLY MANIFOLD
SIDE PROFILE
(NOT TO SCALE)

Note:
- T.F. Manifolds to be at same depth or above drip tubing.
- T.F. Manifolds are intended to drain into the drip tubing after each dose.
- Discernible slopes required for T.F. Manifold use.
- FM Trench bottom to be below frost line (It will not drain)
- Valve Boxes should be Insulated in cold weather climates.

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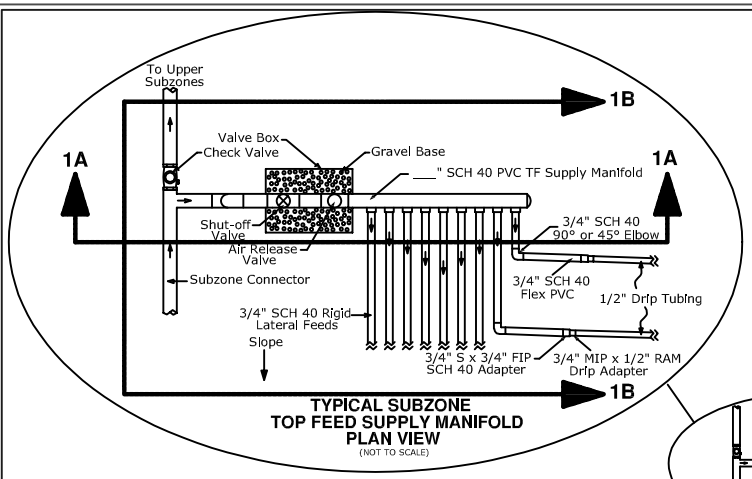
5517 WELLINGTON ROAD, GAINESVILLE VA22065 PHONE : 703-754-0077

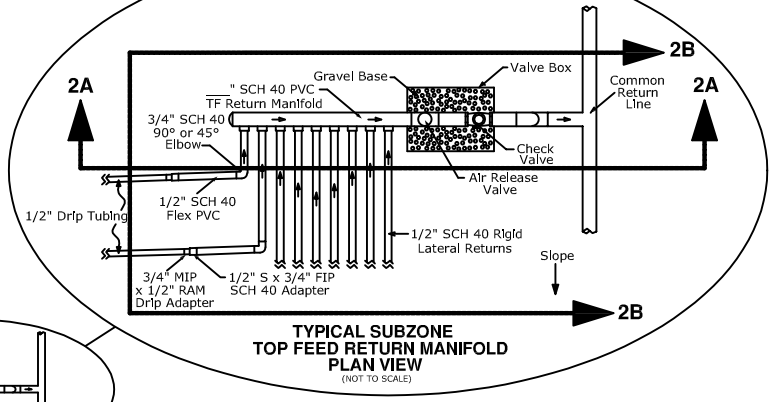
DRAFTER: RJW	DATE: 01\12\05
CHECKED:	DATE:
APPROVED:	DATE:

TITLE :
TOP FEED MANIFOLDS
PLAN & SECTIONS

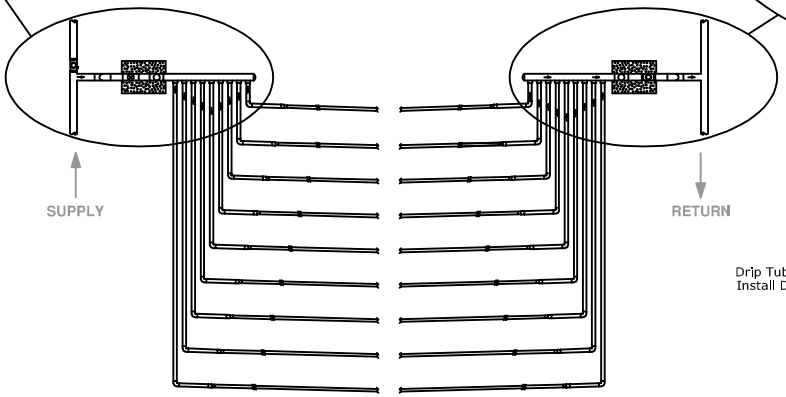
File: S:\10 Engineering\Top Feed Supply & Return Manifolds.dwg | SCALE : NTS | SHEET: 1 OF 1



TYPICAL SUBZONE TOP FEED SUPPLY MANIFOLD PLAN VIEW
(NOT TO SCALE)

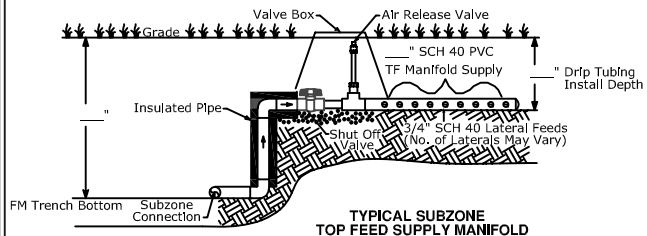


TYPICAL SUBZONE TOP FEED RETURN MANIFOLD PLAN VIEW
(NOT TO SCALE)



SUBZONE PLAN
(NOT TO SCALE)

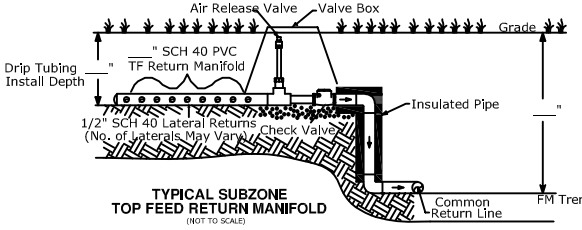
SECTION 1A - 1A



TYPICAL SUBZONE TOP FEED SUPPLY MANIFOLD
(NOT TO SCALE)

Note:
T.F. Manifolds to be at same depth or above drip tubing.
T.F. Manifolds are intended to drain into the drip tubing after each dose.
Discernible slopes required for T.F. Manifold use.
FM Trench bottom to be below frost line (It will not drain)
Valve Boxes should be Insulated in cold weather climates.

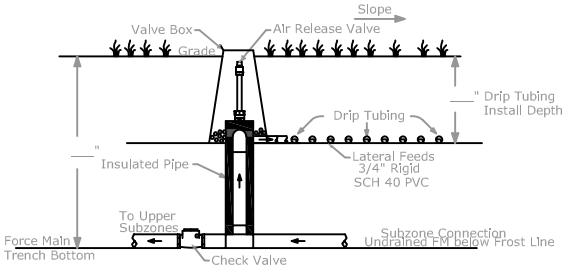
SECTION 2A - 2A



TYPICAL SUBZONE TOP FEED RETURN MANIFOLD
(NOT TO SCALE)

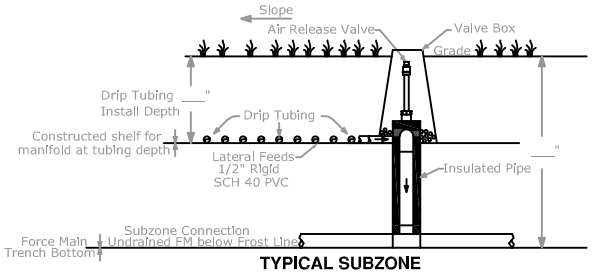
Note:
T.F. Manifolds to be at same depth or above drip tubing.
T.F. Manifolds are intended to drain into the drip tubing after each dose.
Discernible slopes required for T.F. Manifold use.
FM Trench bottom to be below frost line (It will not drain)
Valve Boxes should be Insulated in cold weather climates.

SECTION 1B - 1B



TYPICAL SUBZONE TOP FEED SUPPLY MANIFOLD SIDE PROFILE
(NOT TO SCALE)

SECTION 2B - 2B



TYPICAL SUBZONE TOP FEED RETURN MANIFOLD SIDE PROFILE
(NOT TO SCALE)

AMERICAN MANUFACTURING CO.
5517 WELLINGTON ROAD, GAINESVILLE VA22065 PHONE : 703-754-0077

DRAFTER: RJW	DATE: 01\12\05
CHECKED:	DATE:
APPROVED:	DATE:

TITLE :
TOP FEED MANIFOLDS PLAN & SECTIONS

File: S:\10 Engineering\Top Feed Supply & Return Manifolds.dwg | SCALE : NTS | SHEET: 1 OF 1

AMERICAN MANUFACTURING - TVSS FIELD DETAIL

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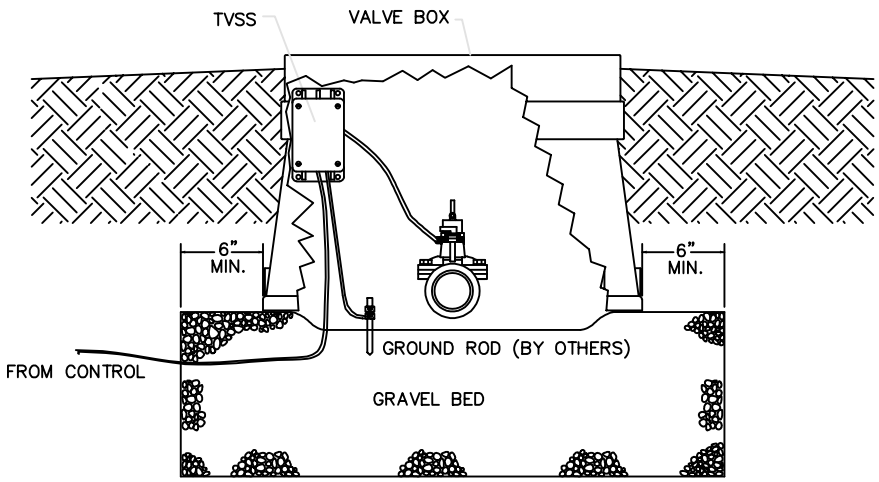
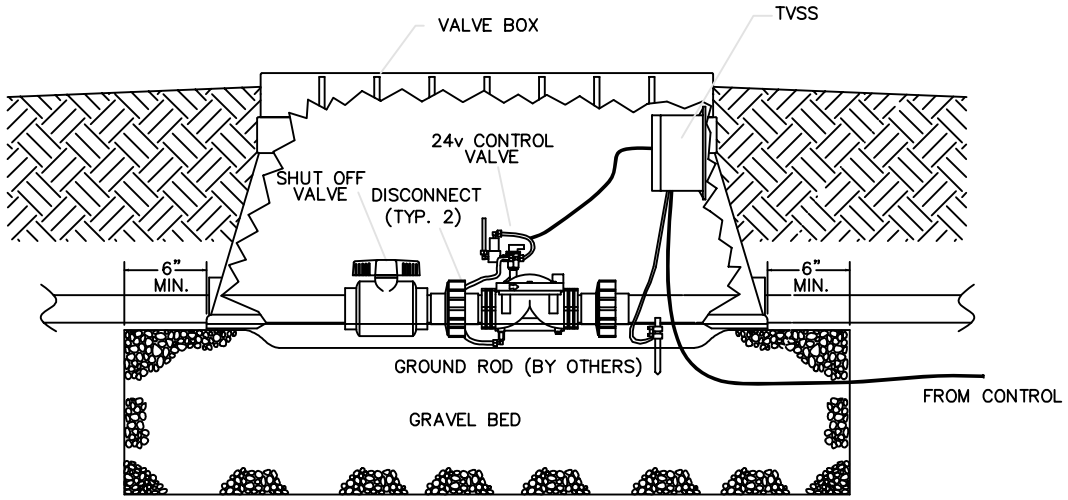


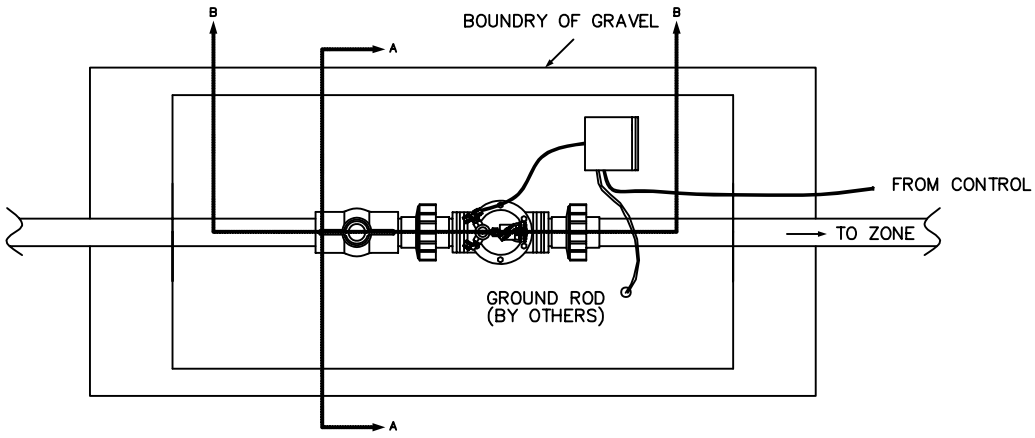
SECTION A-A



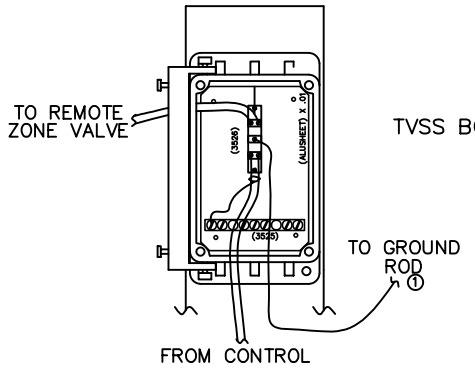
SECTION B-B

NOTE:

1. DO NOT COIL GROUND WIRE USE AWG #10 SOLID COPPER.
2. GALANIZED GROUND STAKE, DRIVEN INTO MIN. 5 FEET OF MOIST SOIL. DOUBLE CLAMP GROUND WIRE TO GROUND STAKE.



PLAN VIEW



TVSS BOX (BY AMC)

AMERICAN MANUFACTURING COMPANY, INC.
22011 GREENHOUSE ROAD, ELKWOOD VA 22718 PHONE: 540-825-7234

PROJECT NAME:	DRAFTER DATE
	CHECKED DATE
	APPROVED DATE
	TITLE: TVSS DETAILS
COUNTY:	
DESIGNED BY:	

			REVISION	FILE: F:\\ACAD\	SCALE: 1" = 00'	SHEET OF

ATTACHMENT 7E

NOT APPLICABLE TO THIS APPLICATION

ATTACHMENT 7F

GROUNDWATER MOUNDING REPORT

4411 S Interstate 35, Ste 100
Georgetown, Texas 78626
www.reuseinn.com

Extent of Injection Plume (Tech 7.0 § 4.9)

When water is pumped into the subsurface, the pumping rate can sometimes outpace the infiltration capacity of the soil. This can cause a temporary groundwater mound at the point of injection. Groundwater mounds dissipate over time according to the properties of the geologic unit and/or soil into which the water is pumped.

Innovative Groundwater Solutions (INOWAS) has developed a Groundwater Mounding Calculator based on the Hantush equation that can be used to estimate the general shape of groundwater mounds beneath rectangular infiltration basins. This numerical model allows estimation of the height and extent of a groundwater mound based on recharge rate, basin dimensions, duration of infiltration, and aquifer properties such as specific yield, hydraulic conductivity, and thickness of the saturated zone. The equation is based on the following simplifying assumptions: 1) the aquifer is homogeneous and isotropic, 2) flow is horizontal only, 3) the change in aquifer saturated thickness is negligible, 4) infiltration rate is constant.

Per INOWAS (2025), the equation to calculate a groundwater mound is as follows:

$$h^2 - h_i^2 = \frac{w}{2K}\nu t\left\{S^*\left(\frac{l+x}{\sqrt{4\nu t}}, \frac{a+y}{\sqrt{4\nu t}}\right) + S^*\left(\frac{l+x}{\sqrt{4\nu t}}, \frac{a-y}{\sqrt{4\nu t}}\right) + S^*\left(\frac{l-x}{\sqrt{4\nu t}}, \frac{a+y}{\sqrt{4\nu t}}\right) + S^*\left(\frac{l-x}{\sqrt{4\nu t}}, \frac{a-y}{\sqrt{4\nu t}}\right)\right\} \quad \text{(eq. 1)}$$

where

$$S^*(\alpha, \beta) = \int_0^1 erf\left(\frac{\alpha}{\sqrt{\tau}}\right) erf\left(\frac{\beta}{\sqrt{\tau}}\right) d\tau \quad \text{(eq. 2)}$$

and

$h_{x,y,t}$	= height of water table above impermeable layer at *x*, *y*, and time *t* [L];
h_i	= initial height of water table above impermeable layer [L];
w	= arrival rate at water table of water from infiltration basin or basins [L/T];
t	= time since start of recharge [T];
S_y	= specific yield [-];
ν	= diffusivity [L^2/T], where $\nu = \frac{Kb}{S_y}$;
l	= half-length of recharge basin or recharge project area (in *y* direction) [L];
a	= half-length of recharge basin or recharge project area (in *x* direction) [L];

b	= average aquifer thickness [L];
y	= distance from the center of the recharge basin in the y direction [L];
x	= distance from the center of the recharge basin in the x direction [L];
α	$= \frac{l+x}{\sqrt{4\nu t}} or \frac{l-x}{\sqrt{4\nu t}}$;
β	$= \frac{a+y}{\sqrt{4\nu t}} or \frac{a-y}{\sqrt{4\nu t}}$
τ	= dummy variable of integration; and
erf	= error function.

Figure 1 shows a conceptual diagram of an infiltration pond for which groundwater mounding can be calculated.

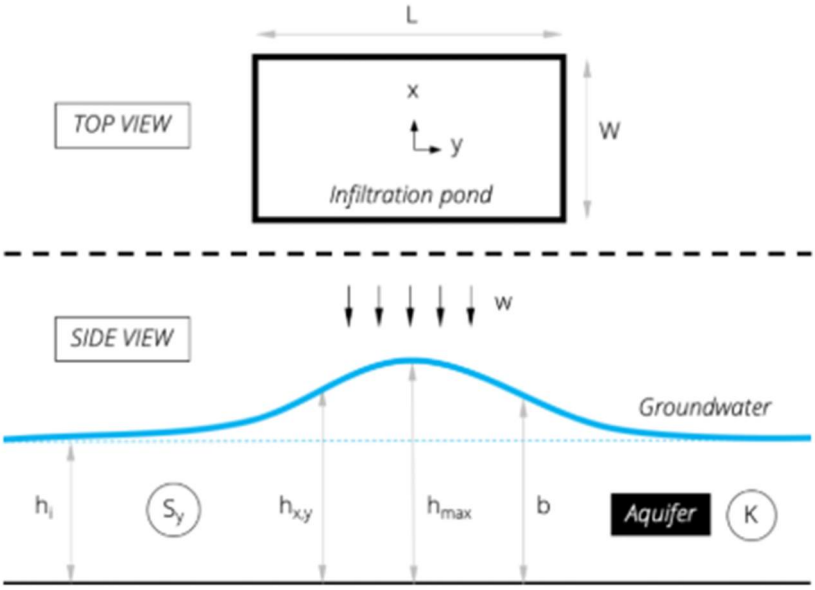


Figure 1. Groundwater Mound Concept Drawing.

The percolation rate is the infiltration rate for the proposed Subsurface Area Drip Disposal System (SADDS), that is 0.25 gpd/SF, or 0.0102 m/d (see Attachment 13). The duration of the infiltration period is 1 day. The initial groundwater level (h_i) is based on the shallowest depth to groundwater reported from well logs and/or soil tests: 27 ft (see Attachment 15). Hydraulic conductivity (K) and Specific Yield (Sy) can be estimated based on Table 1. (Minnesota Stormwater Manual, 2020). The soil tests performed onsite suggest a relatively fine sand unit, which would have a typical K = 5E-6 m/s (0.43 m/d/day) and Sy = 0.21.

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Georgetown, Texas 78626
www.reuseinn.com

Table 1. Estimated K and Sy

Material	Range Ksat (m/s)[3]	Typical Ksat (m/s)	Range specific yield	Typical specific yield
Gravel	3×10^{-4} to 3×10^{-2}	3×10^{-3}	0.21-0.28	0.24
Coarse sand	9×10^{-7} to 6×10^{-3}	5×10^{-5}	0.26-0.30	0.26
Medium sand	9×10^{-7} to 5×10^{-4}	1×10^{-5}	0.26-0.30	0.26
Fine sand	2×10^{-7} to 2×10^{-4}	5×10^{-6}	0.20-0.30	0.21
Silt, loess	1×10^{-9} to 2×10^{-5}	1×10^{-7}		0.15
Till	1×10^{-12} to 2×10^{-6}	1×10^{-9}	0.06-0.16	0.10
Clay	1×10^{-11} to 4.7×10^{-9}	1×10^{-10}	0.06-0.10	0.08
Limestone with solution openings	0.1 to 10^{-5}	0.01		
Limestone	10^{-5} to 10^{-9}	10^{-7}	0.005 to 0.05	0.01
Sandstone	10^{-5} to 10^{-9}	10^{-6}	0.05 to 0.15	0.10
Shale	10^{-8} to 10^{-12}	10^{-9}	0.005 to 0.05	0.01

The proposed SADDS areas are irregular shapes (Figure 2). The Hantush equation assumes a rectangular infiltration pond. For simplification, each irrigation area has been idealized as a rectangle with dimensions that yield the acreage of each area. Thus, the conceptual areas are as follows:

Area	Basin L			Basin W	
A	961	ft	x	300	ft
	293	m	x	91.4	m
B	1,469	ft	x	300	ft
	448	m	x	91.4	m
C	242	ft	x	300	ft
	74	m	x	91.4	m

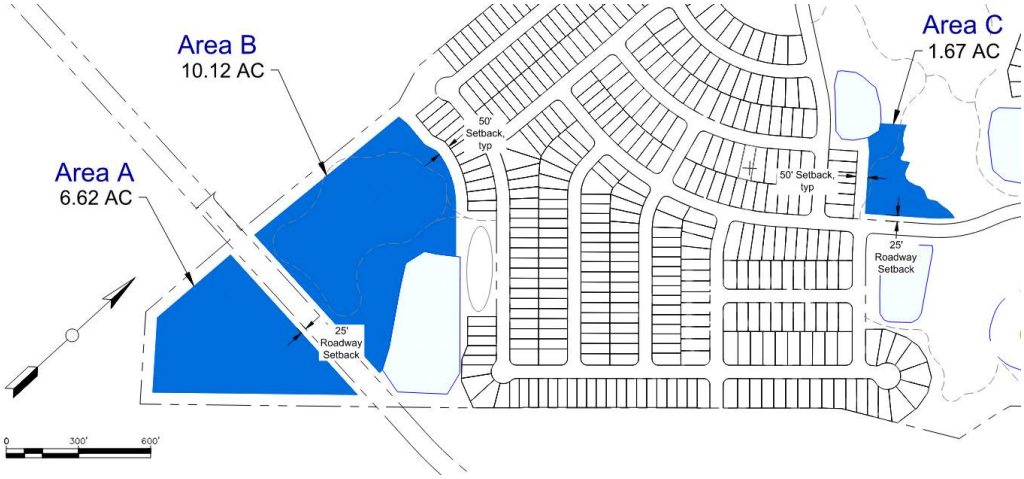

Figure 2. Proposed Areas for Drip Irrigation.

The resulting groundwater mound is 0.05 m, or approximately 2 inches, and the groundwater level will rise up to 8.28 m, or 27.16 ft below ground surface. Figure 3 shows the expected shape of the groundwater mound for each proposed SADDS area. Groundwater is not expected to rise more than 2 inches in any of the locations due to daily drip irrigation.

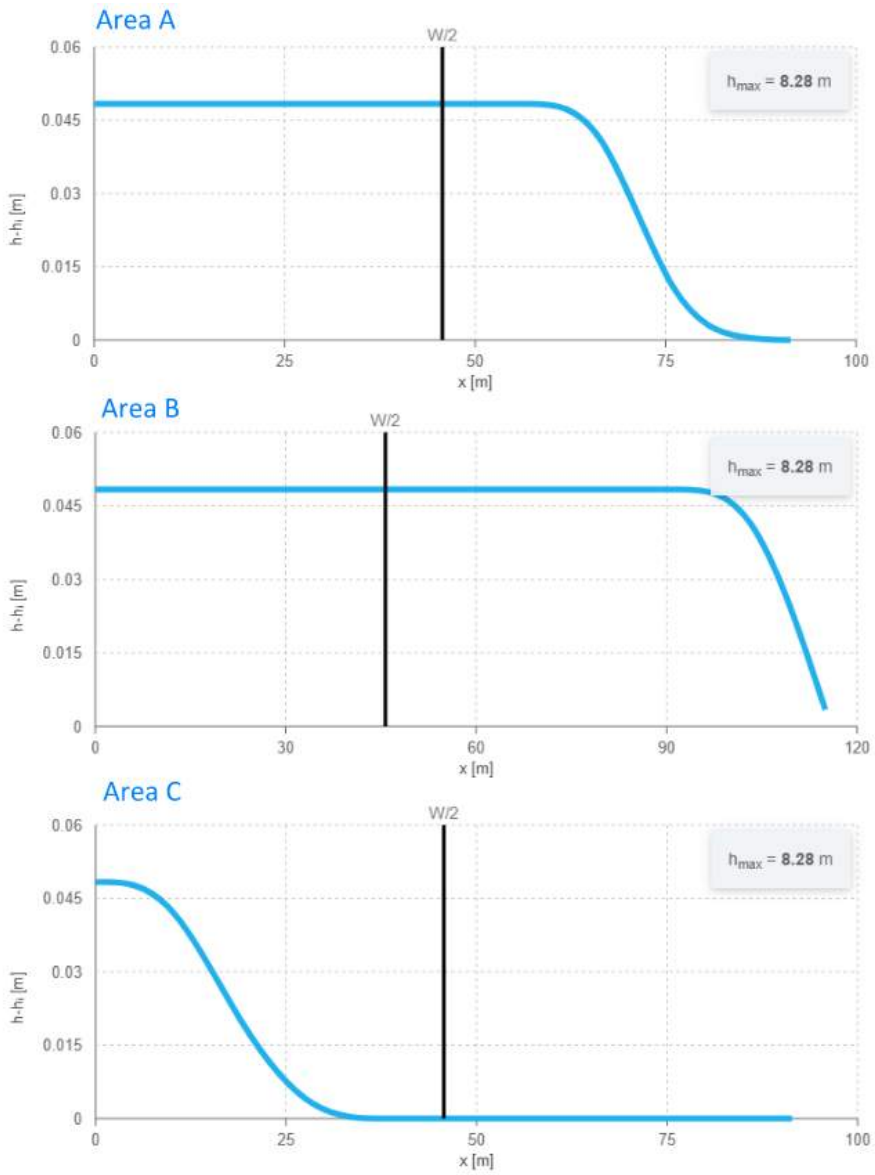

Figure 3. Resulting Groundwater Mounds for each SADDS area.

References

Carlton, G.B., 2010, Simulation of Groundwater Mounding Beneath Hypothetical Stormwater Infiltration Basins, USGS Scientific Investigations Report 2010–5102, retrieved from https://pubs.usgs.gov/sir/2010/5102/.

Hantush, M.S., 1967, Growth and decay of groundwater mounds in response to uniform percolation: Water Resources Research, v. 3, p. 227–234.

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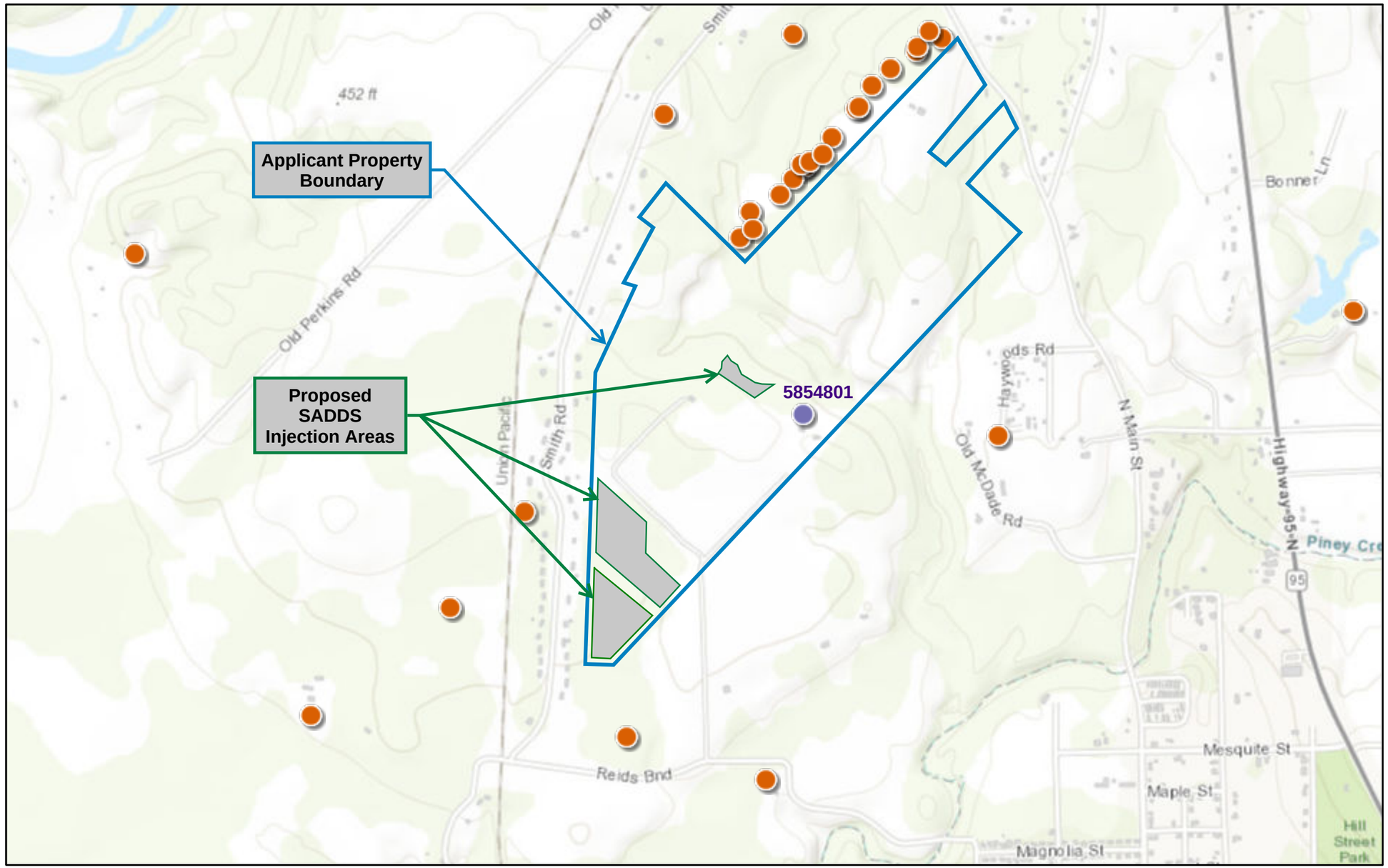
Minnesota Stormwater Manual, 2020, Aquifer hydraulic properties, Adapted from Duffield (2019) and Morris & Johnson (1967), retrieved from https://stormwater.pca.state.mn.us/index.php?title=Aquifer_hydraulic_properties.

United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), 2014, Soil Infiltration, Soil Health – Guides for Educators, retrieved from https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051576.pdf.

ATTACHMENT 7G

INJECTION ZONE WATER CHEMISTRY

Groundwater Data, Texas



Texas Water Development Board

June 26, 2025

- Well Reports
- TWDB Groundwater



0 0.15 0.3 0.6 mi
0 0.23 0.45 0.9 km
1:18,056

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri

TEXAS WATER DEVELOPMENT BOARD

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Well Report **58-54-801** is the only nearby well with available Water Quality Analysis. The Well Information Report for State Well Number 58-54-801 is attached.

reUse ENGINEERING
4411 SIH 35, Suite 100
Georgetown, TX 78626
TX Firm No. 21880

ALTO PICCO BASTROP LLC
SAYERS RANCH WWTP
BASTROP COUNTY, TEXAS

NATIVE WATER QUALITY
EXHIBIT 7-G

Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number 58-54-801

GWDB Reports and Downloads

Well Basic Details

Scanned Documents

State Well Number	5854801
County	Bastrop
River Basin	Colorado
Groundwater Management Area	12
Regional Water Planning Area	K - Lower Colorado
Groundwater Conservation District	Lost Pines GCD
Latitude (decimal degrees)	30.138056
Latitude (degrees minutes seconds)	30° 08' 17" N
Longitude (decimal degrees)	-97.330555
Longitude (degrees minutes seconds)	097° 19' 50" W
Coordinate Source	+/- 1 Second
Aquifer Code	124SMBR - Simsboro Sand Member of Rockdale Formation
Aquifer	Carrizo-Wilcox
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	416
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	360
Well Depth Source	Driller's Log
Drilling Start Date	
Drilling End Date	1/13/1980
Drilling Method	Mud (Hydraulic) Rotary
Borehole Completion	Perforated or Slotted

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	T. C. Hoffman
Driller	Baker Water Well Service
Other Data Available	Drillers Log; Specific Capacity
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	5/25/1980
Last Update Date	7/8/2002

Remarks	Test hole observation well. Report- ed yield 50GPM with 1 foot drawdow- n after pumping 4 hours in 1980. S- pecific capacity 50GPM/ft. Pumping level 80 feet.

Casing

Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
4	Blank	Plastic (PVC)			0	300
4	Screen	Plastic (PVC)			300	360

Well Tests

Test Date	Test Type	Yield (gallons per minute)	Drawdown (ft.)	Test Hours
1980-01-15	Jetted	50	1	4

Lithology

Top Depth (ft.)	Bottom Depth (ft.)	Description
0	1	surface
1	3	red clay
3	10	brown clay
10	22	tan clay, sandstone, sand
22	28	gravel
28	33	blue shale
33	35	lignite
35	45	sandy shale, lignite, and sand
45	48	shale
48	50	coal
50	80	lignitic shale and coal streaks
80	100	lignite
100	108	sand and coal streaks
108	110	coal
110	135	lignite and shale
135	155	sandy shale and sandstone streaks
155	160	sandy shale and coal streaks
160	170	coal
170	180	shale, gray
180	181	rock hard
181	185	shale
185	222	hard sandy shale and coal streaks
222	223	sandstone
223	227	shale
227	229	rock
229	264	shale
264	270	coal
270	305	shale and coal streaks
305	320	shale, coal, sand
320	355	sand and sandy shale
355	360	shale

Annular Seal Range - No Data

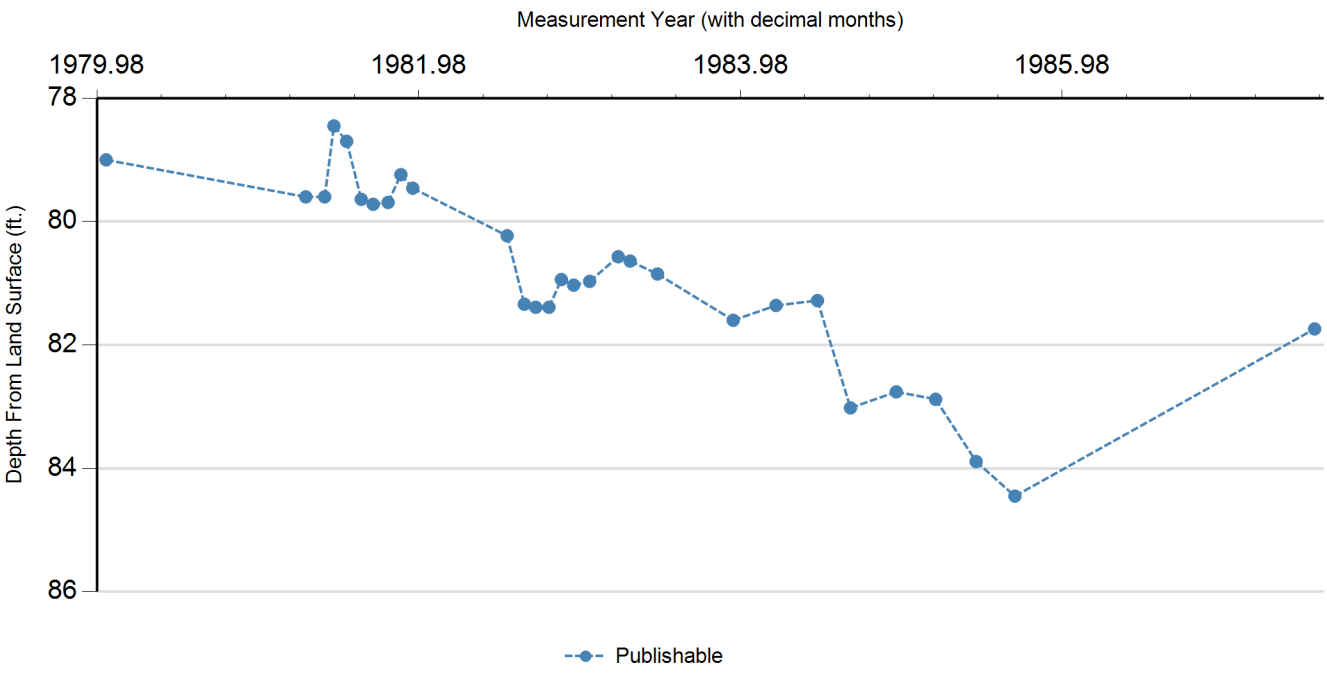
Borehole - No Data

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	1/15/1980		79		337	1	Registered Water Well Driller	Unknown		
P	4/13/1981		79.6	0.60	336.4	1	Texas Water Development Board	Steel Tape		
P	5/26/1981		79.6	0.00	336.4	1	Texas Water Development Board	Steel Tape		
P	6/17/1981		78.45	(1.15)	337.55	1	Texas Water Development Board	Steel Tape		
P	7/16/1981		78.7	0.25	337.3	1	Texas Water Development Board	Steel Tape		
P	8/19/1981		79.64	0.94	336.36	1	Texas Water Development Board	Steel Tape		
P	9/16/1981		79.72	0.08	336.28	1	Texas Water Development Board	Steel Tape		
P	10/20/1981		79.69	(0.03)	336.31	1	Texas Water Development Board	Steel Tape		
P	11/19/1981		79.24	(0.45)	336.76	1	Texas Water Development Board	Steel Tape		
P	12/16/1981		79.46	0.22	336.54	1	Texas Water Development Board	Steel Tape		
P	7/15/1982		80.23	0.77	335.77	1	Texas Water Development Board	Steel Tape		
P	8/24/1982		81.34	1.11	334.66	1	Texas Water Development Board	Steel Tape		
P	9/20/1982		81.39	0.05	334.61	1	Texas Water Development Board	Steel Tape		
P	10/20/1982		81.39	0.00	334.61	1	Texas Water Development Board	Steel Tape		
P	11/18/1982		80.94	(0.45)	335.06	1	Texas Water Development Board	Steel Tape		
P	12/16/1982		81.03	0.09	334.97	1	Texas Water Development Board	Steel Tape		
P	1/17/1983		80.97	(0.06)	335.03	1	Texas Water Development Board	Steel Tape		
P	3/22/1983		80.57	(0.40)	335.43	1	Texas Water Development Board	Steel Tape		
P	4/19/1983		80.64	0.07	335.36	1	Texas Water Development Board	Steel Tape		
P	6/21/1983		80.85	0.21	335.15	1	Texas Water Development Board	Steel Tape		
P	12/13/1983		81.6	0.75	334.4	1	Texas Water Development Board	Steel Tape		

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	3/15/1984		81.36	(0.24)	334.64	1	Texas Water Development Board	Steel Tape		
P	6/19/1984		81.28	(0.08)	334.72	1	Texas Water Development Board	Steel Tape		
P	9/4/1984		83.02	1.74	332.98	1	Texas Water Development Board	Steel Tape		
P	12/18/1984		82.76	(0.26)	333.24	1	Texas Water Development Board	Steel Tape		
P	3/12/1985		82.88	0.12	333.12	1	Texas Water Development Board	Steel Tape		
P	6/14/1985		83.89	1.01	332.11	1	Texas Water Development Board	Steel Tape		
P	9/12/1985		84.45	0.56	331.55	1	Texas Water Development Board	Steel Tape		
P	7/22/1987		81.74	(2.71)	334.26	1	Texas Water Development Board	Steel Tape		

Code Descriptions

Status Code	Status Description
P	Publishable

Water Quality Analysis

Sample Date: 8/25/1980 **Sample Time:** 0000 **Sample Number:** 1 **Collection Entity:** Texas Water Development Board

Sampled Aquifer: Simsboro Sand Member of Rockdale 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)		307	mg/L as CACO3	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		374.65	mg/L	
00910	CALCIUM (MG/L)		35.2	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		42	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.2	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CACO3)		104	mg/L as CACO3	
01045	IRON, TOTAL (UG/L AS FE)		90	ug/L	
00920	MAGNESIUM (MG/L)		4.1	mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)	<	0.1	mg/L as NO3	
00400	PH (STANDARD UNITS), FIELD		7.8	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		4.05		
00955	SILICA, DISSOLVED (MG/L AS SI02)		22	mg/L as SIO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		5.14		
00932	SODIUM, CALCULATED, PERCENT		71	PCT	
00929	SODIUM, TOTAL (MG/L AS NA)		121	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		750	MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)		8.6	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		28	C	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		417	mg/L	

** Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..*

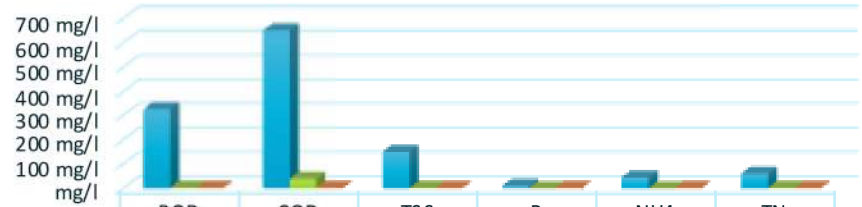
GWDB DISCLAIMER: Except where noted, all of the information provided in the Texas Water Development Board (TWDB) Groundwater Database (https://www.twdb.texas.gov/groundwater/data/gwdbrpt.asp) is believed to be accurate and reliable; however, the TWDB assumes no responsibility for any errors appearing in rules or otherwise. Further, TWDB assumes no responsibility for the use of the information provided. PLEASE NOTE that users of these data are responsible for checking the accuracy, completeness, currency and/or suitability of all information themselves. TWDB makes no guarantees or warranties as to the accuracy, completeness, currency, or suitability of the information provided via the Groundwater Database (GWDB). TWDB specifically disclaims any and all liability for any claims or damages that may result from providing GWDB data or the information it contains. For additional information or answers to questions concerning the TWDB GWDB, contact the Groundwater Data Team at GroundwaterData@twdb.texas.gov.

ATTACHMENT 7H

INJECTATE FLUID CHEMISTRY IN PPM

Process Summary

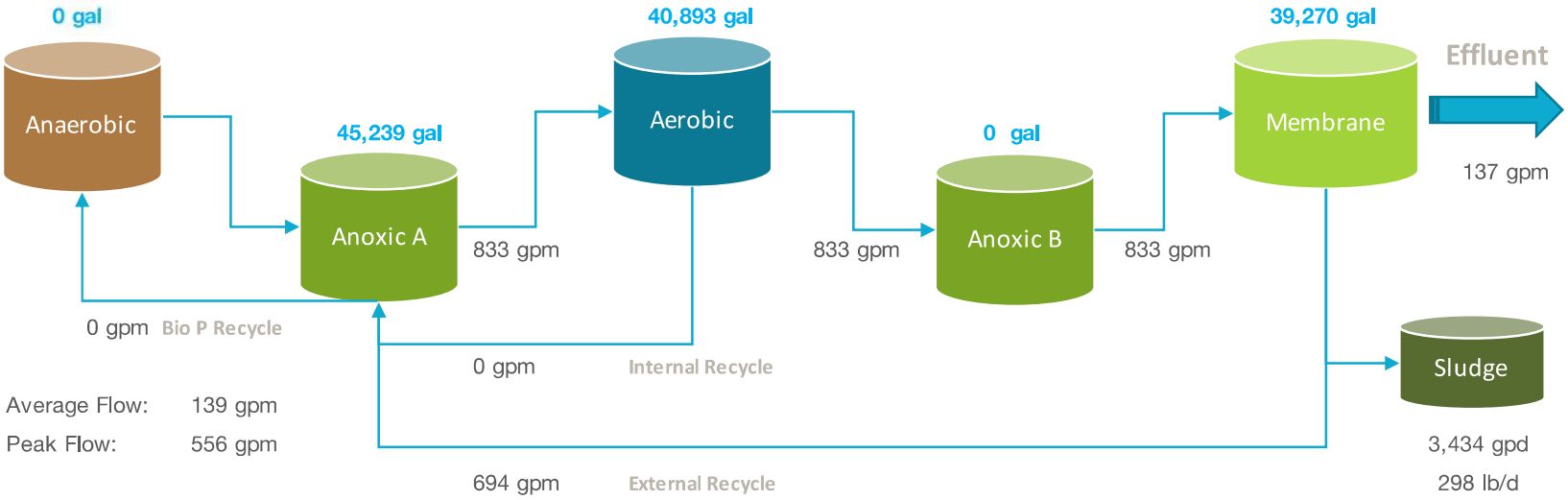
Influent & Effluent Parameters



	BOD	COD	TSS	P	NH4	TN
Influent	325 mg/l	650 mg/l	150 mg/l	10 mg/l	45 mg/l	60 mg/l
Effluent	2.0 mg/l	39.0 mg/l	1.0 mg/l	0.4 mg/l	0.2 mg/l	2.1 mg/l
Removal	99.4%	94.0%	99.3%	96.0%	99.6%	96.6%

PROCESS PARAMETERS

Sludge Age	35 d
Total Reactor Volume	125,402 gal
Total SOR	1,178 kgO2/d
MLSS in Anoxic / Aerobic Tank	10,352 mg/l
MLSS in Membrane Tank	12,557 mg/l
HRT	15 h
F/M RATIO (BOD)	0.052
F/M RATIO (COD)	0.103
Total Membrane Surface	56,672 sf



Aeration	Flow	Pressure
EQ	0 scfm	0.0 psi
Sludge	0 scfm	0.0 psi
Aerobic	403 scfm	8.0 psi
Membrane	641 scfm	8.0 psi

Applied Options:

NO	DAF
NO	RO

ALTO PICCO BASTROP LLC
SAYERS RANCH WWTP
BASTROP COUNTY, TEXAS

INJECTATE WATER QUALITY

EXHIBIT 7-H

Biological Process Calculation

Influent Charateristics	Symbol	Value	Units
Type of wastewater		municipal	
Temperature	T	12	°C
pH	-	7.5	-
H_2CO_3 alkalinity	Alk_i	7	mg/l as $CaCO_3$
Site pressure / elevation	$p_{a,i}$	14.5	psi
Average daily flow	Q_i	200,000	gpd
Peak daily flow	$Q_{i,\ max,d}$	500,000	gpd
Hourly peak flow	$Q_{i,\ max,p}$	556	gpm
Peak factor	-	4.0	-
Average daily flow	Q_i	757	m^3/d
Max. monthly average daily flow	$Q_{i,\ max,d}$	1,893	m^3/d
Hourly peak flow	$Q_{i,\ max,h}$	126.2	m^3/h
Total BOD	$S_{BOD,i}$	325	mgBOD/l
Total COD	$S_{COD,i}$	650	mgCOD/l
COD/BOD ratio	-	2.00	-
Rapidly biodegradable COD	$S_{s,i}$	163	mgCOD/l
Volitale fatty acids (VFA)	$S_{VFA,i}$	25	mgCOD/l
Fermentable COD	$S_{F,i}$	138	mgCOD/l
Slowly biodegradable COD	$S_{ss,i}$	351	mgCOD/l
Biodegradable COD	$S_{bio,i}$	514	mgCOD/l
Soluble inert COD	$S_{SIN,i}$	39	mgCOD/l
Particulate inert COD	$S_{PIN,i}$	98	mgCOD/l

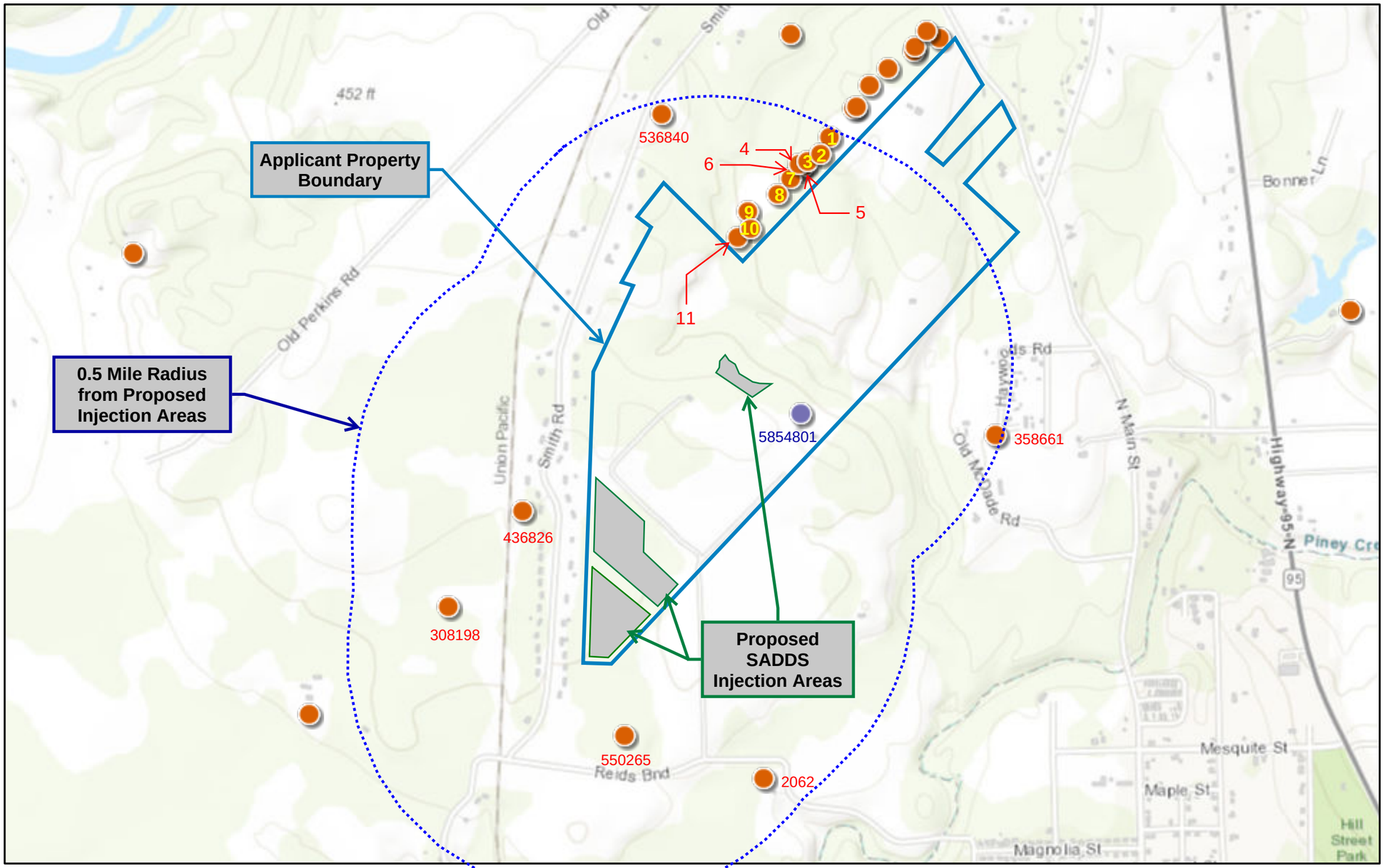
Influent Charateristics	Symbol	Value	Units
NO_3	$N_{NO3,i}$	0.0	mg/l
NH_4	$N_{a,i}$	45.0	mg/l
TKN	$N_{TKN,i}$	60.0	mg/l
TP	P_i	10.0	mg/l
Dissolved Oxygen	$S_{O2,i}$	0.0	mg/l
FSA fraction	$f_{a/TKN,i}$	0.8	-
Fixed (inorganic) suspended solids	$X_{FSS,i}$	47.5	mgISS/l
TSS concentration	$S_{TSS,i}$	150.0	mgTSS/l
Total BOD mass	$FS_{BOD,i}$	246.0	kgBOD/d
Total COD mass	$FS_{COD,i}$	492.1	kgCOD/d
Total NH_4 mass	$FS_{a,i}$	34.1	kgNH_4/d
Total TKN mass	$FS_{TKN,i}$	45.4	kgTKN/d
Total P mass	$FS_{P,i}$	7.6	kgP/d

Effluent Characteristics	Symbol	Value	Units
Waste Sludge	FX_t	298	lb/d
Waste Sludge	Q_w	3,434	gpd
Effluent BOD	$S_{BOD,e}$	< 3	mgBOD/l
Effluent COD	$S_{COD,e}$	39	mgCOD/l
Effluent TSS	$S_{TSS,e}$	1.0	mgTSS/l
Effluent P	P_e	0.4	mgP/l
Effluent NH_4	$N_{a,e}$	0.2	mgN/l
Effluent NO_3	$N_{NO3,e}$	0.4	mgN/l
Effluent TN (N_{ne} + N_{te})	$N_{t,e}$	2.1	mgN/l
Fecal/E.coli		ND	

ATTACHMENT 7I

SURROUNDING WATER WELLS

Groundwater Data, Texas



1 626299
2 655369
3 660512
4 660458
5 635214
6 617395
7 655373
8 660495
9 654661
10 670884
11 662024

Texas Water Development Board

June 26, 2025

Well Reports
TWDB Groundwater



0 0.15 0.3 0.6 mi
0 0.23 0.45 0.9 km
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Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri

TEXAS WATER DEVELOPMENT BOARD

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reUse ENGINEERING
4411 SIH 35, Suite 100
Georgetown, TX 78626
TX Firm No. 21880

ALTO PICCO BASTROP LLC
SAYERS RANCH WWTP
BASTROP COUNTY, TEXAS

WATER WELL MAP
EXHIBIT 7-I

Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number 58-54-801

GWDB Reports and Downloads

Well Basic Details

Scanned Documents

State Well Number	5854801
County	Bastrop
River Basin	Colorado
Groundwater Management Area	12
Regional Water Planning Area	K - Lower Colorado
Groundwater Conservation District	Lost Pines GCD
Latitude (decimal degrees)	30.138056
Latitude (degrees minutes seconds)	30° 08' 17" N
Longitude (decimal degrees)	-97.330555
Longitude (degrees minutes seconds)	097° 19' 50" W
Coordinate Source	+/- 1 Second
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Aquifer	Carrizo-Wilcox
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Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	360
Well Depth Source	Driller's Log
Drilling Start Date	
Drilling End Date	1/13/1980
Drilling Method	Mud (Hydraulic) Rotary
Borehole Completion	Perforated or Slotted

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	T. C. Hoffman
Driller	Baker Water Well Service
Other Data Available	Drillers Log; Specific Capacity
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	5/25/1980
Last Update Date	7/8/2002

Remarks	Test hole observation well. Report- ed yield 50GPM with 1 foot drawdow- n after pumping 4 hours in 1980. S- pecific capacity 50GPM/ft. Pumping level 80 feet.

Casing

Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
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4	Screen	Plastic (PVC)			300	360

Well Tests

Test Date	Test Type	Yield (gallons per minute)	Drawdown (ft.)	Test Hours
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Lithology

Top Depth (ft.)	Bottom Depth (ft.)	Description
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108	110	coal
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135	155	sandy shale and sandstone streaks
155	160	sandy shale and coal streaks
160	170	coal
170	180	shale, gray
180	181	rock hard
181	185	shale
185	222	hard sandy shale and coal streaks
222	223	sandstone
223	227	shale
227	229	rock
229	264	shale
264	270	coal
270	305	shale and coal streaks
305	320	shale, coal, sand
320	355	sand and sandy shale
355	360	shale

Annular Seal Range - No Data

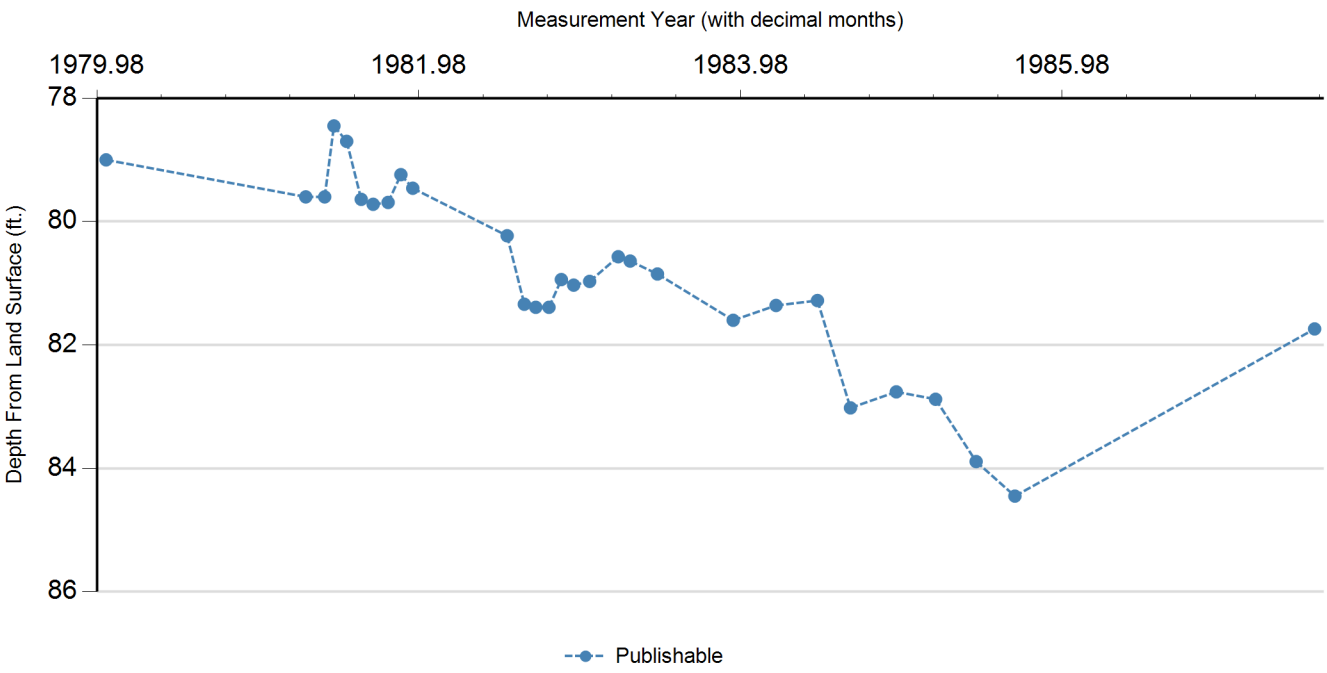
Borehole - No Data

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	1/15/1980		79		337	1	Registered Water Well Driller	Unknown		
P	4/13/1981		79.6	0.60	336.4	1	Texas Water Development Board	Steel Tape		
P	5/26/1981		79.6	0.00	336.4	1	Texas Water Development Board	Steel Tape		
P	6/17/1981		78.45	(1.15)	337.55	1	Texas Water Development Board	Steel Tape		
P	7/16/1981		78.7	0.25	337.3	1	Texas Water Development Board	Steel Tape		
P	8/19/1981		79.64	0.94	336.36	1	Texas Water Development Board	Steel Tape		
P	9/16/1981		79.72	0.08	336.28	1	Texas Water Development Board	Steel Tape		
P	10/20/1981		79.69	(0.03)	336.31	1	Texas Water Development Board	Steel Tape		
P	11/19/1981		79.24	(0.45)	336.76	1	Texas Water Development Board	Steel Tape		
P	12/16/1981		79.46	0.22	336.54	1	Texas Water Development Board	Steel Tape		
P	7/15/1982		80.23	0.77	335.77	1	Texas Water Development Board	Steel Tape		
P	8/24/1982		81.34	1.11	334.66	1	Texas Water Development Board	Steel Tape		
P	9/20/1982		81.39	0.05	334.61	1	Texas Water Development Board	Steel Tape		
P	10/20/1982		81.39	0.00	334.61	1	Texas Water Development Board	Steel Tape		
P	11/18/1982		80.94	(0.45)	335.06	1	Texas Water Development Board	Steel Tape		
P	12/16/1982		81.03	0.09	334.97	1	Texas Water Development Board	Steel Tape		
P	1/17/1983		80.97	(0.06)	335.03	1	Texas Water Development Board	Steel Tape		
P	3/22/1983		80.57	(0.40)	335.43	1	Texas Water Development Board	Steel Tape		
P	4/19/1983		80.64	0.07	335.36	1	Texas Water Development Board	Steel Tape		
P	6/21/1983		80.85	0.21	335.15	1	Texas Water Development Board	Steel Tape		
P	12/13/1983		81.6	0.75	334.4	1	Texas Water Development Board	Steel Tape		

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	3/15/1984		81.36	(0.24)	334.64	1	Texas Water Development Board	Steel Tape		
P	6/19/1984		81.28	(0.08)	334.72	1	Texas Water Development Board	Steel Tape		
P	9/4/1984		83.02	1.74	332.98	1	Texas Water Development Board	Steel Tape		
P	12/18/1984		82.76	(0.26)	333.24	1	Texas Water Development Board	Steel Tape		
P	3/12/1985		82.88	0.12	333.12	1	Texas Water Development Board	Steel Tape		
P	6/14/1985		83.89	1.01	332.11	1	Texas Water Development Board	Steel Tape		
P	9/12/1985		84.45	0.56	331.55	1	Texas Water Development Board	Steel Tape		
P	7/22/1987		81.74	(2.71)	334.26	1	Texas Water Development Board	Steel Tape		

Code Descriptions

Status Code	Status Description
P	Publishable

Water Quality Analysis

Sample Date: 8/25/1980 **Sample Time:** 0000 **Sample Number:** 1 **Collection Entity:** Texas Water Development Board

Sampled Aquifer: Simsboro Sand Member of Rockdale 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)		307	mg/L as CACO3	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		374.65	mg/L	
00910	CALCIUM (MG/L)		35.2	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		42	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.2	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CACO3)		104	mg/L as CACO3	
01045	IRON, TOTAL (UG/L AS FE)		90	ug/L	
00920	MAGNESIUM (MG/L)		4.1	mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)	<	0.1	mg/L as NO3	
00400	PH (STANDARD UNITS), FIELD		7.8	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		4.05		
00955	SILICA, DISSOLVED (MG/L AS SI02)		22	mg/L as SIO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		5.14		
00932	SODIUM, CALCULATED, PERCENT		71	PCT	
00929	SODIUM, TOTAL (MG/L AS NA)		121	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		750	MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)		8.6	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		28	C	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		417	mg/L	

** Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..*

GWDB DISCLAIMER: Except where noted, all of the information provided in the Texas Water Development Board (TWDB) Groundwater Database (https://www.twdb.texas.gov/groundwater/data/gwdbrpt.asp) is believed to be accurate and reliable; however, the TWDB assumes no responsibility for any errors appearing in rules or otherwise. Further, TWDB assumes no responsibility for the use of the information provided. PLEASE NOTE that users of these data are responsible for checking the accuracy, completeness, currency and/or suitability of all information themselves. TWDB makes no guarantees or warranties as to the accuracy, completeness, currency, or suitability of the information provided via the Groundwater Database (GWDB). TWDB specifically disclaims any and all liability for any claims or damages that may result from providing GWDB data or the information it contains. For additional information or answers to questions concerning the TWDB GWDB, contact the Groundwater Data Team at GroundwaterData@twdb.texas.gov.

STATE OF TEXAS WELL REPORT for Tracking #358661

Owner:	**Clyde Haywood**	Owner Well #:	**No Data**
Address:	**P O Box 121 Bastrop, TX 78602**	Grid #:	**58-54-8**
		Latitude:	**30° 08' 15" N**
Well Location:	**163 Old hwy 40 Bastrop, TX 78602**	Longitude:	**097° 19' 29" W**
Well County:	**Bastrop**	Elevation:	**No Data**

Type of Work: **New Well** Proposed Use: **Domestic**

Drilling Start Date: **12/12/2013** Drilling End Date: **12/14/2013**

	Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
Borehole:	**8.75**	**0**	**280**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

	Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
Filter Pack Intervals:	**240**	**280**	**Gravel**	**pea gravel**

	Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
Annular Seal Data:	**0**	**10**	**12**

Seal Method: **hand**

Sealed By: **Driller**

Distance to Property Line (ft.): **50+**

Distance to Septic Field or other concentrated contamination (ft.): **n/a**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **no septic at this time**

Surface Completion: **Surface Slab Installed**

Water Level: **78 ft.** below land surface on **2013-12-15** Measurement Method: **Unknown**

Packers: **1 rubber 10 ft**

Type of Pump: **no pump** Pump Depth (ft.): **180**

Well Tests: **Jetted** **Yield: 25 GPM with 111 ft. drawdown after 3 hours**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	**No Data**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Jimmy's Well Service**

P O Box 70
Bastrop, TX 78602

Driller Name: **David Odom** License Number: **58556**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**10**	**sandy loam**
10	**15**	**sand & gravel**
15	**16**	**rock**
16	**35**	**black clay**
35	**60**	**brown clay**
60	**66**	**lignite**
66	**76**	**shale**
76	**81**	**lignite**
81	**86**	**shale**
86	**103**	**sand**
103	**111**	**clay**
111	**144**	**sand**
144	**182**	**sandy shale**
182	**186**	**clay**
186	**208**	**sandy shale**
208	**279**	**sand**
279	**280**	**rock**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
5	**n**	**solid**	**000 240 sdr17**
5	**n**	**slotted**	**240 280 .012**

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Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #2062

Owner:	**W. C. FROELHICH**	Owner Well #:	**No Data**
Address:	**1604 MAIN ST BASTROP, TX 78602**	Grid #:	**58-54-8**
Well Location:	**RIEDS BEND BASTROP, TX 78602**	Latitude:	**30° 07' 43" N**
		Longitude:	**097° 19' 54" W**
Well County:	**Bastrop**	Elevation:	**No Data**
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **8/8/2001** Drilling End Date: **8/9/2001**

	Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
Borehole:	**7.875**	**0**	**235**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

	Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
Filter Pack Intervals:	**200**	**228**	**Gravel**	

	Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
Annular Seal Data:	**0**	**10**	**6**

Seal Method: **HANDMIXED**

Sealed By: **CODY BROWN**

Distance to Property Line (ft.): **No Data**

Distance to Septic Field or other concentrated contamination (ft.): **NA**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **No Data**

Surface Completion: **Surface Slab Installed**

Water Level: **55 ft.** below land surface on **2001-08-17** Measurement Method: **Unknown**

Packers: **SHALE 10**

Type of Pump: **Submersible** Pump Depth (ft.): **190**

Well Tests: **Jetted** **Yield: 55 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
26	**GOOD**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **Unknown**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **BROWN WATER WELL DRILLING**

641 TRACK RD
DALE, TX 78616

Driller Name: **SAM BROWN**

License Number: **3086**

Apprentice Name: **CODY BROWN**

Apprentice Number: **3086WPKL**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**18**	**BROWN CLAY**
18	**29**	**SAND**
29	**31**	**GRAVEL**
31	**91**	**HARD CLAY AND LIGNITE**
91	**92**	**ROCK**
92	**111**	**SAND**
111	**168**	**CLAY AND LIGNITE WITH ROCKS**
168	**209**	**LIGNITE AND SAND**
209	**235**	**SAND**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
4	**NEW**	**PLASTIC**	**+1-208**
4	**NEW**	**SCREEN**	**208-228 .032**

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(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #550265

Owner:	**James Caouette**	Owner Well #:	**No Data**
Address:	**210 Reids Bend Bastrop, TX 78602**	Grid #:	**58-54-7**
Well Location:	**210 Reids Bend Bastrop, TX 78602**	Latitude:	**30° 07' 47" N**
		Longitude:	**097° 20' 09" W**
Well County:	**Bastrop**	Elevation:	**395 ft. above sea level**
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **6/11/2020** Drilling End Date: **6/13/2020**

	Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
Borehole:	**9**	**0**	**340**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

	Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
Filter Pack Intervals:	**260**	**335**	**Gravel**	**1/8"**

	Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
Annular Seal Data:	**0**	**10**	**Concrete 20 Bags/Sacks**

Seal Method: **Hand Mixed**

Sealed By: **Driller**

Distance to Property Line (ft.): **+100**

Distance to Septic Field or other concentrated contamination (ft.): **N/A**

Distance to Septic Tank (ft.): **+100**

Method of Verification: **per landowner**

Surface Completion: **Surface Sleeve Installed** **Surface Completion by Driller**

Water Level: **100 ft.** below land surface on **2020-06-13** Measurement Method: **Electric Line**

Packers: **hole plug at 260 ft.**

Type of Pump: **No Data**

Well Tests: **Jetted** **Yield: 100 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	**No Data**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Jackson Water Well**

PO Box 234
Rosanky, TX 78953

Driller Name: **Dake Jackson** License Number: **59214**

Apprentice Name: **Paul Stanley** Apprentice Number: **59983**

Comments: **well complete at 335 ft.**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**1**	**top soil**
1	**15**	**clay**
15	**35**	**sand & large gravel**
35	**42**	**lignite (lost circulation)**
42	**140**	**sandy gray clay**
140	**180**	**sand w/ some clay**
180	**260**	**gray clay**
260	**335**	**sand**
335	**340**	**clay**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4.5	**Blank**	**New Plastic (PVC)**	**SDR17**	**3**	**315**
4.5	**Screen**	**New Plastic (PVC)**	**SDR17 0.020**	**315**	**335**

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STATE OF TEXAS WELL REPORT for Tracking #308198

Owner:	**Tim Hill**	Owner Well #:	**No Data**
Address:	**132 Reids Bend Bastrop, TX 78602**	Grid #:	**58-54-7**
Well Location:	**132 Reds Bend Bastrop, TX 78602**	Latitude:	**30° 07' 59" N**
		Longitude:	**097° 20' 28" W**
Well County:	**Bastrop**	Elevation:	**357 ft. above sea level**
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **10/9/2012** Drilling End Date: **10/23/2012**

	Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
Borehole:	**8.75**	**0**	**350**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

	Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
Filter Pack Intervals:	**300**	**350**	**Gravel**	**pea gravel**

	Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
Annular Seal Data:	**0**	**10**	**8**

Seal Method: **hand**

Sealed By: **Driller**

Distance to Property Line (ft.): **50+**

Distance to Septic Field or other concentrated contamination (ft.): **150+**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **measured w/owner**

Surface Completion: **Surface Slab Installed**

Water Level: **57 ft.** below land surface on **2012-10-23** Measurement Method: **Unknown**

Packers: **1 rubber 10 ft**

Type of Pump: **Submersible** Pump Depth (ft.): **140**

Well Tests: **Jetted** **Yield: 100+ GPM with 111 ft. drawdown after 3 hours**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	**No Data**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Jimmys Well Service**

P O Box 70
Bastrop, TX 78602

Driller Name: **David Odom** License Number: **58556**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

From (ft)	To (ft)	Description
0-	**12**	**brown dirt**
12-	**20**	**sand and small gravel**
20-	**106**	**gray shale w/sand layers**
106-	**114**	**lignite**
114-	**117**	**brown clay**
117-	**121**	**lignite**
121-	**207**	**gray shale w/lignite**
207-	**208**	**rock**
208-	**216**	**sandy shale**
216-	**217**	**rock**
217-	**247**	**sand**
247-	**248**	**rock**
248-	**350**	**sand**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
5	**n**	**solid**	**0 300**
5	**n**	**slotted**	**300 340 .014**
5	**n**	**solid**	**340 350**

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(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #436826

Owner:	**Melvin klatt - Lauren Concrete**	Owner Well #:	**No Data**
Address:	**113 Kalama Drive Bastrop, TX 78602**	Grid #:	**58-54-7**
Well Location:	**113 Kalama Drive Bastrop, TX 78602**	Latitude:	**30° 08' 08" N**
		Longitude:	**097° 20' 20" W**
Well County:	**Bastrop**	Elevation:	**470 ft. above sea level**
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **6/13/2016** Drilling End Date: **9/20/2016**

	Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
Borehole:	**8.75**	**0**	**245**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **gravel packed**

	Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
Annular Seal Data:	**0**	**10**	**Cement 14**

Seal Method: **Hand Mixed**

Sealed By: **Driller**

Distance to Property Line (ft.): **50+**

Distance to Septic Field or other concentrated contamination (ft.): **150+**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **measured w/owner**

Surface Completion: **Surface Slab Installed** **Surface Completion by Driller**

Water Level: **No Data**

Packers: **Rubber at 10 ft.**

Type of Pump: **Submersible** Pump Depth (ft.): **180**

Well Tests: **Jetted** **Yield: 30 GPM with 41 ft. drawdown after 6 hours**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	**No Data**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Jimmy's Well Service**

P O Box 70
Bastrop, TX 78602

Driller Name: **David Odom** License Number: **58556**

Apprentice Name: **Shane Odom** Apprentice Number: **59687**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**18**	**sand/ bull rock**
18	**29**	**sandy gravel**
29	**106**	**sandy shale**
106	**147**	**clay w/sandy streaks**
147	**245**	**sandy shale**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
5	**Blank**	**New Plastic (PVC)**	**80 17**	**0**	**210**
5	**Perforated or Slotted**	**New Plastic (PVC)**	**80 0.016**	**210**	**245**

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STATE OF TEXAS WELL REPORT for Tracking #536840

Owner:	**Samuel Stevenson**	Owner Well #:	**No Data**
Address:	**363 Smith Rd Bastrop, TX 78602**	Grid #:	**58-54-7**
Well Location:	**363 Smith Rd Bastrop, TX 78602**	Latitude:	**30° 08' 45" N**
		Longitude:	**097° 20' 05" W**
Well County:	**Bastrop**	Elevation:	**430 ft. above sea level**
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **2/4/2020** Drilling End Date: **2/6/2020**

	Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
Borehole:	**9**	**0**	**580**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

	Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
Filter Pack Intervals:	**430**	**575**	**Gravel**	**1/8"**

	Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
Annular Seal Data:	**0**	**10**	**Concrete 14 Bags/Sacks**

Seal Method: **Hand Mixed**

Sealed By: **Driller**

Distance to Property Line (ft.): **+100**

Distance to Septic Field or other concentrated contamination (ft.): **N/A**

Distance to Septic Tank (ft.): **N/A**

Method of Verification: **per landowner**

Surface Completion: **Surface Sleeve Installed** **Surface Completion by Driller**

Water Level: **128 ft.** below land surface on **2020-02-06** Measurement Method: **Electric Line**

Packers: **hole plug at 430 ft.**

Type of Pump: **No Data**

Well Tests: **Jetted** **Yield: 100 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	**No Data**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Jackson Water Well**

PO Box 234
Rosanky, TX 78953

Driller Name: **Dake Jackson** License Number: **59214**

Apprentice Name: **Paul Stanley** Apprentice Number: **59983**

Comments: **well complete at 575 ft.**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**1**	**top soil**
1	**8**	**red clay**
8	**22**	**sandy clay**
22	**190**	**sand & lignite**
190	**220**	**sandy clay**
220	**400**	**sand**
400	**430**	**sandy clay**
430	**575**	**sand**
575	**580**	**clay**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4.5	**Blank**	**New Plastic (PVC)**	**SDR17**	**3**	**555**
4.5	**Screen**	**New Plastic (PVC)**	**SDR17 0.020**	**555**	**575**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #626299

Owner:	**Alberto Frausto Rodriguez Melissa Marie**	Owner Well #:	**No Data**
Address:	**Cirrus Ln Lot 1-c Bastrop, TX 78602**	Grid #:	**58-54-8**
Well Location:	**Cirrus Ln Lot 1-c Bastrop, TX 78602**	Latitude:	**30° 08' 42.88" N**
Well County:	**Bastrop**	Longitude:	**097° 19' 46.87" W**
		Elevation:	**441 ft. above sea level**

Type of Work: **New Well** Proposed Use: **Domestic**

Drilling Start Date: **12/1/2022** Drilling End Date: **12/1/2022**

Borehole:

Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
8.75	**0**	**275**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

Filter Pack Intervals:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
205	**275**	**Gravel**	**1/8**

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
0	**25**	**Cement 18 Bags/Sacks**
20	**205**	**Grout 15 Bags/Sacks**

Seal Method: **Hand Mixed**

Sealed By: **Driller**

Distance to Property Line (ft.): **76**

Distance to Septic Field or other concentrated contamination (ft.): **NA**

Distance to Septic Tank (ft.): **100+**

Method of Verification: **Owner**

Surface Completion: **Surface Sleeve Installed** **Surface Completion by Driller**

Water Level: **172 ft.** below land surface on **2022-12-01**

Packers: **No Data**

Type of Pump: **Submersible** Pump Depth (ft.): **215**

Well Tests: **Jetted** **Yield: 35-40 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	**No Data**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Jimmy's Well Service LLC**

P O Box 70
Bastrop, TX 78602

Driller Name: **David Odom** License Number: **58556**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**14**	**Red and Tan Clay with Sandy Gravel**
14	**24**	**Tan Sand**
24	**44**	**Grey Clay and Sand**
44	**79**	**Grey Shale**
79	**81**	**Lignite**
81	**98**	**Grey Shale**
98	**134**	**Grey Sandy Shale**
134	**136**	**Rock**
136	**220**	**Grey Shale**
220	**275**	**Sand**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4	**Blank**	**New Plastic (PVC)**	**40**	**0**	**235**
4	**Screen**	**New Plastic (PVC)**	**0.020**	**235**	**275**

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STATE OF TEXAS WELL REPORT for Tracking #655369

Owner:	**Clayton Homes #1**	Owner Well #:	**No Data**
Address:	**166 Cirrus Ln Bastrop, TX 78602**	Grid #:	**58-54-8**
Well Location:	**166 Cirrus Ln Bastrop, TX 78602**	Latitude:	**30° 08' 41.2" N**
		Longitude:	**097° 19' 47.86" W**
Well County:	**Bastrop**	Elevation:	**441 ft. above sea level**
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **12/11/2023** Drilling End Date: **12/11/2023**

Borehole:

Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
12	**0**	**5**
7.5	**5**	**270**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

Filter Pack Intervals:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
220	**270**	**Gravel**	**1/8**

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
0	**4**	**Cement 3 Bags/Sacks**
4	**10**	**Hole Plug 4 Bags/Sacks**

Seal Method: **Hand Mixed**

Sealed By: **Driller**

Distance to Property Line (ft.): **54**

Distance to Septic Field or other concentrated contamination (ft.): **NA**

Distance to Septic Tank (ft.): **NA**

Method of Verification: **Owner**

Surface Completion: **Surface Sleeve Installed** **Surface Completion by Driller**

Water Level: **164 ft.** below land surface on **2023-12-11**

Packers: **Plastic at 10 ft.**

Type of Pump: **Submersible** Pump Depth (ft.): **220**

Well Tests: **Jetted** **Yield: 40 GPM with 67 ft. drawdown after unspecified hours**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	**No Data**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Jimmy's Well Service LLC**

P O Box 70
Bastrop, TX 78602

Driller Name: **David Odom** License Number: **58556**

Comments: **No Data**

Report Amended on 3/11/2024 by Request #41812

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**2**	**Sand And Gravel**
2	**4**	**Red Clay**
4	**33**	**Tan Clay**
33	**46**	**Grey Shale**
46	**63**	**Sand**
63	**68**	**Lignite**
68	**120**	**Sand And Shale Layers**
120	**121**	**Rock**
121	**161**	**Sand And Sandy Shale**
161	**219**	**Grey Shale**
219	**270**	**Sand**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4	**Blank**	**New Plastic (PVC)**	**SDR 17**	**0**	**230**
4	**Screen**	**New Plastic (PVC)**	**0.2**	**230**	**270**

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(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #660512

Owner:	**JOT Holding**	Owner Well #:	**No Data**
Address:	**Cirrus Ln Bastrop, TX 78602**	Grid #:	**58-54-8**
Well Location:	**Cirrus Ln Bastrop, TX 78602**	Latitude:	**30° 08' 40.53" N**
		Longitude:	**097° 19' 49.2" W**
Well County:	**Bastrop**	Elevation:	**444 ft. above sea level**
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **12/28/2023** Drilling End Date: **12/28/2023**

Borehole:

Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
12	**0**	**5**
7.5	**5**	**280**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

Filter Pack Intervals:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
220	**280**	**Gravel**	**1/8**

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
0	**4**	**Cement 3 Bags/Sacks**
4	**10**	**Hole Plug 4 Bags/Sacks**

Seal Method: **Hand Mixed**

Sealed By: **Driller**

Distance to Property Line (ft.): **55**

Distance to Septic Field or other concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **NA**

Method of Verification: **Owner**

Surface Completion: **Surface Sleeve Installed** **Surface Completion by Driller**

Water Level: **164 ft.** below land surface on **No Data**

Packers: **Plastic at 10 ft.**

Type of Pump: **Submersible** Pump Depth (ft.): **220**

Well Tests: **Jetted** **Yield: 40 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	**No Data**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Jimmy's Well Service LLC**

P O Box 70
Bastrop, TX 78602

Driller Name: **David Odom** License Number: **58556**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**2**	**Sandy Loam**
2	**12**	**Red Sand And Rock**
12	**16**	**Gravel**
16	**44**	**Tan Clay**
44	**84**	**Sandy Shale**
84	**143**	**Sand**
143	**209**	**Grey Shale**
209	**210**	**Rock**
210	**218**	**Sandy Shale**
218	**280**	**Sand**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4	**Blank**	**New Plastic (PVC)**		**0**	**235**
4	**Screen**	**New Plastic (PVC)**	**0.2**	**235**	**275**
4	**Blank**	**New Plastic (PVC)**		**275**	**280**

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STATE OF TEXAS WELL REPORT for Tracking #660458

Owner:	**Clayton Holmes**	Owner Well #:	**No Data**
Address:	**165 Cyrus Ln Bastrop, TX 78602**	Grid #:	**58-54-8**
Well Location:	**165 Cyrus Ln Bastrop, TX 78602**	Latitude:	**30° 08' 40.35" N**
		Longitude:	**097° 19' 50.22" W**
Well County:	**Bastrop**	Elevation:	**437 ft. above sea level**
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **12/13/2023** Drilling End Date: **12/13/2023**

Borehole:

Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
12	**0**	**5**
7.5	**5**	**280**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

Filter Pack Intervals:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
220	**280**	**Gravel**	**1/8**

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
0	**4**	**Cement 4 Bags/Sacks**
4	**10**	**Hole Plug 4 Bags/Sacks**

Seal Method: **Hand Mixed**

Sealed By: **Driller**

Distance to Property Line (ft.): **50+**

Distance to Septic Field or other concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **NA**

Method of Verification: **No Data**

Surface Completion: **Surface Sleeve Installed** **Surface Completion by Driller**

Water Level: **174 ft.** below land surface on **No Data**

Packers: **Plastic at 10 ft.**

Type of Pump: **Submersible** Pump Depth (ft.): **220**

Well Tests: **Jetted** **Yield: 35 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	**No Data**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Jimmy's Well Service LLC**

P O Box 70
Bastrop, TX 78602

Driller Name: **David Odom** License Number: **58556**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**12**	**Gravel And Sand**
12	**24**	**Red Clay**
24	**78**	**Grey Shale**
78	**99**	**Sandy Shale**
99	**121**	**Grey Shale**
121	**154**	**Sandy Shale**
154	**216**	**Grey Shale**
216	**280**	**Sand**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4	**Blank**	**New Plastic (PVC)**	**40**	**0**	**235**
4	**Screen**	**New Plastic (PVC)**	**0.2**	**235**	**275**
4	**Blank**	**New Plastic (PVC)**	**40**	**275**	**280**

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(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #635214

Owner:	**Emilo Perez**	Owner Well #:	**No Data**
Address:	**173 Cirrus Ln Bastrop, TX 78602**	Grid #:	**58-54-8**
Well Location:	**173 Cirrus Ln Bastrop, TX 78602**	Latitude:	**30° 08' 40.14" N**
		Longitude:	**097° 19' 49.67" W**
Well County:	**Bastrop**	Elevation:	**433 ft. above sea level**
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **3/23/2023** Drilling End Date: **3/23/2023**

Borehole:

Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
10	**0**	**5**
7.5	**5**	**270**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

Filter Pack Intervals:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
200	**270**	**Gravel**	**1/8**

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
0	**10**	**Cement 7 Bags/Sacks**

Seal Method: **Hand Mixed**

Sealed By: **Driller**

Distance to Property Line (ft.): **53**

Distance to Septic Field or other concentrated contamination (ft.): **100+**

Distance to Septic Tank (ft.): **90**

Method of Verification: **Owner**

Surface Completion: **Surface Sleeve Installed** **Surface Completion by Driller**

Water Level: **No Data**

Packers: **Plastic at 10 ft.**

Type of Pump: **Submersible** Pump Depth (ft.): **216**

Well Tests: **Jetted** **Yield: 40+ GPM**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	**No Data**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Jimmy's Well Service LLC**

P O Box 70
Bastrop, TX 78602

Driller Name: **David Odom** License Number: **58556**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**5**	**Red Clay**
5	**37**	**Red Sand**
37	**114**	**Grey Clay**
114	**137**	**Sand with Lignite**
137	**185**	**Grey Shale**
185	**186**	**Rock**
186	**219**	**Shale**
219	**221**	**Rock**
221	**270**	**Sand**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4	**Blank**	**New Plastic (PVC)**	**40**	**0**	**230**
4	**Screen**	**New Plastic (PVC)**	**0.020**	**230**	**270**

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STATE OF TEXAS WELL REPORT for Tracking #617395

Owner:	**Brad & Lindsay Sivers**	Owner Well #:	**No Data**
Address:	**177 Cirrus Ln Bastrop, TX 78602**	Grid #:	**58-54-8**
		Latitude:	**30° 08' 39.9" N**
Well Location:	**177 Cirrus Ln Bastrop, TX 78602**	Longitude:	**097° 19' 50.11" W**
Well County:	**Bastrop**	Elevation:	**432 ft. above sea level**
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **8/31/2022** Drilling End Date: **8/31/2022**

Borehole:

Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
8.75	**0**	**272**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

Filter Pack Intervals:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
200	**272**	**Gravel**	**1/8**

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
0	**8**	**Cement 6 Bags/Sacks**
8	**200**	**Grout 13 Bags/Sacks**

Seal Method: **Hand Mixed**

Sealed By: **Driller**

Distance to Property Line (ft.): **28**

Distance to Septic Field or other concentrated contamination (ft.): **N/A**

Distance to Septic Tank (ft.): **N/A**

Method of Verification: **Measured with Owner**

Surface Completion: **Surface Sleeve Installed** **Surface Completion by Driller**

Water Level: **No Data**

Packers: **None Grout from gravel up**

Type of Pump: **Submersible** Pump Depth (ft.): **200**

Well Tests: **Jetted** **Yield: 40 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	**No Data**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Jimmy's Well Service LLC**

P O Box 70
Bastrop, TX 78602

Driller Name: **David Odom** License Number: **58556**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**7**	**Red Clay**
7	**35**	**Red Sand**
35	**51**	**Brown Clay**
51	**98**	**Grey Shale**
98	**117**	**Light Grey Silty Clay**
117	**119**	**Rock**
119	**217**	**Light Grey Shale**
217	**219**	**Rock**
219	**270**	**Sand**
270	**272**	**Shale**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4	**Blank**	**New Plastic (PVC)**	**SDR17**	**0**	**232**
4	**Perforated or Slotted**	**New Plastic (PVC)**	**SDR17 0.020**	**232**	**270**

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STATE OF TEXAS WELL REPORT for Tracking #655373

Owner:	**AdAlberto Auiles Lopez**	Owner Well #:	**No Data**
Address:	**183 Cirrus Ln Bastrop, TX 78602**	Grid #:	**58-54-8**
		Latitude:	**30° 08' 38.94" N**
Well Location:	**183 Cirrus Ln Bastrop, TX 78602**	Longitude:	**097° 19' 51.08" W**
Well County:	**Bastrop**	Elevation:	**423 ft. above sea level**
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **12/4/2023** Drilling End Date: **12/4/2023**

Borehole:

Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
12	**0**	**5**
8.75	**5**	**260**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

Filter Pack Intervals:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
200	**260**	**Gravel**	**1/8**

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
0	**4**	**Cement 4 Bags/Sacks**
4	**10**	**Hole Plug 4 Bags/Sacks**

Seal Method: **Hand Mixed**

Sealed By: **Driller**

Distance to Property Line (ft.): **52**

Distance to Septic Field or other concentrated contamination (ft.): **NA**

Distance to Septic Tank (ft.): **NA**

Method of Verification: **Owner**

Surface Completion: **Surface Sleeve Installed** **Surface Completion by Driller**

Water Level: **155 ft.** below land surface on **No Data**

Packers: **Plastic at 10 ft.**

Type of Pump: **Submersible** Pump Depth (ft.): **200**

Well Tests: **Jetted** **Yield: 30-35 GPM with 55 ft. drawdown after unspecified hours**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	**No Data**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Jimmy's Well Service LLC**

P O Box 70
Bastrop, TX 78602

Driller Name: **David Odom** License Number: **58556**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**4**	**Red Clay**
4	**29**	**Orange Clay**
29	**34**	**Fine Gravel**
34	**53**	**Grey Clay**
53	**58**	**Lignite**
58	**79**	**Grey Shale**
79	**144**	**Sandy Shale**
144	**145**	**Rock**
145	**204**	**Grey Shale And Sand Streaks**
204	**207**	**Rock**
207	**260**	**Sand**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4	**Blank**	**New Plastic (PVC)**	**SDR 17**	**0**	**215**
4	**Screen**	**New Plastic (PVC)**	**0.2**	**215**	**255**
4	**Blank**	**New Plastic (PVC)**	**SDR 17**	**255**	**260**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #660495

Owner:	**Margarita Balderas**	Owner Well #:	**No Data**
Address:	**5704 Netleaf Rd Austin , TX 78724**	Grid #:	**58-54-8**
		Latitude:	**30° 08' 37.52" N**
Well Location:	**Block 3 Lot 1 Cirrus Ln Bastrop, TX 78599**	Longitude:	**097° 19' 52.44" W**
Well County:	**Bastrop**	Elevation:	**417 ft. above sea level**
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **12/27/2023** Drilling End Date: **12/27/2023**

Borehole:

Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
12	**0**	**5**
7.5	**5**	**270**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

Filter Pack Intervals:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
220	**270**	**Gravel**	**1/8**

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
0	**4**	**Cement 4 Bags/Sacks**
4	**10**	**Hole Plug 4 Bags/Sacks**

Seal Method: **Hand Mixed**

Sealed By: **Driller**

Distance to Property Line (ft.): **50+**

Distance to Septic Field or other concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **NA**

Method of Verification: **Owner**

Surface Completion: **Surface Sleeve Installed** **Surface Completion by Driller**

Water Level: **124 ft.** below land surface on **No Data**

Packers: **Plastic at 10 ft.**

Type of Pump: **Submersible** Pump Depth (ft.): **207**

Well Tests: **Jetted** **Yield: 40+ GPM**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	**No Data**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Jimmy's Well Service LLC**

P O Box 70
Bastrop, TX 78602

Driller Name: **David Odom** License Number: **58556**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**2**	**Sandy Loam**
2	**4**	**Red Clay**
4	**13**	**Sandy Shale**
13	**26**	**Gravel**
26	**33**	**Sand**
33	**68**	**Brown Clay**
68	**69**	**Rock**
69	**106**	**Grey Shale**
106	**144**	**Sand And Sandy Shale**
144	**206**	**Grey Shale**
206	**270**	**Sand**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4	**Blank**	**New Plastic (PVC)**	**40**	**0**	**230**
4	**Screen**	**New Plastic (PVC)**	**0.2**	**230**	**270**

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Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #654661

Owner:	**Bastrop Best Pork**	Owner Well #:	**No Data**
Address:	**Block B Lot 5 Bastrop, TX 78602**	Grid #:	**58-54-8**
Well Location:	**Block B Lot 5 Bastrop, TX 78602**	Latitude:	**30° 08' 35.84" N**
		Longitude:	**097° 19' 55.76" W**
Well County:	**Bastrop**	Elevation:	**401 ft. above sea level**
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **9/17/2023** Drilling End Date: **9/17/2023**

Borehole:

Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
12	**0**	**5**
8.75	**5**	**310**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

Filter Pack Intervals:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
230	**310**	**Gravel**	**1/8**

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
0	**4**	**Cement 4 Bags/Sacks**
4	**10**	**Hole Plug 4 Bags/Sacks**

Seal Method: **Hand Mixed**

Sealed By: **Driller**

Distance to Property Line (ft.): **50+**

Distance to Septic Field or other concentrated contamination (ft.): **NA**

Distance to Septic Tank (ft.): **NA**

Method of Verification: **Owner**

Surface Completion: **Surface Sleeve Installed** **Surface Completion by Driller**

Water Level: **168 ft.** below land surface on **2023-09-17**

Packers: **Plastic at 10 ft.**

Type of Pump: **Submersible** Pump Depth (ft.): **240**

Well Tests: **Jetted** **Yield: 50+ GPM with 74 ft. drawdown after unspecified hours**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	**No Data**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Jimmy's Well Service LLC**

P O Box 70
Bastrop, TX 78602

Driller Name: **David Odom** License Number: **58556**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**3**	**Sand And Gravel**
3	**12**	**Red Clay**
12	**19**	**Gravel**
19	**40**	**Tan Clay**
40	**94**	**Grey Shale**
94	**140**	**Sand**
140	**211**	**Sandy Shale**
211	**213**	**Rock**
213	**310**	**Sand**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4.5	**Blank**	**New Plastic (PVC)**	**SDR 17**	**0**	**270**
4.5	**Screen**	**New Plastic (PVC)**	**0.2**	**270**	**310**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #670884

Owner:	**Titan Homes**	Owner Well #:	**No Data**
Address:	**Lot 3 Block D Cirrus LN Bastrop, TX 78602**	Grid #:	**58-54-8**
Well Location:	**Lot 3 Block D Cirrus LN Bastrop, TX 78602**	Latitude:	**30° 08' 34.31" N**
		Longitude:	**097° 19' 55.37" W**
Well County:	**Bastrop**	Elevation:	**407 ft. above sea level**
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **7/9/2024** Drilling End Date: **7/9/2024**

Borehole:

Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
8.75	**0**	**260**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

Filter Pack Intervals:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
200	**260**	**Gravel**	**1/8**

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
0	**10**	**Cement 8 Bags/Sacks**

Seal Method: **Hand Mixed**

Sealed By: **Driller**

Distance to Property Line (ft.): **55+**

Distance to Septic Field or other concentrated contamination (ft.): **NA**

Distance to Septic Tank (ft.): **NA**

Method of Verification: **Owner**

Surface Completion: **Surface Sleeve Installed** **Surface Completion by Driller**

Water Level: **138 ft.** below land surface on **No Data**

Packers: **Plastic at 10 ft.**

Type of Pump: **Submersible** Pump Depth (ft.): **220**

Well Tests: **Jetted** **Yield: 40+ GPM with 93 ft. drawdown after unspecified hours**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	**No Data**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Jimmy's Well Service LLC**

P O Box 70
Bastrop, TX 78602

Driller Name: **David Odom** License Number: **58556**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**2**	**Sandy Loam**
2	**7**	**Red Clay**
7	**31**	**Tan Sandy Clay**
31	**57**	**Grey Shale**
57	**97**	**Sand And Shale**
97	**131**	**Sand**
131	**194**	**Grey Shale**
194	**260**	**Sand**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4	**Blank**	**New Plastic (PVC)**		**0**	**220**
4	**Screen**	**New Plastic (PVC)**	**0.020**	**220**	**260**

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Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #662024

Owner:	**Adrian Garcia**	Owner Well #:	**No Data**
Address:	**Lot 4 Block D Cirrus Ln Bastrop, TX 78602**	Grid #:	**58-54-8**
Well Location:	**Lot 4 Block D Cirrus Ln Bastrop, TX 78602**	Latitude:	**30° 08' 33.47" N**
		Longitude:	**097° 19' 56.85" W**
Well County:	**Bastrop**	Elevation:	**393 ft. above sea level**
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **3/19/2024** Drilling End Date: **3/19/2024**

	Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
Borehole:	**16.75**	**0**	**280**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

	Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
Filter Pack Intervals:	**220**	**280**	**Gravel**	**1/8**

	Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
Annular Seal Data:	**0**	**2**	**Cement 3 Bags/Sacks**
	2	**10**	**Hole Plug 7 Bags/Sacks**

Seal Method: **Hand Mixed**

Sealed By: **Driller**

Distance to Property Line (ft.): **55**

Distance to Septic Field or other concentrated contamination (ft.): **No Septic**

Distance to Septic Tank (ft.): **NA**

Method of Verification: **With Owner**

Surface Completion: **Surface Sleeve Installed** **Surface Completion by Driller**

Water Level: **119 ft.** below land surface on **No Data**

Packers: **Plastic at 10 ft.**

Type of Pump: **Submersible** Pump Depth (ft.): **240**

Well Tests: **Jetted** **Yield: 15-20 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	**No Data**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Jimmy's Well Service LLC**

P O Box 70
Bastrop, TX 78602

Driller Name: **David Odom** License Number: **58556**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**11**	**Red Clay**
11	**21**	**Gravel**
21	**29**	**Tan Clay**
29	**64**	**Grey Clay**
64	**134**	**Grey Sandy Shale**
134	**178**	**Grey Shale**
178	**219**	**Sand**
219	**220**	**Rock**
220	**280**	**Sand**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4	**Blank**	**New Plastic (PVC)**		**0**	**240**
4	**Screen**	**New Plastic (PVC)**	**0.2**	**240**	**280**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540





ECS Southwest, LLP

Preliminary Geotechnical Engineering Report

Woodrun-Hoffman Property

DRAFT

Smith Road & Reids Bend
Bastrop, Bastrop County, Texas

ECS Project Number 17:6741

November 26, 2024

November 26, 2024

Mr. Kacee Jackson
The 360 Company

ECS Project No. 17:6741

Reference: Preliminary Geotechnical Engineering Report
Woodrun-Hoffman Property
Smith Road & Reids Bend
Bastrop, Bastrop County, Texas

Dear Mr. Jackson:

ECS Southwest, LLP (ECS) has completed the subsurface exploration, laboratory testing, and geotechnical engineering analyses for the referenced project. Our services were performed in general accordance with our agreed to scope of work. This report presents our understanding of the geotechnical aspects of the project along with the results of the field exploration and laboratory testing conducted, and our preliminary design and construction recommendations.

DRAFT

It has been our pleasure to be of service to The 360 Company during the preliminary design phase of this project. We would appreciate the opportunity to remain involved during the continuation of the design phase, and we would like to provide our services during construction phase operations as well to verify the subsurface conditions considered for this report. Should you have any questions concerning the information contained in this report, or if we can be of further assistance to you, please contact us.

Respectfully submitted,

ECS Southwest, LLP

Randall Bennett, P.G.
Geotechnical Project Geologist I
rbennett1@ecslimited.com

Connor Roman, P.E.,
Associate Principal Engineer
croman@ecslimited.com

Electronic seal approved by Connor Roman P.E. on November 26, 2024

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DRAFT

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- Generalized Subsurface Soil Profile

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- Laboratory Testing Summary
- Grain Size Distributions

Appendix D– Supplemental Documents

- Clay Plug Detail
- Pavement Calculations

DRAFT

EXECUTIVE SUMMARY

The following summarizes the main findings of the exploration, particularly those that may have a cost impact on the planned development. Further, our principal preliminary geotechnical recommendations are summarized. Information gleaned from the executive summary should not be utilized in lieu of reading the entire geotechnical report. **The subsurface exploration and information reported within this study is of a preliminary nature and will require a final geotechnical report for the design of structures and pavements on the site.**

- The predominant geotechnical and geological constraints that need to be addressed at the site are the highly expansive soil conditions and the past mining activity understood to have occurred at the southwestern end of the site.

- We estimate the existing PVR at the site to range from about 1 inch up to about 4 inches. To mitigate soil expansion potential in the building areas, it is recommended that the building pads be prepared in accordance with Section 4.1 “Potential Vertical Rise & Subgrade Improvements.”

- The proposed residences can be founded on monolithic beam and slab-on-grade foundation systems. Please refer to Section 4.2 “Shallow Foundations” for geotechnical design parameters and other recommendations for design.

DRAFT

- Please refer to Section 4.5 Public Street Pavement Recommendations for specifics relating to the recommended public street pavement section options and pavement materials.

- It is recommended that ECS conduct a geotechnical review of the project plans (prior to issuance for construction) to check to see that ECS’ geotechnical recommendations have been properly interpreted and implemented.

- To prevent misinterpretation of our recommendations, ECS should be retained to perform quality control testing and documentation during construction of the earthwork and foundations for the project.

1.0 INTRODUCTION

The purpose of this study was to provide preliminary geotechnical information for the design of foundations for the proposed single-family subdivision. Preliminary geotechnical recommendations for associated retaining walls, public street pavements and appurtenances are also included in this project.

Our services were provided in accordance with ECS Proposal No. 17:8666-R2 dated October 23, 2024. This study was authorized on October 23, 2024 by Mr. Kacee Jackson via signature of the acceptance page of the above referenced proposal.

The report includes the following items.

- A brief review and description of our field and laboratory test procedures and the results of testing conducted.
- A review of surface topographical features and site conditions.
- A review of area and site geologic conditions.
- A review of subsurface soil stratigraphy with pertinent available physical properties.
- A final copy of our soil test exploration logs.
- Preliminary recommendations for site preparation, grading, and drainage.
- Preliminary recommendations for foundation design and construction.
- Preliminary recommendations for retaining wall design and construction.
- Recommendations for public street pavement design and construction.

DRAFT

The scope of services for this project did not include an environmental assessment for determining the presence or absence of wetlands, or corrosive, hazardous or toxic materials in the soil, bedrock, surface water, groundwater, or air on or below, or around this site. Any statements in this report or on the exploration logs regarding odors, colors, and unusual or suspicious items or conditions are strictly for informational purposes.

ECS did not provide any service to investigate or detect the presence of moisture, mold or other biological contaminants in or around any structure, or any service that was designed or intended to prevent or lower the risk of the occurrence of the amplification of the same. Mold is ubiquitous to the environment with mold amplification occurring when building materials are impacted by moisture.

2.0 PROJECT INFORMATION

2.1 PROJECT LOCATION/CURRENT SITE USE/PAST SITE USE

The site is located about ½ mile northeast of the intersection of Smith Road and Reid's Bend in Bastrop, Texas (GPS: 30.137° N, 97.333° W). The location is depicted in the figure shown below and on the Site Location Diagram in Appendix A.



The subject site includes a few one-story residences, wood and metal buildings, two stock tanks, and gravel roads. Most of the site is currently undeveloped, with areas of dense trees, brush and grassed areas throughout. Historic lignite mining operations are understood to have taken place in the southwestern side of the site. Based on a review of topographic information available from Google Earth, the site generally slopes downward from north to south, from a high elevation of about EL. 445 feet to a low elevation of about EL. 401 feet.

2.2 PROPOSED CONSTRUCTION

The proposed development will consist of the design and construction of a single-family subdivision, park and amenity areas, several ponds, public street pavements, and associated appurtenances. It is anticipated that the proposed streets will be classified as local and collector roadways and will be designed according to the City of Bastrop Code of Ordinances. Existing topography and proposed grading information were not available at the time of this report, and we have considered that the final site grades will be within +/-5 feet of the existing grade.

If ECS' understanding of the project is not correct, especially if the structural loads are different, please contact ECS so that we may review these changes and revise our preliminary recommendations as appropriate.

3.0 FIELD EXPLORATION AND LABORATORY TESTING

Our subsurface findings and procedures are included in Appendix B. Our preliminary scope of work for the project included drilling two borings to completion depths of 50 feet each, six borings to depths of 20 feet each, and 6 test pits to depths of 10 feet each (or practical digging refusal) beneath the existing ground surface.

Our borings and test pits were located with a handheld GPS unit and their approximate locations are shown on the Exploration Location Diagram in Appendix A. The approximate ground surface elevations shown on the boring and test pit logs were selected based on a review of Google Earth terrain information. The accuracy of this elevation data should be considered approximate.

3.1 SUBSURFACE CHARACTERIZATION

The Geologic Atlas of Texas – Austin Sheet indicates the site is underlain by the Wilcox Group (Ecb) and Alluvium (Qt). The Wilcox Group generally consists of mudstone and sandstone and has been found to contain beds of lignite. Alluvium generally consists of a mix of clay, silt, sand, and gravel placed in various lenses and layers by stream processes. The approximate location of the site on the geologic map is provided on the Site Geologic Diagram in Appendix A.

The following table provides generalized characterizations of the soil strata encountered during our subsurface exploration. For specific information refer to the exploration logs in Appendix B.

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Approximate Range of Depth (feet)	Stratum	Material Description	PI [(1)] Range	PI[(1)] Average
0 – (23½ to 28½)	I	(SC-SM) SILTY, CLAYEY SAND, (SC) CLAYEY SAND, (SP-SC) SAND WITH CLAY, (SM) SILTY SAND, (CH) FAT CLAY, SANDY FAT CLAY (CL) LEAN CLAY, SANDY LEAN CLAY; dark brown to brown, reddish brown, mottled red and brown, red; loose to very dense, stiff to very hard	2-58	35
(23½ to 28½) – (38½ to 43½)	II	(CL/ML) SILTY CLAY; gray; stiff to very hard		
(38½ to 43½) – (43½ to 48½)	III	LIGNITE; black; very hard		
(43½ to 48½) – 50	IV	(CL/ML) SANDY SILTY CLAY; gray; very hard		

Notes: Depths are approximate.
(1) Plasticity Index

3.2 GROUNDWATER OBSERVATIONS

Groundwater level observations were made in the explorations during excavation operations. In auger drilling and test pit excavation operations, water is not introduced into the excavation and the groundwater position can often be determined by observing water flowing into the excavation. Furthermore, visual observation of soil samples retrieved can often be used in evaluating the groundwater conditions. Groundwater was observed in boring B-01 at a depth of 27 feet below existing ground level. Groundwater was not observed during or upon completion of drilling in the remaining boring or test pit locations. Upon completion of field operations, the excavations were backfilled with soil cuttings generated during our field operations.

Water levels in open excavations may require several hours to several days to stabilize depending on the permeability of the soils and that groundwater levels at the site may be subject to seasonal conditions, recent rainfall, drought, or temperature effects. Clays are generally not conducive to the presence of groundwater; however, gravels, sands and silts, and open fractures and solution features; where present, can store and transmit “perched” groundwater flow or seepage.

The groundwater conditions at this site are expected to be significantly influenced by surface water runoff and rainfall and should be evaluated just prior to construction. Specifically, rainfall that enters the site, either directly from overland flow or adjacent properties, begins to percolate through surficial soils and within granular seams and fissures. This groundwater flow continues downhill with the water table occasionally surfacing to form wet springs and intermittent streams. In low-lying areas and areas adjacent to existing creeks or ponds, shallow groundwater tables can be present continuously.

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3.3 LABORATORY TESTING

The laboratory testing was performed by ECS on selected samples obtained during our field exploration operations. Classification and index property tests were performed on representative soil samples obtained from the test borings and test pits to aid in classifying soils and to quantify and correlate engineering properties. The soil samples were tested for moisture content (ASTM D2216), Atterberg Limits (ASTM D4318), and gradation tests (percent passing No. 200 sieve – ASTM D1140).

A geotechnical engineer visually classified each soil sample from the test borings and test pits on the basis of texture and plasticity in general accordance with the ASTM D2487, Unified Soil Classification System (USCS), and ASTM D-2488 (Description and Identification of Soils-Visual/Manual Procedures). After classification, the samples were grouped in the major zones noted on the boring logs in Appendix B. The group symbols for each soil type are indicated in parentheses along with the soil descriptions. The stratification lines between strata on the logs are approximate; in situ, the transitions may be gradual.

3.4 FIELD ELECTRICAL RESISTIVITY TOMOGRAPHY

Field Electrical Resistivity Tomography testing was completed at the site near the proposed boundary of the southwestern park and residential subdivision. The results of the exploration will be included in Appendix D upon completion of analysis and reporting.

4.0 PRELIMINARY DESIGN RECOMMENDATIONS

The following preliminary recommendations have been developed according to the previously described project characteristics and subsurface conditions. **The recommendations presented in this study are preliminary and will require a final geotechnical report for the design of structures and pavements on the site.** If there are any changes to the project characteristics or if different subsurface conditions are encountered during construction, ECS should be consulted so that the recommendations of this report can be reviewed.

4.1 POTENTIAL VERTICAL RISE & SUBGRADE IMPROVEMENTS

Structural damage and/or cosmetic/operational distress can be caused by volume changes in clay soils. The expansive clays found at this site are capable of swelling and shrinking in volume dependent on potentially changing soil water conditions during or after construction. Clays can shrink when they lose water and swell (increase in volume) when they gain water. The potential of expansive clays to shrink and swell is related to; amongst other things, the Plasticity Index (PI). Clays with a higher PI generally have a greater potential for soil volume changes due to moisture content variations.

We have estimated potential heave for this site utilizing the TxDOT PVR method (Tex-124-E). The Tex-124-E method provides an estimate of potential vertical rise (PVR) using the liquid limits, plasticity indices, grain sizes, and existing water contents for soils. The PVR is estimated in the seasonally active zone, which can be up to about 15 feet in the site vicinity.

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Estimated PVR values are based upon anticipated typical changes in soil moisture content from a dry to wet condition; however, soil movements in the field depend on the actual changes in moisture content. Thus, actual soil movements could be less than those estimated if little soil moisture variations occur, or greater than those estimated values if actual soil moisture content changes exceed those anticipated. These conditions are often the result of excessive droughts, flooding, “perched” groundwater infiltration, poor surface-drainage, excessive irrigation adjacent to pavements, and/or leaking irrigation lines or plumbing.

We estimate the existing PVR at the site ranges from about 1 inch up to about 4 inches. Recommendations are provided in the following tables to reduce the PVR to 1 inch, 2 inches, or 3 inches in the building areas to about by undercutting the existing ground as required, and then filling to the proposed pad grade with the tabulated select fill depths or moisture conditioned fill with select fill cap depths (Options 1A/1B, 2A/B, and 3A/3B, respectively).

1 INCH DESIGN PVR REDUCTION RECOMMENDATIONS (Option 1A)		
Location ID	**Existing PVR**	**Minimum Select Fill**
B-01 & B-06	1 inch or less	As Required by Fill Depths
B-03, B-04, B-05, & TP-01	1½ inches	2 feet
B-07, B-08, & TP-06	2 inches	3 feet
TP-04	3 inches	4 feet
TP-05	4 inches	5 feet

1 INCH DESIGN PVR REDUCTION RECOMMENDATIONS (Option 1B)		
Location ID	**Minimum Moisture-Conditioned Fill**	**Minimum Select Fill Cap**
B-01 & B-06	As Required by Fill Depths	1 foot
B-03, B-04, B-05, & TP-01	2 feet	1 foot
B-07, B-08, & TP-06	4 feet	1 foot
TP-04	5½ feet	1 foot
TP-05	7½ feet	1 foot

2 INCH DESIGN PVR REDUCTION RECOMMENDATIONS (Option 2A)		
Location ID	**Existing PVR**	**Minimum Select Fill**
TP-04	3 inches	2 feet
TP-05	4 inches	3 feet

2 INCH DESIGN PVR REDUCTION RECOMMENDATIONS (Option 2B)		
Location ID	**Minimum Moisture-Conditioned Fill**	**Minimum Select Fill Cap**
TP-04	2 feet	1 foot
TP-05	4 feet	1 foot

3 INCH DESIGN PVR REDUCTION RECOMMENDATIONS (Option 3A)		
Location ID	**Existing PVR**	**Minimum Select Fill**
TP-05	4 inches	1½ feet

3 INCH DESIGN PVR REDUCTION RECOMMENDATIONS (Option 3B)		
Location ID	**Minimum Moisture-Conditioned Fill**	**Minimum Select Fill Cap**
TP-05	1 Foot	1 Foot

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Where moisture conditioned fill is utilized and homes will not be constructed shortly after pad preparation, it is recommended that 10-mil polyethylene horizontal moisture barriers be placed 1 foot beneath finished pad grade in the building areas (extending at least 5 feet beyond the edge of the possible home footprints for each lot). The select fill cap can be replaced with an additional foot of moisture-conditioned fill where horizontal moisture barriers are installed. Moisture barrier joints should be properly sealed per the manufacturer's recommendations. Care should be taken and equipment selected as to not damage or displace the vapor barriers during subsequent construction. Lots where slab-on-grade foundations will be installed more than 1 calendar year after the date of horizontal moisture barrier installation should be re-moisture conditioned and have the vapor barrier placed back in the same manner as described above prior to foundation construction.

Alternative options for building pad preparation, including moisture injection or chemical injection can be evaluated as possible options for the final geotechnical evaluation report for the home lots.

In this general area, it is common for structural and geotechnical engineers to consider a PVR of up to 4 inches to be tolerable for properly designed beam and slab-on-grade foundation systems. However, this movement does not take into consideration the movement criteria required or perceived by the facility owner or occupants. These "operational" performance criteria may be, and often are, more restrictive than the structural criteria or tolerances.

Grade-supported foundation or floor slab movements that approach 4 inches may cause doors to stick, cracks in sheetrock or brittle floor covering, cracks in exterior finishes and other forms of cosmetic distress. Measures can and should be taken during the design and construction of the facility to help limit the extent and severity of these types of distress. However, these magnitudes of movement typically do not cause "structural distress."

Where movement sensitive flatwork will be constructed adjacent to the buildings, consideration should be given to reducing the PVR value in the flatwork areas to reduce differential movements and associated door jamming, tripping hazards, grout columns, etc. Doweling the flatwork to the building foundations at common openings will further help to reduce the potential for differential movements and trip hazards.

4.2 SHALLOW FOUNDATIONS

The proposed residences can be supported on monolithic beam and slab-on-grade foundation systems.

4.2.1 Slab-on-Grade Foundations

The rigidity of a slab-on-grade foundation system can reduce the effects of differential soil movement due to compression of soils due to structural loads or shrink-swell due to expansive soils. This type of slab can be designed with conventionally reinforced perimeter and interior stiffening grade beams, and/or with post-tensioning adequate to provide sufficient rigidity to the slab element. The grade beam width and depth will be determined by the project Structural Engineer. Grade beams may be thickened and widened at column or load bearing wall locations to support concentrated load areas, if necessary. Grade beams and floor slabs should be reinforced as required to reduce cracking and support bending moments caused by loading and minor movements of foundation soils.

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The preliminary design values below are based on the subsurface conditions encountered during this exploration and the preliminary recommendations for building pad grading provided herein. If the project information changes, we should be contacted to review; and if necessary, provide alternate design parameters based on the changed conditions. These parameters are provided to assist the Structural Engineer in design of a foundation that is stiffened using grade beams (ribs), post tensioning, or a combination thereof.

PRELIMINARY POST-TENSIONED SLAB PARAMETERS PTI 3RD EDITION WITH 2008 SUPPLEMENTS				
Design Parameter	**1-Inch PVR Design Values**	**2-Inch PVR Design Values**	**3-Inch PVR Design Values**	**4-Inch PVR Design Values**
e_m Edge	4.4 Feet	4.3 Feet	4.0 Feet	3.8 Feet
e_m Center	8.7 Feet	8.3 Feet	8.0 Feet	7.5 Feet
y_m Edge	1.3 Inches	2.0 Inches	2.9 Inches	3.7 Inches
y_m Center	0.9 Inches	1.4 Inches	1.8 Inches	2.3 Inches

PRELIMINARY BRAB/WRI SLAB PARAMETERS				
Design Parameter	**1-Inch PVR Design Values**	**2-Inch PVR Design Values**	**3-Inch PVR Design Values**	**4-Inch PVR Design Values**
Effective PI	30	36	40	46
Climatic Rating	19	19	19	19
Unconfined Compressive Strength (TSF)	1.5	1.5	1.5	1.5
Soil-Climate Support Index (1-C)	0.15	0.21	0.25	0.29

Grade beams and widened column areas at least 10 inches wide and 18 inches deep can be designed using a net allowable bearing capacity of 3,000 psf. To utilize the parameters listed above, the subgrade should be prepared in accordance with Section 5.0 "Site Construction Recommendations" sections of this report, and the appropriate slab-on-grade design values should be selected according to the design PVR selected per Section 4.1 of this report.

Foundations at this site should be expected to undergo some vertical movements. These movements can potentially cause cosmetic distress and should be accounted for in the design process. Contraction, control, or expansion joints should be designed and placed in various portions of the structures. Properly planned placement of these joints will assist in controlling the degree and location of material cracking which normally occurs due to material shrinkage, thermal effects, soil movements, and other related structural conditions.

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Where moisture sensitive floor coverings or equipment will be installed, we recommend that at least a 10-mil vapor retarder be used beneath the slabs. The vapor retarder should conform to ASTM E1745, Class C or better and have a maximum water vapor permeance of 0.044 when tested in accordance with ASTM E96. Consideration to specifying a thicker, more durable vapor retarder should also be made where anticipated construction traffic dictates. Please refer to the latest edition of ACI 302.2 Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials and ASTM E1643 Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs for additional guidance on this issue.

4.3 PERIMETER CONDITIONS

The upper 18 inches of soil placed along the exterior of the structures should consist of lean clayey soils placed and compacted in accordance with this report. The purpose of this clay backfill is to reduce the opportunity for surface or subsurface water infiltration beneath the structures. This clay layer may be replaced with asphalt or concrete pavement that extends to the edge of the structures' foundations. Additionally, where penetrations into the structure occur such as utility trenches, a clay plug (or a synthetic alternative) should be placed at the building lines and edge of decking to reduce the opportunity for infiltrating water, regardless of the selected building pad materials. A typical clay plug detail is provided in Appendix D of this report.

Positive drainage away from the structures should also be provided. Soil areas within 10 feet of the buildings should slope at a minimum of 5 percent away from the structures. Adjacent pavements and concrete hardscape should slope at 1½ to 2 percent away from the structures. Where flatwork is placed against or near the structures, a positive seal should be installed and adequately maintained to reduce water intrusion. Consideration should be given to discharging roof leaders

and downspouts well away from the buildings, sloping away from the buildings, or into a closed pipe system which outfalls well away from the structures.

Additionally, irrigation of lawn and landscaped areas should be moderate, with no excessive wetting or drying of soils around the perimeter of the structures allowed. Trees and bushes/shrubs planted near the perimeter of the structures can withdraw large amounts of water from the soils and should be planted at least one-half their anticipated mature height away from the buildings.

Routine maintenance is required to ensure that the recommendations contained in this report are followed and maintained. Greater potential movements could occur with extreme wetting or drying of the soils due to poor drainage, ponding of water, plumbing leaks, lack of irrigation, and/or lack of routine maintenance, etc.

4.4 SEISMIC DESIGN CONSIDERATIONS

Seismic Site Classification: The International Building Code 2018 (IBC) requires site classification for seismic design based on the upper 100 feet of a soil profile. Methods are utilized in classifying sites, namely the shear wave velocity (v_s) method and the Standard Penetration Resistance (N-value) method. The seismic site class definitions for the average of shear wave velocity or SPT N-value in the upper 100 feet of the soil profile are shown in the following table:

SEISMIC SITE CLASSIFICATION			
Site Class	**Soil Profile Name**	**Shear Wave Velocity, Vs, (ft./s)**	**N value (bpf)**
A	Hard Rock	Vs > 5,000 fps	N/A
B	Rock	2,500 < Vs ≤ 5,000 fps	N/A
C	Very Dense Soil and Soft Rock	1,200 < Vs ≤ 2,500 fps	>50
D	Stiff Soil Profile	600 ≤ Vs ≤ 1,200 fps	15 to 50
E	Soft Soil Profile	Vs < 600 fps	<15

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Based on International Building Code 2018 (IBC) Site Class Definitions, in our opinion the site soil and rock can be characterized as Site Class D. The site class definition should not be confused with the Seismic Design Category designation which the Structural Engineer typically assesses. ECS' deepest excavations at the project site extended to depths of 50 feet beneath the existing ground surface, whereas ASCE 7 site classifications are based on characterization of the upper 100 feet of the soil profile.

In addition to the seismic site classification, ECS has determined the design spectral response acceleration parameters following the ASCE 7-16 methodology. The Mapped Reponses were estimated from the SEAOC OSHPD Seismic Design Maps https://seismicmaps.org/ using the coordinates Lat: 30.137° N, Long: 97.333° W. The design responses for the short (0.2 sec, S_{DS}) and 1-second period (S_{D1}) are noted in bold at the far-right end of the following table.

GROUND MOTION PARAMETERS [ASCE 7-16 Design Code]								
Period (sec)	**Mapped Spectral Response Accelerations (g)**		**Values of Site Coefficient for Site Class**		**Maximum Spectral Response Acceleration Adjusted for Site Class (g)**		**Design Spectral Response Acceleration (g)**	
Reference	Figures 1613.3.1 (1) & (2)		Tables 1613.3.3 (1) & (2)		Eqs. 16-37 & 16-38		Eqs. 16-39 & 16-40	
0.2	S_S	0.057	F_a	1.6	$S_{MS}=F_aS_s$	0.092	$S_{DS}=2/3\ S_{MS}$	0.061
1.0	S_1	0.033	F_v	2.4	$S_{M1}=F_vS_1$	0.080	$S_{D1}=2/3\ S_{M1}$	0.054

4.5 PUBLIC STREET PAVEMENT RECOMMENDATIONS

The following recommendations are based on constructing the proposed pavements over the native soil subgrade. If the considerations concerning traffic volume and loads are not correct, ECS should be notified so that we can revise recommendations as appropriate. Geometric pavement design should conform to the City of Bastrop guidelines.

It is understood that the City of Bastrop defers to the design traffic and input parameters from the City of Austin Transportation Criteria Manual (TCM). If the considerations concerning traffic volume and loads are not correct, ECS should be notified so that we can revise recommendations as appropriate.

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The following table summarizes the design parameters used to develop the pavement recommendations for this project. The traffic conditions, analysis period and serviceability indices reflect the understood City of Austin pavement design criteria.

SUMMARY OF SELECTED DESIGN PARAMETERS		
DESIGN PARAMATER	**URBAN COLLECTOR (LOW TRAFFIC)**	**URBAN LOCAL**
Initial Average Daily Traffic (ADT) vehicles per day	4,000	3,000
%Trucks in ADT/Trucks per day	10.0/400	10.0/300
% Directional Distribution	50	50
% Lane Distribution	100	100
% Growth	3.5	3.0
Flexible Pavement Analysis Period (years)	40	40
Design Confidence Level (%)	90	90
Initial Serviceability (PSI)	4.2	4.2
Terminal Serviceability (PSI)	2.5	2.0
Representative ESALs (Flexible Pavements)	700,000	150,000

The following pavement thickness recommendations are based on the subsurface data obtained during our exploration, our understanding of City of Austin pavement design requirements, engineering analysis facilitated by the FPS 21 program including a mechanistic check and modified Texas Triaxial check. FPS 21 pavement design output files can be found in Appendix D.

PAVEMENT MATERIALS	URBAN COLLECTOR (LOW TRAFFIC)	URBAN LOCAL
City of Bastrop Construction Standards Item No. 5.2.C – Hot Mix, Hot Laid Asphaltic Concrete and Pavement, Type D	3.5 inches	2.0 inches
City of Bastrop Construction Standards Manual Item No. 5.2.A – Flexible Base	8.0 inches	8.0 inches
TxDOT Standard Specifications Item No. 260 – Lime Treatment (Road-Mixed)	8.0 inches	8.0 inches

4.5.1 Pavement Materials

Recommendations regarding material requirements for the various pavement sections are summarized below:

Hot Mix Asphalt Concrete (HMAC) Course - The asphalt concrete surface course should be plant-mixed, hot laid Type D (Fine Graded Surface) meeting the specifications requirements of City of Bastrop Construction Standards Manual Item No. 5.2.C and specific criteria for the job mix formula. The mix should be compacted in accordance with TxDOT Item 340 requirements.

Crushed Limestone Base Course - Crushed limestone base should be placed in maximum 6-inch compacted lifts. The base materials should be compacted to at least 96 percent of the maximum dry density as determined by TxDOT Tex-113-E. Flexible base materials should be moisture conditioned to between -2 and +2 percentage points of the optimum moisture content during compaction. Flexible base materials should meet the requirements specified in City of Bastrop Construction Standards Manual Item No. 5.2.A. Flexible base should extend at least 2 feet beyond the back of curbs.

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Lime-Treated Subgrade – Lime-treated subgrade should be prepared per TxDOT Standard Specifications Item No. 260 – Lime Treatment (Road-Mixed). The lime-treated subgrade should be compacted to at least 95 percent of the maximum dry density as determined by the TxDOT moisture-density relationship Tex-113-E. Lime treatment should extend at least 2 feet beyond the back of curbs.

4.5.2 General Pavement Section Comments

Prime coats and tack coats should be applied. Selection, transportation, placement, and compaction of pavement materials should be performed in accordance with locally developed guidelines *(City of Bastrop Construction Standards Technical Manual, Chapter 5).*

Roller patterns on test sections can be performed by the contractor to help determine required compaction effort. The Tex-207-F method briefly describes the roller pattern method for determining required compaction effort for asphaltic concrete. The Tex-113-E method should be used to determine target densities for the aggregate base course material.

Longitudinal cracks and apparent distress due to expansive clays may appear in asphalt pavement sections after construction and the introduction of landscape irrigation. These cracks and distress are not pavement failures with respect to traffic support, although they may be aesthetically

undesirable. In addition, without regular maintenance, the cracks can allow additional moisture intrusion and rapid degradation of the pavement section. The pavement sections are primarily designed to support the traffic and will not resist the forces generated by shrinking/swelling soils, however constructing lime-treated subgrade will help reduce these forces.

4.5.3 Lime-Treated Subgrade

Lime-treatment design and construction should conform to TxDOT Standard Specifications Item No. 260 and City of Bastrop guidelines. Lime treatment will bind together clays into more inert materials and provide a firmer bearing surface than the untreated native soils. Subgrade treatment will provide improved pavement section support and also reduce swell potential a small amount. Lime treatment of the clay soils will improve strength, increase the modulus of elasticity, limit shrinkage cracking (maintaining low permeability), and reduce future maintenance costs associated with poor pavement subgrade performance. Lime treatment of the surface clay will not prevent normal seasonal movements of the underlying untreated clay.

We anticipate that approximately 5 to 7 percent hydrated lime will be required to treat the subgrade soils. Prior to the application of lime to the subgrade, the optimum percentage of lime to be added should be determined based on Plasticity Index (Tex-112-E) and/or pH (Tex-128-E) laboratory tests conducted on mixtures of the subgrade soils with lime. Subgrade soil samples should be obtained from the pavement area at the proposed final subgrade elevation. We recommend that the subgrade soils at the proposed final subgrade elevation be evaluated for sulfate content if lime-treatment is to be considered. Excessive concentrations of sulfate in the subgrade soils can result in poor performance of lime-treated subgrade.

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4.5.4 Drainage

Positive drainage should be provided on and around pavement areas to avoid ponding of water both during and after construction. Irrigation of lawn and landscaped areas adjacent to the pavements should be moderate, with no excessive wetting or drying of soils. If landscaped islands are provided, they should be designed to restrict excess water from migrating to the pavement subgrade by using self-contained beds, raised planter boxes, vertical moisture barriers, and/or edge drains. Good perimeter surface drainage guiding surface water away from the pavement area is also recommended.

4.5.5 Curbs

Curbs should be installed in accordance with City of Bastrop standard details.

4.5.6 Trench Backfill

Utility trench backfill can act materially different than adjacent natural soils, even if properly placed and compacted. Backfill will settle over time and generally has a lower swell potential than the adjacent naturally occurring soils due to moisture control during placement. The natural soils directly adjacent to the backfill will have a higher shrink/swell potential than the utility line backfill due to variable in-situ moisture contents. Differential movements may occur that lead to cracking near the edge of utility trenches, riser structures, manholes, etc., with the more noticeable cracks appearing in deeper fill zones.

As an option to help mitigate the effects of differential soil movements, we recommend that fill placed at depths greater than 5 feet be compacted to no less than 98% of maximum dry density at moisture contents between -1 and +3 percentage points of the optimum moisture content. If selected, the use of geotextiles as part of the pavement system will also aid to mitigate the effects of differential soil movements.

4.6 RETAINING WALLS

The magnitude of the lateral earth pressures on retaining walls is dependent upon the in-situ material behind the wall; and if displaced, the type of material used to backfill the "critical zone" behind the wall. The magnitude of the earth pressure is also dependent upon whether the critical zone is allowed to drain water freely. The critical zone can be considered as the area behind the structure within a boundary created by a 45-degree angle extending from the outside edge of the foundation heel upward to the ground surface.

The lateral earth pressures for drained, level soil backfill are expressed in terms of pounds per cubic foot (psf/ft) "equivalent fluid" weight applied in a triangular distribution pattern as listed below. If the walls are free to deflect or rotate slightly at the top, they may be designed using "active" lateral earth pressures. If the walls are laterally restrained at the top, "at-rest" lateral earth pressures should be used for the retaining wall design. Where multiple material types are used within the critical zone, the higher values below should be used. The equivalent fluid weights shown in the table do not include safety factors and do not account for surcharges. Lateral loads from uniform surcharges on the wall backfill can be calculated by multiplying the vertical surcharge by the below earth pressure coefficients and should be considered as rectangular loads acting on the full wall height. An increase of 1 pcf and 1.5 pcf should be added to the active and at-rest earth pressures; respectively, for each degree of inclination of backfill.

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For the preliminary design of site retaining walls, we recommend the following soil parameters.

PRELIMINARY RETAINING WALL BACKFILL IN THE CRITICAL SOIL ZONE				
Soil Parameter	**Estimated Value**			
Soil Classification	Undisturbed or Compacted Native Soil	Select Fill	ASTM C33 Size #56, #57 or #467 Stone	Compacted Manufactured Sand (< 8% Fines)
Retained Soil Moist Unit Weight (γ)	120 pcf	120 pcf	110 pcf	120 pcf
Angle of Internal Friction (ϕ)	24°	28°	30°	30°
Coefficient of Active Earth Pressure (K_a)	0.42	0.36	0.33	0.33
Coefficient of At-Rest Earth Pressure (K_o)	0.59	0.53	0.50	0.50
Active Equivalent Fluid Pressure	51 (psf/ft)	43 (psf/ft)	37 (psf/ft)	40 (psf/ft)
At-Rest Earth Equivalent Fluid Pressure	71 (psf/lf)	64 (psf/ft)	55 (psf/ft)	60 (psf/ft)

RETAINING WALL FOUNDATIONS (PRELIMINARY)	
Parameter	**Undisturbed or Compacted Soil**
Allowable Bearing Pressure	2,500 psf
Minimum Wall Embedment Below Grade	12 inches
Ultimate Sliding Friction Coefficient [Concrete on Soil] (μ)	0.45
Ultimate Passive Equivalent Fluid Pressure (Neglect in upper 18 inches)	285 (psf/ft)

It is critical that the soils proposed to be used for backfilling retaining walls be appropriately accounted for in design. If the soils available differ from the above soil classifications, then ECS should be contacted to provide revised values, and to confirm that appropriate soils will be used for wall backfill.

Care should be used to avoid the operation of heavy equipment to compact the wall backfill since it may overload and damage the wall. In addition, such loads are not typically considered in the design of site retaining walls and are not provided for in our recommendations.

Wall Drainage: Retaining walls should be provided with a wall and foundation drainage system to relieve hydrostatic pressures which may develop behind the walls. This system can consist of weepholes through the retaining walls and/or a 4-inch perforated, closed joint drain line located along the backside of the walls above the top of the retaining wall footing. The drain line should be surrounded by a minimum of 6 inches of AASHTO #57 Stone wrapped with an approved non-woven geotextile, such as Mirafi 140N, Mirafi 160N or equivalent. Wall drains can consist of a 12-inch-wide zone of free draining gravel, such as AASHTO #57 Stone, employed directly behind the wall and separated from the soils beyond with a non-woven geotextile.

Alternatively, the wall drain can consist of a geocomposite drainage board material such as MiraDRAIN 2000 or reviewed equivalent. The wall drain should be hydraulically connected to the foundation drain. The drainboard should extend from the base of the wall to within two feet of the ground surface and should be installed in accordance with manufacturer specifications. A subdrain collector pipe surrounded with at least 5 cubic feet per foot size #57 stone (wrapped in a geotextile) should be installed at the base of the drainboard; or alternatively, an engineered system can be selected with sufficient capacity for direct connectivity to a closed pipe system. The groundwater should be conducted to an appropriate discharge or sump pump facility.

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5.0 PRELIMINARY SITE CONSTRUCTION RECOMMENDATIONS

5.1 SUBGRADE PREPARATION

In a dry and undisturbed state, the soil at the site is expected provide good subgrade support for fill placement and construction operations. However, when wet, this soil will degrade quickly with disturbance from contractor operations. Therefore, good site drainage should be maintained during earthwork operations, which would help maintain the integrity of the soil. We recommend that an attempt be made to enhance the natural drainage without interrupting its pattern.

The soils at the site are moisture and disturbance-sensitive and contain fines that are considered moderately erodible. Therefore, the contractor should carefully plan his operation to reduce exposure of the subgrade to weather and construction equipment traffic and provide and maintain good site drainage during earthwork operations to help maintain the integrity of the surficial soils. Erosion and sedimentation should be controlled per sound engineering practice and current jurisdictional requirements.

In preparing the site for construction, loose or soft existing soils, vegetation, organic soil, existing pavements, undocumented fills, foundations or utilities, or other deleterious materials should be removed from proposed building and paving areas, and areas receiving new fill.

After stripping and required cuts have been completed, the subgrade soils should be scarified, moisture conditioned and compacted to at least 95 percent of the maximum dry density as determined by TxDOT Tex-114-E to a depth of at least 8 inches. The soils should be moisture conditioned to between optimum and +4 percentage points of the optimum moisture content just prior to compaction.

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5.1.1 Removals, Stripping and Grubbing

The subgrade preparation should consist of stripping deleterious materials (as discussed above) 5 feet from the perimeter of the buildings and 5 feet beyond pavement limits and the toe of fills. ECS should be called on to check that topsoil and deleterious surficial materials have been removed before the placement of fill or construction of structures.

Appropriate diligence should be exercised to properly backfill removed below-grade structures. Abandoned subsurface utilities and permeable backfills should be removed and/or grouted a sufficient distance from the proposed buildings to prevent the conduit of water beneath the proposed structures.

5.1.2 Proof Rolling

After stripping and removing deleterious surface materials, cutting to the proposed grade, and before compacting the subgrade or placing structural fill, the exposed subgrade should be reviewed by the Geotechnical Engineer or authorized representative. The exposed subgrade should be proof rolled with previously approved construction equipment having a minimum axle load of 20 tons (e.g., fully loaded tandem-axle dump truck). The areas subject to proof rolling should be traversed by the equipment in two perpendiculars (orthogonal) directions with overlapping passes of the vehicle under the observation of the Geotechnical Engineer or authorized representative. This

procedure is intended to assist in identifying localized yielding materials. If yielding or "pumping" subgrade is identified by the proof rolling, those areas should be marked for repair before the placement of subsequent fill or other construction materials. Subgrade repair methods, such as undercutting, moisture conditioning, geogrid or lime/cement treatment, should be discussed with the Geotechnical Engineer to determine the appropriate procedure about the existing conditions causing the yielding.

If the area is deemed too small for a piece of equipment to traverse, the excavated area should be probed by the Geotechnical Engineer or authorized representative.

5.1.3 Site Temporary Dewatering

The contractor should make their own assessment of temporary dewatering needs based upon the limited subsurface groundwater information presented in this report. Soil sampling is not continuous, and thus soil and groundwater conditions may vary between sampling intervals (typically 5 feet). If the contractor believes additional subsurface information is needed to assess dewatering needs, they should obtain such information at their own expense. ECS makes no warranties or guarantees regarding the adequacy of the provided information to determine dewatering requirements; such recommendations are beyond our scope of services.

Dewatering systems are a critical component of many construction projects. Dewatering systems should be selected, designed, and maintained by a qualified and experienced (specialty or other) contractor familiar with the succinct geotechnical and other aspects of the project. The failure to properly design and maintain a dewatering system for a given project can result in delayed construction, unnecessary foundation subgrade undercuts, detrimental phenomena such as running sand" conditions, internal erosion (i.e., "piping"), the migration of "fines" down-gradient towards the dewatering system, localized settlement of nearby infrastructure, foundations, slabs-on-grade and pavements, etc. Water discharged from site dewatering systems should be discharged in accordance with local, state and federal requirements.

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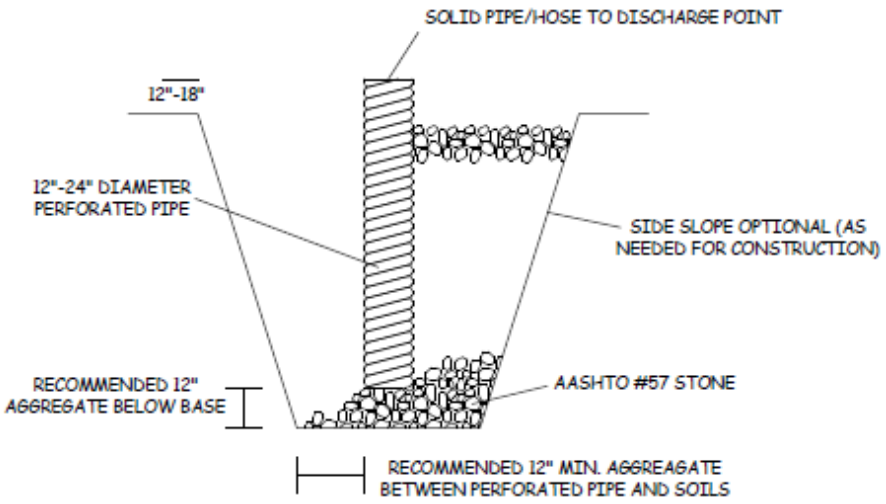
Strategies for Addressing Perched Groundwater: The typical primary strategy for addressing perched groundwater seeping into excavations is pumping from trenches (or French drains) and sump pits with sump pumps. A typical sump pump drain (found in a sump pit or along a French drain) is depicted on the following page. The inlet of the sump pump is placed at the bottom of the corrugated pipe and the discharge end of the sump is directed to an appropriate stormwater drain.



Sump Pit/Pump Diagram

A typical French drain consists of an 18 to 24-inch-wide bed of AASHTO #57 (or similar open graded aggregate) aggregate wrapped in a medium duty, non-woven geotextile such as Mirafi 140N or 160N and (often) containing a 4 to 6-inch diameter, Schedule 40 PVC perforated or slotted pipe. Actual dimensions should be as determined necessary by ECS during construction. After the installation has been completed, the geotextile should be wrapped over the top of the aggregate and pipe followed by placement of backfill. The top of the drain should be positioned at least 18 inches beneath the design subgrade elevations. Drains should not be routed within the expanded building limits.

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Pumping wells or a vacuum system could also be used to address perched groundwater. These techniques often are only effective during the initial depletion of the perched water quantity and may quickly be ineffective at addressing accumulation of water from rain, lake level, etc.

5.2 EARTHWORK OPERATIONS

It is recommended that the building pad areas be prepared according to report Section 4.1 “Potential Vertical Rise & Subgrade Improvements” to reduce PVR. The stripping and removal operations and fill placement to finished building pad grade should extend at least 5 feet beyond the building perimeters and beneath adjacent movement sensitive concrete flatwork. The upper 18 inches of fill outside of the building areas should consist of a properly compacted low permeability clay (CL) soil to reduce infiltration of moisture into the adjacent select fill materials.

After stripping and grubbing, undercutting/removals, subgrade preparation (including proof rolling) and evaluation has been completed, fill placement may begin. Fills in the building areas should consist of materials meeting the requirements of the Select Fill section below. Fills in pavement and landscape areas can consist of materials meeting the requirements of the General Fill section below.

Soil moisture levels should be preserved (by various methods that can include covering with plastic, watering, etc.) until new fill, pavements, or slabs are placed. Fill soils should be placed in 8 inches loose lifts for mass grading operations and 4-inch lifts for trench type excavations where walk-behind or “jumping jack” compaction equipment is used.

Upon completion of the filling operations, care should be taken to maintain the soil moisture content before the construction of floor slabs and pavements. If the soil becomes desiccated, the affected material should be removed and replaced, or these materials should be scarified, moisture conditioned, and re-compacted.

Utility cuts should not be left open for extended periods and should be properly backfilled. Backfilling should be accomplished with properly compacted on-site soils, rather than granular materials. If granular materials are used, a utility trench cut-off at the building line is recommended to help prevent water from migrating through the utility trench backfill to beneath the proposed structures.

Field density and moisture tests should be performed on each lift as necessary to check that adequate compaction is achieved. As a guide, one test per 2,500 square feet per lift is recommended in the building areas (two tests minimum per lift), and one test per 10,000 square feet per lift is recommended for paving areas (two tests minimum per lift). Utility trench backfill should be tested at a rate of one test per lift per every 150 linear feet of the trench (two tests minimum per lift). Certain jurisdictional requirements may require testing in addition to that noted previously. Therefore, these specifications should be reviewed, and more stringent specifications should be followed.

5.3 MATERIAL SPECIFICATIONS

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The "Potential Vertical Rise & Subgrade Improvements" section provided in the "Design Recommendations" portion of this report presents the building pad recommendations to reduce the PVR in the building areas. This section is intended to outline the material requirements of those recommendations.

5.3.1 General Fill

General fill should consist of on-site or imported soils, provided they meet the requirements described below. General fill materials should be free of organics, construction debris, deleterious materials, and should be free of rocks larger than 4 inches in greatest dimension. Proposed general fill should be evaluated and tested by ECS prior to placement in the field.

ECS recommends that general fill be placed in horizontal loose lifts of not more than 8 inches in thickness. Lift thickness should be decreased when using light compaction equipment. General fill should be compacted to at least 95% of the maximum dry density at moisture contents within the range of optimum to +4 percentage points of the optimum moisture content (Tex-114-E).

5.3.2 Select Fill

Select fill materials should be free of organics, construction debris, deleterious materials, and should be free of rocks larger than 4 inches in greatest dimension. Select fill should have a Plasticity Index of between 5 and 20. Where an all select fill option is selected for PVR mitigation, select fill should contain at least 35% material retained on the No. 200 sieve (by dry unit weight). Select fill should be evaluated and tested by ECS prior to placement in the field.

In lieu of importing select fill soils on-site directly, lime treatment of soils with higher plasticity index may be completed to lower the PI and to manufacture the select fill soils. Adequate lime should be mixed with these soils in accordance with TxDOT Item 260 to generate a PI between 5 and 20 for the treated materials. ECS recommends that soils proposed for lime treatment be tested for sulfates prior to adding lime.

ECS recommends that select fill be placed in horizontal loose lifts of not more than 8 inches in thickness. Select fill should be compacted to at least 95% of the maximum dry density at moisture contents within the range of -1 to +3 percentage points of the optimum moisture content (Tex-114-E).

5.3.3 Moisture-Conditioned Fill

Moisture-conditioned fill materials for use in PVR mitigation should be clean of organics, construction debris, deleterious materials, and should contain less than 15 percent gravel (material retained on the No. 4 sieve (by dry unit weight)). Material proposed for use as moisture-conditioned fill should be relatively uniform in composition and should be evaluated and tested by ECS in the laboratory prior to placement in the field. Some of the soils explored at this site are not suitable for use as moisture conditioned fill and some selective grading should be expected if this methodology is used.

ECS recommends that moisture-conditioned fill be placed in horizontal loose lifts of not more than 8 inches in thickness. Moisture-conditioned fill for the purposes of PVR reduction in the building pads should be compacted to between 90% and 95% of the maximum dry density (Tex-114-E) at moisture contents demonstrated to limit swell or consolidation to less than 0.75 percent at the modeled in situ overburden pressures (ASTM D4546).

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ECS recommends that moisture-density relationships and swell test bulk samples be collected for soils proposed for moisture conditioned fill approximately 1 to 2 weeks prior to commencement of earthwork operations. Moisture conditioning recommendations may need to be adjusted based upon testing performed during construction. It is recommended that moisture-conditioned building ads have slab-on-grade constructed as soon as possible after grading to help seal in the moisture and reduce evapotranspiration. Owners and landscape architects should be advised that trees should not be located closer than one-half their mature height from the foundations.

If the moisture-conditioned fill option is implemented to reduce the PVR, the earthwork contractor should be aware that there is a high probability that soils placed in the building pads will be compacted at well above their optimum moisture content. Soils compacted several percentage points above their optimum moisture content are typically soft and susceptible to rutting, and appropriate construction equipment capable of maneuvering on soft ground conditions should be considered.

5.4 FOUNDATION AND SLAB OBSERVATIONS

Protection of Foundation Excavations: Exposure to the environment may weaken the soils at the footing bearing level if the foundation excavations remain open for too long a time. Therefore, foundation concrete should be placed as soon as possible after the excavations are made. If the bearing soils are softened by surface water intrusion or exposure, the softened soils should be removed from the foundation excavation bottom prior to placement of concrete. If the excavation

must remain open overnight, or if rainfall becomes imminent while the bearing soils are exposed, a 1 to 3-inch thick "mud mat" of "lean" concrete is suggested to be placed on the bearing soils before the placement of reinforcing steel.

Footing and Slab Subgrade Observations: It is important to have ECS observe the foundation subgrade prior to placing foundation concrete, to confirm the bearing soils are what was anticipated.

5.5 UTILITY INSTALLATIONS

Utility Subgrades: The soils encountered in our exploration are expected to be generally appropriate for support of utility pipes. The pipe subgrades should be observed and probed by ECS. Loose or deleterious materials encountered should be removed and replaced with compacted General Fill, or pipe stone bedding material.

Utility Backfilling: The granular bedding material (often AASHTO #57 stone) should be at least 4 inches thick, but not less than that specified by the civil engineer's project drawings and specifications. We recommend that the bedding materials be placed up to at least the springline of the pipe. Utility trenches in the equipment pad should be backfilled above the utility bedding and shading materials with similar materials to original building pad construction, and general fill materials outside the building pad area. The backfill materials should be placed in lifts not to exceed 8 inches loose measure or 6 inches compacted measure. Thinner lifts may be required when using handheld compaction equipment. Backfill materials should be moisture conditioned and compacted in accordance with the moisture-conditioned fill, select fill and general fill sections of this report. Where building pads have been constructed using moisture-conditioned soils and a select fill cap, care should be exercised to separate out these materials during trenching and place them back in a similar manner to original building pad construction. Mixing of these two soil types should be avoided.

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Utility Connections: Flexible connections should be considered where utilities connect to the buildings or pass-through building foundations/slabs to allow for the anticipated Potential Vertical Rise differential. This could be provided by special flexible connections, pipe sleeving with appropriate waterproofing, or other methods.

Excavation Safety: Excavations and slopes should be constructed and maintained in accordance with OSHA excavation safety standards. The contractor is solely responsible for designing, constructing, and maintaining stable temporary excavations and slopes. The contractor's responsible person, as defined in 29 CFR Part 1926, should evaluate the soil exposed in the excavations as part of the contractor's safety procedures. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, state, and federal safety regulations. ECS is providing this information solely as a service to our client. ECS is not assuming responsibility for construction site safety or the contractor's activities; such responsibility is not being implied and should not be inferred.

6.0 CLOSING

ECS has prepared this preliminary report to guide the geotechnical-related design and construction aspects of the project. We performed these services in accordance with the standard of care expected of professionals in the industry performing similar services on projects of like size and complexity at this time in the region. No other representation expressed or implied, and no warranty or guarantee is included or intended in this report.

The description of the proposed project is based on information provided to ECS by Client. If any of this information is inaccurate or changes, either because of our interpretation of the documents provided or site or design changes that may occur later, ECS should be contacted so we can review our recommendations and provide additional or alternate recommendations that reflect the proposed construction.

We recommend that ECS review the project plans and specifications so we can confirm that those plans/specifications are in accordance with the recommendations of this geotechnical report.

Field observations, and quality assurance testing during earthwork and foundation installation are an extension of, and integral to, the geotechnical design. We recommend that ECS be retained to apply our expertise throughout the geotechnical phases of construction, and to provide consultation and recommendation should issues arise.

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ECS is not responsible for the conclusions, opinions, or recommendations of others based on the data in this report.

The analysis and preliminary recommendations submitted in this report are based upon the data obtained from the soil explorations and tests performed at the locations as indicated on the Exploration Location Diagram and other information referenced in this report. This report does not reflect any variations, which may occur between the excavations. In the performance of the subsurface exploration, specific information is obtained at specific locations at specific times. However, it is a well-known fact that variations in subsurface conditions exist on most sites between excavation locations and also such situations as groundwater levels vary from time to time. The nature and extent of variations may not become evident until the course of construction. If variations then appear evident, after performing on-site observations during the construction period and noting characteristics and variations, a reevaluation of the recommendations for this report will be necessary.

Appendix A - Drawings and Reports

Site Location Diagram
Boring Location Diagram(s)
Geologic Survey Map

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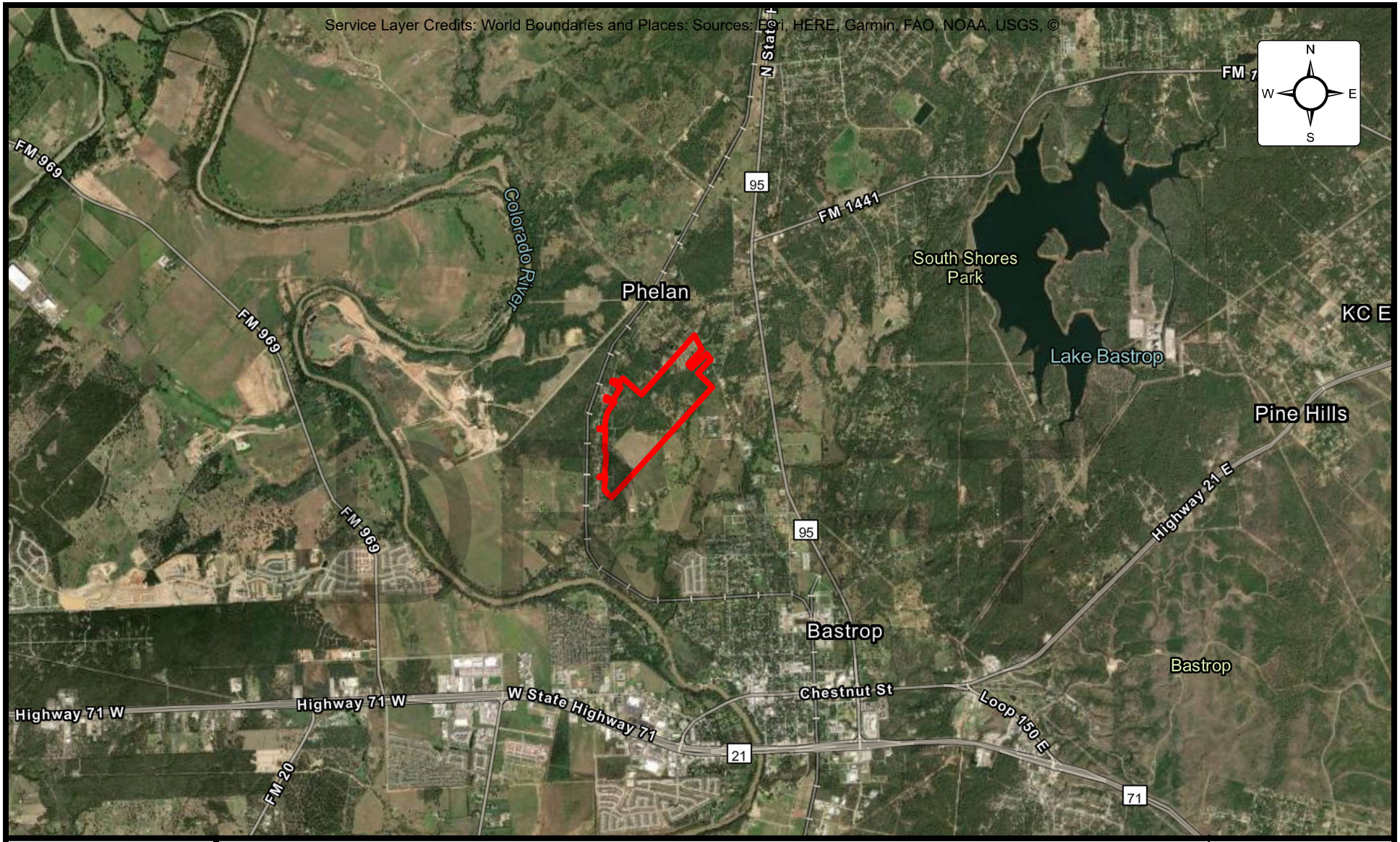
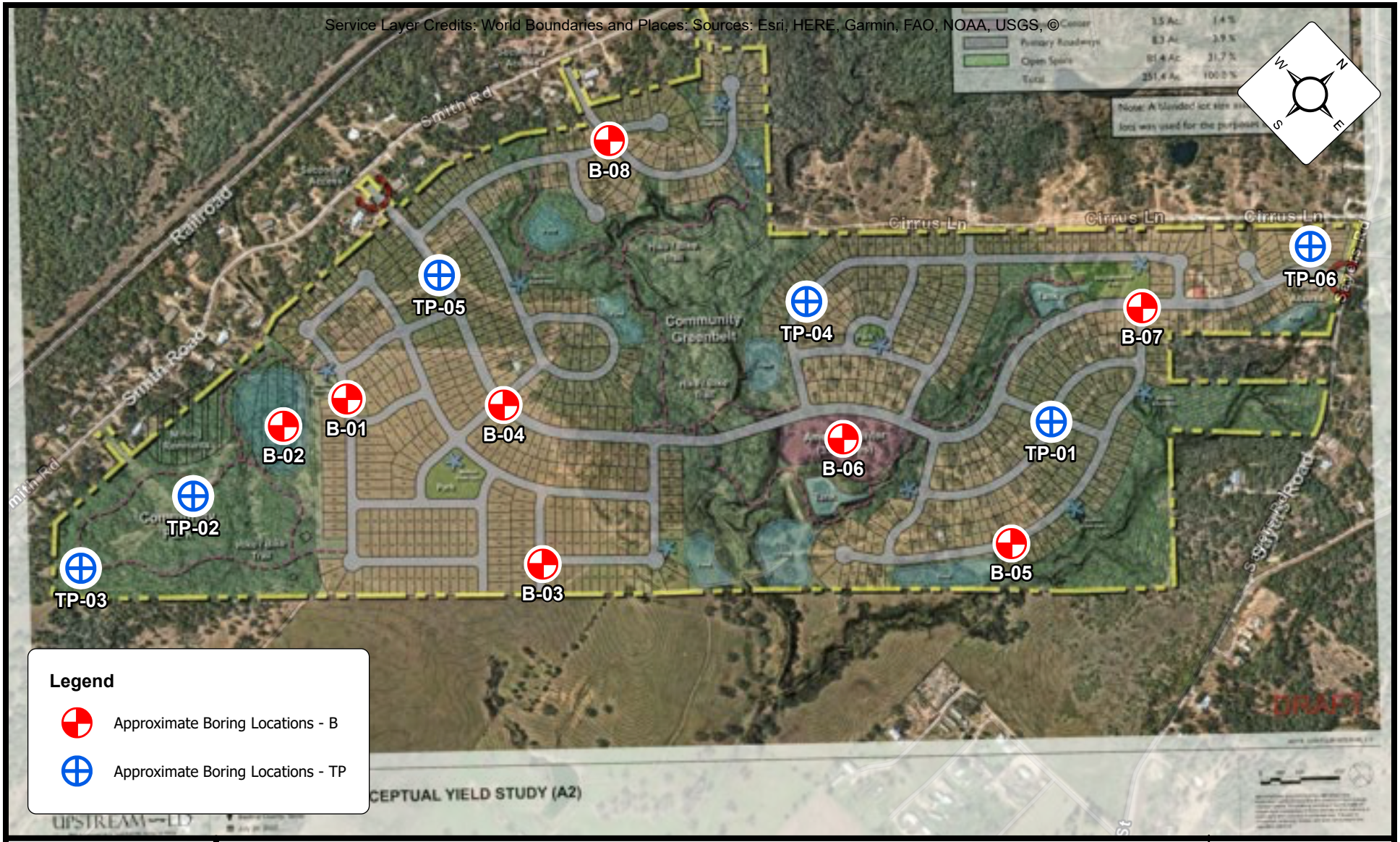


SITE LOCATION DIAGRAM

Woodrun-Hoffman Property

Smith Road and Reids Bend, Bastrop, Texas
The 360 Company

ENGINEER	CFR
SCALE	1" = 1mi
PROJECT NO.	17:6741
SHEET	1 OF 1
DATE	NOVEMBER 2024

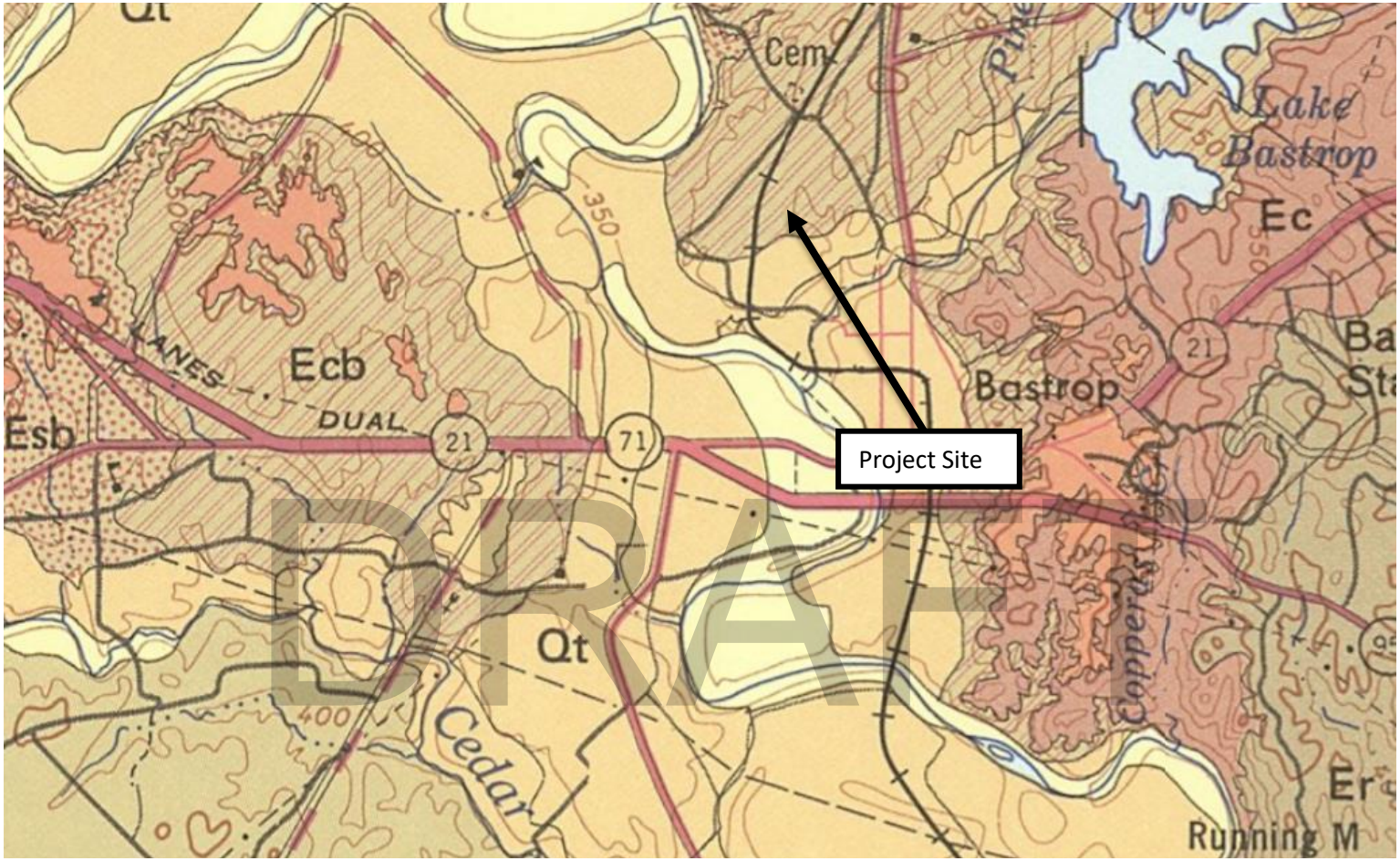


Exploration Location Diagram

Woodrun-Hoffman Property

Smith Road and Reids Bend, Bastrop, Texas
The 360 Company

ENGINEER	CFR
SCALE	1" = 700'
PROJECT NO.	17:6741
SHEET	1 OF 1
DATE	NOVEMBER 2024



Wilcox Group (Ecb)
Terrace Deposits (Qt)

Geologic Atlas of Texas- Austin Sheet, Texas **UT Bureau of Economic Geology, 1974**

SITE GEOLOGIC DIAGRAM
Woodrun-Hoffman Property

Smith Road, Bastrop, Texas
The 360 Company

ENGINEER	CFR
SCALE	NTS
PROJECT NO.	17:6741
SHEET	1 OF 1
DATE	NOVEMBER 2024

Appendix B – Field Operations

Reference Notes
Exploration Procedures
Exploration Logs

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REFERENCE NOTES FOR BORING LOGS

MATERIAL[1,2]

	ASPHALT	
	CONCRETE	
	GRAVEL	
	TOPSOIL	
	VOID	
	BRICK	
	AGGREGATE BASE COURSE	
GW	WELL-GRADED GRAVEL	gravel-sand mixtures, little or no fines
GP	POORLY-GRADED GRAVEL	gravel-sand mixtures, little or no fines
GM	SILTY GRAVEL	gravel-sand-silt mixtures
GC	CLAYEY GRAVEL	gravel-sand-clay mixtures
SW	WELL-GRADED SAND	gravelly sand, little or no fines
SP	POORLY-GRADED SAND	gravelly sand, little or no fines
SM	SILTY SAND	sand-silt mixtures
SC	CLAYEY SAND	sand-clay mixtures
ML	SILT	non-plastic to medium plasticity
MH	ELASTIC SILT	high plasticity
CL	LEAN CLAY	low to medium plasticity
CH	FAT CLAY	high plasticity
OL	ORGANIC SILT or CLAY	non-plastic to low plasticity
OH	ORGANIC SILT or CLAY	high plasticity
PT	PEAT	highly organic soils

DRILLING SAMPLING SYMBOLS & ABBREVIATIONS

SS	Split Spoon Sampler	PM	Pressuremeter Test
ST	Shelby Tube Sampler	RD	Rock Bit Drilling
WS	Wash Sample	RC	Rock Core, NX, BX, AX
BS	Bulk Sample of Cuttings	REC	Rock Sample Recovery %
PA	Power Auger (no sample)	RQD	Rock Quality Designation %
HSA	Hollow Stem Auger		

PARTICLE SIZE IDENTIFICATION

DESIGNATION		PARTICLE SIZES
Boulders		12 inches (300 mm) or larger
Cobbles		3 inches to 12 inches (75 mm to 300 mm)
Gravel:	Coarse	¾ inch to 3 inches (19 mm to 75 mm)
	Fine	4.75 mm to 19 mm (No. 4 sieve to ¾ inch)
Sand:	Coarse	2.00 mm to 4.75 mm (No. 10 to No. 4 sieve)
	Medium	0.425 mm to 2.00 mm (No. 40 to No. 10 sieve)
	Fine	0.074 mm to 0.425 mm (No. 200 to No. 40 sieve)
Silt & Clay ("Fines")		<0.074 mm (smaller than a No. 200 sieve)

COHESIVE SILTS & CLAYS

UNCONFINED COMPRESSIVE STRENGTH, QP[4]	SPT[5] (BPF)	CONSISTENCY[7] (COHESIVE)
<0.25	<2	Very Soft
0.25 - <0.50	2 - 4	Soft
0.50 - <1.00	5 - 8	Firm
1.00 - <2.00	9 - 15	Stiff
2.00 - <4.00	16 - 30	Very Stiff
4.00 - 8.00	31 - 50	Hard
>8.00	>50	Very Hard

GRAVELS, SANDS & NON-COHESIVE SILTS

SPT[5]	DENSITY
<5	Very Loose
5 - 10	Loose
11 - 30	Medium Dense
31 - 50	Dense
>50	Very Dense

RELATIVE AMOUNT[7]	COARSE GRAINED (%)[8]	FINE GRAINED (%)[8]
Trace	≤5	≤5
With	10 - 20	10 - 25
Adjective *(ex: "Silty")*	25 - 45	30 - 45

WATER LEVELS[6]

- WL (First Encountered)
- WL (Completion)
- WL (Seasonal High Water)
- WL (Stabilized)

FILL AND ROCK

FILL | POSSIBLE FILL | PROBABLE FILL | ROCK

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[1]Classifications and symbols per ASTM D 2488-17 (Visual-Manual Procedure) unless noted otherwise.

[2]To be consistent with general practice, "POORLY GRADED" has been removed from GP, GP-GM, GP-GC, SP, SP-SM, SP-SC soil types on the boring logs.

[3]Non-ASTM designations are included in soil descriptions and symbols along with ASTM symbol [Ex: (SM-FILL)].

[4]Typically estimated via pocket penetrometer or Torvane shear test and expressed in tons per square foot (tsf).

[5]Standard Penetration Test (SPT) refers to the number of hammer blows (blow count) of a 140 lb. hammer falling 30 inches on a 2 inch OD split spoon sampler required to drive the sampler 12 inches (ASTM D 1586). "N-value" is another term for "blow count" and is expressed in blows per foot (bpf). SPT correlations per 7.4.2 Method B and need to be corrected if using an auto hammer.

[6]The water levels are those levels actually measured in the borehole at the times indicated by the symbol. The measurements are relatively reliable when augering, without adding fluids, in granular soils. In clay and cohesive silts, the determination of water levels may require several days for the water level to stabilize. In such cases, additional methods of measurement are generally employed.

[7]Minor deviation from ASTM D 2488-17 Note 14.

[8]Percentages are estimated to the nearest 5% per ASTM D 2488-17.

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SUBSURFACE EXPLORATION PROCEDURE: STANDARD PENETRATION TESTING (SPT) ASTM D 1586 Split-Barrel Sampling

Standard Penetration Testing, or **SPT**, is the most frequently used subsurface exploration test performed worldwide. This test provides samples for identification purposes, as well as a measure of penetration resistance, or N-value. The N-Value, or blow counts, when corrected and correlated, can approximate engineering properties of soils used for geotechnical design and engineering purposes.

SPT Procedure:

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- Involves driving a hollow tube (split-spoon) into the ground by dropping a 140-lb hammer a height of 30-inches at desired depth
- Recording the number of hammer blows required to drive split-spoon a distance of 18-24 inches (in 3 or 4 Increments of 6 inches each)



- Auger is advanced* and an additional SPT is performed
- One SPT typically performed for every two to five feet. An approximate 1.5 inch diameter soil sample is recovered.



**Drilling Methods May Vary*— The predominant drilling methods used for SPT are open hole fluid rotary drilling and hollow-stem auger drilling.

SUBSURFACE EXPLORATION PROCEDURE: TEST PIT EXCAVATION

A test pit is an excavation of subsurface materials to characterize the composition and rippability/excavation efforts. Test pit exploration allows observation of the boundary relationships within a soil and rock profile and is useful to identify existing fill composition, disturbed material or the depth of soft sediments. Both track mounted excavators and backhoes are used in a variety of ground conditions allowing for difficult terrain to be accessed. The excavation process also provides access for in-situ and field testing and acquisition of samples for laboratory testing.

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TEST PIT Procedure:



- Involves excavation subsurface material to observe composition and physical characteristics
- Recording the approximate depth of subsurface strata
- Excavation is continued as prescribed or to limits of equipment and subsurface conditions
- The exploration is typically carried out with an excavator or backhoe, with the depth dependent on machine size and ground



SUBSURFACE EXPLORATION PROCEDURE:
Kessler Dynamic Cone Penetrometer (DCP)
ASTM D6951

In this procedure, the Kessler DCP is driven into the soil in order to provide penetration resistance values. The depth of cone penetration is measured at selected penetration or hammer drop intervals and the soil shear strength is reported in terms of DCP index. The DCP index is based on the average penetration depth resulting from one blow of the hammer. The index values are correlated to strength parameters, such as California Bearing Ratio (CBR), which can be used in pavement recommendations.

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Kessler DCP Procedure:

- Involves driving a 0.79 inch (20 mm) disposable cone tip into the ground by dropping either a Single-Mass 10.1 lb (4.6 kg) Hammer or a Dual-Mass 17.6 lb (8 kg) Hammer from a height of 22.6 in (575mm)

- Recording the number of blows required to drive the DCP every 25 to 50 mm, continuously.

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
The 360 Company	**17:6741**	**B-01**	**1 of 2**
PROJECT NAME:	DRILLER/CONTRACTOR:		
Woodrun-Hoffman Property	**Austin Geo-Logic**		
SITE LOCATION: **Smith Road and Reids Bend, Bastrop, Texas, 78602**			LOSS OF CIRCULATION
LATITUDE:	LONGITUDE:	STATION:	SURFACE ELEVATION: **409.0**
			BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/MC/SPT-N value)*
0	S-01	SS	18	18	(SC-SM) SILTY, CLAYEY SAND, brown, medium dense			3-5-7 (12)
	S-02	SS	10	10	(SC) CLAYEY SAND WITH GRAVEL, brown, medium dense to very dense			16-50/4" (50/4")
5	S-03	SS	18	18			404	16-13-17 (30)
	S-04	SS	18	18				12-27-24 (51)
10	S-05	SS	18	18			399	5-7-10 (17)
15	S-06	SS	18	18	(SP-SC) SAND WITH CLAY AND GRAVEL, brown, loose to medium dense		394	4-5-6 (11)
20	S-07	SS	18	18			389	5-3-7 (10)
25	S-08	SS	18	18	(CL/ML) SILTY CLAY, gray, stiff to very hard	▽	384	3-5-10 (15)
30	S-09	SS	18	18			379	18-25-31 (56)

CONT'D ON NEXT PAGE

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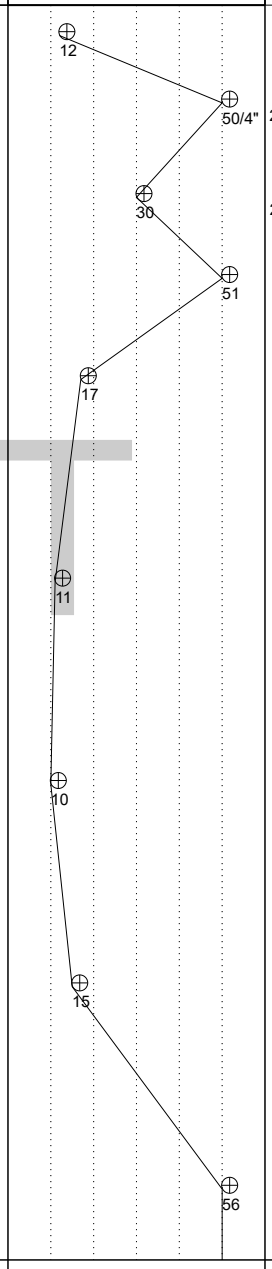
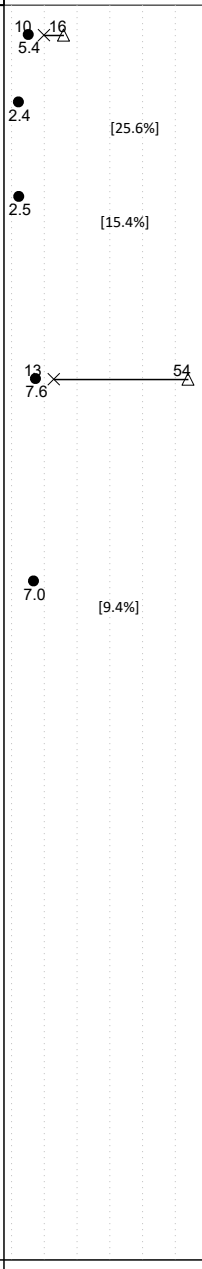
STANDARD PENETRATION BLOWS/FT (10 20 30 40 50 / 20 40 60 80 100)
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC
MC SAMPLER BLOWS/FT (10 20 30 40 50)
TEXAS CONE PENETRATION BLOWS/FT



LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF (1 2 3 4 5)
WATER CONTENT %
[FINES CONTENT] %
(10 20 30 40 50)



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered) **27.00**	BORING STARTED: **Nov 09 2024**		CAVE IN DEPTH:
▼ WL (Completion)	BORING COMPLETED: **Nov 09 2024**		HAMMER TYPE: **Auto**
▼ WL (Seasonal High Water)	EQUIPMENT: **CME 55**	LOGGED BY:	DRILLING METHOD: **Air Rotary**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
The 360 Company	**17:6741**	**B-01**	**2 of 2**

PROJECT NAME:	DRILLER/CONTRACTOR:
Woodrun-Homan P roperty	**Austin Geo-Logic**

SITE LOCATION: **Smith Road and Reids Bend, Bastrop, Texas, 78602**

LOSS OF CIRCULATION

LATITUDE:	LONGITUDE:	STATION:	SURFACE ELEVATION: **409.0**	BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/MC/SPT-N value)*
35	S-10	SS	18	18	(CL/ML) SILTY CLAY, gray, stiff to very hard		374	18-35-43 (78)
40	S-11	SS	5	5	LIGNITE, black, very hard		369	50/5" (50/5")
45	S-12	SS	4	4	(CL/ML) SANDY SILTY CLAY, gray, very hard		364	50/4" (50/4")
50	S-13	SS	18	18	**END OF BORING AT 50.0 FT**		359	18-29-37 (66)
55							354	
60							349	

STANDARD PENETRATION BLOWS/FT: 10 20 30 40 50 / 20 40 60 80 100

ROCK QUALITY DESIGNATION & RECOVERY

RQD

REC

MC SAMPLER BLOWS/FT: 10 20 30 40 50

TEXAS CONE PENETRATION BLOWS/FT

LIQUID LIMIT

PLASTIC LIMIT

CALIBRATED PENETROMETER TSF: 1 2 3 4 5

WATER CONTENT %

[FINES CONTENT] %: 10 20 30 40 50

DRAFT

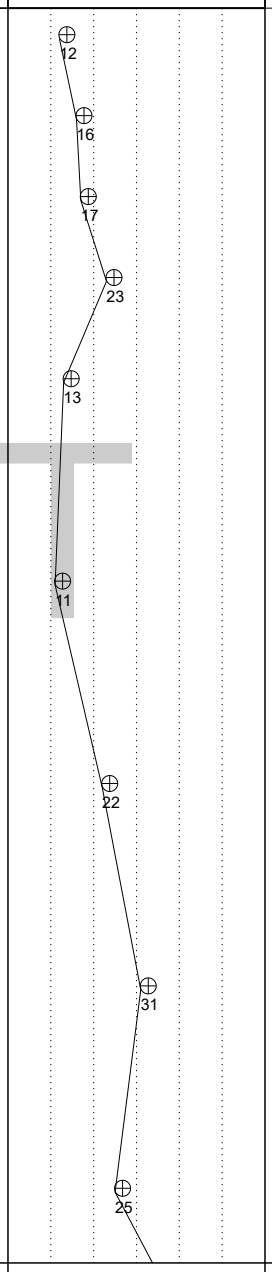
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

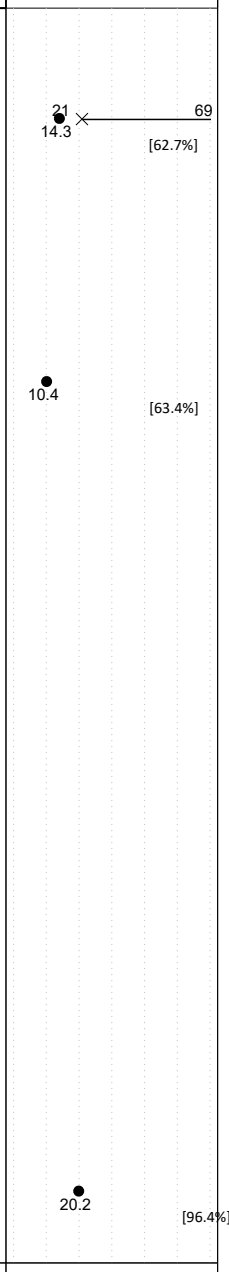
WL (First Encountered) **27.00**	BORING STARTED: **Nov 09 2024**		CAVE IN DEPTH:
WL (Completion)	BORING COMPLETED: **Nov 09 2024**		HAMMER TYPE: **Auto**
WL (Seasonal High Water)	EQUIPMENT: **CME 55**	LOGGED BY:	DRILLING METHOD: **Air Rotary**
WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
The 360 Company	**17:6741**	**B-02**	**1 of 2**
PROJECT NAME:	DRILLER/CONTRACTOR:		
Woodrun-Hoffman Property	**Austin Geo-Logic**		
SITE LOCATION: **Smith Road and Reids Bend, Bastrop, Texas, 78602**			LOSS OF CIRCULATION
LATITUDE:	LONGITUDE:	STATION:	SURFACE ELEVATION: **412.0**
			BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/MC/SPT-N value)*
	S-01	SS	18	18	(SC) CLAYEY SAND, brown, medium dense			3-5-7 (12)
	S-02	SS	18	18	(CH) SANDY FAT CLAY, mottled orangish brown and gray, very stiff			8-8-8 (16)
5	S-03	SS	18	18			407	8-9-8 (17)
	S-04	SS	18	18				7-10-13 (23)
	S-05	SS	18	18	(CL) SANDY LEAN CLAY, brown, stiff			4-6-7 (13)
10							402	
	S-06	SS	18	18				5-6-5 (11)
15							397	
	S-07	SS	18	18	(CL) LEAN CLAY, mottled brown and gray, very stiff			5-10-12 (22)
20							392	
	S-08	SS	18	18	(SC) CLAYEY SAND WITH GRAVEL, brown, dense			20-16-15 (31)
25							387	
	S-09	SS	18	18	(CL/ML) SILTY CLAY, gray, very stiff to very hard			8-10-15 (25)
30							382	





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THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered)	BORING STARTED: **Nov 15 2024**		CAVE IN DEPTH:
▼ WL (Completion) **Dry**	BORING COMPLETED: **Nov 15 2024**		HAMMER TYPE: **Auto**
▼ WL (Seasonal High Water)	EQUIPMENT: **CME 55**	LOGGED BY:	DRILLING METHOD: **Solid Stem Auger**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
The 360 Company	**17:6741**	**B-02**	**2 of 2**

PROJECT NAME:	DRILLER/CONTRACTOR:
Woodrun-Homan Pr operty	**Austin Geo-Logic**

SITE LOCATION: **Smith Road and Reids Bend, Bastrop, Texas, 78602**

LOSS OF CIRCULATION

LATITUDE:	LONGITUDE:	STATION:	SURFACE ELEVATION: **412.0**	BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/MC/SPT-N value)*
					(CL/ML) SILTY CLAY, gray, very stiff to very hard			
35	S-10	SS	18	18			377	11-23-31 (54)
40	S-11	SS	18	18			372	13-29-27 (56)
	S-12	SS	5	5	LIGNITE, black, very hard			50/5" (50/5")
45							367	
	S-13	SS	16	16	(CL/ML) SANDY SILTY CLAY, gray, very hard			17-31-50/4" (81/10")
50					**END OF BORING AT 50.0 FT**		362	
55							357	
60							352	

STANDARD PENETRATION BLOWS/FT: 10 20 30 40 50
ROCK QUALITY DESIGNATION & RECOVERY: 20 40 60 80 100
RQD
REC
MC SAMPLER BLOWS/FT: 10 20 30 40 50
TEXAS CONE PENETRATION BLOWS/FT

LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF: 1 2 3 4 5
WATER CONTENT %
[FINES CONTENT] %: 10 20 30 40 50

54
56
50/5"
81/10"
27.2
[69.2%]

DRAFT

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered)	BORING STARTED: **Nov 15 2024**		CAVE IN DEPTH:
▼ WL (Completion) **Dry**	BORING COMPLETED: **Nov 15 2024**		HAMMER TYPE: **Auto**
▼ WL (Seasonal High Water)	EQUIPMENT: **CME 55**	LOGGED BY:	DRILLING METHOD: **Solid Stem Auger**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
The 360 Company	**17:6741**	**B-03**	**1 of 1**

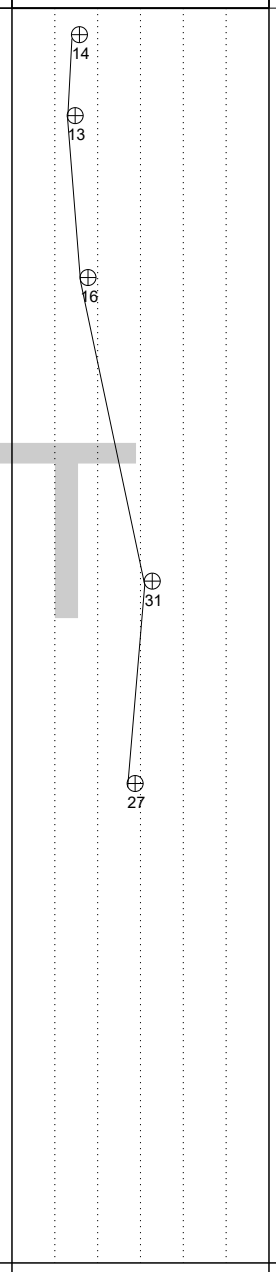
PROJECT NAME:	DRILLER/CONTRACTOR:
Woodrun-Hoffman Property	**Austin Geo-Logic**

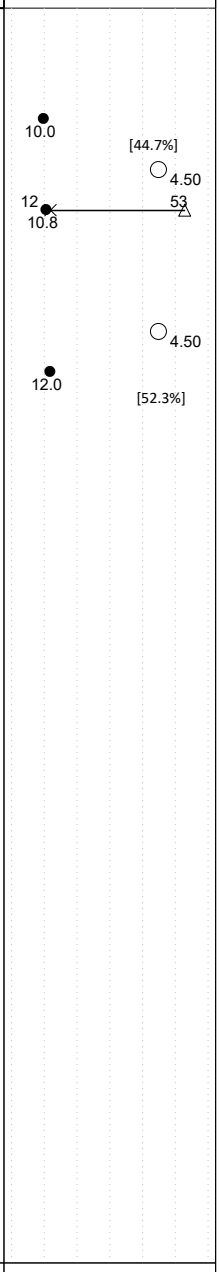
SITE LOCATION: **Smith Road and Reids Bend, Bastrop, Texas, 78602**

LOSS OF CIRCULATION

LATITUDE:	LONGITUDE:	STATION:	SURFACE ELEVATION: **405.0**	BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/MC/SPT-N value)*
0	S-01	SS	18	18	(SP-SC) SAND WITH CLAY, brown, medium dense		405	2-5-9 (14)
	S-02	SS	18	18	(SC) CLAYEY SAND, red and gray, medium dense			9-7-6 (13)
5	S-03	ST	24	24			400	
	S-04	SS	18	18				6-7-9 (16)
	S-05	ST	24	24	(CL) SANDY LEAN CLAY, brown, very stiff			
10							395	
	S-06	SS	18	18	(SC) CLAYEY SAND WITH GRAVEL, brown, dense to medium dense			6-12-19 (31)
15							390	
	S-07	SS	18	18				19-17-10 (27)
20					**END OF BORING AT 20.0 FT**		385	
25							380	
30							375	





DRAFT

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered)		BORING STARTED: **Nov 08 2024**	CAVE IN DEPTH:
▼ WL (Completion)	**Dry**	BORING COMPLETED: **Nov 08 2024**	HAMMER TYPE: **Auto**
▼ WL (Seasonal High Water)		EQUIPMENT: **CME 45**	LOGGED BY:
▽ WL (Stabilized)			DRILLING METHOD: **Air Rotary**

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
The 360 Company	**17:6741**	**B-04**	**1 of 1**

PROJECT NAME:	DRILLER/CONTRACTOR:
Woodrun-Hoffman Property	**Austin Geo-Logic**

SITE LOCATION: **Smith Road and Reids Bend, Bastrop, Texas, 78602**

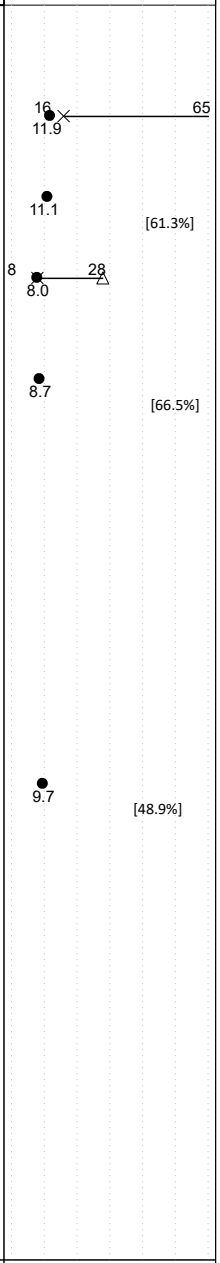
LOSS OF CIRCULATION

LATITUDE:	LONGITUDE:	STATION:	SURFACE ELEVATION: **421.0**	BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/MC/SPT-N value)*
0	S-01	SS	18	18	(SC) CLAYEY SAND, brown, loose		421	3-2-8 (10)
	S-02	SS	18	18	(CH) SANDY FAT CLAY, reddish brown, very stiff			7-8-9 (17)
5	S-03	SS	18	18			416	9-9-7 (16)
	S-04	SS	18	18	(CL) SANDY LEAN CLAY, red, very stiff to hard			6-10-17 (27)
	S-05	SS	18	18				8-13-21 (34)
10							411	
	S-06	SS	18	18	(SC) CLAYEY SAND, brown, medium dense			10-13-12 (25)
15							406	
	S-07	SS	18	18				9-17-13 (30)
20					**END OF BORING AT 20.0 FT**		401	
25							396	
30							391	

STANDARD PENETRATION BLOWS/FT (10 20 30 40 50; 20 40 60 80 100)
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC
MC SAMPLER BLOWS/FT (10 20 30 40 50)
TEXAS CONE PENETRATION BLOWS/FT

LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF (1 2 3 4 5)
WATER CONTENT %
[FINES CONTENT] % (10 20 30 40 50)



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THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered) **Dry**	BORING STARTED: **Nov 06 2024**		CAVE IN DEPTH:
▼ WL (Completion)	BORING COMPLETED: **Nov 06 2024**		HAMMER TYPE: **Auto**
▼ WL (Seasonal High Water)	EQUIPMENT: **CME 45**	LOGGED BY: **MA33**	DRILLING METHOD: **Air Rotary**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
The 360 Company	**17:6741**	**B-05**	**1 of 1**

PROJECT NAME:	DRILLER/CONTRACTOR:
Woodrun-Hoffman Property	**Austin Geo-Logic**

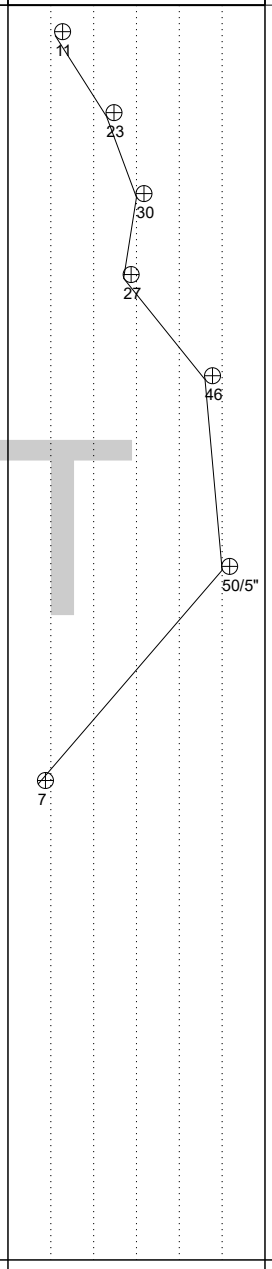
SITE LOCATION: **Smith Road and Reids Bend, Bastrop, Texas, 78602**

LOSS OF CIRCULATION

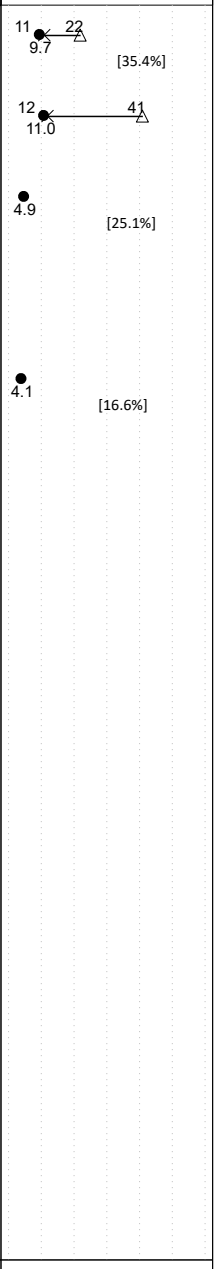
LATITUDE:	LONGITUDE:	STATION:	SURFACE ELEVATION: **405.0**	BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/MC/SPT-N value)*
0	S-01	SS	18	18	(SC) CLAYEY SAND, brown, medium dense		405	4-3-8 (11)
	S-02	SS	18	18	(SC) CLAYEY SAND, red to reddish brown to brown, loose to very dense			9-8-15 (23)
5	S-03	SS	18	18			400	15-15-15 (30)
	S-04	SS	18	18				12-14-13 (27)
	S-05	SS	18	18				15-21-25 (46)
10							395	
	S-06	SS	11	11				13-50/5" (50/5")
15							390	
	S-07	SS	18	18				5-5-2 (7)
20					**END OF BORING AT 20.0 FT**		385	
25							380	
30							375	

STANDARD PENETRATION BLOWS/FT (10 20 30 40 50 / 20 40 60 80 100)
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC
MC SAMPLER BLOWS/FT (10 20 30 40 50)
TEXAS CONE PENETRATION BLOWS/FT



LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF (1 2 3 4 5)
WATER CONTENT %
[FINES CONTENT] %
(10 20 30 40 50)



DRAFT

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered) **Dry**	BORING STARTED: **Nov 06 2024**		CAVE IN DEPTH:
▼ WL (Completion)	BORING COMPLETED: **Nov 06 2024**		HAMMER TYPE: **Auto**
▼ WL (Seasonal High Water)	EQUIPMENT: **CME 45**	LOGGED BY: **MA33**	DRILLING METHOD: **Solid Stem Auger**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
The 360 Company	**17:6741**	**B-06**	**1 of 1**
PROJECT NAME:	DRILLER/CONTRACTOR:		
Woodrun-Hoffman Property	**Austin Geo-Logic**		
SITE LOCATION: **Smith Road and Reids Bend, Bastrop, Texas, 78602**			LOSS OF CIRCULATION
LATITUDE:	LONGITUDE:	STATION:	SURFACE ELEVATION: **404.0**
			BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/MC/SPT-N value)*
0	S-01	SS	18	18	(SC) CLAYEY SAND, brown, medium dense			2-3-9 (12)
	S-02	SS	18	18	(SC) CLAYEY SAND WITH GRAVEL, brown, very dense to medium dense			12-26-36 (62)
5	S-03	SS	18	18			399	10-12-14 (26)
	S-04	SS	18	18	(SC) CLAYEY SAND, brown, medium dense			8-6-8 (14)
	S-05	SS	18	18	(SP-SC) SAND WITH CLAY AND GRAVEL, light brown, dense		394	12-24-23 (47)
10								
	S-06	SS	18	18	(SC) CLAYEY SAND WITH GRAVEL, reddish brown, medium dense			9-9-9 (18)
15							389	
	S-07	SS	18	18				5-7-13 (20)
20					**END OF BORING AT 20.0 FT**		384	
25							379	
30							374	

STANDARD PENETRATION BLOWS/FT (10 20 30 40 50 / 20 40 60 80 100)
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC
MC SAMPLER BLOWS/FT (10 20 30 40 50)
TEXAS CONE PENETRATION BLOWS/FT

LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF (1 2 3 4 5)
WATER CONTENT %
[FINES CONTENT] % (10 20 30 40 50)

12 62 26 14 47 18 20

4.1 [18.7%]
5.8 [18.3%]
2.1 [11.6%]

DRAFT

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered)	BORING STARTED: **Nov 08 2024**		CAVE IN DEPTH:
▼ WL (Completion) **Dry**	BORING COMPLETED: **Nov 08 2024**		HAMMER TYPE: **Auto**
▼ WL (Seasonal High Water)	EQUIPMENT: **CME 45**	LOGGED BY:	DRILLING METHOD: **Solid Stem Auger**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
The 360 Company	**17:6741**	**B-07**	**1 of 1**

PROJECT NAME:	DRILLER/CONTRACTOR:
Woodrun-Hoffman Property	**Austin Geo-Logic**

SITE LOCATION: **Smith Road and Reids Bend, Bastrop, Texas, 78602**

LOSS OF CIRCULATION

LATITUDE:	LONGITUDE:	STATION:	SURFACE ELEVATION: **447.0**	BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/MC/SPT-N value)*
0	S-01	SS	18	18	(SC) CLAYEY SAND, brown, loose		447	2-3-5 (8)
	S-02	SS	18	18	(CH) SANDY FAT CLAY, brown, stiff			5-6-6 (12)
5	S-03	SS	18	18	(SC) CLAYEY SAND, mottled brown and gray, medium dense		442	7-11-13 (24)
	S-04	SS	18	18				13-11-12 (23)
	S-05	SS	18	18	(CL) SANDY LEAN CLAY, gray, very stiff			7-10-12 (22)
10							437	
	S-06	SS	18	18				7-12-16 (28)
15							432	
	S-07	SS	18	18				7-6-10 (16)
20					**END OF BORING AT 20.0 FT**		427	
25							422	
30							417	

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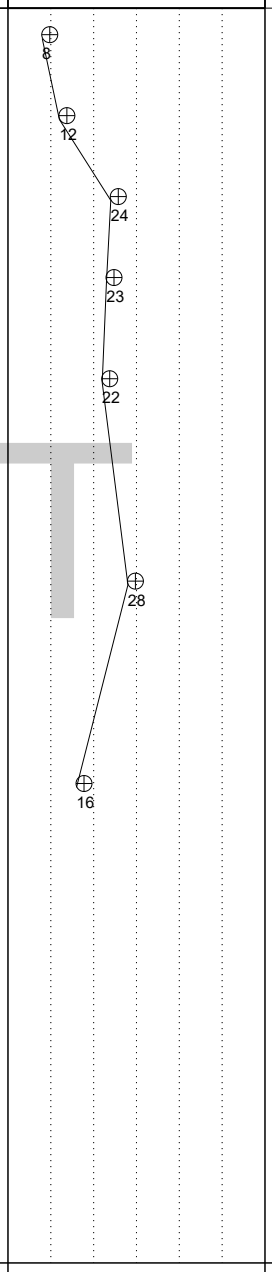
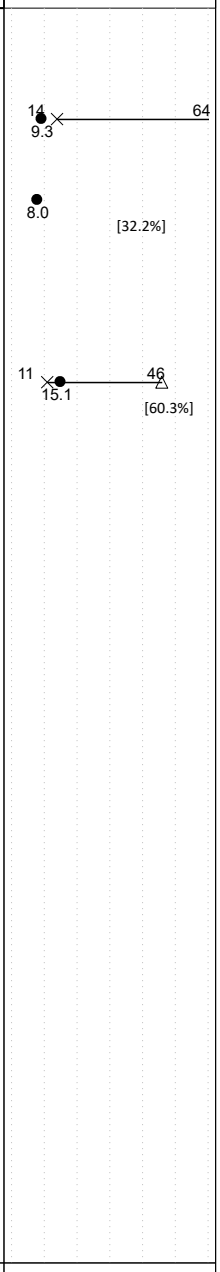




THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered)	BORING STARTED: **Nov 08 2024**		CAVE IN DEPTH:
▼ WL (Completion) **Dry**	BORING COMPLETED: **Nov 08 2024**		HAMMER TYPE: **Auto**
▼ WL (Seasonal High Water)	EQUIPMENT: **CME 45**	LOGGED BY:	DRILLING METHOD: **Solid Stem Auger**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
The 360 Company	**17:6741**	**B-08**	**1 of 1**

PROJECT NAME:	DRILLER/CONTRACTOR:
Woodrun-Hoffman Property	**Austin Geo-Logic**

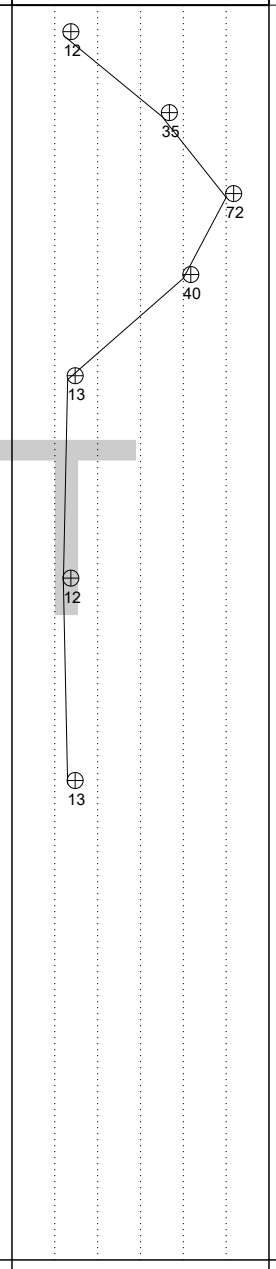
SITE LOCATION: **Smith Road and Reids Bend, Bastrop, Texas, 78602**

LOSS OF CIRCULATION

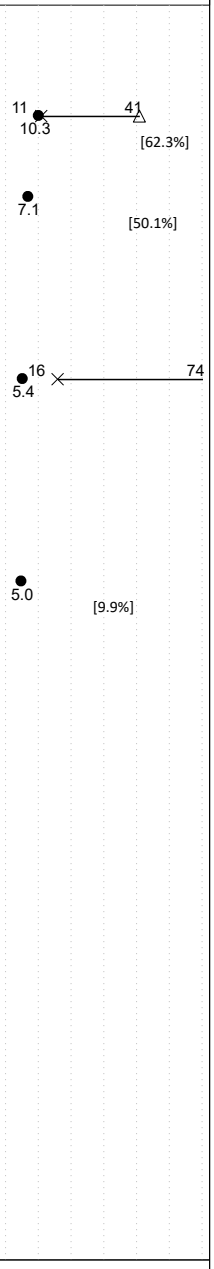
LATITUDE:	LONGITUDE:	STATION:	SURFACE ELEVATION: **421.0**	BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/MC/SPT-N value)*
0	S-01	SS	18	18	(SC) CLAYEY SAND, brown, medium dense			3-4-8 (12)
	S-02	SS	18	18	(CL) SANDY LEAN CLAY, brown, hard to very hard			10-14-21 (35)
5	S-03	SS	18	18			416	14-34-38 (72)
	S-04	SS	18	18	(SC) CLAYEY SAND WITH GRAVEL, brown, dense			13-23-17 (40)
	S-05	SS	18	18	(SC) CLAYEY SAND, reddish brown, medium dense			5-8-5 (13)
10							411	
	S-06	SS	18	18	(SP-SC) SAND WITH CLAY, reddish brown, medium dense			5-6-6 (12)
15							406	
	S-07	SS	18	18				6-8-5 (13)
20					**END OF BORING AT 20.0 FT**		401	
25							396	
30							391	

STANDARD PENETRATION BLOWS/FT (10 20 30 40 50 / 20 40 60 80 100)
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC
MC SAMPLER BLOWS/FT (10 20 30 40 50)
TEXAS CONE PENETRATION BLOWS/FT



LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF (1 2 3 4 5)
WATER CONTENT %
[FINES CONTENT] %
(10 20 30 40 50)



DRAFT

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered)	BORING STARTED: **Nov 08 2024**		CAVE IN DEPTH:
▼ WL (Completion) **Dry**	BORING COMPLETED: **Nov 08 2024**		HAMMER TYPE: **Auto**
▼ WL (Seasonal High Water)	EQUIPMENT: **CME 45**	LOGGED BY:	DRILLING METHOD: **Solid Stem Auger**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	SHEET:
The 360 Company	**17:6741**	**1 of 1**
PROJECT NAME:	TEST PIT NO.:	SURFACE ELEVATION:
Woodrun-Hoffman Property	**TP-01**	**435**
SITE LOCATION:		STATION:
Smith Road and Reids Bend, Bastrop, Texas, 78602		
LATITUDE:	LONGITUDE:	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	QP (TSF)	SAMPLE NUMBER	MOISTURE CONTENT (%)
			(CL) LEAN CLAY, brown	E	1,2,1 2,2,6 6,6,8 8,7,5		S-1	17.1
			(CL) SANDY LEAN CLAY, brown	D	5,5,7 11,8,8 9,9,12 15,15,18		S-2	9.4
				VD				
5		430	**BUCKET REFUSAL AT 4.8 FT**					
10		425						
15								

DRAFT

REMARKS:

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT

▽ WL (First Encountered) Dry	▼ WL (Seasonal High)	CONTRACTOR:	OPERATOR:	MAKE/MODEL:
▼ WL (Completion)		**Bates Backhoe**	**Bates Backhoe**	

ECS REP.:	DATE COMPLETED:	UNITS:	CAVE-IN-DEPTH:
MUIZ ALI	**Nov 05 2024**	**English**	

TEST PIT LOG

CLIENT:	PROJECT NO.:	SHEET:
The 360 Company	**17:6741**	**1 of 1**
PROJECT NAME:	TEST PIT NO.:	SURFACE ELEVATION:
Woodrun-Hoffman Property	**TP-02**	**411**
SITE LOCATION:		STATION:
Smith Road and Reids Bend, Bastrop, Texas, 78602		
LATITUDE:	LONGITUDE:	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	QP (TSF)	SAMPLE NUMBER	MOISTURE CONTENT (%)
			(CH) SANDY FAT CLAY, brown	E	1,1,2 2,2,12 10,11,9 5,5,5 6,6,6 6,6,6 5,6,6 6,15,15		S-1 S-2	12.3 12.3
5		406	**BUCKET REFUSAL AT 5.0 FT**	VD				
10		401						
15								

DRAFT

REMARKS:

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT

▽ WL (First Encountered) Dry	▼ WL (Seasonal High)	CONTRACTOR:	OPERATOR:	MAKE/MODEL:
▼ WL (Completion)		**Bates Backhoe**	**Bates Backhoe**	

ECS REP.:	DATE COMPLETED:	UNITS:	CAVE-IN-DEPTH:
MUIZ ALI	**Nov 06 2024**	**English**	

TEST PIT LOG

CLIENT:	PROJECT NO.:	SHEET:
The 360 Company	**17:6741**	**1 of 1**
PROJECT NAME:	TEST PIT NO.:	SURFACE ELEVATION:
Woodrun-Hoffman Property	**TP-03**	**401**
SITE LOCATION:		STATION:
Smith Road and Reids Bend, Bastrop, Texas, 78602		
LATITUDE:	LONGITUDE:	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	QP (TSF)	SAMPLE NUMBER	MOISTURE CONTENT (%)
			(SC) CLAYEY SAND, brown	E	2,2,2 3,3,8 18,25/2		S-1	
				D			S-2	7.7
			(CH) SANDY FAT CLAY, brown	VD	4,8,12 8,5,7 6,6,7 8,10,10		S-3	12.1
5		396	**BUCKET REFUSAL AT 5.0 FT**					
10		391						
15								

DRAFT

REMARKS:

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT

▽ WL (First Encountered) Dry	▼ WL (Seasonal High)	CONTRACTOR:	OPERATOR:	MAKE/MODEL:
▼ WL (Completion)		**Bates Backhoe**	**Bates Backhoe**	

ECS REP.:	DATE COMPLETED:	UNITS:	CAVE-IN-DEPTH:
MUIZ ALI	**Nov 06 2024**	**English**	

TEST PIT LOG

CLIENT:	PROJECT NO.:	SHEET:
The 360 Company	**17:6741**	**1 of 1**
PROJECT NAME:	TEST PIT NO.:	SURFACE ELEVATION:
Woodrun-Hoffman Property	**TP-04**	**409**
SITE LOCATION:		STATION:
Smith Road and Reids Bend, Bastrop, Texas, 78602		
LATITUDE:	LONGITUDE:	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	QP (TSF)	SAMPLE NUMBER	MOISTURE CONTENT (%)
			(SC) CLAYEY SAND, brown	E	1,1,2 18,13,17 25/2		S-1	
			(CH) SANDY FAT CLAY, red	M			S-2	15.3
			(SC) CLAYEY SAND, red	VD	5,8,9 9,10,15 25/2		S-3	9.7
5		404	**BUCKET REFUSAL AT 4.5 FT**					
10		399						
15								

DRAFT

REMARKS:

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT

▽ WL (First Encountered) Dry	▼ WL (Seasonal High)	CONTRACTOR:	OPERATOR:	MAKE/MODEL:
▼ WL (Completion)		**Bates Backhoe**	**Bates Backhoe**	

ECS REP.:	DATE COMPLETED:	UNITS:	CAVE-IN-DEPTH:
MUIZ ALI	**Nov 05 2024**	**English**	

TEST PIT LOG

CLIENT:	PROJECT NO.:	SHEET:
The 360 Company	**17:6741**	**1 of 1**
PROJECT NAME:	TEST PIT NO.:	SURFACE ELEVATION:
Woodrun-Hoffman Property	**TP-05**	**420**
SITE LOCATION:		STATION:
Smith Road and Reids Bend, Bastrop, Texas, 78602		
LATITUDE:	LONGITUDE:	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	QP (TSF)	SAMPLE NUMBER	MOISTURE CONTENT (%)
			(SM) SILTY SAND, brown	E	1,2,4 6,5,5 4,4,4 6,5,6		S-1	8.5
			(CL) SANDY LEAN CLAY, brown	M	4,5,5 6,6,7 6,6,6 7,7,8		S-2	12.5
5		415	(CH) FAT CLAY, reddish brown	D			S-3	17.5
			BUCKET REFUSAL AT 7.0 FT					
10		410						
15								

DRAFT

REMARKS:

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT

▽ WL (First Encountered) Dry	▼ WL (Seasonal High)	CONTRACTOR:	OPERATOR:	MAKE/MODEL:
▼ WL (Completion)		**Bates Backhoe**	**Bates Backhoe**	

ECS REP.:	DATE COMPLETED:	UNITS:	CAVE-IN-DEPTH:
MUIZ ALI	**Nov 06 2024**	**English**	

TEST PIT LOG

CLIENT:	PROJECT NO.:	SHEET:
The 360 Company	**17:6741**	**1 of 1**
PROJECT NAME:	TEST PIT NO.:	SURFACE ELEVATION:
Woodrun-Hoffman Property	**TP-06**	**448**
SITE LOCATION:		STATION:
Smith Road and Reids Bend, Bastrop, Texas, 78602		
LATITUDE:	LONGITUDE:	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	QP (TSF)	SAMPLE NUMBER	MOISTURE CONTENT (%)
			(SC) CLAYEY SAND, brownish red	M	1,2,4 3,5,3 4,7,15 15,25/2		S-1	
			(SC) CLAYEY SAND WITH GRAVEL, brownish red				S-2	1.4
			(SC) CLAYEY SAND, mottled red and brown	D	2,4,15 50/1		S-3	8.6
5		443		VD				
			BUCKET REFUSAL AT 5.6 FT					
10		438						
15								

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REMARKS:

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT

▽ WL (First Encountered) Dry	▼ WL (Seasonal High)	CONTRACTOR:	OPERATOR:	MAKE/MODEL:
▼ WL (Completion)		**Bates Backhoe**	**Bates Backhoe**	

ECS REP.:	DATE COMPLETED:	UNITS:	CAVE-IN-DEPTH:
MUIZ ALI	**Nov 05 2024**	**English**	

TEST PIT LOG

Appendix C – Laboratory Testing

Laboratory Testing Summary
Grain Size Analysis/Analyses

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Laboratory Testing Summary

Sample Source	Sample Number	Start Depth (feet)	End Depth (feet)	Sample Distance (feet)	MC[1] (%)	Soil Type[2]	Atterberg Limits[3]			Percent Passing No. 200 Sieve[4]	Moisture - Density (Corr.)[5]		CBR Value[6]	Organic Content (%)
							LL	PL	PI		Maximum Density (pcf)	Optimum Moisture (%)		
B-01	S-01	0.0	1.5	1.5	5.4		16	10	6					
B-01	S-02	2.0	2.8	0.8	2.4					25.6				
B-01	S-03	4.0	5.5	1.5	2.5					15.4				
B-01	S-05	8.5	10.0	1.5	7.6		54	13	41					
B-01	S-06	13.5	15.0	1.5	7.0					9.4				
B-02	S-02	2.0	3.5	1.5	14.3		69	21	48	62.7				
B-02	S-05	8.5	10.0	1.5	10.4					63.4				
B-02	S-09	28.5	30.0	1.5	20.2					96.4				
B-02	S-13	48.5	49.8	1.3	27.2					69.2				
B-03	S-02	2.0	3.5	1.5	10.0					44.7				
B-03	S-03	4.0	6.0	2.0	10.8		53	12	41					
B-03	S-05	8.0	10.0	2.0	12.0					52.3				
B-04	S-02	2.0	3.5	1.5	11.9		65	16	49					
B-04	S-03	4.0	5.5	1.5	11.1					61.3				
B-04	S-04	6.0	7.5	1.5	8.0		28	8	20					
B-04	S-05	8.5	10.0	1.5	8.7					66.5				
B-04	S-07	18.5	20.0	1.5	9.7					48.9				
B-05	S-01	0.0	1.5	1.5	9.7		22	11	11	35.4				

DRAFT

Notes: 1. ASTM D 2216, 2. ASTM D 2487, 3. ASTM D 4318, 4. ASTM D 1140, 5. See test reports for test method, 6. See test reports for test method

Definitions: MC: Moisture Content, Soil Type: USCS (Unified Soil Classification System), LL: Liquid Limit, PL: Plastic Limit, PI: Plasticity Index, CBR: California Bearing Ration, OC: Organic Content (ASTM D 2974)

Project No.: 17:6741
Project Name: Woodrun-Hoffman Property
PM: Randall Bennett
PE: Connor Roman
Printed On: November 22, 2024

ECS Southwest, LLP - Austin
14050 Summit Drive Suite 101,
Austin, TX 78728
Phone: 512-837-8005
Fax: 512-388-8914

Laboratory Testing Summary

Sample Source	Sample Number	Start Depth (feet)	End Depth (feet)	Sample Distance (feet)	MC[1] (%)	Soil Type[2]	Atterberg Limits[3]			Percent Passing No. 200 Sieve[4]	Moisture - Density (Corr.)[5]		CBR Value[6]	Organic Content (%)
							LL	PL	PI		Maximum Density (pcf)	Optimum Moisture (%)		
B-05	S-02	2.0	3.5	1.5	11.0		41	12	29					
B-05	S-03	4.0	5.5	1.5	4.9					25.1				
B-05	S-05	8.5	10.0	1.5	4.1					16.6				
B-06	S-01	0.0	1.5	1.5	4.1					18.7				
B-06	S-03	4.0	5.5	1.5	5.8					18.3				
B-06	S-05	8.5	10.0	1.5	2.1					11.6				
B-07	S-02	2.0	3.5	1.5	9.3		64	14	50					
B-07	S-03	4.0	5.5	1.5	8.0					32.2				
B-07	S-05	8.5	10.0	1.5	15.1	CL	46	11	35	60.3				
B-08	S-02	2.0	3.5	1.5	10.3	CL	41	11	30	62.3				
B-08	S-03	4.0	5.5	1.5	7.1					50.1				
B-08	S-05	8.5	10.0	1.5	5.4		74	16	58					
B-08	S-06	13.5	15.0	1.5	5.0					9.9				
TP-01	S-1	0.0			17.1		41	12	29					
TP-01	S-2	2.0			9.4	CL	38	9	29	54.6				
TP-02	S-1	0.0			12.3					51.8				
TP-02	S-2	2.0			12.3	CH	55	13	42	66.9				
TP-03	S-2	1.0			7.7					42.6				

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Notes: 1. ASTM D 2216, 2. ASTM D 2487, 3. ASTM D 4318, 4. ASTM D 1140, 5. See test reports for test method, 6. See test reports for test method

Definitions: MC: Moisture Content, Soil Type: USCS (Unified Soil Classification System), LL: Liquid Limit, PL: Plastic Limit, PI: Plasticity Index, CBR: California Bearing Ration, OC: Organic Content (ASTM D 2974)

Project No.: 17:6741
Project Name: Woodrun-Hoffman Property
PM: Randall Bennett
PE: Connor Roman
Printed On: November 22, 2024

ECS Southwest, LLP - Austin
14050 Summit Drive Suite 101,
Austin, TX 78728
Phone: 512-837-8005
Fax: 512-388-8914

Laboratory Testing Summary

Sample Source	Sample Number	Start Depth (feet)	End Depth (feet)	Sample Distance (feet)	MC[1] (%)	Soil Type[2]	Atterberg Limits[3]			Percent Passing No. 200 Sieve[4]	Moisture - Density (Corr.)[5]		CBR Value[6]	Organic Content (%)
							LL	PL	PI		Maximum Density (pcf)	Optimum Moisture (%)		
TP-03	S-3	2.0			12.1	CH	51	14	37	67.8				
TP-04	S-2	1.0			15.3	CH	67	20	47	61.7				
TP-04	S-3	2.0			9.7		56	12	44	46.9				
TP-05	S-1	0.0			8.5		16	14	2	27.9				
TP-05	S-2	2.0			12.5	CL	48	13	35	62.2				
TP-05	S-3	5.0			17.5					87.9				
TP-06	S-2	1.0			1.4					15.6				
TP-06	S-3	2.0			8.6		77	22	55	26.3				

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Notes: 1. ASTM D 2216, 2. ASTM D 2487, 3. ASTM D 4318, 4. ASTM D 1140, 5. See test reports for test method, 6. See test reports for test method

Definitions: MC: Moisture Content, Soil Type: USCS (Unified Soil Classification System), LL: Liquid Limit, PL: Plastic Limit, PI: Plasticity Index, CBR: California Bearing Ration, OC: Organic Content (ASTM D 2974)

Project No.: 17:6741
Project Name: Woodrun-Hoffman Property
PM: Randall Bennett
PE: Connor Roman
Printed On: November 22, 2024

ECS Southwest, LLP - Austin
14050 Summit Drive Suite 101,
Austin, TX 78728
Phone: 512-837-8005
Fax: 512-388-8914

Grain Size Distributions

Boring	Depth (ft)	% Fines	% Gravel	% Sand	USCS Soil Type
B-01	2-3.5	25.6	31.1	43.3	(SC) CLAYEY SAND WITH GRAVEL
B-01	4-5.5	15.4	27.6	57.0	(SC) CLAYEY SAND WITH GRAVEL
B-01	13.5-15	9.4	24.6	66.0	(SP-SC) SAND WITH CLAY AND GRAVEL
B-02	2-3.5	62.7	5.0	32.3	(CH) SANDY FAT CLAY
B-02	8.5-10	63.4	0.0	36.6	(CL) SANDY LEAN CLAY
B-02	28.5-30	96.4	0.0	3.6	(CL/ML) SILTY CLAY
B-02	48.5-50	69.2	0.0	30.8	(CL/ML) SANDY SILTY CLAY
B-03	2-3.5	44.7	0.0	55.3	(SC) CLAYEY SAND
B-03	8-10	52.3	0.0	47.7	(CL) SANDY LEAN CLAY
B-04	4-5.5	61.3	0.0	38.7	(CH) SANDY FAT CLAY
B-04	8.5-10	66.5	0.0	33.5	(CL) SANDY LEAN CLAY
B-04	18.5-20	48.9	5.6	45.5	(SC) CLAYEY SAND
B-05	0-1.5	35.4	0.1	64.5	(SC) CLAYEY SAND
B-05	4-5.5	25.1	0.0	74.9	(SC) CLAYEY SAND
B-05	8.5-10	16.6	0.0	83.4	(SC) CLAYEY SAND
B-06	0-1.5	18.7	9.1	72.3	(SC) CLAYEY SAND
B-06	4-5.5	18.3	22.3	59.4	(SC) CLAYEY SAND WITH GRAVEL
B-06	8.5-10	11.6	25.3	63.1	(SP-SC) SAND WITH CLAY AND GRAVEL
B-07	4-5.5	32.2	6.6	61.2	(SC) CLAYEY SAND
B-07	8.5-10	60.3	0.0	39.7	(CL) SANDY LEAN CLAY
B-08	2-3.5	62.3	0.0	37.7	(CL) SANDY LEAN CLAY
B-08	4-5.5	50.1	0.4	49.5	(CL) SANDY LEAN CLAY
B-08	13.5-15	9.9	4.4	85.7	(SP-SC) SAND WITH CLAY
TP-01	2	54.6	2.0	43.4	(CL) SANDY LEAN CLAY
TP-02	0	51.8	0.1	48.1	(CH) SANDY FAT CLAY
TP-02	2	66.9	1.0	32.0	(CH) SANDY FAT CLAY
TP-03	1	42.6	10.8	46.6	(SC) CLAYEY SAND
TP-03	2	67.8	1.4	30.8	(CH) SANDY FAT CLAY
TP-04	1	61.7	0.0	38.3	(CH) SANDY FAT CLAY
TP-04	2	46.9	11.5	41.6	(SC) CLAYEY SAND
TP-05	0	27.9	0.0	72.1	(SM) SILTY SAND
TP-05	2	62.2	0.1	37.8	(CL) SANDY LEAN CLAY
TP-05	5	87.9	0.0	12.1	(CH) FAT CLAY
TP-06	1	15.6	20.5	63.9	(SC) CLAYEY SAND WITH GRAVEL
TP-06	2	26.3	6.6	67.1	(SC) CLAYEY SAND

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ECS Southwest, LLP
14050 Summit Drive, Suite 101
Austin, Texas 78728

Woodrun-Hoffman Property
Smith Road & Reids Bend
Bastrop, Texas

Project Number: 17:6741| Date: November 2024

Appendix D – Supplemental Documents

Drawings/Details
Pavement Calculations

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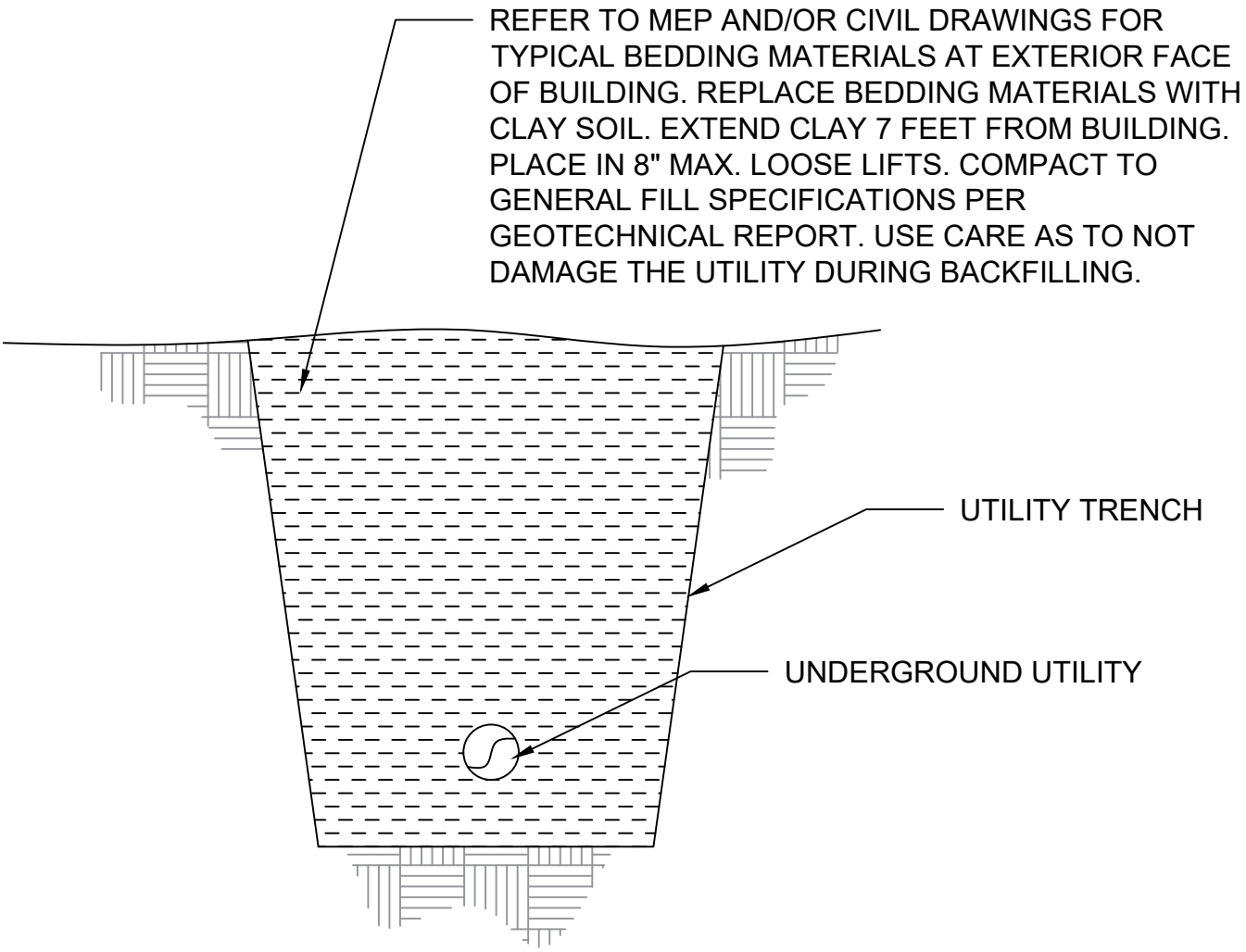

	Title: CLAY PLUG DETAIL	Project: **Woodrun-Hoffman Property** Smith Road & Reids Bend Bastrop, Texas		
	ECS Southwest, LLP 14050 Summit Drive, Suite 101 Austin Texas 78728	Notes:		
	Project No.: 17-6741	Date: NOV 2024	Scale: NTS	Figure No.: 4

Texas Department of Transportation

TEXAS DEPARTMENT OF TRANSPORTATION

F P S21-1.5 *FLEXIBLE PAVEMENT SYSTEM* *Release:12-12-2018*

PAVEMENT DESIGN TYPE # 5 -- ACP + FLEX BASE + STAB SBGR OVER SUBGRADE

PROB	DIST.-14	COUNTY- 11	CONT.	SECT.	JOB	HIGHWAY	DATE	PAGE
001	**Austin**	**BASTROP**	**1**	**1**	**1**	**UCLT**	**11/25/2024**	**1**

COMMENTS ABOUT THIS PROBLEM

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BASIC DESIGN CRITERIA

LENGTH OF THE ANALYSIS PERIOD (YEARS)	40.0
MINIMUM TIME TO FIRST OVERLAY (YEARS)	20.0
MINIMUM TIME BETWEEN OVERLAYS (YEARS)	10.0
DESIGN CONFIDENCE LEVEL (90.0%)	B
SERVICEABILITY INDEX OF THE INITIAL STRUCTURE	4.2
FINAL SERVICEABILITY INDEX P2	2.5
SERVICEABILITY INDEX P1 AFTER AN OVERLAY	4.0
DISTRICT TEMPERATURE CONSTANT	31.0
SUBGRADE ELASTIC MODULUS by COUNTY (ksi)	8.00
INTEREST RATE OR TIME VALUE OF MONEY (PERCENT)	7.0

PROGRAM CONTROLS AND CONSTRAINTS

NUMBER OF SUMMARY OUTPUT PAGES DESIRED (8 DESIGNS/PAGE)	3
MAX FUNDS AVAILABLE PER SQ.YD. FOR INITIAL DESIGN (DOLLARS)	99.00
MAXIMUM ALLOWED THICKNESS OF INITIAL CONSTRUCTION (INCHES)	99.0
ACCUMULATED MAX DEPTH OF ALL OVERLAYS (INCHES) (EXCLUDING LEVEL-UP)	6.0

TRAFFIC DATA

ADT AT BEGINNING OF ANALYSIS PERIOD (VEHICLES/DAY)	4000.
ADT AT END OF TWENTY YEARS (VEHICLES/DAY)	7959.
ONE-DIRECTION 20YEAR 18 kip ESAL (millions)	0.700
AVERAGE APPROACH SPEED TO THE OVERLAY ZONE(MPH)	35.0
AVERAGE SPEED THROUGH OVERLAY ZONE (OVERLAY DIRECTION)(MPH)	20.0
AVERAGE SPEED THROUGH OVERLAY ZONE (NON-OVERLAY DIRECTION) (MPH)	20.0
PROPORTION OF ADT ARRIVING EACH HOUR OF CONSTRUCTION (PERCENT)	5.0
PERCENT TRUCKS IN ADT	10.0

PAVEMENT DESIGN TYPE # 5 -- ACP + FLEX BASE + STAB SBGR OVER SUBGRADE

PROB	DIST.-14	COUNTY- 11	CONT.	SECT.	JOB	HIGHWAY	DATE	PAGE
001	**Austin**	**BASTROP**	**1**	**1**	**1**	**UCLT**	**11/25/2024**	**2**

INPUT DATA CONTINUED

CONSTRUCTION AND MAINTENANCE DATA

MINIMUM OVERLAY THICKNESS (INCHES)	2.0
OVERLAY CONSTRUCTION TIME (HOURS/DAY)	12.0
ASPHALTIC CONCRETE COMPACTED DENSITY (TONS/C.Y.)	1.98
ASPHALTIC CONCRETE PRODUCTION RATE (TONS/HOUR)	200.0
WIDTH OF EACH LANE (FEET)	12.0
FIRST YEAR COST OF ROUTINE MAINTENANCE (DOLLARS/LANE-MILE)	0.00
ANNUAL INCREMENTAL INCREASE IN MAINTENANCE COST (DOLLARS/LANE-MILE)	0.00

DETOUR DESIGN FOR OVERLAYS

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TRAFFIC MODEL USED DURING OVERLAYING	2
TOTAL NUMBER OF LANES OF THE FACILITY	2
NUMBER OF OPEN LANES IN RESTRICTED ZONE (OVERLAY DIRECTION)	0
NUMBER OF OPEN LANES IN RESTRICTED ZONE (NON-OVERLAY DIRECTION)	1
DISTANCE TRAFFIC IS SLOWED (OVERLAY DIRECTION) (MILES)	0.60
DISTANCE TRAFFIC IS SLOWED (NON-OVERLAY DIRECTION) (MILES)	0.00
DETOUR DISTANCE AROUND THE OVERLAY ZONE (MILES)	0.00

PAVING MATERIALS INFORMATION

LAYER	CODE	MATERIALS NAME	COST PER CY	E MODULUS	POISSON RATIO	MIN. DEPTH	MAX. DEPTH	SALVAGE PCT.
1	A	ASPH CONC PVMT	150.00	500000.	0.35	3.50	12.00	30.00
2	B	FLEXIBLE BASE	54.00	40000.	0.35	8.00	18.00	75.00
3	C	STABILIZED SUBGR	15.00	24000.	0.30	8.00	8.00	90.00
4	D	SUBGRADE(200)	2.00	8000.	0.40	200.00	200.00	90.00

PAVEMENT DESIGN TYPE # 5 -- ACP + FLEX BASE + STAB SBGR OVER SUBGRADE

PROB	DIST.-14	COUNTY- 11	CONT.	SECT.	JOB	HIGHWAY	DATE	PAGE
001	**Austin**	**BASTROP**	**1**	**1**	**1**	**UCLT**	**11/25/2024**	**3**

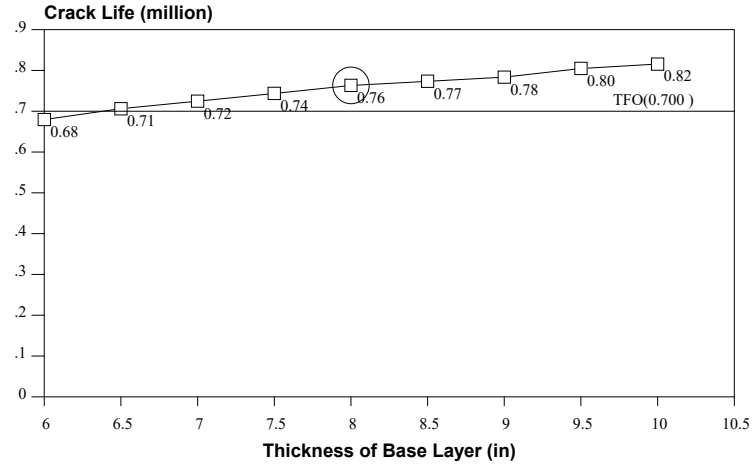
C. LEVEL B SUMMARY OF THE BEST DESIGN STRATEGIES
IN ORDER OF INCREASING TOTAL COST

	1	2	3	4	5
MATERIAL ARRANGEMENT	ABC	ABC	ABC	ABC	ABC
INIT. CONST. COST	29.92	34.83	36.17	38.00	38.92
OVERLAY CONST. COST	1.37	0.00	0.00	0.00	0.00
USER COST	0.61	0.00	0.00	0.00	0.00
ROUTINE MAINT. COST	0.00	0.00	0.00	0.00	0.00
SALVAGE VALUE	-1.26	-1.21	-1.22	-1.44	-1.54
TOTAL COST	30.64	33.62	34.95	36.56	37.37
NUMBER OF LAYERS	3	3	3	3	3
LAYER DEPTH (INCHES)					
D(1)	3.50	4.50	5.00	4.00	3.50
D(2)	8.00	8.50	8.00	12.00	14.00
D(3)	8.00	8.00	8.00	8.00	8.00
NO.OF PERF.PERIODS	2	1	1	1	1
PERF. TIME (YEARS)					
T(1)	30.	40.	40.	40.	40.
T(2)	40.				
OVERLAY POLICY(INCH) (INCLUDING LEVEL-UP)					
O(1)	2.5				

DRAFT

THE TOTAL NUMBER OF FEASIBLE DESIGNS CONSIDERED WAS 378

	Thickness (inches)	Modulus (ksi)	Poisson's Ratio	Material Name
AC	3.50	500.00	0.35	ASPH CONC PVMT
Base	8.00	40.00	0.35	FLEXIBLE BASE
Subbase	8.00	24.00	0.30	STABILIZED SUBGR
Subgrade	200.00	8.00	0.40	SUBGRADE(200)



DRAFT

Fatigue Crack Model:

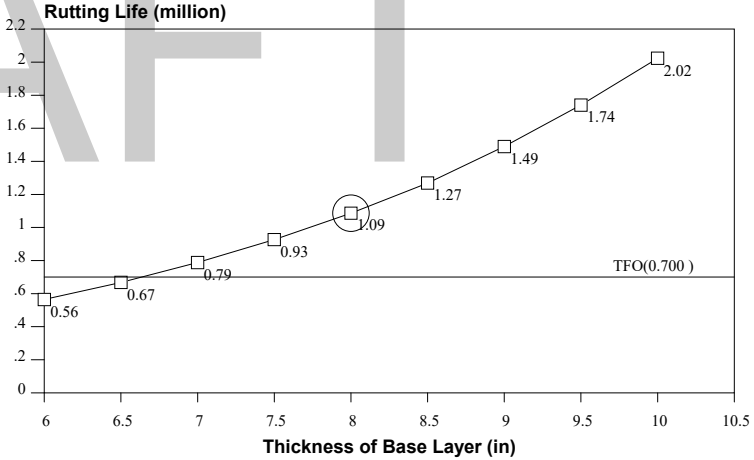
$$N_f = f_1 (\varepsilon_t)^{-f_2} (E_1)^{-f_3}$$

f_1 =7.96E-02
f_2 = 3.291
f_3 = .854

Rutting Model:

$$N_d = f_4 (\varepsilon_v)^{-f_5}$$

f_4 =1.37E-09
f_5 = 4.477



TFO(Traffic to 1st Overlay): 0.70 (million)

Crack Life: 0.76 (million) ε_τ = 251.00 (με)

Rut Life: 1.09 (million) ε_v = -470.00 (με)

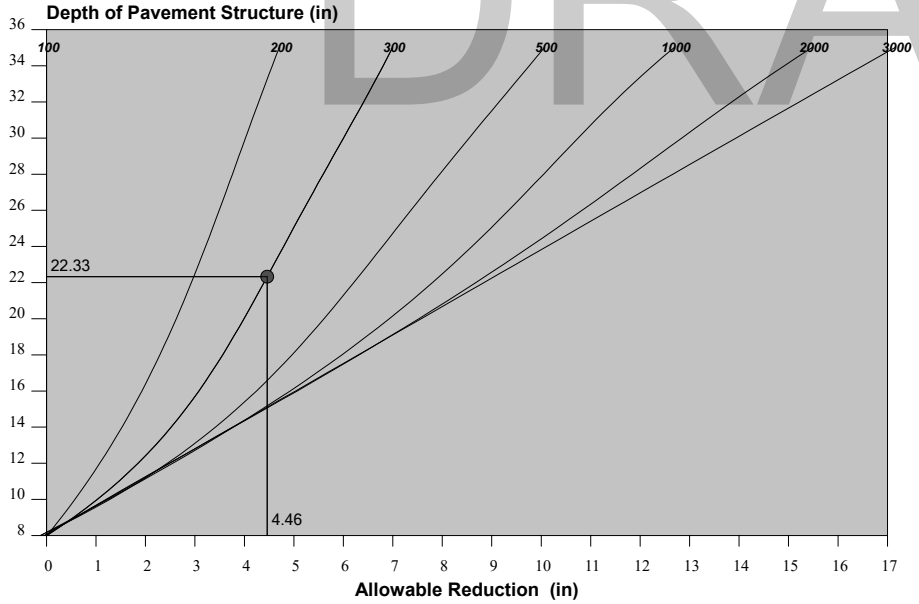
Traffic to 1st Overlay is calculated by analysis period: 40years and 18 kips:.70millions.
Also the start ADT:4000.0 and ending ADT:7959.0

Mechanistic Check Conclusion:

The design is OK !

FPS 21 Mechanistic Design Check Output (FPS21-1.5Release:12-12-2018)			
Highway	UCLT	Problem	001
C-S-J	1 - 1 - 1	Date	11/25/2024
District	Austin	County	BASTROP
Design Type:Asphalt concrete + Flexible Base + Stabilized Subgrade over Subgrade			

	Thickness (inches)	Modulus (ksi)	Poisson's Ratio	Material Name
ASPH CONC PVMT	3.50	500.00	0.35	ASPH CONC PVMT
FLEXIBLE BASE	8.00	40.00	0.35	FLEXIBLE BASE
STABILIZED SUBGR	8.00	24.00	0.30	STABILIZED SUBGR
SUBGRADE(200)	200.00	8.00	0.40	SUBGRADE(200)
Bed Rock		800.00	0.15	Bed Rock



Thickness Reduction Chart for Stabilized Layers

INPUT PARAMETERS:

The Heaviest Wheel Loads Daily (ATHWLD)	10000.0 (lb)
Percentage of TandemAxles	0.5 (%)
Modified Cohesionmeter Value	300.0
Design Wheel Load	10000.0 (lb)
Subgrade Texas Triaxial Class Number (TTC)	5.80

TTC is based on Texas County Soil Database for (BASTROP)
For soils type : clay of high plasticity, fat clay(CH)

DRAFT

RESULT:

Triaxial Thickness Required	22.3 (in)
The FPS Design Thickness	19.5 (in)
Allowable Thickness Reduction	4.5 (in)
Modified Triaxial Thickness	17.9 (in)

TRIAXIAL CHECK CONCLUSION:

The Design OK !

FPS 21 Triaxial Design Check Output (FPS21-1.5Release:12-12-2018)			
Highway	UCLT	Problem	001
C-S-J	1 - 1 - 1	Date	11/25/2024
District	Austin	County	BASTROP
Design Type:Asphalt concrete + Flexible Base + Stabilized Subgrade over Subgrade			

Texas Department of Transportation

TEXAS DEPARTMENT OF TRANSPORTATION

F P S21-1.5 *FLEXIBLE PAVEMENT SYSTEM* *Release:12-12-2018*

PAVEMENT DESIGN TYPE # 5 -- ACP + FLEX BASE + STAB SBGR OVER SUBGRADE

PROB	DIST.-14	COUNTY- 11	CONT.	SECT.	JOB	HIGHWAY	DATE	PAGE
001	**Austin**	**BASTROP**	**1**	**1**	**1**	**Local Stre**	**11/25/2024**	**1**

COMMENTS ABOUT THIS PROBLEM

DRAFT

BASIC DESIGN CRITERIA

LENGTH OF THE ANALYSIS PERIOD (YEARS)	40.0
MINIMUM TIME TO FIRST OVERLAY (YEARS)	20.0
MINIMUM TIME BETWEEN OVERLAYS (YEARS)	10.0
DESIGN CONFIDENCE LEVEL (90.0%)	B
SERVICEABILITY INDEX OF THE INITIAL STRUCTURE	4.2
FINAL SERVICEABILITY INDEX P2	2.0
SERVICEABILITY INDEX P1 AFTER AN OVERLAY	4.0
DISTRICT TEMPERATURE CONSTANT	31.0
SUBGRADE ELASTIC MODULUS by COUNTY (ksi)	8.00
INTEREST RATE OR TIME VALUE OF MONEY (PERCENT)	7.0

PROGRAM CONTROLS AND CONSTRAINTS

NUMBER OF SUMMARY OUTPUT PAGES DESIRED (8 DESIGNS/PAGE)	3
MAX FUNDS AVAILABLE PER SQ.YD. FOR INITIAL DESIGN (DOLLARS)	99.00
MAXIMUM ALLOWED THICKNESS OF INITIAL CONSTRUCTION (INCHES)	99.0
ACCUMULATED MAX DEPTH OF ALL OVERLAYS (INCHES) (EXCLUDING LEVEL-UP)	6.0

TRAFFIC DATA

ADT AT BEGINNING OF ANALYSIS PERIOD (VEHICLES/DAY)	3000.
ADT AT END OF TWENTY YEARS (VEHICLES/DAY)	5418.
ONE-DIRECTION 20YEAR 18 kip ESAL (millions)	0.150
AVERAGE APPROACH SPEED TO THE OVERLAY ZONE(MPH)	30.0
AVERAGE SPEED THROUGH OVERLAY ZONE (OVERLAY DIRECTION)(MPH)	15.0
AVERAGE SPEED THROUGH OVERLAY ZONE (NON-OVERLAY DIRECTION) (MPH)	15.0
PROPORTION OF ADT ARRIVING EACH HOUR OF CONSTRUCTION (PERCENT)	5.0
PERCENT TRUCKS IN ADT	10.0

PAVEMENT DESIGN TYPE # 5 -- ACP + FLEX BASE + STAB SBGR OVER SUBGRADE

PROB	DIST.-14	COUNTY- 11	CONT.	SECT.	JOB	HIGHWAY	DATE	PAGE
001	**Austin**	**BASTROP**	**1**	**1**	**1**	**Local Stre**	**11/25/2024**	**2**

INPUT DATA CONTINUED

CONSTRUCTION AND MAINTENANCE DATA

MINIMUM OVERLAY THICKNESS (INCHES)	2.0
OVERLAY CONSTRUCTION TIME (HOURS/DAY)	12.0
ASPHALTIC CONCRETE COMPACTED DENSITY (TONS/C.Y.)	1.98
ASPHALTIC CONCRETE PRODUCTION RATE (TONS/HOUR)	200.0
WIDTH OF EACH LANE (FEET)	12.0
FIRST YEAR COST OF ROUTINE MAINTENANCE (DOLLARS/LANE-MILE)	0.00
ANNUAL INCREMENTAL INCREASE IN MAINTENANCE COST (DOLLARS/LANE-MILE)	0.00

DETOUR DESIGN FOR OVERLAYS

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TRAFFIC MODEL USED DURING OVERLAYING	2
TOTAL NUMBER OF LANES OF THE FACILITY	2
NUMBER OF OPEN LANES IN RESTRICTED ZONE (OVERLAY DIRECTION)	0
NUMBER OF OPEN LANES IN RESTRICTED ZONE (NON-OVERLAY DIRECTION)	1
DISTANCE TRAFFIC IS SLOWED (OVERLAY DIRECTION) (MILES)	0.60
DISTANCE TRAFFIC IS SLOWED (NON-OVERLAY DIRECTION) (MILES)	0.00
DETOUR DISTANCE AROUND THE OVERLAY ZONE (MILES)	0.00

PAVING MATERIALS INFORMATION

LAYER	CODE	MATERIALS NAME	COST PER CY	E MODULUS	POISSON RATIO	MIN. DEPTH	MAX. DEPTH	SALVAGE PCT.
1	A	ASPH CONC PVMT	150.00	500000.	0.35	2.00	12.00	30.00
2	B	FLEXIBLE BASE	54.00	40000.	0.35	8.00	18.00	75.00
3	C	STABILIZED SUBGR	15.00	24000.	0.30	8.00	8.00	90.00
4	D	SUBGRADE(200)	2.00	8000.	0.40	200.00	200.00	90.00

PAVEMENT DESIGN TYPE # 5 -- ACP + FLEX BASE + STAB SBGR OVER SUBGRADE

PROB	DIST.-14	COUNTY- 11	CONT.	SECT.	JOB	HIGHWAY	DATE	PAGE
001	**Austin**	**BASTROP**	**1**	**1**	**1**	**Local Stre**	**11/25/2024**	**3**

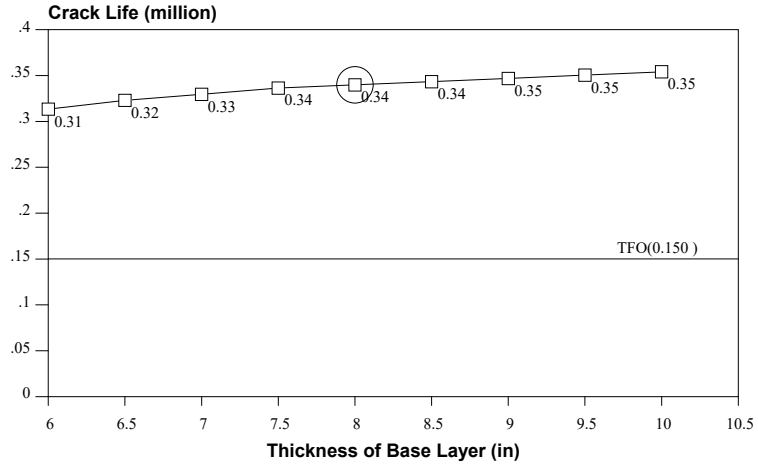
C. LEVEL B SUMMARY OF THE BEST DESIGN STRATEGIES
IN ORDER OF INCREASING TOTAL COST
1

MATERIAL ARRANGEMENT	ABC
INIT. CONST. COST	23.67
OVERLAY CONST. COST	0.00
USER COST	0.00
ROUTINE MAINT. COST	0.00
SALVAGE VALUE	-0.97
TOTAL COST	22.70
NUMBER OF LAYERS	3
LAYER DEPTH (INCHES)	
D(1)	2.00
D(2)	8.00
D(3)	8.00
NO.OF PERF.PERIODS	1
PERF. TIME (YEARS)	
T(1)	40.
OVERLAY POLICY(INCH) (INCLUDING LEVEL-UP)	

DRAFT

THE TOTAL NUMBER OF FEASIBLE DESIGNS CONSIDERED WAS 441

	Thickness (inches)	Modulus (ksi)	Poisson's Ratio	Material Name
AC	2.00	500.00	0.35	ASPH CONC PVMT
Base	8.00	40.00	0.35	FLEXIBLE BASE
Subbase	8.00	24.00	0.30	STABILIZED SUBGR
Subgrade	200.00	8.00	0.40	SUBGRADE(200)



DRAFT

Fatigue Crack Model:

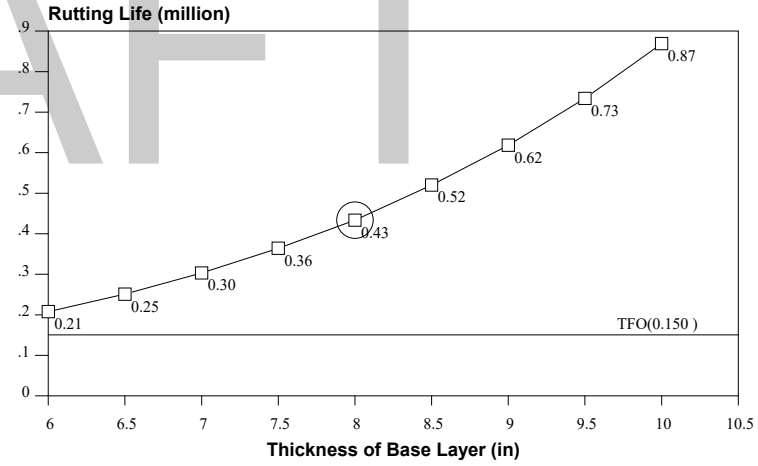
$$N_f = f_1 (\varepsilon_t)^{-f_2} (E_1)^{-f_3}$$

f_1 =7.96E-02
f_2 = 3.291
f_3 = .854

Rutting Model:

$$N_d = f_4 (\varepsilon_v)^{-f_5}$$

f_4 =1.37E-09
f_5 = 4.477



TFO(Traffic to 1st Overlay): 0.15 (million)

Crack Life: 0.34 (million) ε_τ = 321.00 (με)

Rut Life: 0.43 (million) ε_v = -577.00 (με)

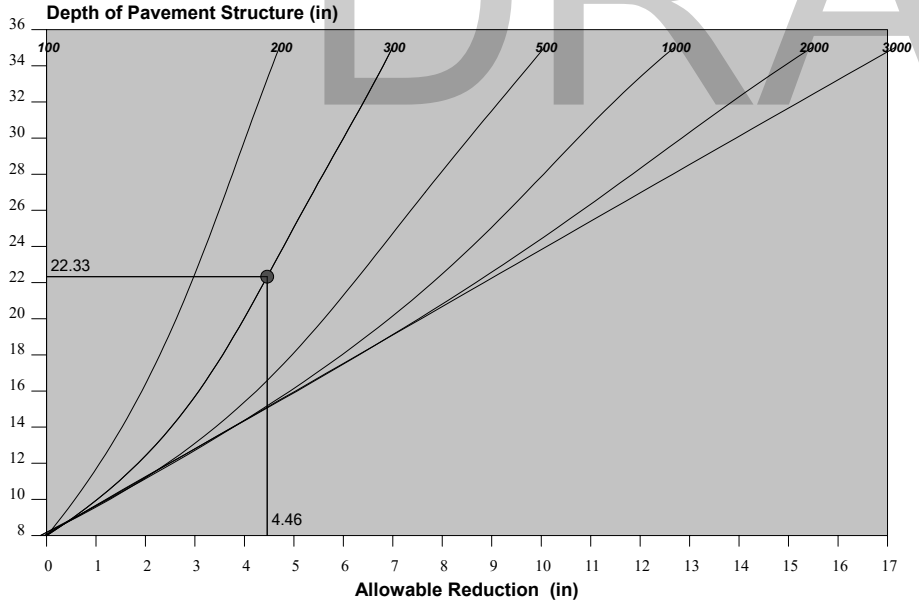
Traffic to 1st Overlay is calculated by analysis period: 40years and 18 kips:.15millions.
Also the start ADT:3000.0 and ending ADT:5418.0

Mechanistic Check Conclusion:

The design is OK !

FPS 21 Mechanistic Design Check Output (FPS21-1.5Release:12-12-2018)			
Highway	Local Street	Problem	001
C-S-J	1 - 1 - 1	Date	11/25/2024
District	Austin	County	BASTROP
Design Type:Asphalt concrete + Flexible Base + Stabilized Subgrade over Subgrade			

	Thickness (inches)	Modulus (ksi)	Poisson's Ratio	Material Name
ASPH CONC PVMT	2.00	500.00	0.35	ASPH CONC PVMT
FLEXIBLE BASE	8.00	40.00	0.35	FLEXIBLE BASE
STABILIZED SUBGR	8.00	24.00	0.30	STABILIZED SUBGR
SUBGRADE(200)	200.00	8.00	0.40	SUBGRADE(200)
Bed Rock		800.00	0.15	Bed Rock



Thickness Reduction Chart for Stabilized Layers

INPUT PARAMETERS:

The Heaviest Wheel Loads Daily (ATHWLD)	10000.0 (lb)
Percentage of TandemAxles	0.5 (%)
Modified Cohesionmeter Value	300.0
Design Wheel Load	10000.0 (lb)
Subgrade Texas Triaxial Class Number (TTC)	5.80

TTC is based on Texas County Soil Database for (BASTROP)
For soils type : clay of high plasticity, fat clay(CH)

DRAFT

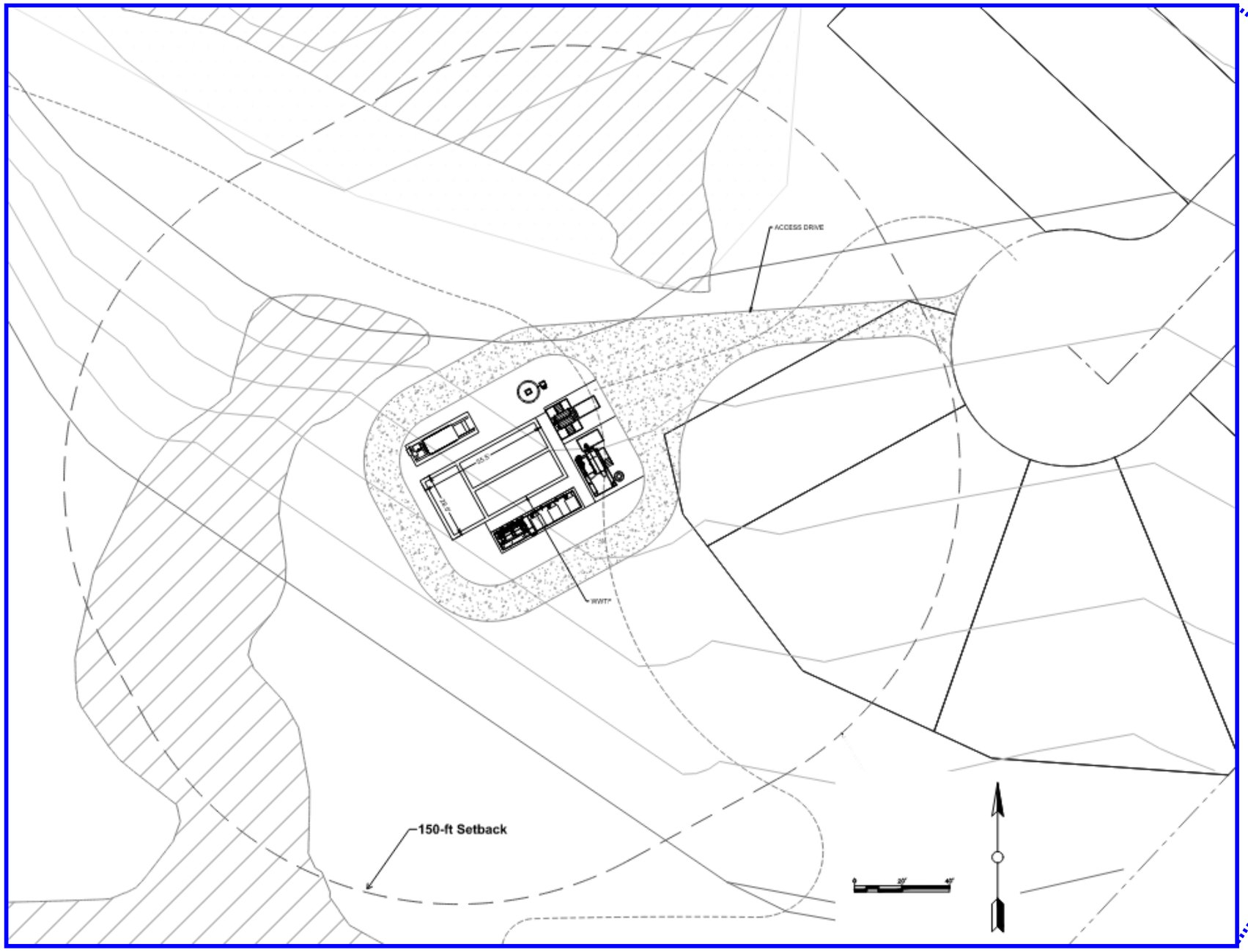
RESULT:

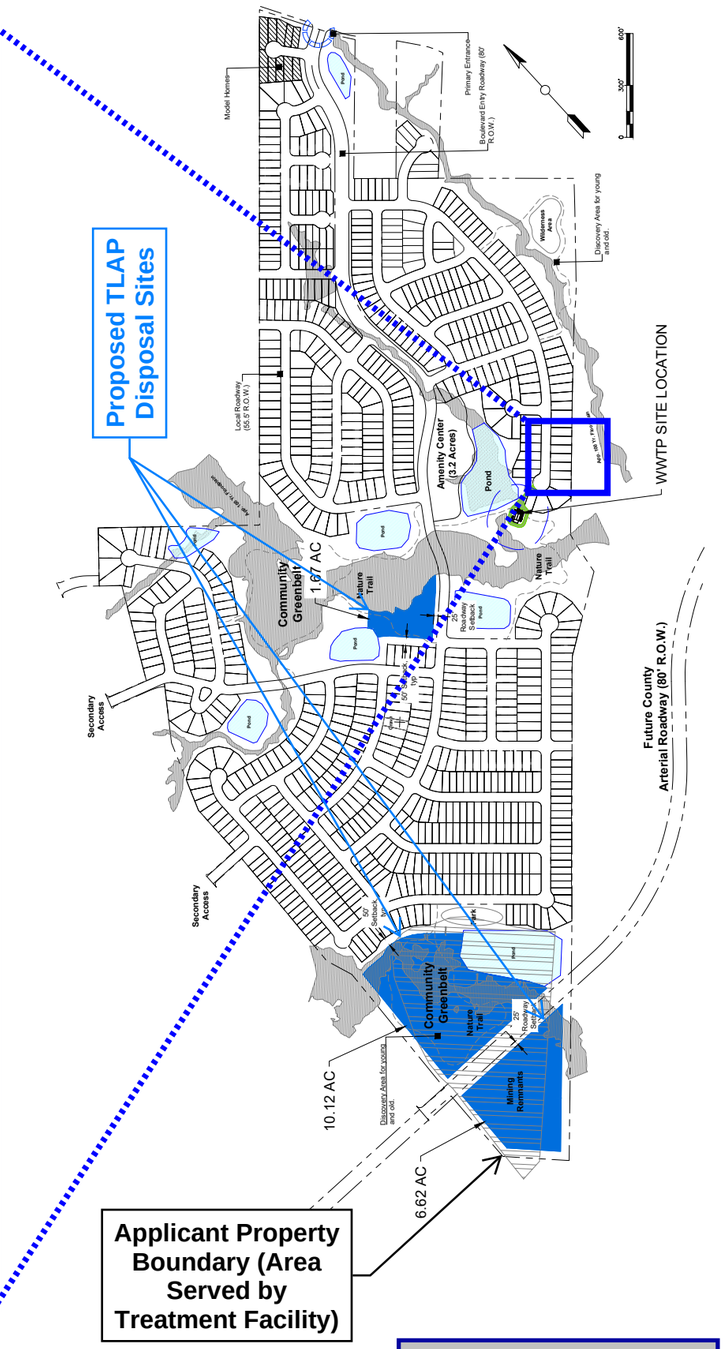
Triaxial Thickness Required	22.3 (in)
The FPS Design Thickness	18.0 (in)
Allowable Thickness Reduction	4.5 (in)
Modified Triaxial Thickness	17.9 (in)

TRIAXIAL CHECK CONCLUSION:

The Design OK !

FPS 21 Triaxial Design Check Output (FPS21-1.5Release:12-12-2018)			
Highway	Local Street	Problem	001
C-S-J	1 - 1 - 1	Date	11/25/2024
District	Austin	County	BASTROP
Design Type:Asphalt concrete + Flexible Base + Stabilized Subgrade over Subgrade			





PRELIMINARY:
FOR REVIEW ONLY

This document is released for the purpose of interim review or permitting and it is not intended for Construction or bidding

reUse ENGINEERING
4411 SH 35, Suite 100
Georgetown, TX 78626
TX Firm No. 21880

ALTO PICCO BASTROP LLC
SAYERS RANCH WWTP
BASTROP COUNTY, TEXAS

CONCEPT SITE PLAN
Attachment 2

4411 S Interstate 35, Ste 100
Georgetown, Texas 78626
www.reuseinn.com

SOLIDS MANAGEMENT PLAN

Influent Design Flow: 0.20 MGD, Total
Influent BOD Concentration: 325 mg/L
MBR Basin MLSS: 12,557 mg/L

See **Attachment 1 - Process Flow Diagram** and **Attachment 5 - Design Calculations**. Attachment 5 shows calculations for one (1) 200,000 gpd (0.20 MGD) treatment train. There will be one of these treatment trains operating at full capacity for a total of 0.20 MGD in the final phase at Sayers Ranch.

Table 1 – Sludge Production for 0.20 MGD Design Flow

Solids Generated	100%	75%	50%	25%
Lbs/d Influent BOD_5	542.5	406.8	271.2	135.6
Lbs/d Dry Sludge Produced	298.0	223.5	149.0	74.5

Sludge will be sent from the Recycled Activated Sludge flow stream to the Sludge Screw Press. Calculations are based on 3,434 gpd of waste sludge, which equates to 298 lb/d (Table 1). The sludge will be pressed in the Sludge Screw Press to remove liquids and produce a dry sludge cake. All liquid will be decanted from the Screw Press and returned to the headworks for treatment. No wet solids will be produced through the treatment process. Dry sludge will be removed from the screw press and deposited into 4 cubic yard (CY) roll-off containers for disposal on a regular basis (Table 2).

Table 2 – Sludge Removal Schedule

Removal Schedule	100%	75%	50%	25%	Unit
Dry Waste Sludge	298.0	223.5	149.0	74.5	**lb/d**
Wet Waste Sludge	3,434	2,576	1,717	859	**gpd**
Wet Sludge	17.0	12.8	8.5	4.3	**CF/d**
Wet Sludge	11.1	8.3	5.6	2.8	**CY/d**
Reduction Factor	18.0	(provided by MBR WWTP manufacturer)			
Dry Sludge	0.9	0.7	0.5	0.2	**CY/d**
Dumpster Volume	4.0	4.0	4.0	4.0	**CY**
Days between Sludge Removal	**4**	**6**	**8**	**17**	**days**

The Sludge Age (Solids Retention Time) for a Total Reactor Volume of approximately 125,402 gal is 35 days, with an annual average sludge production of 108,770 lbs of dry sludge produced at 100% capacity. The dewatered sludge will be transported by a registered hauler, Texas Disposal Systems (TCEQ Sludge Registration ID #22419) to the Texas Disposal Systems Landfill (TCEQ Sludge Registration ID #2123) in Travis County, Texas.

FILE NOT APPLICABLE

4411 S Interstate 35, Ste 100
Georgetown, Texas 78626
www.reuseinn.com

August 25, 2025

Rainee Trevino
Applications Review and Processing Team (MC148)
Water Quality Division
Texas Commission of Environmental Quality

RE: Application for Proposed Permit No.: WQ0016856001
Applicant Name: Alto Picco Bastrop LLC (CN606413862); Hoffman Family Bastrop Trust (CN606413870); Woodrun Development Co., Ltd. (CN606413888)
Site Name: Sayers Ranch Wastewater Treatment Plant (RN112259965)
Type of Application: New

VIA EMAIL

Dear Ms. Trevino,

Please see below for the requested information in your letter dated August 13, 2025:

1. See **Attachment 1** for the executed trust agreement for Hoffman Family Bastrop Trust.

2. See **Attachment 2** for the updated Plain Language Summaries.

3. See **Attachment 3** for the updated Affected Landowner Map

4. See **Attachment 4** for the updated signature page for Alto Picco Bastrop LLC. A wet-ink copy has also been sent directly to TCEQ.

5. See below for the NORI, with updates in red. See **Attachment 5** for the Spanish version:

   APPLICATION. Alto Picco Bastrop LLC, Hoffman Family Bastrop Trust, and Woodrun Development Co., Ltd., 1401 Lavaca Street **PMB 366**, Austin, Texas 78701, has applied to the Texas Commission on Environmental Quality (TCEQ) for proposed Texas Land Application Permit (TLAP) No. WQ0016856001 to authorize wastewater at a volume not to exceed a daily average flow of 200,000 gallons per day via "pending segment review". The domestic wastewater treatment facility and disposal area will be located approximately 4,600 feet south of the intersection of Sayers Road and Smith Road, near the city of Bastrop, in Bastrop County, Texas 78602. TCEQ received this application on August 5, 2025. The permit application will be

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available for viewing and copying at Bastrop Public Library, Information Desk, 1100 Church Street, Bastrop, in Bastrop County, Texas prior to the date this notice is published in the newspaper. The application, including any updates, and associated notices are available electronically at the following webpage: https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tlap-applications.

This link to an electronic map of the site or facility's general location is provided as a public courtesy and not part of the application or notice. For the exact location, refer to the application. https://gisweb.tceq.texas.gov/LocationMapper/?marker=-97.329166,30.139444&level=18

Further information may also be obtained from Alto Picco Bastrop LLC, Hoffman Family Bastrop Trust, and Woodrun Development Co., Ltd. at the address stated above or by calling Ms. Lauren Wahl, P.E., reUse Engineering Inc, at (512) 755-9962.

If any additional information is needed, please let me know.

Best,
Hilary



Hilary Bond
Director, Permitting & Entitlements
reUse Engineering, Inc.
4411 S IH-35 Suite 100
Georgetown, TX 78626

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

SUMMARY OF APPLICATION IN PLAIN LANGUAGE FOR TPDES OR TLAP PERMIT APPLICATIONS

Summary of Application (in plain language) Template and Instructions for Texas Pollutant Discharge Elimination System (TPDES) and Texas Land Application (TLAP) Permit Applications

Applicants should use this template to develop a plain language summary of your facility and application as required by Title 30, Texas Administrative Code (30 TAC), Chapter 39, Subchapter H. You may modify the template as necessary to accurately describe your facility as long as the summary includes the following information: (1) the function of the proposed plant or facility; (2) the expected output of the proposed plant or facility; (3) the expected pollutants that may be emitted or discharged by the proposed plant or facility; and (4) how you will control those pollutants, so that the proposed plant will not have an adverse impact on human health or the environment.

Fill in the highlighted areas below to describe your facility and application in plain language. Instructions and examples are provided below. Make any other edits necessary to improve readability or grammar and to comply with the rule requirements. After filling in the information for your facility delete these instructions.

If you are subject to the alternative language notice requirements in 30 TAC Section 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/STORMWATER

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 TAC Chapter 39. The information provided in this summary may change during the technical review of the application and is not a federal enforceable representation of the permit application.

Alto Picco Bastrop LLC (CN606413862); Hoffman Family Bastrop Trust (CN606413870); Woodrun Development Co., Ltd. (CN606413888) proposes to operate Sayers Ranch WWTP (RN12259965), a domestic wastewater treatment facility. The facility will be located at approximately 4,600 ft south of the intersection of Smith Road and Sayers Road, in Bastrop, Bastrop County, Texas 78602. The applicant is currently applying to the Texas Commission on Environmental Quality for a Texas Land Application Permit (TLAP) to utilize a maximum of 200,000 gallons per day of treated domestic wastewater from the proposed onsite Wastewater Treatment Facility for a subsurface area drip dispersal system (SADDS) with a minimum area of 18.4 acres. This permit will not authorize a discharge of pollutants into water in the state.

Discharges from the facility are expected to contain trace amounts of five-day carbonaceous biochemical oxygen demand ($CBOD_5$), total suspended solids (TSS), phosphorus (P), and

ammonia nitrogen (NH_3-N). Removal of bacteria and pathogens through the MBR process is 96% or greater, and E. Coli concentration is reduced to zero through the use of U.V. The effluent will meet the criteria for Type I reclaimed water per 30 TAC §210.33.. Domestic Wastewater will be treated by MBR (membrane bio-reactor) treatment technology. The facility includes an influent pump station, a fine screen, an anoxic tank, an aerobic tank, a membrane tank, ultraviolet disinfection and a sludge press.

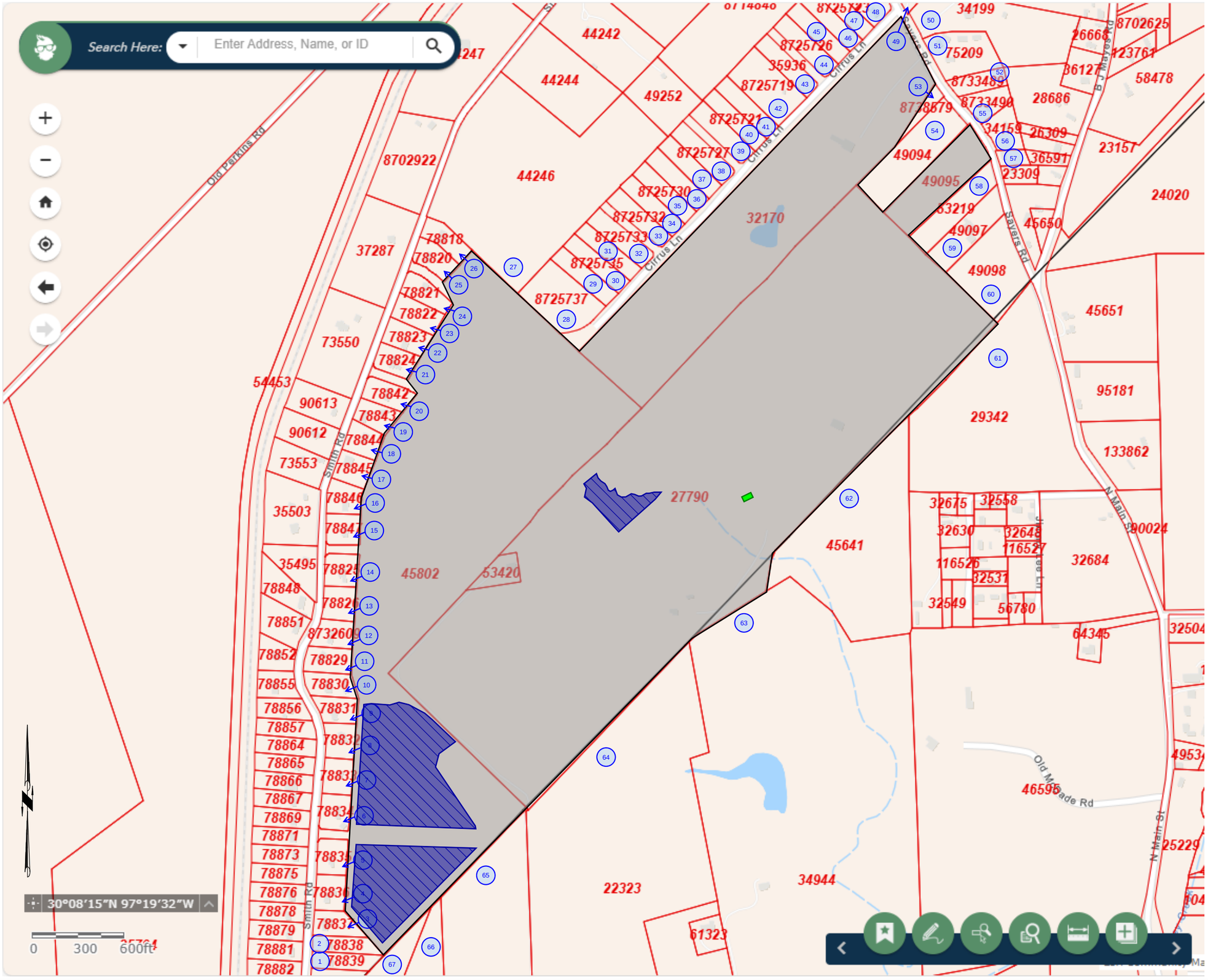
PLANTILLA EN ESPAÑOL PARA SOLICITUDES NUEVAS/RENOVACIONES/ENMIENDAS DE TPDES o TLAP

AGUAS RESIDUALES DOMÉSTICAS **/AGUAS PLUVIALES**

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 es una representación ejecutiva fedérale de la solicitud de permiso.

Alto Picco Bastrop LLC (CN606413862); Hoffman Family Bastrop Trust (CN606413870); Woodrun Development Co., Ltd. (CN606413888) propone operar Sayers Ranch WWTP (RN112259965), una planta de tratamiento de aguas residuales domésticas. La instalación estará ubicada en aproximadamente a 4.600 pies al sur de la intersección de Smith Road y Sayers Road., en Bastrop , Condado de Bastrop, Texas 78602. El solicitante está actualmente solicitando a la Comisión de Calidad Ambiental de Texas un Permiso de Aplicación de Tierra de Texas (TLAP) para utilizar un máximo de 200.000 galones por día de aguas residuales domésticas tratadas de la propuesta instalación de tratamiento de aguas residuales en el sitio para un sistema de dispersión por goteo en área subsuperficial (SADDS) con un área mínima de 18,4 acres..Este permiso no autorizará una descarga de contaminantes en el agua en el estado.

Se espera que las descargas de la instalación contengan trazas de demanda bioquímica de oxígeno carbonosa en cinco días ($CBOD_5$), sólidos suspendidos totales (SST), fósforo (P) y nitrógeno amoniacal (NH_3-N). La eliminación de bacterias y patógenos mediante el proceso de biorreactor de membrana (MBR) es del 96% o más, y la concentración de E. Coli se reduce a cero mediante desinfección con luz ultravioleta (U.V.). El efluente cumplirá con los criterios para agua regenerada Tipo I a conforme a 30 TAC §210.33. Las aguas residuales domésticas. estará tratado por tecnología de tratamiento MBR (biorreactor de membrana). La instalación incluye una estación de bombeo de afluente, una criba fina, un tanque anóxico, un tanque aeróbico, un tanque de membrana, desinfección ultravioleta y una prensa de lodos. .



Landowner's Cross Reference List provided on next page

Information compiled on 28 JUN 2025

reUse ENGINEERING
4411 SIH 35, Suite 100
Georgetown, TX 78626
TX Firm No. 21880

ALTO PICCO BASTROP LLC

SAYERS RANCH WWTP

BASTROP COUNTY, TEXAS

LANDOWNERS MAP

Attachment E

Section 14. Signature Page (Instructions Page 34)

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

Permit Number: **WQ0016856001**

Applicant: **Alto Picco Bastrop 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): **Kacee Jackson**

Signatory title: **Manager**

Signature: _____ Date: 8/20/25

(Use blue ink)

Subscribed and Sworn to before me by the said Kacee Jackson

on this 20th day of August, 20 25.

My commission expires on the 20th day of November, 20 28.

_____

Notary Public

Travis

County, Texas

SHALON ROWENA MARTIN
Notary Public, State of Texas
Comm. Expires 11-20-2028
Notary ID 135178340

WET-INK COPY DELIVERED SEPARATELY

LAND TRUST AGREEMENT

THIS LAND TRUST AGREEMENT dated March 24, 2025, and known as The Hoffman Family Bastrop Trust (this "***Trust***" or "***Trust Agreement***"). by and between Travis Claude Hoffman, Jr., as trustee ("***Trustee***"), and the following beneficiaries ("***Beneficiaries***") and ownership set opposite their names.

The Beneficiaries are about to convey or cause to be conveyed to the Trustee, as trustee hereunder, title to the following described tracts of real property situated in Bastrop County, Texas (collectively referred to as the "***Property***"):

> **TRACT 1:** AUSTIN, STEPHEN F., ACRES 0.9548– Travis Claude Hoffman, Jr and Laurie Lynn Hoffman, as Beneficiaries in equal proportions (see Exhibit A, legal description of said tract)
>
> **TRACT 2:** AUSTIN, STEPHEN F., ACRES 4.516– Travis Claude Hoffman, Jr. and Shirley Quincy, as Beneficiaries in equal proportions (see Exhibit B, legal description of said tract)
>
> **TRACT 3:** AUSTIN, STEPHEN F., ACRES 126.11- Travis Claude Hoffman, Jr, Shirley Quincy, and Jan Rinehart, as Beneficiaries in equal proportions (see Exhibit C, legal description of said tract)

1. TRUST. The Trustee is about to take title to real estate under the terms of a land trust agreement, and said Trustee agrees to hold it and the proceeds, profits, and avails thereof, if any, which may come into said Trustee's possession, in Trust for the uses and purposes and under the terms herein set forth.

Full power and authority is hereby granted to said Trustee to improve, subdivide, protect, conserve, sell, lease, encumber and otherwise manage and dispose of said Property or any part thereof, to dedicate parks, streets, highways or alleys and to vacate any subdivision or part thereof, and to re-subdivide said Property as often as desired, to contract to sell, to grant options to purchase, to sell on any terms, to convey either with or without consideration, to convey said Property or any part thereof to a successor or successors in trust and to grant to such successor or successors in trust all of the title, estate, powers and authorities vested in said Trustee, to donate, to dedicate, to mortgage, pledge or otherwise encumber said Property, or any part thereof, to lease said Property or any part thereof, from time to time, in possession or reversion, by leases to commence in present or future, and upon any terms and for any period or periods of time, not exceeding in the case of any single demise the term of 99 years, and to renew or extend leases upon any terms and for any period or periods of time and to amend, change or modify leases and the terms and provisions thereof at any time or times hereafter, to contract to make leases and to grant options to lease and options to renew leases and options to purchase the whole or in any part of the reversion and to contract respecting the manner of fixing the amount of present or future rentals, to partition or to exchange said property, or any part thereof, for other real or personal property, to submit said Property to condominium, to grant easements or charges of any kind, to release, convey or assign any right, title or interest in or about or easement appurtenant to said premises or any part thereof, and to deal with said Property and every part thereof in all other ways and for such other considerations as it would be lawful for any person owning the same to deal with the same, whether similar to or different from the ways above specified, at any time or times hereafter.

Any contract, obligation or indebtedness incurred or entered into by the Trustee in connection with said Property shall be as Trustee of an express trust and not individually and the Trustee shall have no obligation whatsoever with respect to any such contract, obligation or indebtedness except only so far as the trust property in the actual possession of the Trustee shall be applicable for the payment and discharge thereof; and it shall be expressly understood that any representations, warranties, covenants, undertakings and agreements hereinafter made on the part of Trustee, while in form purporting to be the representations, warranties, covenants, undertakings and agreements of said Trustee, are nevertheless made and intended not as personal representations, warranties, covenants, undertakings and agreements by the Trustee or for the purpose or with the intention of binding said Trustee personally, but are made and intended for the purpose of binding only the trust property specifically described herein, and that no personal liability or personal responsibility is assumed by nor shall at any time be asserted or enforceable against the Trustee individually on account of any instrument executed by or on account of any representation, warranty, covenant, undertaking or agreement of the said Trustee, either expressed or implied, all such personal liability, if any, being expressly waived and released and all persons and corporations whomsoever and whatsoever shall be charged with notice of this condition from the date of the filing for record of this Trust.

In no case shall any party dealing with said Trustee in relation to said Property, or to whom said Property or any part thereof shall by conveyed, contracted to be sold, leased or mortgaged by said Trustee, be obliged to see to the application of any purchase money, rent or money borrowed or advanced on said Property, or be obliged to see that the terms of this Trust have been complied with, or be obliged to inquire into the necessity or expediency of any act of said Trustee, or be obliged or privileged to inquire into any of the terms of said Trust; and every deed, trust deed, mortgage, lease or other instrument executed by said Trustee in relation to said Property shall be conclusive evidence in favor of every person relying upon or claiming under any such conveyance, lease or other instrument, (a) that at the time of the delivery thereof the trust created by this Trust and by said trust agreement was in full force and effect, (b) that such conveyance or other instrument was executed in accordance with the trusts, conditions and limitations contained in this Trust or in some amendment thereof and binding upon all Beneficiaries thereunder, (c) that the Trustee was duly authorized and empowered to execute and deliver every such deed, trust deed, lease, mortgage or other instrument and (d) if the conveyance is made to a successor or successors in trust, that such are full vested with all the title, estate, rights, powers, authorities, duties and obligations of its, his or their predecessor in trust.

2. **LAND**. The Trustee will take title to the following Property located in **Bastrop County, Texas:**

A3 AUSTIN, STEPHEN F., ACRES 0.9548 – As further described in Exhibit A

A3 AUSTIN, STEPHEN F., ACRES 4.516 – as further described in Exhibit B

A3 AUSTIN, STEPHEN F., ACRES 126.11 – as further described in Exhibit C

3. **BENEFICIARIES' INTEREST.** The interests of the Beneficiaries hereunder and of any person who becomes entitled to any interest under this Trust shall consist solely of a power of direction to deal with the title to said Property and to manage and control said Property as hereinafter provided and the right to receive the proceeds from rentals, mortgages, sales or other dispositions shall be deemed to be personal property and may be treated, assigned and transferred as such. No Beneficiary now has, or shall hereafter at any time have, any right, title or interest in or to any portion of said real estate as such, either legal or equitable, but only an interest in the earnings, avails and proceeds as aforesaid; it being the intention of this instrument to vest the full legal and equitable title to said Property in the Trustee.

4. **DEATH OF BENEFICIARY**. Except as herein otherwise specifically provided, the right and interest of any Beneficiary hereunder shall pass at death to such Beneficiary's estate or other trust in which the same would pass. The death of any Beneficiary hereunder shall not terminate the Trust or in any manner affect the powers of the Trustee hereunder.

5. **OWNERSHIP.** Upon request each beneficiary hereunder shall be issued a trust participation certificate in a form approved by the Trustee, which shall indicate the beneficiary's percentage interest in the Trust and the land held by the Trustee (a "Trust Participation Certificate" or "Certificate").

6. **ASSIGNMENT.** If Trust Participation Certificates have been issued, no assignment of any beneficial interest hereunder shall be binding on the Trustee until the Trust Participation Certificate representing the assigned shares is surrendered to the Trustee with the assignment noted thereon and a new Certificate or Certificates are issued by the Trustee. If no Trust Participation Certificates have been issued, assignment shall be by an assignment form approved by the Trustee and shall not be binding until signed by the Trustee.

7. **LOST CERTIFICATES**. In the event a Beneficiaries' Trust Participation Certificate is lost, stolen or destroyed, the Trustee shall cancel it on the records of the Trust and issue a new Certificate after receiving an affidavit as to the circumstances of the loss.

8. **PURCHASERS.** It shall not be the duty of the purchaser of the trust property or any part thereof to see to the application of the purchase money paid therefor; nor shall anyone who may deal with the Trustee be privileged or required to inquire into the necessity or expediency of any act of the Trustee, or as to the provisions of this instrument.

9. **DUTY OF TRUSTEE.** While the Trustee is sole title holder of the real estate held by said Trustee hereunder so far as the public is concerned and has full power to deal with it, it is understood and agreed by the persons in interest hereunder, and by any persons who may hereafter become interested, that the Trustee will deal with it only when authorized to do so in writing and that he will, on the written direction of all of the Beneficiaries hereunder at the time, make contracts or deeds for the sale of or otherwise deal with the said Property or any part hereof. Unless so directed by the Beneficiaries, the Trustee has no power to control or influence the Property or any use of it.

10. **TERMINATION BY TRUSTEE.** If the Property or any part thereof remains in the trust twenty (20) years from this date, the Trustee shall, unless otherwise agreed by all parties in writing, convey and deliver the same to the Beneficiaries in accordance with their respective interests.

11. **LIMITATION ON BENEFICIARIES.** No Beneficiary hereunder shall have any authority to contract for or in the name of the Trustee, or use the name of the Trustee in any advertising or other publicity or to bind the Trustee personally.

12. **LIMITATION OF TRUSTEE'S LIABILITY.** The liability of the Trustee hereunder shall be limited to the assets of the Trust. All obligations incurred by the Trustee hereunder shall be the obligations of the Trust only and not the individual Trustee. The Trustee shall not be required to enter into any personal obligation or liability in dealing with the Trust property nor to expend any personal sums to defend or protect the Trust property.

13. **NOTIFICATION OF CLAIMS.** In the event the Trustee shall receive notice of claims or actions against the Trust, said Trustee shall notify the Beneficiaries at their last known addresses.

14. **TRUSTEE'S COMPENSATION.** The Trustee shall receive for said Trustee's services in accepting this Trust and title hereunder reasonable compensation as agreed between the Trustee and Beneficiaries.

Also, said Trustee shall receive reasonable compensation for making deeds or other instruments, performing additional services, or retaining attorneys or agents. The Beneficiaries hereunder jointly and severally agree to pay the fees hereunder, and the Trustee shall have a lien on the property of the Trust therefor.

15. LIMITATIONS ON AGREEMENTS. This Agreement shall not be deemed to be, create, or evidence the existence of a corporation de facto or de jure, or a Massachusetts Trust, or any other type of business trust, or an association in the nature of a corporation or a general or limited partnership, or a joint venture by or between the Trustees and the beneficiaries.

16. TAXES. Nothing herein contained shall be construed as imposing any obligation on the Trustee to file any income, profit or other tax reports or schedules, it being expressly understood that the Beneficiaries hereunder from time to time will individually make all such reports and pay any and all taxes growing out of their interest under this Trust.

17. REPLACEMENT OF TRUSTEE. The Trustee may be replaced in any of the following manners:

a. Resignation. The Trustee may resign at any time by mailing a notice of such Trustee's intention to do so to each of the Beneficiaries at each's last known address. In the event of such resignation the Beneficiaries may appoint a successor trustee, by lodging an instrument with the Trustee signed by all the Beneficiaries and accepted by the Successor Trustee. If no Successor Trustee is appointed within thirty (30) days, the Trustee may convey the Trust property to the Beneficiaries according to their interests and this Trust shall terminate. If, in the opinion of the Trustee, the Trustee may be subjected to embarrassment, litigation, insecurity, liability or hazard, the Trustee may at any time and without notice resign as to all or part of the trust property and convey such trust property directly to the beneficiaries.

b. Replacement. The Beneficiaries may at any time replace the Trustee by lodging with said Trustee an instrument naming a Successor Trustee, signed by all Beneficiaries and accepted by the Successor Trustee. Upon receipt of said instrument and if there shall be no fees due and owing to him, the Trustee shall quit claim the property to the Successor Trustee.

c. Death. In the event of the death of the Trustee hereunder the following in order of their listing (able and willing to act) is appointed Successor Trustee unless and until the Beneficiaries nominate and appoint a Successor Trustee by unanimous consent of the then remaining Beneficiaries:

Shirley Quincy

If said person is unable or unwilling to act, or if no person is named herein, the Beneficiaries hereunder or any of them by mutual agreement, are appointed Successor Trustee. Recording of an affidavit reciting this paragraph shall be effective to vest title in said Successor Trustee.

Any Successor Trustee under this Trust shall have all of the powers, properties and duties of the original Trustee. Any replacement of the Trustee shall not effect such Trustee's first lien on the Trust property, for such Trustee's costs, expenses, attorney's fees and reasonable compensation.

18. RECORDING. This Trust shall not be recorded except as herein provided or required by law.

19. DISCLOSURE. The Trustee shall not release information regarding this Trust except as required by law. In making a disclosure required by law, the Trustee shall supply beneficiaries with copies of any reports filed and shall be subject to no liability for the filing of such reports. The Trustee shall not be liable for inadvertent disclosure of the identity of any beneficiary.

20. PARTITION. The remedy of partition shall not be available to the Beneficiaries of this Trust.

21. **PARTIES BOUND.** This Agreement shall extend to and be obligatory upon the heirs, administration and assigns of the respective parties.

22. **GENDER.** Any references to he or him in this Agreement shall apply to parties of either gender.

23. **PARAGRAPH TITLES.** The title of paragraphs are for convenience only and shall in no way be used for the purpose of construing the meaning of this Agreement.

24. **GOVERNING LAW.** This Agreement shall be construed under the laws of the State of Texas.

25. **AMENDMENTS.** This Trust Agreement contains the entire understanding between the parties hereto, and may be amended, revoked or terminated only by a written agreement signed by the Trustee and all of the Beneficiaries, or their designees.

26. **ADDRESSES AND BENEFICIARY INTEREST.** The addresses of the parties, and interest of each Beneficiary, as of the date of this Trust Agreement for the purpose of notices are:

Trustee: Travis Claude Hoffman, Jr. - 250 REIDS BEND, BASTROP, TX 78602

Beneficiaries:

Beneficiary Name	Beneficiary Address	Interest
Travis Claude Hoffman, Jr.	250 REIDS BEND, BASTROP, TX. 78602	1/2 interest in **Tract 1**; 1/2 interest in **Tract 2**; 1/3 interest in **Tract 3**
Laurie Lynn Hoffman	250 REIDS BEND, BASTROP, TX. 78602	1/2 interest in **Tract 1**
Shirley Quincy	239 HAWKS NEST WAY, FORT COLLINS, CO. 80524	1/2 interest in **Tract 2**; 1/3 interest in **Tract 3**
Jan Rinehart	421 BUNTE STREET, SMITHVILLE, TX. 78957	1/3 interest in **Tract 3**

IN WITNESS WHEREOF, said Trustee has accepted the duties of Trustee as of the day and year first above written and on said day and year the said Beneficiaries have signed this said Trust Agreement in order to signify assent to the terms hereof. The Beneficiaries have read this instrument, which correctly states the terms and conditions under which the Trust Property is to be held, administered and distributed and hereby approve this Trust Agreement in all particulars and agree to be bound by its terms and conditions.

BENEFICIARIES:

Travis Claude Hoffman, Jr

Shirley Quincy

Laurie Lynn Hoffman

Jan Rinehart

EXHIBIT A

LANDESIGN SERVICES, INC.

10090 W Highway 29 | Liberty Hill, Texas 78642

TBPELS Firm No. 10001800 | 512-238-7901 office

EXHIBIT " "

METES AND BOUNDS DESCRIPTION

BEING 0.9548 OF ONE ACRE (41,590 SQUARE FEET) OF LAND, SURVEYED BY LANDESIGN SERVICES, INC., SITUATED IN THE STEPHEN F. AUSTIN SURVEY, ABSTRACT NO. 3, IN BASTROP COUNTY, TEXAS, BEING ALL OF A CALLED 1.00 ACRE TRACT OF LAND DESCRIBED IN A DEED TO TRAVIS CLAUDE HOFFMAN, JR. AND LAURIE LYNN HOFFMAN, RECORDED IN VOLUME 296, PAGE 652 OF THE DEED RECORDS OF BASTROP COUNTY, TEXAS (D.R.B.C.T.), BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

BEGINNING at a Calculated Point in the Northwesterly line of the remainder of a called 127.574 acre tract of land described in a deed to T.C. Hoffman and Gladys M. Hoffman, recorded in Volume 221, Page 552 of said D.R.B.C.T. and the common Southeasterly line of the remainder of a called 71.36 acre tract of land described in a Warranty Deed to Woodrun Development Co., Ltd., recorded in Volume 947, Page 650, of the Official Records of Bastrop County, Texas (O.R.B.C.T.), for the West corner of said 1.00 acre tract, from which a 5/8-inch rebar found in the Northeasterly line of a called 43.38 acre tract described as First Tract in said Volume 947, Page 650, for the Southerly common corner of said 127.574 acre tract and of said 71.36 acre tract bears South 42°25'30" West a distance of 919.07 feet;

THENCE **North 42°25'30" East**, with the Northwesterly line of said 1.00 acre tract and the common Southeasterly line of said 71.36 acre tract, a distance of **190.42** feet to a Calculated Point, from which a 1/2-inch rebar found bears North 48°02'20" West a distance of 10.67 feet;

THENCE, along the Northeast, Southeast and Southwest lines of said 1.00 acre tract and the common Northwesterly line of the remainder of said 127.574 acre tract, the following three (3) courses and distances:

1. **South 48°02'20" East**, a distance of **217.47** feet to a Calculated Point;
2. **South 42°14'06" West**, a distance of **191.52** feet to a Calculated Point; and

3. **North 47°44'56" West**, a distance of **218.10** feet to the **POINT OF BEGINNING** and containing 0.9548 of one acre (41,590 square feet) of land, more or less.

This project is referenced for all bearing and coordinate basis to the Texas State Plane Coordinate System, North American Datum of 1983 (NAD83 – 2011 Adjustment), Central Zone (4203). All distances shown hereon are surface values represented in U.S. Survey Feet based on a grid-to-surface combined adjustment factor of 1.0000061750.

This property description was prepared from an on-the-ground survey performed under my supervision and is accompanied by a separate plat of even date. The field work was completed October 2023.

Frank W Funk 03/12/2025

Frank W. Funk
Registered Professional Land Surveyor
State of Texas No. 6803



Job Number: 23-027

EXHIBIT B

LANDESIGN SERVICES, INC.

10090 W Highway 29 | Liberty Hill, Texas 78642

TBPELS Firm No. 10001800 | 512-238-7901 office

EXHIBIT " "

METES AND BOUNDS DESCRIPTION

BEING 4.516 ACRES OF LAND, SURVEYED BY LANDESIGN SERVICES, INC., SITUATED IN THE STEPHEN F. AUSTIN SURVEY, ABSTRACT NO. 3 IN BASTROP COUNTY, TEXAS, BEING ALL OF A CALLED 4.516 ACRE TRACT OF LAND DESCRIBED IN A DEED TO TRAVIS CLAUDE HOFFMAN, JR. AND SHIRLEY HOFFMAN QUINCY, RECORDED IN VOLUME 2330, PAGE 884 OF THE OFFICIAL PUBLIC RECORDS OF BASTROP COUNTY, TEXAS (O.P.R.B.C.T.), AND BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

BEGINNING at a 3/8-inch rebar found in the Northeasterly line of the remainder of a called 127.574 acre tract of land described in a deed to T.C. Hoffman and Gladys M. Hoffman, recorded in Volume 221, Page 552 of the Deed Records of Bastrop County, Texas (D.R.B.C.T.), for the West corner of said 5.516 acre tract and the common South corner of the GOMEZ RODRIGUEZ SAYERS SUBDIVISION, a subdivision of record in Cabinet 7, Page 195-A of the Plat Records of Bastrop County, Texas (P.R.B.C.T.), from which a 5/8-inch rebar found in the Southeasterly line of a called 36.275 acre tract of land described in a Warranty Deed with Vendor's Lien to Alto Pico Bastrop LLC, recorded in Document No. 202418590 of said O.P.R.B.C.T., for the North corner of said 127.574 acre tract and of said GOMEZ RODRIGUEZ SAYERS SUBDIVISION, bears North 47°50'01" East, a distance of 244.81 feet;

THENCE **North 42°41'27" East** with the Northwesterly line of said 4.516 acre tract and partially with the common Southeasterly line of said GOMEZ RODRIGUEZ SAYERS SUBDIVISION, and then partially with the common existing Southwesterly right-of-way line of Sayers Road (CR 157, No record information found), a distance of **795.57** feet to a 1/2-inch rebar with cap stamped "J.E. GARON RPLS 4303" found in the existing Southwesterly right-of-way line of said Sayers Road for the North corner of said 4.516 acre tract;

THENCE with the Northeasterly line of said 4.516 acre tract and the common existing Southwesterly right-of-way line of said Sayers Road, the following five (5) courses and distances:

1. **South 37°09'48" East** a distance of **143.70** feet to a 1/2-inch rebar with cap stamped "J.E. GARON RPLS 4303" found;

2. **South 34°24'07" East** a distance of **45.18** feet to a 1/2-inch rebar with cap stamped "J.E. GARON RPLS 4303" found;

3. **South 28°31'23" East** a distance of **29.84** feet to a 1/2-inch rebar with cap stamped "J.E. GARON RPLS 4303" found;

4. **South 24°30'18" East** a distance of **47.38** feet to a 1/2-inch rebar with cap stamped "J.E. GARON RPLS 4303" found; and

5. **South 18°58'24" East** a distance of **11.95** feet to a 1/2-inch rebar with cap stamped "J.E. GARON RPLS 4303" found for the East corner of said 4.516 acre tract and the common North corner of a called 2.2425 acre tract of land described in a General Warranty Deed to Leslie L. Anderson and Rebecca Anderson, recorded in Volume 2338, Page 47 of said O.P.R.B.C.T.;

THENCE **South 44°37'13" West** with the Southeasterly line of said 4.516 acre tract and the common Northwesterly line of said 2.2425 acre tract, a distance of **725.06** feet to a 3/8-inch rebar found in the Northeasterly line of the remainder of said 127.574 acre tract for the South corner of said 4.516 acre tract and the common West corner of said 2.2425 acre tract;

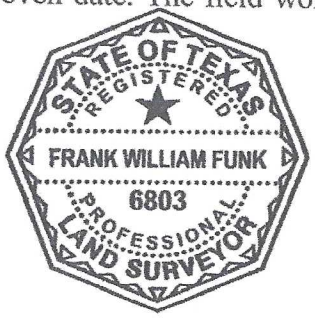
THENCE **North 47°44'56" West** with the Southwesterly line of said 4.516 acre tract and the common Northeasterly line of the remainder of said 127.574 acre tract, a distance of **243.54** feet to the **POINT OF BEGINNING** and containing 4.516 acres of land, more or less.

This project is referenced for all bearing and coordinate basis to the Texas State Plane Coordinate System, North American Datum of 1983 (NAD83 – 2011 Adjustment), Central Zone (4203). All distances shown hereon are surface values represented in U.S. Survey Feet based on a grid-to-surface combined adjustment factor of 1.0000061750.

This property description was prepared from an on-the-ground survey performed under my supervision and is accompanied by a separate plat of even date. The field work was completed October 2023.

Frank W Funk 03/12/2025

Frank W. Funk
Registered Professional Land Surveyor
State of Texas No. 6803



Job Number: 23-027

EXHIBIT C

LSI LANDESIGN SERVICES, INC.

10090 W Highway 29 | Liberty Hill, Texas 78642

TBPELS Firm No. 10001800 | 512-238-7901 office

EXHIBIT " "

METES AND BOUNDS DESCRIPTION

BEING 126.11 ACRES OF LAND, SURVEYED BY LANDESIGN SERVICES, INC., SITUATED IN THE STEPHEN F. AUSTIN SURVEY, ABSTRACT NO. 3 AND THE BASTROP TOWN TRACT SURVEY, ABSTRACT NO. 11, IN BASTROP COUNTY, TEXAS, BEING COMPRISED OF THE REMAINDER OF A CALLED 127.574 ACRE TRACT OF LAND DESCRIBED IN A DEED TO T.C. HOFFMAN AND GLADYS M. HOFFMAN, RECORDED IN VOLUME 221, PAGE 552 OF THE DEED RECORDS OF BASTROP COUNTY, TEXAS (D.R.B.C.T.), AND ALL OF A CALLED 0.226 OF ONE ACRE TRACT OF LAND DESCRIBED IN A DEED TO T.C. HOFFMAN AND WIFE GLADYS M. HOFFMAN, RECORDED IN VOLUME 327, PAGE 285 OF SAID D.R.B.C.T., BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

BEGINNING at a 1/2-inch rebar found for the Southwesterly corner of said 0.226 of one acre tract, for the common corner of a called 52.930 acre tract of land described in a General Warranty Deed with Vendor's Lien to Donald L. Furry, recorded in Document No. 201604620, of the Official Public Records of Bastrop County, Texas (O.P.R.B.C.T.), a called 21.222 acre tract of land described in a Warranty Deed with Vendor's Lien to Glenn D. Synnott Revocable Living Trust, recorded in Document No. 201809859 of said O.P.R.B.C.T., and a called 43.38 acre tract of land described as First Tract in a Warranty Deed to Woodrun Development Co., Ltd., recorded in Volume 947, Page 650, of the Official Records of Bastrop County, Texas (O.R.B.C.T.);

THENCE **North 47°21'10" West** with the Northeasterly line of said 43.38 acre tract and partially with the common Southwesterly line of said 0.226 of one acre tract and partially with the common Southwesterly line of the remainder of said 127.574 acre tract, a distance of **1,256.89** feet to a 5/8-inch rebar found in the Northeasterly line of said 43.38 acre tract for the Southerly common corner of the remainder of said 127.574 acre tract and of a called 71.36 acre tract of land described in said Volume 947, Page 650;

THENCE **North 42°25'30" East** with the Southeasterly line of said 71.36 acre tract, with the common Northwesterly line of said 127.574 acre tract, a distance of **919.07** feet to a Calculated Point for the West corner of a called 1.00 acre tract of land described in a Deed of Gift to Travis Claude Hoffman, Jr. and Laurie Lynn Hoffman, recorded in Volume 296, Page 652, of said D.R.B.C.T.;

THENCE, along the Southwest, Southeast and Northeast lines of said 1.00 acre tract, and the common Northwesterly line of the remainder of said 127.574 acre tract, the following three (3) courses and distances:

1. **South 47°44'56" East**, a distance of **218.10** feet to a Calculated Point;

2. **North 42°14'06" East**, a distance of **191.52** feet to a Calculated Point; and

3. **North 48°02'20" West**, a distance of **217.47** feet to a Calculated Point in the Southeasterly line of said 71.36 acre tract for the North corner of said 1.00 acre tract and a common corner of the remainder of said 127.574 acre tract, being, from which a 1/2-inch rebar found bears North 48°02'20" West, a distance of 10.67 feet;

THENCE **North 42°25'30" East** with the Southeasterly line of said 71.36 acre tract, with the common Northwesterly line of said 127.574 acre tract, a distance of **1,237.86** feet to a 1/2-inch rebar found in the Northwesterly line of said 127.574 acre tract for the Easterly common corner of said 71.36 acre tract and of a called 36.275 acre tract of land described in a Warranty Deed with Vendor's Lien to Alto Pico Bastrop LLC, recorded in Document No. 202418590 of said O.P.R.B.C.T.;

THENCE **North 42°22'50" East** with the Northwesterly line of the remainder of said 127.574 acre tract and the common Southeasterly line of said 36.275 acre tract, a distance of **1,996.01** feet to a 5/8-inch rebar found in the Southeasterly line of said 36.275 acre tract for a Westerly common corner of the remainder of said 127.574 acre tract and of the GOMEZ RODRIGUEZ SAYERS SUBDIVISION, a subdivision of record in Cabinet 7, Page 195-A of the Plat Records of Bastrop County, Texas (P.R.B.C.T.);

THENCE **South 47°50'01" East** with the Northeasterly line of the remainder of said 127.574 acre tract and the common Southwesterly line of said GOMEZ RODRIGUEZ SAYERS SUBDIVISION, a distance of **244.81** feet to a 3/8-inch rebar found for a common corner of said GOMEZ RODRIGUEZ SAYERS SUBDIVISION and of a called 4.516 acre tract of land described in a deed to Travis Claude Hoffman, Jr. and Shirley Hoffman Quincy, recorded in Volume 2330, Page 884 of said O.P.R.B.C.T.;

THENCE **South 47°44'56" East** with the Northeasterly line of the remainder of said 127.574 acre tract and the common Southwesterly line of said 4.516 acre tract, a distance of **243.54** feet to a 3/8-inch rebar found for the Southerly common corner of said 4.516 acre tract and of a called 2.2425 acre tract of land described in a General Warranty Deed to Leslie L. Anderson and Rebecca Anderson, recorded in Volume 2338, Page 47 of said O.P.R.B.C.T.;

THENCE **South 47°28'20" East** with the Northeasterly line of the remainder of said 127.574 acre tract and partially with the common Southwesterly lines of said 2.2425 acre tract, a called 2.240 acre tract of land described in a General Warranty Deed to Leslie L. Anderson and wife, Rebecca J. Anderson, recorded in Volume 754, Page 732, of said O.R.B.C.T., and a called 4.485 acre tract of land described in a Special Warranty Deed with Vendor's Lien to Liberty Hill Truck Service LLC, recorded in Document No. 202212580 of said O.P.R.B.C.T., a distance of **785.81** feet to a 1/2-inch rebar found in the Northwesterly line of a called 22.644 acre tract of land described in a Correction Special Warranty Deed to Mainstreet Bastrop LLC, recorded in Document No. 202224002 of said O.P.R.B.C.T., for the Easterly common corner of said 4.485 acre tract and of said 127.574 acre tract;

THENCE with the Southeasterly line of the remainder of said 127.574 acre tract and the common Northwesterly line of said 22.644 acre tract, the following five (5) courses and distances:

1. **South 40°55'45" West** a distance of **188.40** feet to a 1/2-inch rebar with cap stamped "LSI SURVEY" set;

2. **South 41°29'44" West** a distance of **340.48** feet to a 1/2-inch rebar with cap stamped "LSI SURVEY" set;

3. **South 41°31'37" West** a distance of **99.68** feet to a 1/2-inch rebar with cap stamped "LSI SURVEY" set;

4. **South 44°37'38" West** a distance of **91.64** feet to a 1/2-inch rebar with cap stamped "LSI SURVEY" set; and

5. **South 49°29'13" West** a distance of **61.37** feet to a 1/2-inch rebar with cap stamped "LSI SURVEY" set in the Southeasterly line of the remainder of said 127.574 acre tract and the common Northwesterly line of said 22.644 acre tract;

THENCE **South 43°51'55" West** with the Southeasterly line of the remainder of said 127.574 acre tract and partially with the common Northwesterly line of said 22.644 acre tract and partially with the common Northwesterly line of a called 100 acre tract described in a General Warranty Deed to Janet Lynn Staton recorded in Document No. 202414426, of said O.P.R.B.C.T., a distance of **482.44** feet to a 1/2-inch rebar with cap stamped "LSI SURVEY" set;

THENCE with the Southeasterly line of the remainder of said 127.574 acre tract and the common Northwesterly line of said 100 acre tract, the following three (3) courses and distances:

1. **South 43°09'33" West** a distance of **796.87** feet to a 1/2-inch rebar with cap stamped "LSI SURVEY" set;

2. **South 14°00'38" West** a distance of **56.74** feet to a 1/2-inch rebar with cap stamped "LSI SURVEY" set; and

3. **South 08°52'45" West** a distance of **195.88** feet to a 1/2-inch rebar with cap stamped "LSI SURVEY" set in the Northwesterly line of a called 110.7880 acre tract of land described as Tract Three in a General Warranty Deed with Life Estate Reservation to Glenn Odom and Donna Cassel, recorded in Volume 2280, Page 809 of said O.P.R.B.C.T., for the Southwesterly corner of said 100 acre tract;

THENCE with the Southeasterly line of the remainder of said 127.574 acre tract and the common Northwesterly line of said 110.7880 acre tract, the following two (2) courses and distances:

1. **South 56°47'19" West** a distance of **504.66** feet to a 60D nail found; and

2. **South 43°54'44" West** a distance of **76.76** feet to a 1/2-inch rebar found for the common corner of said 110.7880 acre tract, the remainder of said 127.574 acre tract, said 52.930 acre tract, and of said 0.226 of one acre tract;

THENCE **South 42°30'57" West** with the Southeasterly line of said 0.226 of one acre tract and the common Northwesterly line of said 52.930 acre tract, a distance of **1,509.88** feet to the **POINT OF BEGINNING** and containing 126.11 acres of land, more or less.

This project is referenced for all bearing and coordinate basis to the Texas State Plane Coordinate System, North American Datum of 1983 (NAD83 – 2011 Adjustment), Central Zone (4203). All distances shown hereon are surface values represented in U.S. Survey Feet based on a grid-to-surface combined adjustment factor of 1.0000061750.

This property description was prepared from an on-the-ground survey performed under my supervision and is accompanied by a separate plat of even date. The field work was completed October 2023.

Frank W Funk 03/12/2025

Frank W. Funk
Registered Professional Land Surveyor
State of Texas No. 6803

Job Number: 23-027



AMMENDMENT AND ADDENDUM TO CONTRACT

AMMENDMENT AND ADDENDUM TO CONTRACT (this "**Addendum**") is made and entered into as of the 24 day of March, 2025 (the "**Effective Date**"), by and between **Travis Claude Hoffman, Jr., Shirley Quincy, Jan Rinehart, and Laurie G. Hoffman**, as "**Seller**", and **Alto Picco Bastrop LLC**, a Texas limited liability company, successor in interest to 360 Company, as "**Buyer**."

W I T N E S S E T H:

WHEREAS, pursuant to that certain FARM AND RANCH CONTRACT, dated as of October 14, 2024 between Seller and Buyer ("**Contract**"), Seller agreed to sell and Buyer agreed to purchase that certain property located at 250 Reids Bend, Bastrop, Texas 78602, as is more specifically set forth in the Contract (the "**Property**");

WHEREAS, Seller and Buyer desire to amend certain terms, conditions, and provisions of the Contract as more fully set forth below.

NOW, THEREFORE, for the sum of Ten and 00/100 Dollars ($10.00), the mutual promises and covenants contained in this Addendum, and other good and valuable consideration, as to all of which the receipt and sufficiency of which is hereby acknowledged by Seller and Buyer, Seller and Buyer agree as follows:

1. Incorporation of Recitals and Whereas Clauses. The introductory and Whereas clauses set forth above are hereby incorporated into this Addendum as if more specifically set forth below.

2. Definitions. All capitalized terms used in this Addendum shall have the same meaning given to them in the Contract unless a contrary definition is specifically set forth in this Addendum.

3. Amendments to the Contract:

a. Seller Name Amended. The Seller's name in the Contract is hereby replaced and amended to the following:

Travis Claude Hoffman, Jr., Shirley Quincy, Jan Rinehart, and Laurie Lynn Hoffman, and/or assigns.

b. Conveyance of Property into Trust. Notwithstanding anything contained in the Contract, or any amendments or addenda thereto, Buyer acknowledges and expressly consents to Seller's conveyance of the Property into trust (the "**Assignee**") following the execution of this Addendum by deeds in substantially similar form to the attached Exhibits A-1, A-2, and A-3 (legal descriptions of the tracts to be included in the executed deeds). Buyer acknowledges and expressly consents to the assignment of the Contract, including any amendments or addenda thereto, to Assignee simultaneously with the conveyance of the Property from Seller to such trust. Upon any such conveyance, the Assignee shall assume and perform all the duties, liabilities and obligations of Seller under the Contract to the same extent as if said Assignee had originally been named as the Seller in the Contract and Seller shall have no further obligation to Buyer under the Contract.

4. Headings. Descriptive headings are for convenience only and shall not control or affect the meaning or construction of any provision of this Addendum.

5. Binding Effect. This Addendum shall be binding upon and shall inure to the benefit of Seller and Buyer hereto and their respective successors and assigns.

6. Counterparts. To facilitate execution, this Addendum may be executed in any number of counterparts as may be convenient or necessary, and it shall not be necessary that the signatures of all parties hereto be contained on any one counterpart hereof. Additionally, the parties hereto hereby covenant and agree that, for purposes of facilitating the execution of this Addendum, (a) the signature pages taken from separate individually executed counterparts of this Addendum may be combined to form multiple fully executed counterparts and (b) DocuSign, a facsimile or PDF signature shall be deemed to be an original signature. All executed counterparts of this Addendum shall be deemed to be originals, but all such counterparts taken together shall constitute one and the same Addendum.

7. Interpretation. Whenever the context hereof shall so require, the singular shall include the plural, the male gender shall include the female gender and the neuter, and vice versa.

8. Severability. In case of any one or more of the provisions contained in this Addendum shall for any reason be held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality, or unenforceability shall not affect any other provision hereof, and this Addendum shall be construed as if such invalid, illegal, or unenforceable provision had never been contained herein.

9. Full Force and Effect. Except as set forth hereinabove, the Contract and the Addendum shall remain in full force and effect.

10. Authority. Each person signing this Addendum on behalf of a party warrants that he/she/they is/are duly authorized by all necessary and appropriate action to execute this Addendum.

IN WITNESS WHEREOF, the undersigned have this Addendum as of the Effective Date.

SELLER:

Travis Claude Hoffman, Jr.

Shirley Quincy

Jan Rinehart

Laurie Lynn Hoffman

BUYER:

Alto Picco Bastrop LLC, a Texas limited liability company

By: _____
Name: Kacee Jackson
Title: Managing Member

EXHIBIT A-1

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.

GENERAL WARRANTY DEED

STATE OF TEXAS §
§ KNOW ALL MEN BY THESE PRESENTS
COUNTY OF BASTROP §

Date: March 24, **2025**

Grantor: Travis Claude Hoffman Jr.; and Laurie Lynn Hoffman

Grantee: Travis Claude Hoffman, Jr., Trustee of The Hoffman Family Bastrop Trust

Grantee's Mailing Address: PO Box 841, Bastrop, Texas 78602

Consideration: Ten and no/100-----($10.00)-----Dollars and other good and valuable consideration, the receipt of which is hereby acknowledged and confessed;

Property (including any improvements):

BEING 0.9548 OF ONE ACRE, MORE OR LESS, LOCATED IN BASTROP COUNTY, TEXAS, THE SAME BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS IN EXHIBIT "A" ATTACHED HERETO AND MADE A PART HEREOF.

Reservations from and Exceptions to Conveyance and Warranty:

This conveyance is made and accepted subject to the following matters, to the extent same are in effect at this time: (i) any and all restrictions, covenants and easements, if any, relating to the Property, but only to the extent they are still in effect, and shown of record in the hereinabove mentioned county and state; and (ii) to all zoning laws, regulations and ordinances of municipal and/or other governmental authorities, if any, but only to the extent that they are still in effect and relating to the Property. Grantor, for the consideration and subject to the reservations from and exceptions to the conveyance and warranty set forth above, has GRANTED, SOLD AND CONVEYED and does hereby GRANT, SELL AND CONVEY to Grantee the Grantor's right, title and interest in the Property, together with all and singular the improvements located thereon and all rights and appurtenances pertaining thereto, including all right, title and interest of Grantor in and to adjacent streets, alleys, rights-of-way, roadways, strips and gores, easements and in-the-ground utilities. TO HAVE AND TO HOLD the Property to Grantee, Grantee's heirs, executors, administrators, legal representatives, successors and assigns forever. Grantor binds Grantor and Grantor's heirs, executors, administrators, legal representatives, successors and assigns to warrant and forever defend all and singular the Property to Grantee and Grantee's heirs, executors, administrators, legal representatives, successors and assigns against every person whomsoever lawfully claiming or to claim the same or any part thereof, except as to the reservations from and exceptions to conveyance and warranty set forth above. Whenever the content of this Deed so requires, the singular shall include the plural, the plural shall include the singular and any gender shall include all other genders.

EXHIBIT A-2

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.

GENERAL WARRANTY DEED

STATE OF TEXAS §
§ KNOW ALL MEN BY THESE PRESENTS
COUNTY OF BASTROP §

Date: March 24, **2025**

Grantor: Travis Claude Hoffman Jr. and Shirley Quincy

Grantee: Travis Claude Hoffman, Jr., Trustee of The Hoffman Family Bastrop Trust

Grantee's Mailing Address: PO Box 841, Bastrop, Texas 78602

Consideration: Ten and no/100-----($10.00)-----Dollars and other good and valuable consideration, the receipt of which is hereby acknowledged and confessed;

Property (including any improvements):

BEING 4.516 ACRES OF LAND, MORE OR LESS, LOCATED IN BASTROP COUNTY, TEXAS, THE SAME BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS IN EXHIBIT "A" ATTACHED HERETO AND MADE A PART HEREOF.

Reservations from and Exceptions to Conveyance and Warranty:

This conveyance is made and accepted subject to the following matters, to the extent same are in effect at this time: (i) any and all restrictions, covenants and easements, if any, relating to the Property, but only to the extent they are still in effect, and shown of record in the hereinabove mentioned county and state; and (ii) to all zoning laws, regulations and ordinances of municipal and/or other governmental authorities, if any, but only to the extent that they are still in effect and relating to the Property. Grantor, for the consideration and subject to the reservations from and exceptions to the conveyance and warranty set forth above, has GRANTED, SOLD AND CONVEYED and does hereby GRANT, SELL AND CONVEY to Grantee the Grantor's right, title and interest in the Property, together with all and singular the improvements located thereon and all rights and appurtenances pertaining thereto, including all right, title and interest of Grantor in and to adjacent streets, alleys, rights-of-way, roadways, strips and gores, easements and in-the-ground utilities. TO HAVE AND TO HOLD the Property to Grantee, Grantee's heirs, executors, administrators, legal representatives, successors and assigns forever. Grantor binds Grantor and Grantor's heirs, executors, administrators, legal representatives, successors and assigns to warrant and forever defend all and singular the Property to Grantee and Grantee's heirs, executors, administrators, legal representatives, successors and assigns against every person whomsoever lawfully claiming or to claim the same or any part thereof, except as to the reservations from and exceptions to conveyance and warranty set forth above. Whenever the content of this Deed so requires, the singular shall include the plural, the plural shall include

the singular and any gender shall include all other genders.

IN WITNESS WHEREOF, this General Warranty Deed has been executed by Grantor to be effective as of March 24, 2025.

GRANTOR:

Travis Claude Hoffman, Jr.

Shirley Quincy

ACKNOWLEDGMENT

STATE OF TEXAS §
§
COUNTY OF Bastrop §

ON THIS 24th day of March, 2025, before me, the undersigned notary public, personally appeared Travis Claude Hoffman, Jr., known to me to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same for purposes therein contained.

CATHY O. SMITH
NOTARY PUBLIC
STATE OF TEXAS
ID # 128816110
My Comm. Expires 12-02-2027

Notary Public – State of Texas

ACKNOWLEDGMENT

STATE OF COLORADO §
§
COUNTY OF Larimer §

ON THIS 22nd day of March, 2025, before me, the undersigned notary public, personally appeared Shirley Quincy, known to me to be the person whose name is subscribed to the within instrument and acknowledged to me that she executed the same for purposes therein contained.

Notary Public – State of Colorado

JASON M DEPASQUALE
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20234028940
MY COMMISSION EXPIRES 07-31-2027

EXHIBIT A-3

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.

GENERAL WARRANTY DEED

STATE OF TEXAS §
§ KNOW ALL MEN BY THESE PRESENTS
COUNTY OF BASTROP §

Date: March 24, **2025**

Grantor: Travis Claude Hoffman Jr., Shirley Quincy, and Jan Rinehart

Grantee: Travis Claude Hoffman, Jr., Trustee of The Hoffman Family Bastrop Trust

Grantee's Mailing Address: PO Box 841, Bastrop, Texas 78602

Consideration: Ten and no/100-----($10.00)-----Dollars and other good and valuable consideration, the receipt of which is hereby acknowledged and confessed;

Property (including any improvements):

BEING 126.11 ACRES OF LAND, MORE OR LESS, LOCATED IN BASTROP COUNTY, TEXAS, THE SAME BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS IN EXHIBIT "A" ATTACHED HERETO AND MADE A PART HEREOF.

Reservations from and Exceptions to Conveyance and Warranty:

This conveyance is made and accepted subject to the following matters, to the extent same are in effect at this time: (i) any and all restrictions, covenants and easements, if any, relating to the Property, but only to the extent they are still in effect, and shown of record in the hereinabove mentioned county and state; and (ii) to all zoning laws, regulations and ordinances of municipal and/or other governmental authorities, if any, but only to the extent that they are still in effect and relating to the Property. Grantor, for the consideration and subject to the reservations from and exceptions to the conveyance and warranty set forth above, has GRANTED, SOLD AND CONVEYED and does hereby GRANT, SELL AND CONVEY to Grantee the Grantor's right, title and interest in the Property, together with all and singular the improvements located thereon and all rights and appurtenances pertaining thereto, including all right, title and interest of Grantor in and to adjacent streets, alleys, rights-of-way, roadways, strips and gores, easements and in-the-ground utilities. TO HAVE AND TO HOLD the Property to Grantee, Grantee's heirs, executors, administrators, legal representatives, successors and assigns forever. Grantor binds Grantor and Grantor's heirs, executors, administrators, legal representatives, successors and assigns to warrant and forever defend all and singular the Property to Grantee and Grantee's heirs, executors, administrators, legal representatives, successors and assigns against every person whomsoever lawfully claiming or to claim the same or any part thereof, except as to the reservations from and exceptions to conveyance and warranty set forth above. Whenever the content of this Deed so requires, the singular shall include the plural, the plural shall include

the singular and any gender shall include all other genders.

IN WITNESS WHEREOF, this General Warranty Deed has been executed by Grantor to be effective as of March 24, 2025.

GRANTOR:

Travis Claude Hoffman, Jr.

Shirley Quincy

Jan Rinehart

ACKNOWLEDGMENT

STATE OF TEXAS §
§
COUNTY OF Bastrop §

ON THIS 24th day of March, 2025, before me, the undersigned notary public, personally appeared Travis Claude Hoffman, Jr., known to me to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same for purposes therein contained.

CATHY O. SMITH
NOTARY PUBLIC
STATE OF TEXAS
ID # 128616110
My Comm. Expires 12-02-2027

Notary Public – State of Texas

ACKNOWLEDGMENT

STATE OF COLORADO §
§
COUNTY OF Larimer §

ON THIS 22nd day of March, 2025, before me, the undersigned notary public, personally appeared Shirley Quincy, known to me to be the person whose name is subscribed to the within instrument and acknowledged to me that she executed the same for purposes therein contained.

Notary Public – State of Colorado

JASON M DEPASQUALE
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20234026940
MY COMMISSION EXPIRES 07-31-2027

ACCEPTED BY TRUSTEE:

Travis Claude Hoffman, Jr

STATE OF TEXAS §
§
COUNTY OF Bastrop §

This instrument was acknowledged before me on the 24th day of March, 2025 by Travis Claude Hoffman, Jr.

CATHY O. SMITH
NOTARY PUBLIC
STATE OF TEXAS
ID # 128816110
My Comm. Expires 12-02-2027

Notary Public for the State of Texas

STATE OF TEXAS §
§
COUNTY OF Bastrop §

This instrument was acknowledged before me on the 24 day of March, 2025 by Laurie Lynn Hoffman

CATHY O. SMITH
NOTARY PUBLIC
STATE OF TEXAS
ID # 128816110
My Comm. Expires 12-02-2027

Notary Public for the State of Texas

STATE OF COLORADO §
§
COUNTY OF Larimer §

This instrument was acknowledged before me on the 22nd day of March, 2025 by Shirley Quincy.

JASON M DEPASQUALE
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20234028940
MY COMMISSION EXPIRES 07-31-2027

Notary Public for the State of Colorado

IN WITNESS WHEREOF, this General Warranty Deed has been executed by Grantor to be effective as of March 24, 2025.

GRANTOR:

Travis Claude Hoffman, Jr.

Laurie G. Hoffman

ACKNOWLEDGMENT

STATE OF TEXAS §
§
COUNTY OF Bastrop §

ON THIS 24th day of March, 20___, before me, the undersigned notary public, personally appeared Travis Claude Hoffman, Jr. and Laurie G. Hoffman, known to me to be the person whose names are subscribed to the within instrument and acknowledged to me that they executed the same for purposes therein contained.

CATHY O. SMITH
NOTARY PUBLIC
STATE OF TEXAS
ID # 128816110
My Comm. Expires 12-02-2027

Notary Public – State of Texas