



Technical Package Cover Page

This file contains the following documents:

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



Portada de Paquete Técnico

Este archivo contiene los siguientes documentos:

1. Resumen de la solicitud (en lenguaje sencillo)
 - Inglés
 - Idioma alternativo (español)
2. Primer aviso (NORI, Aviso de Recepción de Solicitud e Intención de Obtener un Permiso)
 - Inglés
 - Idioma alternativo (español)
3. Segundo aviso (NAPD, Aviso de Decisión Preliminar)
 - Inglés
 - Idioma alternativo (español)
4. Materiales de la solicitud
5. Proyecto de permiso
6. Resumen técnico u hoja de datos

March 25, 2025

Texas Commission on Environmental Quality
Executive Director
Application Review and Processing Team (MC148)
12100 Park 35 Circle
Austin, TX 78753

RE: Villas at Timberwood WWTP TLAP Permit Application – Plain Language Summary
WQ0014670002
CN604095778
RN104814959

Dear TCEQ Review Team:

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.

THE VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION (CN604095778) operates TIMBERWOOD DEVELOPMENT WWTP (RN104814959), a domestic wastewater treatment facility. The facility is located at approximately 820 feet southeast of the intersection of Harmony Hills and Shady acers and the disposal area is location 1,600 feet southeast of the intersection of Harmony Hills and Shady Acres, in San Antonio, Bexar County, Texas 78260. This permit renewal application is for the disposal of treated domestic wastewater at a daily average flow not to exceed 18,000 gallons per day (0.018 MGD) via non-public access subsurface drip irrigation system. This permit will not authorize the discharge of pollutants into water in the state. Discharges from the facility are expected to contain five-day carbonaceous biological chemical demand (CBOD5), total suspended solids (TSS), ammonia nitrogen (NH3-N), total phosphorous (P), and Escherichia coli (E.coli). Domestic wastewater is treated by a non-public access subsurface drip irrigation system applied to a minimum area of 4.13 acres (179,903 square feet).

Sincerely,



Damien J. Herrera, PE
Principal Engineer
CORRIENT INFRASTRUCTURE CONSULTING, PLLC
TBPE F-16949

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

AGUAS RESIDUALES DOMÉSTICAS

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

THE VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION (CN604095778) propone operar TIMBERWOOD DEVELOPMENT WWTP (RN104814959), una instalación de tratamiento de aguas residuales domésticas. La instalación está ubicada aproximadamente a 820 pies al sureste de la intersección de Harmony Hills y Shady Acres y el área de eliminación está ubicada a 1,600 pies al sureste de la intersección de Harmony Hills y Shady Acres, en San Antonio, Condado de Bexar, Texas 78260. Esta solicitud de renovación de permiso es para la eliminación de aguas residuales domésticas tratadas a un flujo promedio diario que no exceda los 18,000 galones por día (0.018 MGD) a través de un sistema de riego por goteo subterráneo de acceso no público. Este permiso no autorizará una descarga de contaminantes en el agua en el estado.

Se espera que las descargas de la instalación contengan una demanda química biológica carbonosa (CBOD5) de cinco días, sólidos suspendidos totales (TSS), nitrógeno amoniacal (NH3-N), fósforo total (P) y Escherichia coli (E.coli). Las aguas residuales domésticas serán tratado por un sistema de riego por goteo subterráneo de acceso no público aplicado a un área mínima de 4.13 acres (179,903 pies cuadrados).

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY



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

PROPOSED PERMIT NO. WQ0014670002

APPLICATION. The Villas at Timberwood Homeowners Association, 405 Main Street, Blanco, Texas 78606, has applied to the Texas Commission on Environmental Quality (TCEQ) for proposed Texas Land Application Permit (TLAP) No. WQ0014670002 to authorize the disposal of treated wastewater at a volume not to exceed a daily average flow of 18,000 gallons per day via subsurface drip irrigation system with a minimum area of 4.13 acres. The domestic wastewater treatment facility and disposal area are located approximately 1,600 feet southeast of the intersection of Harmony Hills and Shady Acres, near the city of San Antonio, in Bexar County, Texas 78260. Authorization for disposal was previously permitted by expired Permit No. WQ0014670001. TCEQ received this application on March 4, 2025. The permit application will be available for viewing and copying at Parman Library at Stone Oak, 20735 Wilderness Oak, San Antonio, in Bexar 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=-98.49138,29.69055&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 The Villas at Timberwood Homeowners Association at the address stated above or by calling Mr. Paul G. Colliander, Secretary/Treasurer, at 210-844-5664.

Issuance Date: May 23, 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. WQ0014670002

SOLICITUD. The Villas at Timberwood Homeowners Association, 405 Main Street, Blanco, Texas 78606, ha solicitado a la Comisión de Calidad Ambiental del Estado de Texas (TCEQ) para el propuesto Permiso No. WQ0014670002 de disposición de aguas residuales para autorizar la disposición de aguas residuales tratadas en un volumen que no sobrepasa un flujo promedio diario de 18,000 galones por día mediante a través de un sistema de riego por goteo subterráneo. La planta y el área de disposición están ubicados aproximadamente 1,600 pies al sureste de la intersección de Harmony Hills y Shady Acres, cerca de la ciudad de San Antonio, en el Condado de Bexar, Texas 78260. La autorización para la eliminación estaba permitida anteriormente mediante el Permiso No. WQ0014670001 vencido. La TCEQ recibió esta solicitud el 4 de marzo de 2025. La solicitud para el permiso estará disponible para leerla y copiarla en Biblioteca Parman en Stone Oak, 20735 Wilderness Oak, San Antonio, en el condado de Bexar, 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=-98.49138,29.690555&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 todos 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 por qué 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 específico. Si desea que se agregue 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 The Villas at Timberwood Homeowners Association a la dirección indicada arriba o llamando a Mr. Paul G. Colliander, Secretary/Treasurer al 210-844-5664.

Fecha de emisión: el 5 de mayo de 2025

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY



COMBINED

**NOTICE OF RECEIPT OF APPLICATION AND
INTENT TO OBTAIN WATER QUALITY PERMIT (NORI)**

AND

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

NEW

PERMIT NO. WQ0014670002

APPLICATION AND PRELIMINARY DECISION. The Villas at Timberwood Homeowners Association, 405 Main Street, Blanco, Texas 78606, has applied to the Texas Commission on Environmental Quality (TCEQ) for a new permit, TCEQ Permit No. WQ0014670002, to authorize the disposal of treated domestic wastewater at a daily average flow not to exceed 18,000 gallons per day via non-public access subsurface area drip dispersal system with a minimum area of 4.13 acres. This permit will not authorize a discharge of pollutants into waters in the State. The facility was previously permitted under TPDES Permit No. WQ0014670001. TCEQ received this application on March 4, 2025.

This combined notice is being issued to correct the zip code in the address of the facility location from what was stated in the NORI.

The wastewater treatment facility and disposal site are located approximately 1,600 feet southeast of the intersection of Harmony Hills and Shady Acres in Bexar County, **Texas 78260**. The wastewater treatment facility and disposal site are located in the drainage basin of Mustang Creek in Segment No. 1910 of the San Antonio River Basin. This link to an electronic map of the site or facility's general location is provided as a public courtesy and not part of the application or notice. For exact location, refer to application.

<https://gisweb.tceq.texas.gov/LocationMapper/?marker=-98.49138,29.690555&level=18>

The TCEQ Executive Director has completed the technical review of the application and prepared a draft permit. The draft permit, if approved, would establish the conditions under which the facility must operate. The Executive Director has made a preliminary decision that this permit, if issued, meets all statutory and regulatory requirements. The permit application, Executive Director's preliminary decision, and draft permit are available for viewing and copying at Parman Library at Stone Oak, 20735 Wilderness Oak, San Antonio, in Bexar County, Texas. The application, including any updates, and associated notices are available electronically at the following webpage:

<https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tlap-applications>.

ALTERNATIVE LANGUAGE NOTICE. Alternative language notice in Spanish is available at <https://www.tceq.texas.gov/permitting/wastewater/plain-language-summaries-and-public-notice>. El aviso de idioma alternativo en español está disponible en <https://www.tceq.texas.gov/permitting/wastewater/plain-language-summaries-and-public-notice>.

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

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

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

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

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

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

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

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

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

AGENCY CONTACTS AND INFORMATION. Public comments and requests must be submitted either electronically at www.tceq.texas.gov/goto/comment, or in writing to the Texas Commission on Environmental Quality, Office of the Chief Clerk, MC 105, P.O. Box 13087, Austin, Texas 78711-3087. Any personal information you submit to the TCEQ will become part of the agency's record; this includes email addresses. For more information about this permit application or the permitting process, please call the TCEQ Public Education Program, Toll Free, at 1-800-687-4040 or visit their website at www.tceq.texas.gov/goto/pep. Si desea información en Español, puede llamar al 1-800-687-4040.

Further information may also be obtained from The Villas at Timberwood Homeowners Association at the address stated above or by calling Mr. Paul G. Colliander, Secretary/Treasurer, at 210-844-5664.

Issuance Date: October 28, 2025

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY



COMBINADO

AVISO DE REUNIÓN PÚBLICA Y AVISO DE RECEPCIÓN DE LA SOLICITUD

Y

INTENCIÓN DE OBTENER EL PERMISO DE CALIDAD DEL AGUA (NORI) Y ANUNCIO DE SOLICITUD Y DECISIÓN PRELIMINAR PARA LA CALIDAD DEL AGUA PERMISO DE APLICACIÓN DE TIERRAS PARA AGUAS RESIDUALES MUNICIPALES

NUEVO

PERMISO NO. WQ0014670002

SOLICITUD Y DECISIÓN PRELIMINAR. The Villas at Timberwood Homeowners Association, 405 Main Street, Blanco, Texas 78606 ha solicitado a la Comisión de Calidad Ambiental del Estado de Texas (TCEQ) por un nuevo para autorizar la disposición de aguas residuales tratadas en un volumen que no sobrepasa un flujo promedio diario de 18,000 galones por día mediante a través de un sistema de riego por goteo subterráneo. Este permiso no autorizará una descarga de contaminantes a las aguas del estado. La TCEQ recibió esta solicitud el 4 Marzo 2025.

Este aviso combinado se emite para corregir el código postal en la dirección de la ubicación de la instalación, respecto a lo indicado en el NORI.

La planta y el sitio de disposición están ubicadas aproximadamente 1,600 pies al sureste de la intersección de Harmony Hills y Shady Acres, cerca de la ciudad de San Antonio en el Condado de Bexar, Texas. La planta y el sitio de disposición están ubicados en la cuenca de drenaje de Mustang Creek en el Segmento No. 1910 de la Cuenca del Río San Antonio. 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=-98.49138,29.690555&level=18>

The TCEQ Executive Director has completed the technical review of the application and El Director Ejecutivo de la TCEQ ha completado la revisión técnica de la solicitud y ha preparado un borrador del permiso. El borrador del permiso, si es aprobado, establecería las condiciones bajo las cuales la instalación debe operar. El Director Ejecutivo ha tomado una decisión preliminar que si este permiso es emitido, cumple con todos los requisitos normativos y legales. La solicitud del permiso, la decisión preliminar del Director Ejecutivo y el borrador del permiso están disponibles para leer y copiar en Biblioteca Parman en Stone Oak, 20735 Wilderness Oak, San Antonio, en el condado de Bexar, Texas. 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>.

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>.

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.**

ACCIÓN DEL DIRECTOR EJECUTIVO. El Director Ejecutivo puede emitir una aprobación final de la solicitud a menos que exista un pedido antes del plazo de vencimiento de una audiencia administrativa de lo contencioso o se ha presentado un pedido de reconsideración. Si un pedido ha llegado antes del plazo de vencimiento de la audiencia o el pedido de reconsideración ha sido presentado, el Director Ejecutivo no emitirá una aprobación final sobre el permiso y enviará la solicitud y el pedido a los Comisionados de la TCEQ para consideración en una reunión programada de la Comisión.

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 de correos siguientes (1) la lista de correo permanente para recibir los avisos de el solicitante indicado por nombre y número del permiso específico y/o (2) la lista de correo de todas las solicitudes en un condado específico. Si desea que se agregue 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.

Todos los comentarios escritos del público y los pedidos una reunión deben ser presentados durante los 30 días después de la publicación del aviso a la Oficina del Secretario Principal, MC 105, TCEQ, P.O. Box 13087, Austin, TX 78711-3087 or por el internet a www.tceq.texas.gov/about/comments.html.

INFORMACIÓN DISPONIBLE EN LÍNEA. Para obtener detalles sobre el estado de la solicitud, visite la Base de Datos Integrada de Comisionados en www.tceq.texas.gov/goto/cid. Busque en la base de datos utilizando el número de permiso para esta solicitud, que se proporciona en la parte superior de este aviso.

CONTACTOS E INFORMACIÓN DE LA AGENCIA. Los comentarios y solicitudes públicas deben enviarse electrónicamente a www.tceq.texas.gov/goto/comment, o por escrito a Texas Commission on Environmental Quality, Office of the Chief Clerk, MC-105, P.O. Box 13087, Austin, Texas 78711-3087. Cualquier información personal que envíe a la TCEQ pasará a formar parte del registro de la agencia; esto incluye las direcciones de correo electrónico. Para obtener más información sobre esta solicitud de permiso o el proceso de permisos, llame al Programa de Educación Pública de TCEQ, línea gratuita, al 1-800-687-4040 o visite su sitio web en www.tceq.texas.gov/goto/pep. Si desea información en español, puede llamar al 1-800-687-4040. También se puede obtener información adicional del The Villas at Timberwood Homeowners Association a la dirección indicada arriba o llamando a Mr. Paul G. Colliander, Secretary/Treasurer al 210-844-5664.

Fecha de emisión 28 de octubre de 2025

March 3, 2025

Texas Commission on Environmental Quality
Executive Director
Application Review and Processing Team (MC148)
12100 Park 35 Circle
Austin, TX 78753

**RE: Timberwood Development WWTP
TLAP Permit Renewal Application WQ0014670001
Customer Number: CN604095778
Regulated Entity Number: RN104814959**

Dear TCEQ Review Team:

Enclosed is the TCEQ Wastewater Permit Renewal Application (WQ0014670001) for the TIMBERWOOD DEVELOPMENT WWTP submitted on behalf of the Villas at Timberwood Homeowner's Association (CN604095778) (RN104814959). In this package are the original permit renewal application and three additional copies.

I appreciate your time in reviewing this renewal application. If you have any questions, please contact me at (210) 595-9565 or via email at herreradj@corrient-pllc.com.

Sincerely,



Damen J. Herrera, PE
Principal Engineer
CORRIENT INFRASTRUCTURE CONSULTING, PLLC
TBPELS F-16949

Attachments

Cc: Paul Colliander – VT HOA



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

DOMESTIC WASTEWATER PERMIT APPLICATION CHECKLIST

Complete and submit this checklist with the application.

APPLICANT NAME: THE VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION

PERMIT NUMBER (If new, leave blank): WQ0014670001

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

	Y	N		Y	N
Administrative Report 1.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Original USGS Map	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Administrative Report 1.1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Affected Landowners Map	<input type="checkbox"/>	<input checked="" type="checkbox"/>
SPIF	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Landowner Disk or Labels	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Core Data Form	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Buffer Zone Map	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Summary of Application (PLS)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Flow Diagram	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Public Involvement Plan Form	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Site Drawing	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Technical Report 1.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Original Photographs	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Technical Report 1.1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Design Calculations	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Worksheet 2.0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Solids Management Plan	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Worksheet 2.1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Water Balance	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Worksheet 3.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
Worksheet 3.1	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Worksheet 3.2	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Worksheet 3.3	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Worksheet 4.0	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Worksheet 5.0	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Worksheet 6.0	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Worksheet 7.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>			

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 <input type="checkbox"/>	\$315.00 <input checked="" type="checkbox"/>
≥0.05 but <0.10 MGD	\$550.00 <input type="checkbox"/>	\$515.00 <input type="checkbox"/>
≥0.10 but <0.25 MGD	\$850.00 <input type="checkbox"/>	\$815.00 <input type="checkbox"/>
≥0.25 but <0.50 MGD	\$1,250.00 <input type="checkbox"/>	\$1,215.00 <input type="checkbox"/>
≥0.50 but <1.0 MGD	\$1,650.00 <input type="checkbox"/>	\$1,615.00 <input type="checkbox"/>
≥1.0 MGD	\$2,050.00 <input type="checkbox"/>	\$2,015.00 <input type="checkbox"/>

Minor Amendment (for any flow) \$150.00

Payment Information:

Mailed Check/Money Order Number: 48
 Check/Money Order Amount: \$315.00
 Name Printed on Check: The Villas at Timberwood HOA (VLT)

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 14670001

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

Expiration Date: 10/1/2024

Section 3. Facility Owner (Applicant) and Co-Applciant 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?

THE VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION

(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: 604095778

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: Colliander, Paul G

Title: Secretary/Treasurer

Credential: [Click to enter text.](#)

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

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

N/A

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

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

CN: Click to enter text.

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

Prefix: Click to enter text.

Last Name, First Name: Click to enter text.

Title: Click to enter text.

Credential: Click to enter text.

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

C. Core Data Form

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

Section 4. Application Contact Information (Instructions Page 27)

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

- A. Prefix: Mr. Last Name, First Name: Herrera, Damien
Title: Principal Engineer Credential: Professional Engineer
Organization Name: Corrient Infrastructure Consulting, PLLC
Mailing Address: 13423 Blanco Road #118 City, State, Zip Code: San Antonio, TX 78216
Phone No.: 210-595-9565 E-mail Address: Herreradj@corrient-llc.com
Check one or both: Administrative Contact Technical Contact
- B. Prefix: Mr. Last Name, First Name: Colliander, Paul G
Title: Secretary/Treasurer Credential: Click to enter text.
Organization Name: THE VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION
Mailing Address: 405 Main Street City, State, Zip Code: Blanco, TX 78606
Phone No.: (830) 302-4738 E-mail Address: pgc6@yahoo.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: Block, Roy
Title: President Credential: Click to enter text.
Organization Name: THE VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION
Mailing Address: 405 Main Street City, State, Zip Code: Blanco, TX 78606
Phone No.: 210-394-7933 E-mail Address: roywalterblock@aol.com

B. Prefix: Mr. Last Name, First Name: Colliander, Paul G
Title: Secretary/Treasurer Credential: Click to enter text.
Organization Name: THE VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION
Mailing Address: 405 Main Street City, State, Zip Code: Blanco, TX 78606
Phone No.: 210-844-5664 E-mail Address: pgc6@yahoo.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: Colliander, Paul G
Title: Secretary/Treasurer Credential: Click to enter text.
Organization Name: THE VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION
Mailing Address: 405 Main Street City, State, Zip Code: Blanco, TX 78606
Phone No.: 210-844-5664 E-mail Address: pgc6@yahoo.com

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: Colliander, Paul G
Title: Secretary/Treasurer Credential: Click to enter text.
Organization Name: THE VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION
Mailing Address: 405 Main Street City, State, Zip Code: Blanco, TX 78606
Phone No.: 210-844-5664 E-mail Address: pgc6@yahoo.com

Section 8. Public Notice Information (Instructions Page 27)

A. Individual Publishing the Notices

Prefix: Mr. Last Name, First Name: Colliander, Paul G
Title: Secretary/Treasurer Credential: Click to enter text.
Organization Name: THE VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION
Mailing Address: 405 Main Street City, State, Zip Code: Blanco, TX 78606
Phone No.: 210-844-5664 E-mail Address: pgc6@yahoo.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: Mr. Last Name, First Name: Colliander, Paul G
Title: Secretary/Treasurer Credential: Click to enter text.
Organization Name: THE VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION
Mailing Address: 405 Main Street City, State, Zip Code: Blanco, TX 78606
Phone No.: 210-844-5664 E-mail Address: pgc6@yahoo.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: Parman Library at Stone Oak
Location within the building: Circulation Desk
Physical Address of Building: 20735 Wilderness Oak
City: San Antonio County: Bexar
Contact (Last Name, First Name): Kwiatkowski, Barbara
Phone No.: 210-207-2703 Ext.: Click to enter text.

E. Bilingual Notice Requirements

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

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

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

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

Yes No

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

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

Yes No

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

Yes No

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

Yes No

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

F. 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: [Attachment 2 – Plain Language Summary](#)

G. Public Involvement Plan Form (N/A)

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: N/A

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 104814959

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):

Villas at Timberwood Homeowners Association Wastewater Treatment Plant (WWTP)

C. Owner of treatment facility: THE VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION

Ownership of Facility: Public Private Both Federal

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

Prefix: Mr. Last Name, First Name: Colliander, Paul G

Title: Secretary/Treasurer Credential: [Click to enter text.](#)

Organization Name: THE VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION

Mailing Address: 405 Main Street City, State, Zip Code: Blanco, TX 78606

Phone No.: 210-844-5664 E-mail Address: pgc6@yahoo.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

E. Owner of effluent disposal site:

Prefix: Mr.

Last Name, First Name: Colliander, Paul G

Title: Secretary/Treasurer

Credential: Click to enter text.

Organization Name: THE VILLAS AT TIMERWOOD HOMEOWNERS ASSOCIATION

Mailing Address: 405 Main Street

City, State, Zip Code: Blanco, TX 78606

Phone No.: 210-844-5664

E-mail Address: pgc6@yahoo.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: Click to enter text.

Last Name, First Name: Click to enter text.

Title: Click to enter text.

Credential: Click to enter text.

Organization Name: Click to enter text.

Mailing Address: Click to enter text.

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

Phone No.: Click to enter text.

E-mail Address: Click to enter text.

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

Attachment: N/A

Section 10. TPDES Discharge Information (Instructions Page 31) N/A

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): N/A

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

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: N/A

- 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: N/A

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:

Click to enter text.

- B. City nearest the disposal site: San Antonio, TX

- C. County in which the disposal site is located: Bexar

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

The effluent areas are contiguous with the treatment facility.

- E. For TLAPs, please identify the nearest watercourse to the disposal site to which rainfall runoff might flow if not contained: Mustang Creek (Segment 1910 of the San Antonio 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: [Click to enter text.](#)

Section 14. Signature Page (Instructions Page 34)

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

Permit Number: WQ0014670001

Applicant: The Villas at Timberwood Homeowners Association

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): Paul G Colliander

Signatory title: Secretary/Treasurer

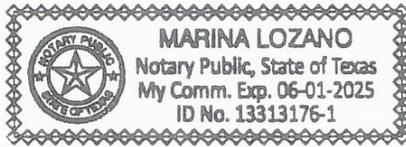
Signature: *Paul G Colliander* Date: 3/3/2025
(Use blue ink)

Subscribed and Sworn to before me by the said PAUL G COLLIANDER
on this 3 day of MARCH, 2025.
My commission expires on the 10 day of JUNE, 2025.

Marina Lozano
Notary Public

[SEAL]

BEXAR
County, Texas



WQ 0014670001 TLAP PERMIT RENEWAL

ADMINISTRATIVE ATTACHMENT #1

CORE DATA FORM



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.)		
<input type="checkbox"/> New Permit, Registration or Authorization (Core Data Form should be submitted with the program application.)		
<input checked="" type="checkbox"/> Renewal (Core Data Form should be submitted with the renewal form)		<input type="checkbox"/> Other
2. Customer Reference Number (if issued)	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number (if issued)
CN 604095778		RN 104814959

SECTION II: Customer Information

4. General Customer Information		5. Effective Date for Customer Information Updates (mm/dd/yyyy)		10/1/2024	
<input type="checkbox"/> New Customer <input checked="" type="checkbox"/> Update to Customer Information <input type="checkbox"/> Change in Regulated Entity Ownership <input type="checkbox"/> Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)					
<i>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).</i>					
6. Customer Legal Name (If an individual, print last name first: eg: Doe, John)				<i>If new Customer, enter previous Customer below:</i>	
THE VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION					
7. TX SOS/CPA Filing Number		8. TX State Tax ID (11 digits)		9. Federal Tax ID	10. DUNS Number (if applicable)
801532387		3204645821		(9 digits) 800812989	
11. Type of Customer:		<input type="checkbox"/> Corporation		<input type="checkbox"/> Individual	Partnership: <input type="checkbox"/> General <input type="checkbox"/> Limited
Government: <input type="checkbox"/> City <input type="checkbox"/> County <input type="checkbox"/> Federal <input type="checkbox"/> Local <input type="checkbox"/> State <input type="checkbox"/> Other		<input type="checkbox"/> Sole Proprietorship		<input checked="" type="checkbox"/> Other: Homeowner Association	
12. Number of Employees				13. Independently Owned and Operated?	
<input checked="" type="checkbox"/> 0-20 <input type="checkbox"/> 21-100 <input type="checkbox"/> 101-250 <input type="checkbox"/> 251-500 <input type="checkbox"/> 501 and higher				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
14. Customer Role (Proposed or Actual) – as it relates to the Regulated Entity listed on this form. Please check one of the following					
<input type="checkbox"/> Owner <input type="checkbox"/> Operator <input checked="" type="checkbox"/> Owner & Operator <input type="checkbox"/> Other: <input type="checkbox"/> Occupational Licensee <input type="checkbox"/> Responsible Party <input type="checkbox"/> VCP/BSA Applicant					
15. Mailing Address:		405 Main Street			
City		Blanco	State	TX	ZIP
				78606	ZIP + 4
					5348
16. Country Mailing Information (if outside USA)				17. E-Mail Address (if applicable)	
N/A				pgc6@yahoo.com	
18. Telephone Number			19. Extension or Code		20. Fax Number (if applicable)

SECTION III: Regulated Entity Information

21. General Regulated Entity Information <i>(If 'New Regulated Entity' is selected, a new permit application is also required.)</i>								
<input type="checkbox"/> New Regulated Entity <input type="checkbox"/> Update to Regulated Entity Name <input checked="" type="checkbox"/> Update to Regulated Entity Information								
<i>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).</i>								
22. Regulated Entity Name <i>(Enter name of the site where the regulated action is taking place.)</i>								
THE VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION								
23. Street Address of the Regulated Entity: <i>(No PO Boxes)</i>	405 Main Street							
	City	Blanco	State	TX	ZIP	78606	ZIP + 4	5348
24. County	Blanco							

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

25. Description to Physical Location:	LOCATED 820 FT SE OF THE INTERX OF HARMONY HILLS AND SHADY ACRES THE DISPOSAL AREA IS LOCATED 1,600 FEET SOUTHWEST OF THE INTERSECTION OF HARMONY HILLS AND SHADY ACRES, BEXAR COUNTY, TEXAS								
26. Nearest City	SAN ANTONIO				State	TX	Nearest ZIP Code		78620
<i>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).</i>									
27. Latitude (N) In Decimal:	29.690555			28. Longitude (W) In Decimal:	-98.491388				
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds				
29	41	25.9980	-98	29	28.9968				
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			22132						
33. What is the Primary Business of this entity? <i>(Do not repeat the SIC or NAICS description.)</i>									
Residential Subdivision									
34. Mailing Address:	405 Main Street								
	City	Blanco	State	TX	ZIP	78606	ZIP + 4	5348	
35. E-Mail Address:	pgc6@yahoo.com								
36. Telephone Number	37. Extension or Code			38. Fax Number <i>(if applicable)</i>					
(210) 844-5664				() -					

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

<input type="checkbox"/> Dam Safety	<input type="checkbox"/> Districts	<input type="checkbox"/> Edwards Aquifer	<input type="checkbox"/> Emissions Inventory Air	<input type="checkbox"/> Industrial Hazardous Waste
<input type="checkbox"/> Municipal Solid Waste	<input type="checkbox"/> New Source Review Air	<input type="checkbox"/> OSSF	<input type="checkbox"/> Petroleum Storage Tank	<input type="checkbox"/> PWS
<input type="checkbox"/> Sludge	<input type="checkbox"/> Storm Water	<input type="checkbox"/> Title V Air	<input type="checkbox"/> Tires	<input type="checkbox"/> Used Oil
<input type="checkbox"/> Voluntary Cleanup	<input checked="" type="checkbox"/> Wastewater	<input type="checkbox"/> Wastewater Agriculture	<input type="checkbox"/> Water Rights	<input type="checkbox"/> Other:
	WQ0014670001			

SECTION IV: Preparer Information

40. Name:	Damien J. Herrera, PE		41. Title:	Principal Engineer
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address	
(210) 595-9565		() -	herreradj@corrient-plc.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:	The Villas at Timberwood Homewoners Association	Job Title:	Secretary/Treasurer	
Name (In Print):	Paul G. Colliander	Phone:	(210) 844- 5664	
Signature:		Date:	3/3/2025	

**WQ 0014670001 TLAP PERMIT RENEWAL
ADMINISTRATIVE ATTACHMENT #2
PLAIN LANGUAGE SUMMARY**

March 3, 2025

Texas Commission on Environmental Quality
Executive Director
Application Review and Processing Team (MC148)
12100 Park 35 Circle
Austin, TX 78753

RE: Villas at Timberwood WWTP TLAP Permit Renewal – Plain Language Summary
WQ0014670001
CN604095778
RN104814959

Dear TCEQ Review Team:

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.

THE VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION (CN604095778) operates TIMBERWOOD DEVELOPMENT WWTP (RN104814959), a domestic wastewater treatment facility. The facility is located at approximately 820 feet southeast of the intersection of Harmony Hills and Shady acers and the disposal area is location 1,600 feet southeast of the intersection of Harmony Hills and Shady Acres, in San Antonio, Bexar County, Texas 78260. This permit renewal application is for the disposal of treated domestic wastewater at a daily average flow not to exceed 18,000 gallons per day (0.018 MGD) via non-public access subsurface drip irrigation system. This permit will not authorize the discharge of pollutants into water in the state. Discharges from the facility are expected to contain five-day carbonaceous biological chemical demand (CBOD5), total suspended solids (TSS), ammonia nitrogen (NH3-N), total phosphorous (P), and Escherichia coli (E.coli). Domestic wastewater is treated by a non-public access subsurface drip irrigation system applied to a minimum area of 4.13 acres (179,903 square feet).

Sincerely,



Damién J. Herrera, PE
Principal Engineer
CORRIENT INFRASTRUCTURE CONSULTING, PLLC
TBPE F-16949



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): N/A

2-Hr Peak Flow (MGD): N/A

Estimated construction start date: N/A

Estimated waste disposal start date: N/A

B. Interim II Phase

Design Flow (MGD): N/A

2-Hr Peak Flow (MGD): N/A

Estimated construction start date: N/A

Estimated waste disposal start date: N/A

C. Final Phase

Design Flow (MGD): 0.018

2-Hr Peak Flow (MGD): 0.054

Estimated construction start date: October 2005

Estimated waste disposal start date: October 2009

D. Current Operating Phase

Provide the startup date of the facility: 7/12/2006

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.**

Technical Attachment #1 – Treatment System Description

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)
Septic Tank 1	1- Cast in Place Concrete	20' x 12' x 8'
Septic Tank 2	1- Cast in Place Concrete	20' x 12' x 8'
Dosing Tank	1- Cast in Place Concrete	40' x 24' x 8'
Irrigation Field	1	4.13 Acres

C. Process Flow Diagram

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

Attachment: [Technical Attachment 2 – 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: 29.690555
- Longitude: -98.491388

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: [Technical Attachment #3 – Facility Site Plan](#)

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

The WWTP serves the Villas of Timberwood Park subdivision consisting of 75 single-family residential homes.

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
N/A		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.**

N/A

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

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*.

The HOA keeps and maintains the following reports and logs: 1) soil analysis data submitted annually, 2) drip irrigation field inspection logs kept weekly, and 3) a log of septic tank solids removal is kept.

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.

N/A

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.

N/A

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.

N/A

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:

N/A

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.

N/A

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.

N/A

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.

N/A

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 BOD₅ concentration of the sludge, and the design BOD₅ 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 BOD₅ concentration of the septic waste, and the design BOD₅ concentration of the influent from the collection system. Also note if this information has or has not changed since the last permit action.

N/A

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.

N/A

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

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

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

Pollutant	Average Conc.	Max Conc.	No. of Samples	Sample Type	Sample Date/Time
CBOD ₅ , mg/l	86		1	Grab	2-4-2025/ 0830
Total Suspended Solids, mg/l	35		1	Grab	2-4-2025/ 0830
Ammonia Nitrogen, mg/l					
Nitrate Nitrogen, mg/l	<0.5		1	Grab	2-4-2025/ 0830
Total Kjeldahl Nitrogen, mg/l					
Sulfate, mg/l	41		1	Grab	2-4-2025/ 0830
Chloride, mg/l	362		1	Grab	2-4-2025/ 0830
Total Phosphorus, mg/l					
pH, standard units	6.9		1	Grab	2-4-2025/ 0830
Dissolved Oxygen*, mg/l	N/A	N/A	N/A	N/A	N/A
Chlorine Residual, mg/l	0.04		1	Grab	2-4-2025/ 0830
<i>E.coli</i> (CFU/100ml) freshwater	>2,419		1	Grab	2-4-2025/ 0830
Enterococci (CFU/100ml) saltwater	N/A	N/A	N/A	N/A	N/A
Total Dissolved Solids, mg/l	1,052		1	Grab	2-4-2025/ 0830
Electrical Conductivity, µmohs/cm, †	2,080		1	Grab	2-4-2025/ 0830
Oil & Grease, mg/l					
Alkalinity (CaCO ₃)*, mg/l	N/A	N/A	N/A	N/A	N/A

*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: Randy Weyrick

Facility Operator's License Classification and Level: Wastewater Level C

Facility Operator's License Number: WW0053890

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 \geq 1 MGD
- Serves \geq 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 (\geq 2 years)
- Methane or Biogas Recovery

Other Treatment Process: *Transported to another facility for further processing*

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
Other	Off-site Third-Party Handler or Preparer	Not Applicable	61.41 tons (2024)	N/A: Transported to another facility for further processing	N/A: Transported to another facility for further processing
Choose an item.	Choose an item.	Choose an item.		Choose an item.	Choose an item.
Choose an item.	Choose an item.	Choose an item.		Choose an item.	Choose an item.

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

D. Disposal site

Disposal site name: Walnut Creek WWTP

TCEQ permit or registration number: WQ0010543011

County where disposal site is located: Travis

E. Transportation method

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

Name of the hauler: Wastewater Operations, LLC

Hauler registration number: 24188

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: N/A
- USDA Natural Resources Conservation Service Soil Map:
Attachment: N/A
- Federal Emergency Management Map:
Attachment: N/A
- Site map:
Attachment: N/A

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: N/A

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:

N/A

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: N/A

Total Kjeldahl Nitrogen, mg/kg: N/A

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

Phosphorus, mg/kg: N/A

Potassium, mg/kg: N/A

pH, standard units: N/A

Ammonia Nitrogen mg/kg: N/A

Arsenic: N/A

Cadmium: N/A

Chromium: N/A

Copper: N/A

Lead: N/A

Mercury: N/A

Molybdenum: N/A

Nickel: N/A

Selenium: N/A

Zinc: N/A

Total PCBs: N/A

Provide the following information:

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

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

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

C. Liner information

Does the active/proposed sludge lagoon(s) have a liner with a maximum hydraulic conductivity of 1×10^{-7} cm/sec?

- Yes No

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

N/A

D. Site development plan

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

N/A

Attach the following documents to the application.

- Plan view and cross-section of the sludge lagoon(s)
Attachment: N/A
- Copy of the closure plan
Attachment: N/A
- Copy of deed recordation for the site
Attachment: N/A
- Size of the sludge lagoon(s) in surface acres and capacity in cubic feet and gallons
Attachment: N/A
- Description of the method of controlling infiltration of groundwater and surface water from entering the site
Attachment: N/A
- Procedures to prevent the occurrence of nuisance conditions
Attachment: N/A

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:

N/A

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: N/A

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: Paul G. Colliander

Title: Secretary

Signature: _____

Date: _____

Paul G. Colliander
3/3/2025

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:

- | | |
|---|---|
| <input type="checkbox"/> Surface application | <input type="checkbox"/> Subsurface application |
| <input type="checkbox"/> Irrigation | <input type="checkbox"/> Subsurface soils absorption |
| <input type="checkbox"/> Drip irrigation system | <input checked="" type="checkbox"/> Subsurface area drip dispersal system |
| <input type="checkbox"/> Evaporation | <input type="checkbox"/> Evapotranspiration beds |
| <input type="checkbox"/> 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: [Click to enter text.](#)

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
Managed crops to consist of Bermuda & Rye grass	4.13	18,000	N

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
1 - Dosing Tank	0.022038	0.176307	40'Lx24'Wx8'D	Concrete

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

Attachment: N/A

Section 4. Flood and Runoff Protection (Instructions Page 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:

FEMA – 48029C0130G

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

Berms will be provided to prevent rainwater from entering the drip irrigation site.

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:** [Technical Attachment #4](#)

- 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:** [Technical Attachment #5](#)

- 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
6821405	Public Supply	Y	Cased.	Greater than 150 ft. buffer zone.

Well ID	Well Use	Producing? Y/N	Open, cased, capped, or plugged?	Proposed Best Management Practice
6821408	Public Supply	Y	Cased.	Greater than 150 ft. buffer zone.
6821409	Public Supply	Y	Cased.	Greater than 150 ft. buffer zone.
6821410	Public Supply	Y	Cased.	Greater than 150 ft. buffer zone.
6821411	Public Supply	Y	Cased.	Greater than 150 ft. buffer zone.
6821412	Public Supply	Y	Cased.	Pressure cemented; Greater than 150 ft. buffer zone.
6821413	Public Supply	Y	Cased.	Pressure cemented; Greater than 150 ft. buffer zone.
6821414	Public Supply	Y	Cased.	Pressure cemented; Greater than 150 ft. buffer zone.
6821424	Public Supply	N	Plugged.	Greater than 150 ft. buffer zone.
6821426	Public Supply	Y	Cased.	Pressure cemented; Greater than 150 ft. buffer zone.
6821427	Public Supply	Y	Cased.	Pressure cemented; Greater than 150 ft. buffer zone.

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

Attachment: [Technical Attachment #5A](#)

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: [Technical Attachment #6](#)

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: [Technical Attachment #7](#)

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: [Technical Attachment #8](#)

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
BtE—Brackett-Eckrant	0-20 in.	0.06 - 1.98 in/hr		80
Kr—Krum clay	0-80 in.	0.06 - 0.20 in/hr		74

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
12/2024	12,246	67	n/a	7.4	n/a	4.13
11/2024	7,015	49	n/a	7.3	n/a	4.13
10/2024	8,606	45	n/a	7.2	n/a	4.13
9/2024	10,133	66	n/a	7.2	n/a	4.13
8/2024	11,390	73	n/a	7.2	n/a	4.13
7/2024	12,719	67	n/a	7.0	n/a	4.13
6/2024	13,904	63	n/a	7.0	n/a	4.13
5/2024	13,476	87	n/a	7.2	n/a	4.13
4/2024	14,657	70	n/a	7.0	n/a	4.13

Date	30 Day Avg Flow MGD	BOD5 mg/l	TSS mg/l	pH	Chlorine Residual mg/l	Acres irrigated
3/2024	15,358	67	n/a	7.2	n/a	4.13
2/2024	14,665	76	n/a	7.1	n/a	4.13
1/2024	17,189	78	n/a	7.2	n/a	4.13
12/2023	14,152	100	n/a	7.3	n/a	4.13
11/2023	12,957	74	n/a	7.5	n/a	4.13
10/2023	11,564	58	n/a	7.2	n/a	4.13
9/2023	11,267	56	n/a	7.6	n/a	4.13
8/2023	13,174	40	n/a	7.0	n/a	4.13
7/2023	13,039	40	n/a	6.9	n/a	4.13
6/2023	13,030	46	n/a	7.1	n/a	4.13
5/2023	14,345	42	n/a	7.0	n/a	4.13
4/2023	11,761	78	n/a	7.2	n/a	4.13
3/2023	12,199	77	n/a	7.3	n/a	4.13
2/2023	15,558	129	n/a	7.2	n/a	4.13
1/2023	13,798	99	n/a	7.3	n/a	4.13

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

N/A

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.): TLAP, Region 13

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: Damien J. Herrera, PE

Address: 13423 Blanco Road #118

City, State, and Zip Code: San Antonio, TX 78216

Phone Number: 210-595-9565

3. Owner/Operator Contact Information

Owner Operator

Owner/Operator Name: THE VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION

Contact Name: Paul Colliander

Address: 405 Main Street

City, State, and Zip Code: Boerne, TX 78006

Phone Number: 210-844-5664

4. Facility Contact Information

Facility Name: TIMBERWOOD DEVELOPMENT WWTP

Address: Click to enter text.

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

Location description (if no address is available): The wastewater treatment facility is located 820 feet southeast of the intersection of Harmony Hills and Shady acers and the disposal area is located 1,600 feet southeast of the intersection of Harmony Hills and Shady Acres.

Facility Contact Person: Paul Colliander

Phone Number: 210-844-5664

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

Latitude: 29°41'26.0"N

Longitude: 98°29'29.0"W

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

Attach topographic quadrangle map as attachment A.

6. Well Information

Type of Well Construction, select one:

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

Number of Injection Wells: Click to enter text.

7. Purpose

Detailed Description regarding purpose of Injection System:

18 pressure-dosed absorption beds with a total field surface area of 180,000 square feet of non-public land. The purpose of the injection system is to reuse treated effluent to irrigate a green belt not accessible to the public.

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

8. Water Well Driller/Installer

Water Well Driller/Installer Name: N/A

City, State, and Zip Code: N/A

Phone Number: N/A

License Number: N/A

Section 2. Proposed Down Hole Design [N/A]

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				

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

Section 3. Proposed Trench System, Subsurface Fluid Distribution System, or Infiltration Gallery [N/A]

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

System(s) Dimensions: [Click to enter text.](#)

System(s) Construction: [Click to enter text.](#)

Section 4. Site Hydrogeological and Injection Zone Data [N/A]

1. Name of Contaminated Aquifer: [Click to enter text.](#)
2. Receiving Formation Name of Injection Zone: [Click to enter text.](#)
3. Well/Trench Total Depth: [Click to enter text.](#)
4. Surface Elevation: [Click to enter text.](#)
5. Depth to Ground Water: [Click to enter text.](#)
6. Injection Zone Depth: [Click to enter text.](#)
7. Injection Zone vertically isolated geologically? Yes No
 Impervious Strata between Injection Zone and nearest Underground Source of Drinking Water:
 Name: [Click to enter text.](#)
 Thickness: [Click to enter text.](#)
8. Provide a list of contaminants and the levels (ppm) in contaminated aquifer Attach as Attachment E.
9. Horizontal and Vertical extent of contamination and injection plume Attach as Attachment F.
10. Formation (Injection Zone) Water Chemistry (Background levels) TDS, etc. Attach as Attachment G.
11. Injection Fluid Chemistry in PPM at point of injection Attach as Attachment H.
12. Lowest Known Depth of Ground Water with < 10,000 PPM TDS: [Click to enter text.](#)
13. Maximum injection Rate/Volume/Pressure: [Click to enter text.](#)
14. Water wells within 1/4 mile radius (attach map as Attachment I): [Click to enter text.](#)
15. Injection wells within 1/4 mile radius (attach map as Attachment J): [Click to enter text.](#)

16. Monitor wells within 1/4 mile radius (attach drillers logs and map as Attachment K): [Click to enter text.](#)
17. Sampling frequency: [Click to enter text.](#)
18. Known hazardous components in injection fluid: [Click to enter text.](#)

Section 5. Site History [N/A]

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

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

Class V Injection Well Designations

- 5A07 Heat Pump/AC return (IW used for groundwater to heat and/or cool buildings)
- 5A19 Industrial Cooling Water Return Flow (IW used to cool industrial process equipment)
- 5B22 Salt Water Intrusion Barrier (IW used to inject fluids to prevent the intrusion of salt water into an aquifer)
- 5D02 Storm Water Drainage (IW designed for the disposal of rain water)
- 5D04 Industrial Stormwater Drainage Wells (IW designed for the disposal of rain water associated with industrial facilities)
- 5F01 Agricultural Drainage (IW that receive agricultural runoff)
- 5R21 Aquifer Recharge (IW used to inject fluids to recharge an aquifer)
- 5S23 Subsidence Control Wells (IW used to control land subsidence caused by ground water withdrawal)
- 5W09 Untreated Sewage
- 5W10 Large Capacity Cesspools (Cesspools that are designed for 5,000 gpd or greater)
- 5W11 Large Capacity Septic systems (Septic systems designed for 5,000 gpd or greater)
- 5W12 WTPP 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)

WQ 0014670001 TLAP PERMIT RENEWAL
TECHNICAL ATTACHMENT #1
TREATMENT PROCESS DESCRIPTION

WQ 0014670001 TLAP PERMIT RENEWAL
TECHNICAL ATTACHMENT #1
TREATMENT PROCESS DESCRIPTION

The effluent flows from the subdivision to the septic tanks by a pressurized force main from a lift station. In the septic tanks, the wastewater will receive anaerobic treatment. This treatment will bring the wastewater strength down from a design influent strength of 250 mg/l of BOD₅ to a strength less than 100 mg/l of BOD₅ leaving the septic tanks.

The primary tank is a 14,360-gallon reinforced cast-in-place concrete tank. The length of the tank is 20 feet, and the width is 12 feet. The liquid depth is 7 feet 7 inches. The invert flowline is at 7 feet 6 inches. The influent pipe is 3 inches in diameter.

The large size of the primary septic tank will decrease the velocity of the wastewater through the system. By decreasing the velocity of the wastewater, the design hydraulic residence time will be maintained to eliminate short-circuiting of the tank. This feature will ensure adequate treatment regardless of surges. Operating at peak surge capacity, the septic tank will receive 4,000 gallons of raw wastewater in a two-hour period from 6:00 AM to 8:00 AM. The lift station pumps are designed to operate at a rate of 50 gallons per minute which is calculated as follows:

Assume peak inflow: $Q_{\text{inflow}} = 4,000$ gallons
 $T = 2$ hours = 120 minutes
 $Q_{\text{pumps}} = 50$ gallons per minute

Wastewater is transferred from Tank 1 to Tank 2 through four 6-inch diameter pipes located 4 feet from the floor of the tank. The velocity into Tank 2 through the four pipes is:

$$V_{T2} = 50 \text{ gal/min} * \frac{1 \text{ ft}^3}{7.48 \text{ gal}} * \frac{1 \text{ min}}{60 \text{ s}} * \frac{1}{\text{Pipe Area}}$$

$$V_{T2} = 50 \text{ gal/min} * \frac{1 \text{ ft}^3}{7.48 \text{ gal}} * \frac{1 \text{ min}}{60 \text{ s}} * \frac{1}{0.785 \text{ ft}^2}$$

$$V_{T2} = 0.142 \text{ ft/s into Tank 2}$$

All effluent entering the tank will take 1.5 days to pass through the septic tank portion of the treatment ensuring effluent of the design quality less than 100 mg/l of BOD₅. This will eliminate “short-circuiting” of the septic tanks due to surge flows. All the solids will settle out in the first two chambers and a solids-free liquid will pour into the dosing tank. The dosing tank will be a 57,000-gallon reinforced cast-in-place concrete tank. The dosing tank dimensions are 40 feet long and 24 feet wide. The liquid depth is 8 feet, and the flow line of the pipe is 7.5 feet deep.

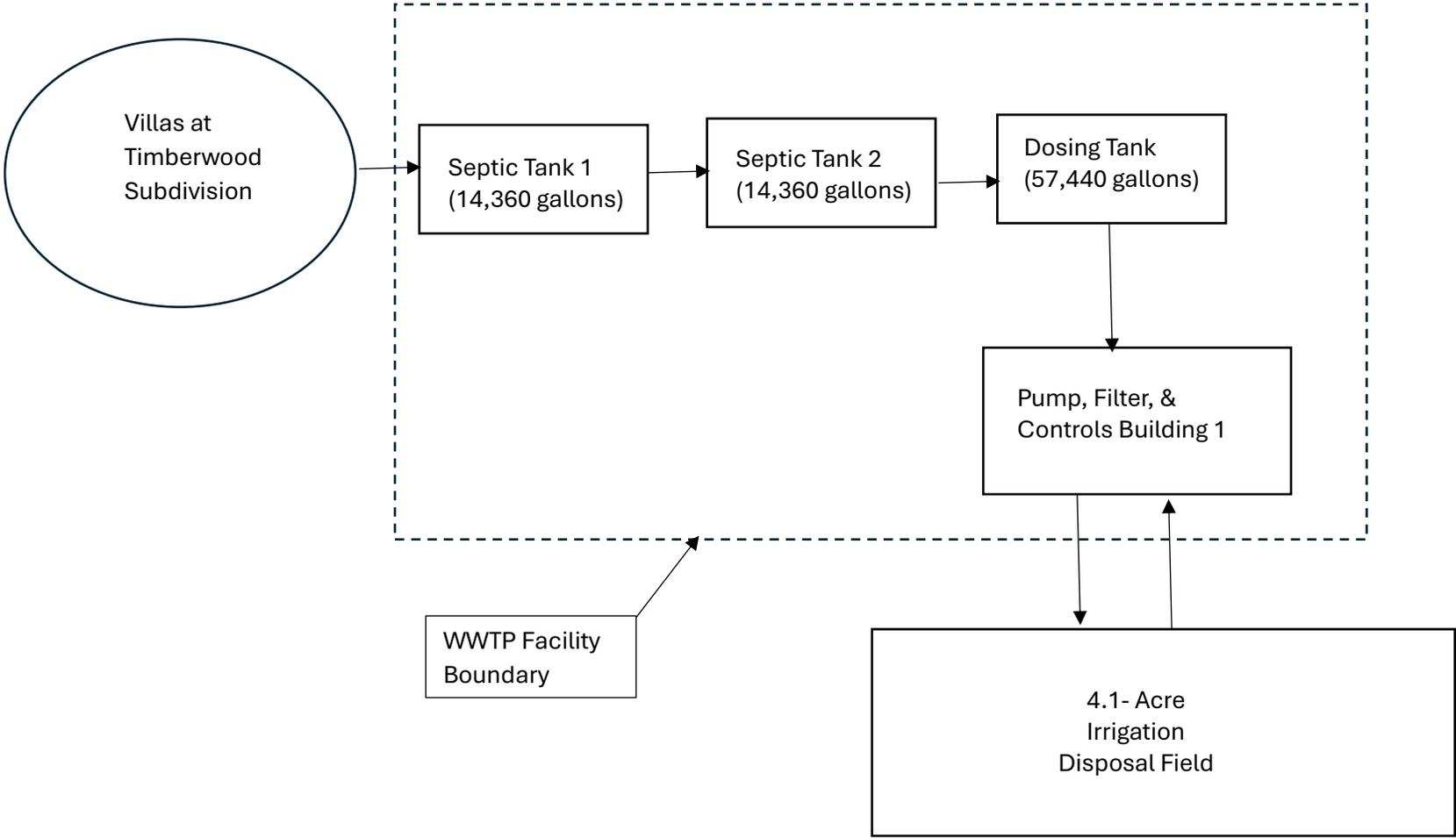
Design features of the tanks include a sanitary tee at the influent and effluent. The influent tee has a 16-inch-long pipe glued to the bottom of the tee. This pipe introduces the effluent directly into the clear liquid zone and reduces turbulence in the tank. This same feature is used on the effluent pipe which is designed to stop the transfer of solids from tank to tank and to ensure that all effluent is drawn down from the clear liquid zone of the tank. The tank is also outfitted with manways to aid in maintenance and cleaning of the tanks. The influent and effluent pipes have 1 inch fall across the length of the tank. The tanks are constructed of concrete and can withstand interior hydrostatic pressures and exterior soil pressures.

Once wastewater enters the dosing tank, it is then pumped through drip tubing and disposed through a subsurface pipe network. The wastewater leaves the drip irrigation management system and enters the supply main. The piping transmits water to the field control valves. When a zone is initiated, an electric impulse will start the pumps and simultaneously open the corresponding zone valves. Opening the valves enables a measured quantity of wastewater to enter the appropriate subfield. Upon entering the tubing, the water is dispersed through Netafim pressure compensating emitters. The emitters are spaced 2 feet on-center over the entire length of the dripper line. The emitters deliver a constant flow of 0.61 gallons per hour for flows that range from 7 psi to 60 psi. The water then enters the return manifold and passes through a check valve into the return line. The check valve does not allow water from the dosing zones to enter zones that have not been called upon to dose. The water in the return main pressurizes against the field flush return valve. The purpose of this valve is to scour the piping free of any biological build-up. This flushing is accomplished by opening the return valve after a certain number of zone doses. When the valve is open, a single zone is scoured, and the remaining effluent is returned to the head of the septic tank to receive further treatment for settling.

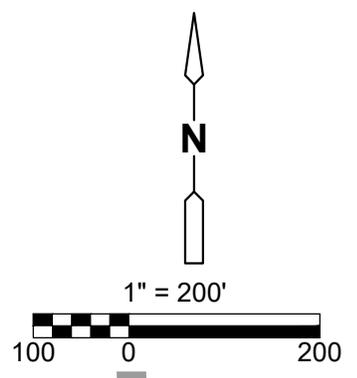
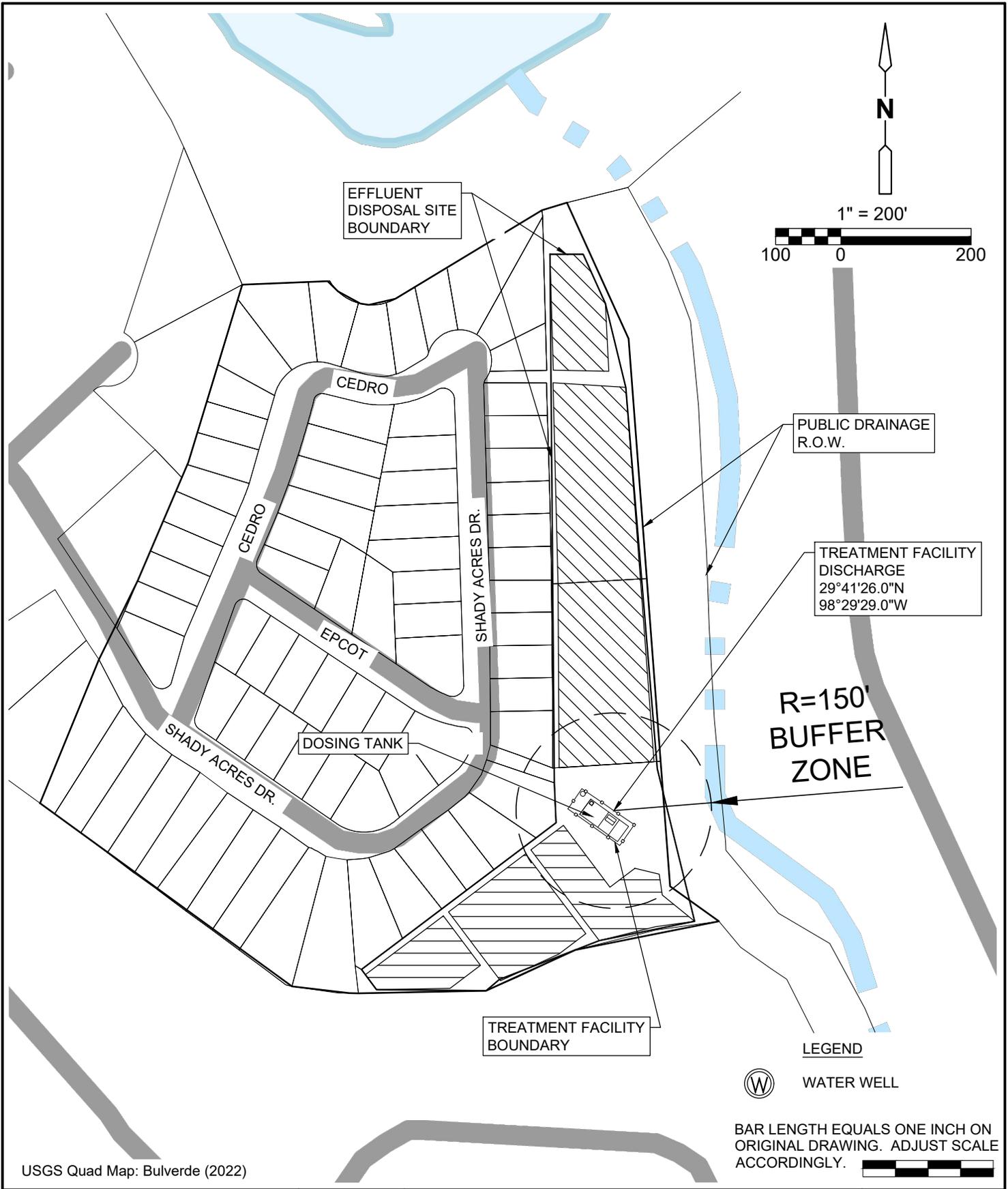
Upon leaving the drip tubing and entering the soil, the wastewater enters its final phase of treatment in the soil. Wastewater is treated by naturally occurring microorganisms and is emitted in the root zone of the grass that covers the field. Most of the wastewater and the nutrients are taken up by the roots and transformed into plant matter. Therefore, very little water is leftover in the soil to be treated.

WQ 0014670001 TLAP PERMIT RENEWAL
TECHNICAL ATTACHMENT #2
PROCESS FLOW SCHEMATIC

WQ 0014670001 TLAP PERMIT RENEWAL
TECHNICAL ATTACHMENT #2
PROCESS FLOW SCHEMATIC



WQ 0014670001 TLAP PERMIT RENEWAL
TECHNICAL ATTACHMENT #3
FACILITY SITE PLAN



PUBLIC DRAINAGE R.O.W.

TREATMENT FACILITY DISCHARGE
 29°41'26.0"N
 98°29'29.0"W

R=150'
 BUFFER ZONE

LEGEND

(W) WATER WELL

BAR LENGTH EQUALS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALE ACCORDINGLY.

USGS Quad Map: Bulverde (2022)

 13423 Blanco Rd, Suite 118 San Antonio TX 78216 Texas Firm Registration Number F-16949	PROJECT NO.	VILLAS OF TIMERWOOD PARK WWTP WASTEWATER TREATMENT PLANT PERMIT RENEWAL WQ0014670001 FACILITY SITE PLAN	EXHIBIT No.
	DATE		Technical Attachment - 3

WQ 0014670001 TLAP PERMIT RENEWAL
TECHNICAL ATTACHMENT #4
CROPPING PLAN

WQ 0014670001 TLAP PERMIT RENEWAL
TECHNICAL ATTACHMENT #4
CROPPING PLAN

The effluent disposal fields where the drip irrigation lines are installed were initially seeded with Bermuda and winter rye grass to ensure year-round uptake of water and nutrients. The Bermuda grass will grow from March to October. The winter rye grass will grow from November to February. The fields are mowed regularly to maintain a height of 3 to 6 inches to always ensure active growth. Supplemental irrigation is not necessary.

Fertilizer was applied at initial germination of the grass seed and future fertilization is not expected. Should additional fertilization be necessary, the application rates will not exceed 100-150 lbs/acre of N.

Custom Soil Resource Report for **Bexar County, Texas**

Villas at Timberwood WWTP



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

Preface	2
How Soil Surveys Are Made	5
Soil Map	8
Soil Map.....	9
Legend.....	10
Map Unit Legend.....	11
Map Unit Descriptions.....	11
Bexar County, Texas.....	13
BtE—Brackett-Eckrant association, 20 to 60 percent slopes.....	13
Kr—Krum clay, 1 to 5 percent slopes.....	15
References	17

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

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scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

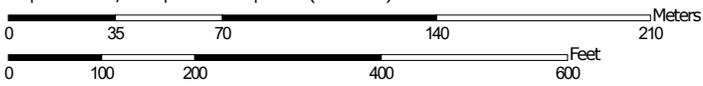
The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

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Soil Map



Soil Map may not be valid at this scale.

Map Scale: 1:2,460 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Bexar County, Texas
 Survey Area Data: Version 28, Aug 30, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 17, 2020—Jan 15, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BtE	Brackett-Eckrant association, 20 to 60 percent slopes	0.3	1.6%
Kr	Krum clay, 1 to 5 percent slopes	18.7	98.4%
Totals for Area of Interest		19.0	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

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onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Bexar County, Texas

BtE—Brackett-Eckrant association, 20 to 60 percent slopes

Map Unit Setting

National map unit symbol: 2yly3
Elevation: 1,000 to 2,400 feet
Mean annual precipitation: 30 to 37 inches
Mean annual air temperature: 65 to 70 degrees F
Frost-free period: 220 to 270 days
Farmland classification: Not prime farmland

Map Unit Composition

Brackett and similar soils: 60 percent
Eckrant and similar soils: 36 percent
Minor components: 4 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Brackett

Setting

Landform: Ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from limestone

Typical profile

A - 0 to 4 inches: gravelly clay loam
Bw - 4 to 12 inches: clay loam
Cr - 12 to 60 inches: bedrock

Properties and qualities

Slope: 20 to 60 percent
Depth to restrictive feature: 6 to 20 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.06 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 90 percent
Gypsum, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 1.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R081CY362TX - Steep Adobe 29-35 PZ
Hydric soil rating: No

Description of Eckrant

Setting

Landform: Ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Residuum weathered from limestone

Typical profile

A1 - 0 to 4 inches: very cobbly clay
A2 - 4 to 12 inches: very cobbly clay
R - 12 to 30 inches: bedrock

Properties and qualities

Slope: 20 to 60 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
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 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Very low (about 0.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R081CY363TX - Steep Rocky 29-35 PZ
Hydric soil rating: No

Minor Components

Krum

Percent of map unit: 2 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R081CY357TX - Clay Loam 29-35 PZ
Hydric soil rating: No

Patrick

Percent of map unit: 1 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R081CY574TX - Shallow 29-35 PZ
Hydric soil rating: No

Crawford

Percent of map unit: 1 percent
Landform: Ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R081CY358TX - Deep Redland 29-35 PZ
Hydric soil rating: No

Kr—Krum clay, 1 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2ylv9
Elevation: 600 to 1,600 feet
Mean annual precipitation: 30 to 37 inches
Mean annual air temperature: 65 to 70 degrees F
Frost-free period: 220 to 270 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Krum and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Krum

Setting

Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Alluvium derived from limestone

Typical profile

A - 0 to 26 inches: clay
Bw1 - 26 to 36 inches: clay
Bw2 - 36 to 50 inches: clay
BCK - 50 to 79 inches: clay

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

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Frequency of ponding: None
Calcium carbonate, maximum content: 50 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 3.0
Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: R081CY357TX - Clay Loam 29-35 PZ
Hydric soil rating: No

Minor Components

Eckrant

Percent of map unit: 4 percent
Landform: Ridges
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R081CY360TX - Low Stony Hill 29-35 PZ
Hydric soil rating: No

Brackett

Percent of map unit: 4 percent
Landform: Ridges
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R081CY355TX - Adobe 29-35 PZ
Hydric soil rating: No

Frio

Percent of map unit: 2 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R081CY561TX - Loamy Bottomland 29-35 PZ
Hydric soil rating: No

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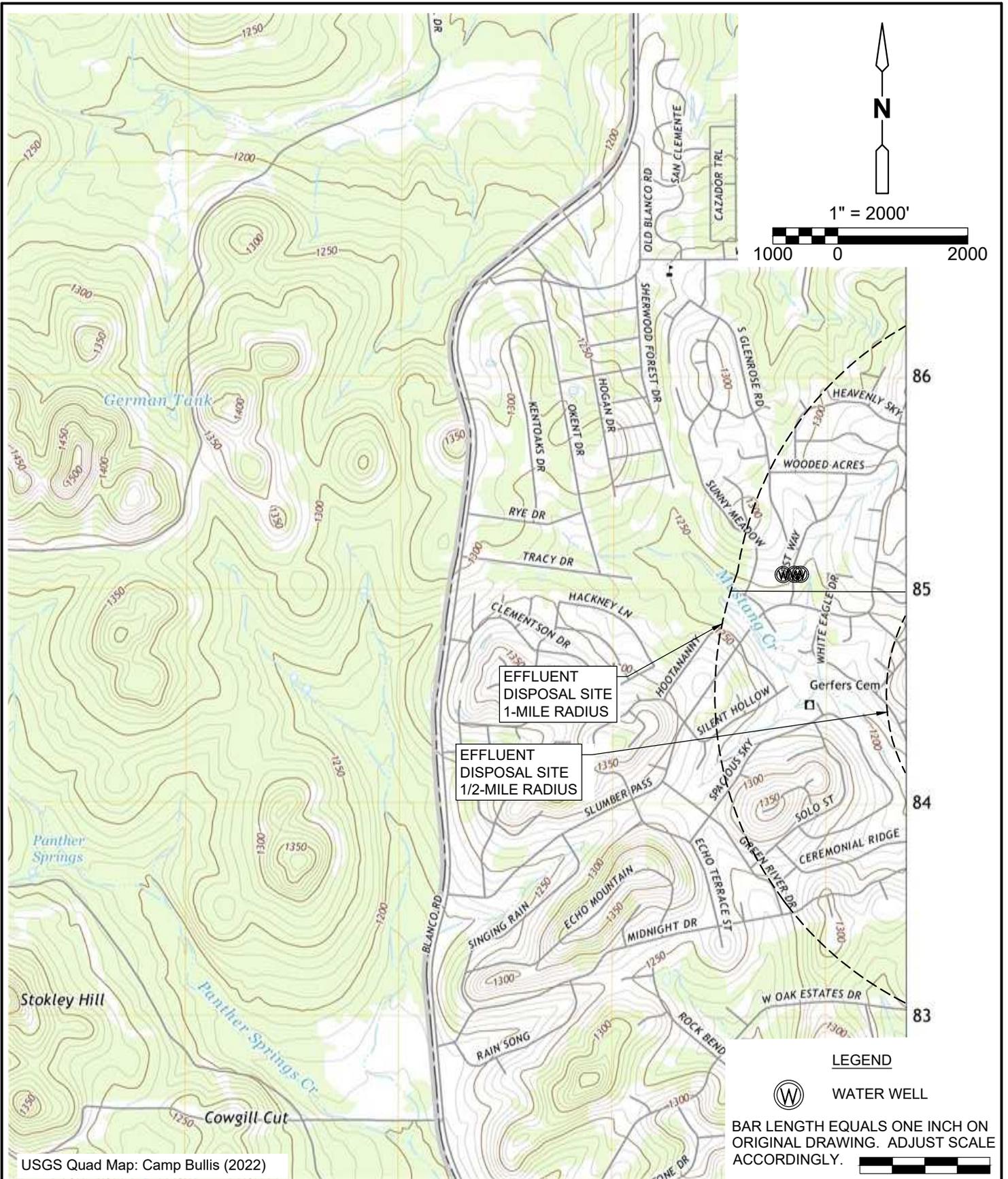
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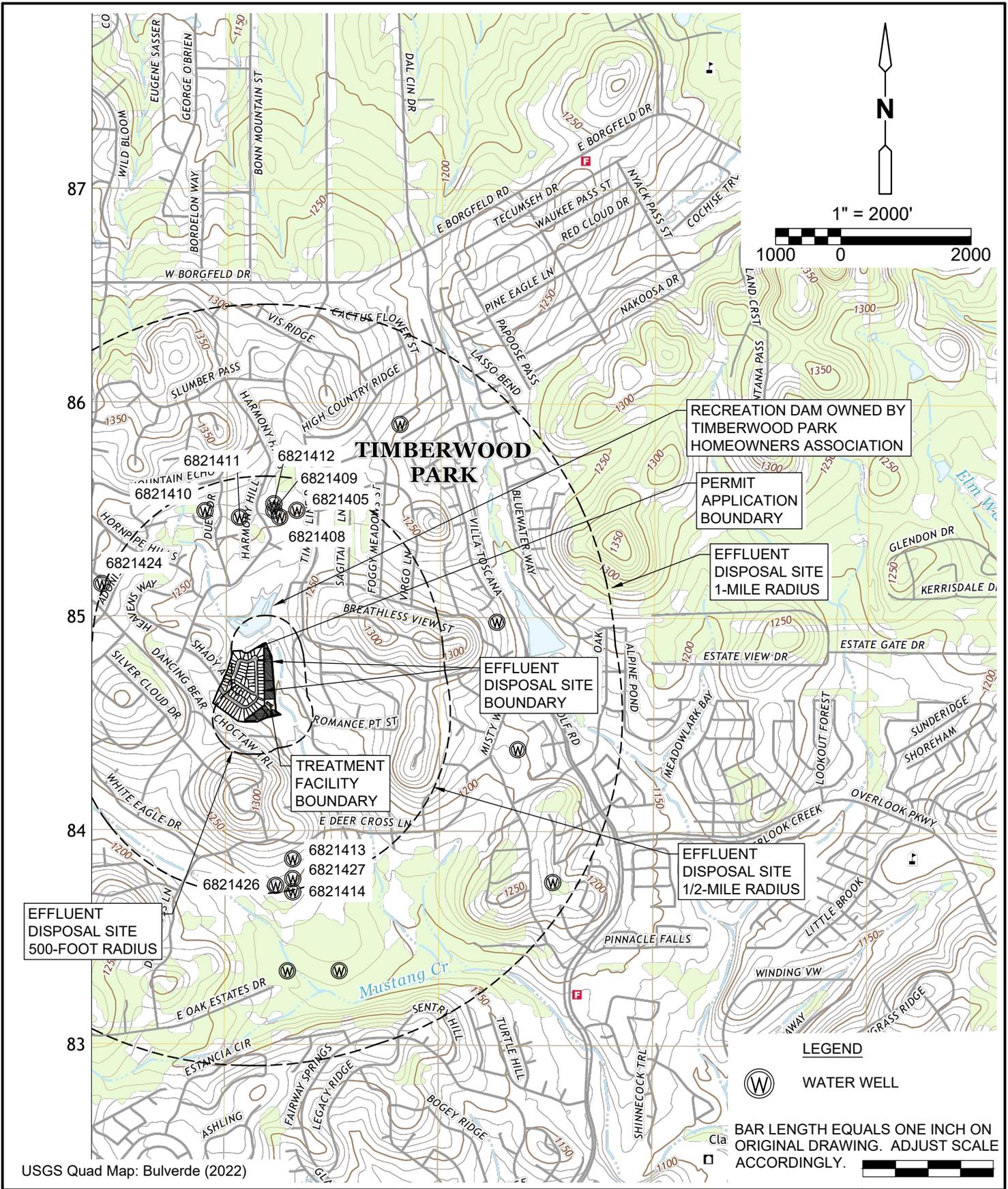
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WQ 0014670001 TLAP PERMIT RENEWAL
TECHNICAL ATTACHMENT #5
USGS WELL AND MAP INFORMATION



 13423 Blanco Rd, Suite 118 San Antonio TX 78216 Texas Firm Registration Number F-16949	PROJECT NO.	VILLAS OF TIMERWOOD PARK WWTP WASTEWATER TREATMENT PLANT PERMIT RENEWAL WQ0014670001 USGS / WELL LOCATION MAP #1	EXHIBIT No.
	DATE		Technical Attachment - 5



USGS Quad Map: Bulverde (2022)

 <p>13423 Blanco Rd, Suite 118 San Antonio TX 78216 Texas Firm Registration Number F-16949</p>	PROJECT NO.	VILLAS OF TImERWOOD PARK WWTP WASTEWATER TREATMENT PLANT PERMIT RENEWAL WQ0014670001 USGS / WELL LOCATION MAP #2	EXHIBIT No.
	DATE		Technical Attachment - 5

**WQ 0014670001 TLAP PERMIT RENEWAL
TECHNICAL ATTACHMENT #5A
WELL LOGS AND WATER QUALITY DATA**

[GWDB Reports and Downloads](#)

Well Basic Details

[Scanned Documents](#)

State Well Number	6821405
County	Bexar
River Basin	San Antonio
Groundwater Management Area	9
Regional Water Planning Area	L - South Central Texas
Groundwater Conservation District	Trinity Glen Rose GCD
Latitude (decimal degrees)	29.698611
Latitude (degrees minutes seconds)	29° 41' 55" N
Longitude (decimal degrees)	-98.49
Longitude (degrees minutes seconds)	098° 29' 24" W
Coordinate Source	Global Positioning System - GPS
Aquifer Code	218GRCCU - Lower Glen Rose and Cow Creek Limestones
Aquifer	Trinity
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	1250
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	647
Well Depth Source	Driller's Log
Drilling Start Date	
Drilling End Date	2/16/1977
Drilling Method	Cable Tool
Borehole Completion	Open Hole

Well Type	Withdrawal of Water
Well Use	Public Supply
Water Level Observation	Miscellaneous Measurements
Water Quality Available	Yes
Pump	Submersible
Pump Depth (feet below land surface)	399
Power Type	Electric Motor
Annular Seal Method	
Surface Completion	
Owner	BMW-Timberwood Park Well #1
Driller	Hill Country Water, Inc.
Other Data Available	Drillers Log
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	G0150270A
Groundwater Conservation District Well Number	
Owner Well Number	1
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	6/6/2002
Last Update Date	7/25/2016

Remarks Cemented from 0 to 322 feet.

Casing						
Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
7	Blank	Steel			0	310
6	Open Hole				310	647

Well Tests - No Data

Lithology - No Data

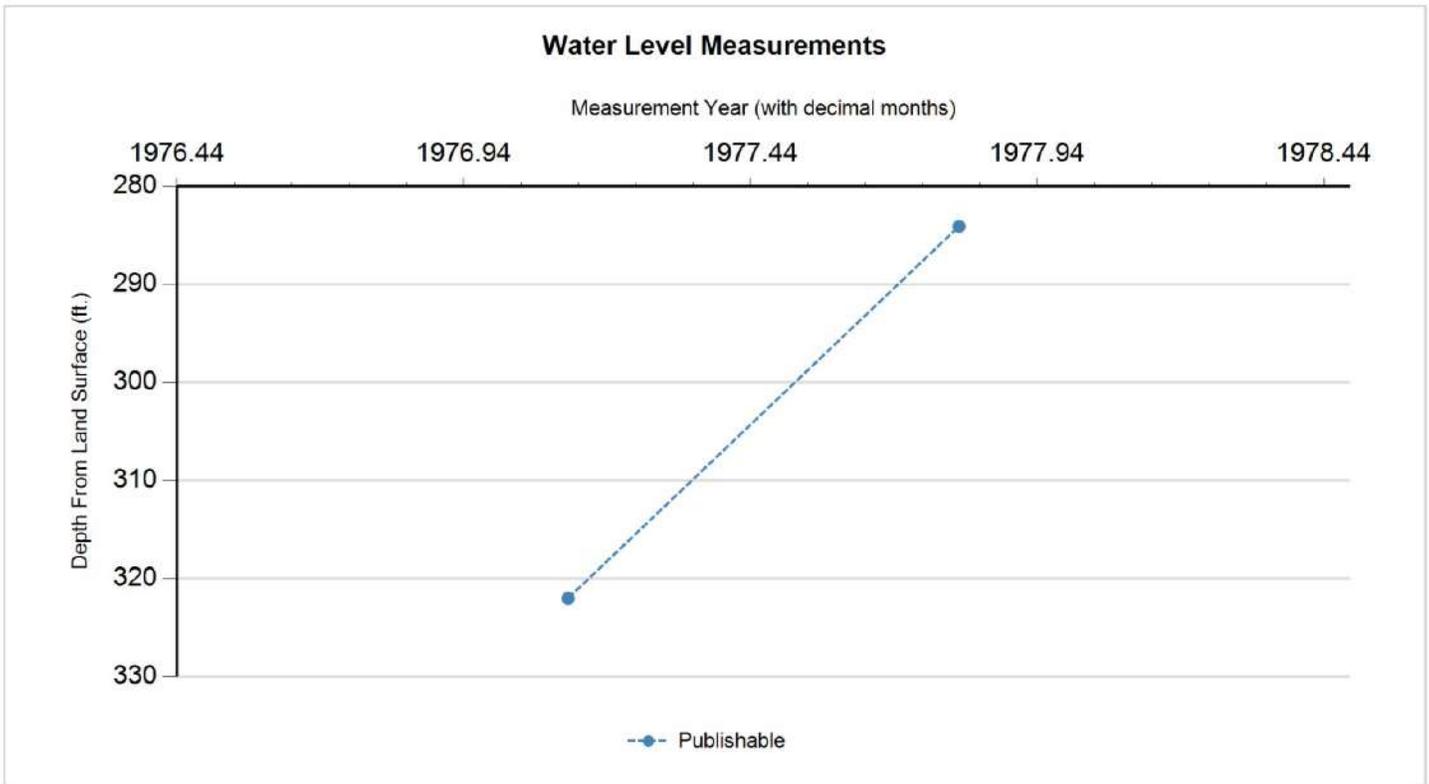
Annular Seal Range - No Data

Borehole - No Data

Plugged Back - No Data

Filter Pack - No Data

Packers - No Data



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	2/16/1977		322		928	1	Other or Source of Measurement Unknown	Unknown		
P	10/25/1977		284.1	(37.90)	965.9	1	Other or Source of Measurement Unknown	Unknown		

Code Descriptions

Status Code	Status Description
P	Publishable

Water Quality Analysis

Sample Date: 10/26/1977 **Sample Time:** 0000 **Sample Number:** 1 **Collection Entity:** Texas Department of Health

Sampled Aquifer: Lower Glen Rose and Cow Creek Limestones

Analyzed Lab: Texas Department of Health

Reliability: From well not sufficiently pumped; not filtered or preserved

Collection Remarks: plant discharge - chlorinated

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO ₃)		279	mg/L as CaCO ₃	
01503	ALPHA, DISSOLVED (PC/L)	<	2	PC/L	
03503	BETA, DISSOLVED (PC/L)	<	4	PC/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO ₃)		340.48	mg/L	
00910	CALCIUM (MG/L)		90	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO ₃)		0	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		14	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.3	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO ₃)		311	mg/L as CaCO ₃	
01045	IRON, TOTAL (UG/L AS FE)		60	ug/L	
00920	MAGNESIUM (MG/L)		21	mg/L	
01055	MANGANESE, TOTAL (UG/L AS MN)	<	20	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO ₃)		9.43	mg/L as NO ₃	
00620	NITRATE NITROGEN, TOTAL (MG/L AS N)		2.13	mg/L as N	
00400	PH (STANDARD UNITS), FIELD		7.9	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		0.2		
00932	SODIUM, CALCULATED, PERCENT		5	PCT	
00929	SODIUM, TOTAL (MG/L AS NA)		8	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		625	MICR	
00945	SULFATE, TOTAL (MG/L AS SO ₄)		17	mg/L as SO ₄	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		327	mg/L	

Water Quality Analysis

Sample Date: 4/6/1999 **Sample Time:** 1050 **Sample Number:** 1 **Collection Entity:** Bexar Metropolitan Water District

Sampled Aquifer: Lower Glen Rose and Cow Creek Limestones

Analyzed Lab: LCRA - Lower Colorado River Authority

Reliability: Sampled using TWDB protocols

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
39086	ALKALINITY FIELD DISSOLVED AS CaCO3		270	mg/L as CaCO3	
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		267	mg/L as CaCO3	
01106	ALUMINUM, DISSOLVED (UG/L AS AL)	<	4	ug/L	
01095	ANTIMONY, DISSOLVED (UG/L AS SB)	<	1	ug/L	
01000	ARSENIC, DISSOLVED (UG/L AS AS)	<	2	ug/L	
01005	BARIUM, DISSOLVED (UG/L AS BA)		30.9	ug/L	
01010	BERYLLIUM, DISSOLVED (UG/L AS BE)	<	1	ug/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		325.83	mg/L	
01020	BORON, DISSOLVED (UG/L AS B)		82	ug/L	
71870	BROMIDE, DISSOLVED, (MG/L AS BR)		0.1	mg/L	
01025	CADMIUM, DISSOLVED (UG/L AS CD)	<	1	ug/L	
00915	CALCIUM, DISSOLVED (MG/L AS CA)		76	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00941	CHLORIDE, DISSOLVED (MG/L AS CL)		13.4	mg/L	
01030	CHROMIUM, DISSOLVED (UG/L AS CR)		11.9	ug/L	
01035	COBALT, DISSOLVED (UG/L AS CO)	<	1	ug/L	
01040	COPPER, DISSOLVED (UG/L AS CU)		3.4	ug/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.62	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		316	mg/L as CaCO3	
01046	IRON, DISSOLVED (UG/L AS FE)		58	ug/L	
01049	LEAD, DISSOLVED (UG/L AS PB)	<	1	ug/L	
01130	LITHIUM, DISSOLVED (UG/L AS LI)		5.9	ug/L	
00925	MAGNESIUM, DISSOLVED (MG/L AS MG)		30.4	mg/L	
01056	MANGANESE, DISSOLVED (UG/L AS MN)	<	1	ug/L	
01060	MOLYBDENUM, DISSOLVED (UG/L AS MO)		2.3	ug/L	
01065	NICKEL, DISSOLVED (UG/L AS NI)		10.8	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		3.03	mg/L as NO3	
00631	NITRITE PLUS NITRATE, DISSOLVED (MG/L AS N)		0.685	mg/L as N	

Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-405

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00608	NITROGEN, AMMONIA, DISSOLVED (MG/L AS N)		< 0.05	mg/L as N	
00623	NITROGEN, KJELDAHL, DISSOLVED (MG/L AS N)		0.302	mg/L as N	
00090	OXIDATION REDUCTION POTENTIAL (ORP), MILLIVOLTS		264.4	MV	
00400	PH (STANDARD UNITS), FIELD		7.14	SU	
00666	PHOSPHORUS, DISSOLVED (MG/L AS P)		< 0.04	mg/L as P	
00935	POTASSIUM, DISSOLVED (MG/L AS K)		1.98	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
01145	SELENIUM, DISSOLVED (UG/L AS SE)		< 4	ug/L	
00955	SILICA, DISSOLVED (MG/L AS SI02)		11.8	mg/L as SIO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		0.22		
00932	SODIUM, CALCULATED, PERCENT		5	PCT	
00930	SODIUM, DISSOLVED (MG/L AS NA)		8.9	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		592	MICR	
01080	STRONTIUM, DISSOLVED (UG/L AS SR)		1600	ug/L	
00946	SULFATE, DISSOLVED (MG/L AS SO4)		26.2	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		23.4	C	
01057	THALLIUM, DISSOLVED (UG/L AS TL)		< 1	ug/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		334	mg/L	
01085	VANADIUM, DISSOLVED (UG/L AS V)		4.6	ug/L	
01090	ZINC, DISSOLVED (UG/L AS ZN)		132	ug/L	

Water Quality Analysis

Sample Date: 6/7/2000 **Sample Time:** 1145 **Sample Number:** 1 **Collection Entity:** Bexar Metropolitan Water District

Sampled Aquifer: Lower Glen Rose and Cow Creek Limestones

Analyzed Lab: LCRA - Lower Colorado River Authority

Reliability: Sampled using TWDB protocols

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
39086	ALKALINITY FIELD DISSOLVED AS CaCO3		268	mg/L as CaCO3	
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		282	mg/L as CaCO3	
01106	ALUMINUM, DISSOLVED (UG/L AS AL)	<	4	ug/L	
01095	ANTIMONY, DISSOLVED (UG/L AS SB)	<	1	ug/L	
01000	ARSENIC, DISSOLVED (UG/L AS AS)	<	2	ug/L	
01005	BARIUM, DISSOLVED (UG/L AS BA)		29.5	ug/L	
01010	BERYLLIUM, DISSOLVED (UG/L AS BE)	<	1	ug/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		344.14	mg/L	
01020	BORON, DISSOLVED (UG/L AS B)		82.9	ug/L	
71870	BROMIDE, DISSOLVED, (MG/L AS BR)		0.08	mg/L	
01025	CADMIUM, DISSOLVED (UG/L AS CD)	<	1	ug/L	
00915	CALCIUM, DISSOLVED (MG/L AS CA)		82	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00941	CHLORIDE, DISSOLVED (MG/L AS CL)		14.4	mg/L	
01030	CHROMIUM, DISSOLVED (UG/L AS CR)		5.12	ug/L	
01035	COBALT, DISSOLVED (UG/L AS CO)	<	1	ug/L	
01040	COPPER, DISSOLVED (UG/L AS CU)		6.42	ug/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.59	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		319	mg/L as CaCO3	
01046	IRON, DISSOLVED (UG/L AS FE)	<	50	ug/L	
01049	LEAD, DISSOLVED (UG/L AS PB)	<	1	ug/L	
01130	LITHIUM, DISSOLVED (UG/L AS LI)		6.22	ug/L	
00925	MAGNESIUM, DISSOLVED (MG/L AS MG)		27.4	mg/L	
01056	MANGANESE, DISSOLVED (UG/L AS MN)		1.29	ug/L	
01060	MOLYBDENUM, DISSOLVED (UG/L AS MO)		1.79	ug/L	
01065	NICKEL, DISSOLVED (UG/L AS NI)		2.7	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		5.76	mg/L as NO3	
00631	NITRITE PLUS NITRATE, DISSOLVED (MG/L AS N)		1.3	mg/L as N	

Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-405

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00400	PH (STANDARD UNITS), FIELD		6.87	SU	
00935	POTASSIUM, DISSOLVED (MG/L AS K)		2.01	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
01145	SELENIUM, DISSOLVED (UG/L AS SE)	<	4	ug/L	
00955	SILICA, DISSOLVED (MG/L AS SI02)		12	mg/L as SIO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		0.23		
00932	SODIUM, CALCULATED, PERCENT		6	PCT	
00930	SODIUM, DISSOLVED (MG/L AS NA)		9.48	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		616	MICR	
01080	STRONTIUM, DISSOLVED (UG/L AS SR)		1550	ug/L	
00946	SULFATE, DISSOLVED (MG/L AS SO4)		25.4	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		23.2	C	
01057	THALLIUM, DISSOLVED (UG/L AS TL)	<	1	ug/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		349	mg/L	
01085	VANADIUM, DISSOLVED (UG/L AS V)		2.51	ug/L	
01090	ZINC, DISSOLVED (UG/L AS ZN)		119	ug/L	

Water Quality Analysis

Sample Date: 6/6/2002 **Sample Time:** 1035 **Sample Number:** 1 **Collection Entity:** Bexar Metropolitan Water District

Sampled Aquifer: Lower Glen Rose and Cow Creek Limestones

Analyzed Lab: LCRA - Lower Colorado River Authority

Reliability: Sampled using TWDB protocols

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
39086	ALKALINITY FIELD DISSOLVED AS CaCO3		288	mg/L as CaCO3	
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		276	mg/L as CaCO3	
01106	ALUMINUM, DISSOLVED (UG/L AS AL)	<	4	ug/L	
01095	ANTIMONY, DISSOLVED (UG/L AS SB)	<	1	ug/L	
01000	ARSENIC, DISSOLVED (UG/L AS AS)	<	2	ug/L	
01005	BARIUM, DISSOLVED (UG/L AS BA)		31.2	ug/L	
01010	BERYLLIUM, DISSOLVED (UG/L AS BE)	<	1	ug/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		336.82	mg/L	
01020	BORON, DISSOLVED (UG/L AS B)	<	50	ug/L	
71870	BROMIDE, DISSOLVED, (MG/L AS BR)		0.0628	mg/L	
01025	CADMIUM, DISSOLVED (UG/L AS CD)	<	1	ug/L	
00915	CALCIUM, DISSOLVED (MG/L AS CA)		88.1	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00941	CHLORIDE, DISSOLVED (MG/L AS CL)		25.2	mg/L	
01030	CHROMIUM, DISSOLVED (UG/L AS CR)		2.22	ug/L	
01035	COBALT, DISSOLVED (UG/L AS CO)	<	1	ug/L	
01040	COPPER, DISSOLVED (UG/L AS CU)		3.25	ug/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.28	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		307	mg/L as CaCO3	
01046	IRON, DISSOLVED (UG/L AS FE)	<	50	ug/L	
01049	LEAD, DISSOLVED (UG/L AS PB)	<	1	ug/L	
01130	LITHIUM, DISSOLVED (UG/L AS LI)		2.94	ug/L	
00925	MAGNESIUM, DISSOLVED (MG/L AS MG)		21.2	mg/L	
01056	MANGANESE, DISSOLVED (UG/L AS MN)		2.28	ug/L	
01060	MOLYBDENUM, DISSOLVED (UG/L AS MO)	<	1	ug/L	
01065	NICKEL, DISSOLVED (UG/L AS NI)		3.78	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		8.63	mg/L as NO3	
00631	NITRITE PLUS NITRATE, DISSOLVED (MG/L AS N)		1.95	mg/L as N	

Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-405

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00400	PH (STANDARD UNITS), FIELD		7.01	SU	
00935	POTASSIUM, DISSOLVED (MG/L AS K)		1.1	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
01145	SELENIUM, DISSOLVED (UG/L AS SE)	<	4	ug/L	
00955	SILICA, DISSOLVED (MG/L AS SI02)		12.5	mg/L as SIO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		0.31		
00932	SODIUM, CALCULATED, PERCENT		8	PCT	
00930	SODIUM, DISSOLVED (MG/L AS NA)		12.3	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		642	MICR	
01080	STRONTIUM, DISSOLVED (UG/L AS SR)		554	ug/L	
00946	SULFATE, DISSOLVED (MG/L AS SO4)		16.8	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		25	C	
01057	THALLIUM, DISSOLVED (UG/L AS TL)	<	1	ug/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		352	mg/L	
01085	VANADIUM, DISSOLVED (UG/L AS V)		1.55	ug/L	
01090	ZINC, DISSOLVED (UG/L AS ZN)		89.3	ug/L	

Water Quality Analysis

Sample Date: 5/13/2003 **Sample Time:** 1400 **Sample Number:** 1 **Collection Entity:** Bexar Metropolitan Water District

Sampled Aquifer: Lower Glen Rose and Cow Creek Limestones

Analyzed Lab: LCRA - Lower Colorado River Authority

Reliability: Sampled using TWDB protocols

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
39086	ALKALINITY FIELD DISSOLVED AS CaCO3		250	mg/L as CaCO3	
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		284	mg/L as CaCO3	
01106	ALUMINUM, DISSOLVED (UG/L AS AL)	<	4	ug/L	
01095	ANTIMONY, DISSOLVED (UG/L AS SB)	<	1	ug/L	
01000	ARSENIC, DISSOLVED (UG/L AS AS)	<	2	ug/L	
01005	BARIUM, DISSOLVED (UG/L AS BA)		32.4	ug/L	
01010	BERYLLIUM, DISSOLVED (UG/L AS BE)	<	1	ug/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		346.58	mg/L	
01020	BORON, DISSOLVED (UG/L AS B)		60.8	ug/L	
71870	BROMIDE, DISSOLVED, (MG/L AS BR)		0.0953	mg/L	
01025	CADMIUM, DISSOLVED (UG/L AS CD)	<	1	ug/L	
00915	CALCIUM, DISSOLVED (MG/L AS CA)		87.5	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00941	CHLORIDE, DISSOLVED (MG/L AS CL)		21.8	mg/L	
01030	CHROMIUM, DISSOLVED (UG/L AS CR)		4.36	ug/L	
01035	COBALT, DISSOLVED (UG/L AS CO)	<	1	ug/L	
01040	COPPER, DISSOLVED (UG/L AS CU)		5.02	ug/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.37	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		316	mg/L as CaCO3	
01046	IRON, DISSOLVED (UG/L AS FE)	<	50	ug/L	
01049	LEAD, DISSOLVED (UG/L AS PB)		1.17	ug/L	
01130	LITHIUM, DISSOLVED (UG/L AS LI)		4.18	ug/L	
00925	MAGNESIUM, DISSOLVED (MG/L AS MG)		23.6	mg/L	
01056	MANGANESE, DISSOLVED (UG/L AS MN)	<	1	ug/L	
01060	MOLYBDENUM, DISSOLVED (UG/L AS MO)		1.29	ug/L	
01065	NICKEL, DISSOLVED (UG/L AS NI)		2.93	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		7.08	mg/L as NO3	
00631	NITRITE PLUS NITRATE, DISSOLVED (MG/L AS N)		1.6	mg/L as N	

**Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-405**

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00400	PH (STANDARD UNITS), FIELD		6.73	SU	
00935	POTASSIUM, DISSOLVED (MG/L AS K)		1.46	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
01145	SELENIUM, DISSOLVED (UG/L AS SE)	<	4	ug/L	
00955	SILICA, DISSOLVED (MG/L AS SI02)		13	mg/L as SIO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		0.3		
00932	SODIUM, CALCULATED, PERCENT		7	PCT	
00930	SODIUM, DISSOLVED (MG/L AS NA)		12.2	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		658	MICR	
01080	STRONTIUM, DISSOLVED (UG/L AS SR)		956	ug/L	
00946	SULFATE, DISSOLVED (MG/L AS SO4)		20.5	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		22.6	C	
01057	THALLIUM, DISSOLVED (UG/L AS TL)	<	1	ug/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		358	mg/L	
01085	VANADIUM, DISSOLVED (UG/L AS V)		2.46	ug/L	
01090	ZINC, DISSOLVED (UG/L AS ZN)		52.5	ug/L	

* Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..

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TEXAS WATER DEVELOPMENT BOARD

WELL SCHEDULE

Aquifer: Lower Glen Rose Hessell
Cow Creek? Field No. _____
 Owner's Well No. _____

State Well No. 68-21-405
 County Bexar

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

2. Owner: HASKIN WATER UTILITY INC Address: 15403 Capitol Port SAN ANTONIO, TX 78222
Timberwood Park Address: _____
 * Driller: Hill Country Water Works Address: _____

3. Elevation of _____ is 1250 ft. above mol, determined by Topo

4. Drilled: Feb 16 19 77; Dag Cable Tool Rotary,

5. Depth: Rept. 647 ft. Meas. _____ ft.

6. Completions: Open Hole, Straight Wall, Underreamed, Gravel Packed

7. Pump: Mfr. _____ Type Sub
 No. Stages _____, Bore Dia. _____ in., Setting 322 ft.
 Column Dia. _____ in., Length Tailpipe _____ ft.

8. Motor: Fuel elec Make & Model _____ HP. 10

9. Yield: Flow _____ gpm, Pump _____ gpm, Meas., Rept., Est. _____

10. Performance Test: Date _____ Length of Test _____ Made by _____

Static Level _____ ft. Pumping Level _____ ft. Drawdown _____ ft.

Production _____ gpm Specific Capacity _____ gpm/ft.

11. Water Level: 285.16 ft. rept. meas. 10-25 1977 above Top cement block measuring pipe which is 41.0 ft. above surface.
322 ft. rept. meas. 2-16 1977 above 322 ft. which is _____ ft. above surface.
 _____ ft. rept. meas. _____ 19 above _____ ft. above surface.
 _____ ft. rept. meas. _____ 19 above _____ ft. above surface.

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

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

Temp. _____ °F, Date sampled for analysis _____ Laboratory _____
 Temp. _____ °F, Date sampled for analysis _____ Laboratory _____
 Temp. _____ °F, Date sampled for analysis _____ Laboratory _____

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

Formation Samples, Pumping Test,

15. Record by: G. Manguardt Date 10-25 19 77

Source of Data Obs & Driller

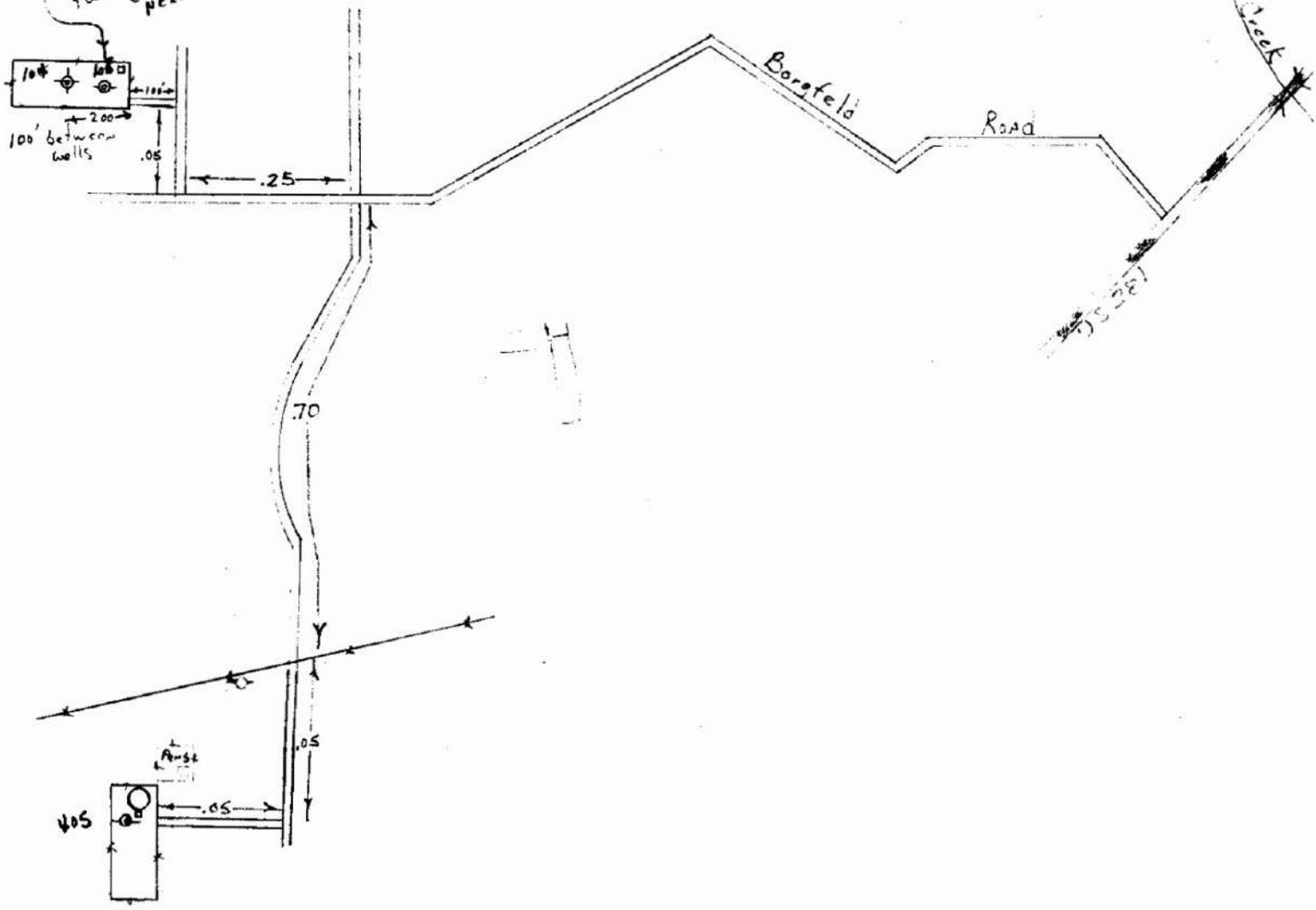
16. Remarks: * Completed by Haskin

CASING & BLANK PIPE			
Cemented From <u>0</u> ft. to <u>322</u> ft.		Setting, ft.	
Diam. (in.)	Type	from to	
		<u>7</u>	<u>Steel</u>

WELL SCREEN			
Screen Openings		Setting, ft.	
Diam. (in.)	Type	from to	
		<u>open hole</u>	

From (ft.)	To (ft.)	Description and color of formation material	9) Casing Type: <u>Old</u>
0	8	Caliche & Top Soil	Cemented from Yellow clay Diameter (inches)
8	38	Firm Brown limestone	
38	70	Firm Gray limestone	7"
70	103	Firm Brown limestone	
103	280	Firm Brown & Gray limestone	
280	340	Firm Brown & White limestone	10" Screen Type
340	370	Firm Gray limestone	
370	440	Firm Brown limestone	Perfora
440	500	Firm Gray limestone	Diameter (inches)
500	550	Firm Brown limestone	
550	640	Firm Gray limestone	
640	647	Barren shale	

Tall water tower & two ground storage tanks next to well



Send original copy by certified mail to the Texas Water Development Board, P. O. Box 13087, Austin, Texas 78711

State of Texas

For TWDB use only
Well No. 64-21-16
Located on sec. 16, T. 21, S. 16
Received 77

WATER WELL REPORT

1) OWNER:
Person having well drilled G.G. GALE Address 15315 San Pedro Ave
(Name) (Street or RFD) (City) (State)
Landowner (DEVELOPMENT COMPANY) Address San Antonio, July 78 216
(Name) (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County BEXAR 22 1/2 miles in NORTH direction from _____
(N.E., S.W., etc.) (Town)

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

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

Labor _____ League _____

Block _____ Survey _____

Abstract No. _____

(NW 1/4 NE 1/4 SW 1/4 SE 1/4) of Section _____

(Use reverse side if necessary)

North



3) TYPE OF WORK (Check):
 New Well Deepening Reconditioning Plugging
4) PURPOSE USE (Check):
 Domestic Industrial Irrigation Test Well Municipal Other
5) TYPE OF WELL (Check):
 Cable Rotary Driven Jetted Bored

6) WELL LOG:
Diameter of hole 8" in. Depth drilled 647' ft. Depth of completed well 647' ft. Date drilled 2-16-77
All measurements made from _____ ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material	9) Casing Type	New	Steel	Plastic	Other
0	8	Caliche & Top Soil	Old				
8	38	Firm Brown limestone					
38	70	Firm Gray limestone					
70	103	Firm Brown limestone					
103	280	Firm Brown & Gray limestone					
280	340	Firm Brown & white limestone					
340	370	Firm Gray limestone					
370	440	Firm Brown limestone					
440	500	Firm Gray limestone					
500	550	Firm Brown limestone					
550	640	Firm Gray limestone					
640	647	Brown shale					

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

WATER LEVEL:
Static level 322' ft. below land surface Date 2-16-77
Artesian pressure _____ lbs. per square inch Date _____
Depth to pump bowls, cylinder, jet, etc., _____ ft. below land surface.

10 HP Submersible installed
6-10-77

11) WELL TESTS:
Was a pump test made? Yes If yes, by whom? _____
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.
Bailer test _____ gpm with _____ ft. drawdown after _____ hrs.
Artesian flow _____ gpm
Temperature of water _____

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

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

NAME GLEN H. HASKIN Water Well Driller License No. 935
(Type or Print)

ADDRESS 15403 CAPITAL PORT San Antonio Texas
(Street or RFD) (City) (State)

Signed) Glen H. Haskin
(Water Well Driller)

Please attach electric log, chemical analysis, and other pertinent information.
Additional instructions on reverse side.

Date 3/7/77

HASKIN PUMP SERVICE, INC.

15403 Capital Port

San Antonio Texas

492-2141

78249

Name Timberwood Park - Unit 1 #1

Location Timberline Drive

Total Depth 647' Well Capacity _____

Total Pipe 310' of 7" O.D. Date Started _____

Drilling Time _____ Date Completed 2/16/77

Kind of Formation Glenrose Water Level 322'

0	--	8	Caliche & Topsoil
8	--	38	Firm Brown Limestone & Yellow Clay
38	--	70	Firm Gray Limestone
70	--	103	Firm Brown Limestone
103	--	280	Firm Brown & Gray Limestone
280	--	340	Firm Brown & White Limestone
340	--	370	Firm Gray Limestone
370	--	440	Firm Brown Limestone
440	--	500	Firm Gray Limestone
500	--	550	Firm Brown Limestone
550	--	640	Firm Gray Limestone
640	--	647	Brown Shale

Pressure Cemented --
89 sacks #1 Neat

Cemented by use of tremie pipe
by HASKIN PUMP SERVICE INC.

Glen H. Haskin
Glen H. Haskin, President

Driller W.W. Jones

Rig No. 5-246

6821405

#1 WELL

26975 Timberline Dr.

Please use black ink. Send original copy by certified mail to the Texas Water Commission, P.O. Box 13087, Austin, Texas 78711.

State of Texas
WATER WELL REPORT

Texas Water Well Drillers Board
P. O. Box 13087
Austin, Texas 78711

ATTENTION OWNER: Confidentiality Privilege Notice on Reverse Side

1) OWNER **Haskin Water Utility, Inc.** - Address **15403 Capital Port San Antonio, TX 78249**
(Name) (Street or RFD) (City) (State) (Zip)

2) LOCATION OF WELL: County **Bexar** **19 1/2** miles in **North** direction from **San Antonio**
(Town)

Legal description:
Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Section Texas County General Highway Map and attach the map to this form.

Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

See attached map.

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

4) PROPOSED USE (Check): Domestic Industrial Monitor Public Supply Irrigation Test Well Injection Other

5) DRILLING METHOD (Check): Driven Mud Rotary Air Hammer Jetted Bored Air Rotary Cable Tool Other

6) WELL LOG:

Date Drilling:	DIAMETER OF HOLE		
	Started	Completed	
19 <u>77</u>	19 <u>77</u>		

7) BOREHOLE COMPLETION:
 Open Hole Straight Wall Underreamed
 Gravel Packed Other _____

If Gravel Packed give interval ... from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	8	Caliche & Top Soil
8	38	Firm Brown Limestone
38	70	Firm Gray Limestone
70	103	Firm Brown Limestone
103	280	Firm Brown & Gray Limest
280	340	Firm Brown & White Lmst
340	370	Firm Gray Limestone
370	440	Firm Brown Limestone
440	500	Firm Gray Limestone
500	550	Firm Brown Limestone
550	640	Firm Gray Limestone
640	647	Brown Shale

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.)		Gage Casing Screen
			From	To	
70	N	Steel	0	310	

9) CEMENTING DATA [Rule 319.44(b)]
Cemented from 310 ft. to 0 ft. No. of Sacks Used 89
_____ ft. to _____ ft. No. of Sacks Used _____
Method used: pressure cementing
Cemented by: Haskin Pump Service, Inc.
pressure cemented with 1" tremmi pipe

10) SURFACE COMPLETION
 Specified Surface Slab Installed [Rule 319.44(c)]
 Pitless Adapter Used [Rule 319.44(d)]
 Approved Alternative Procedure Used [Rule 319.71]

11) WATER LEVEL:
Static level 322 ft. below land surface Date 2/16/77
Artesian flow 125 gpm. Date 2/16/77

12) PACKERS:

Type	Depth

13) TYPE PUMP:
 Turbine Jet Submersible Cylinder
 Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

18) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? Yes No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? Yes No

14) WELL TESTS:
Type Test: Pump Bailor Jetted Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 12 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME **Haskin Pump Service** Water Well Driller's License No. **935**
(Type or Print)

ADDRESS **15403 Capital Port San Antonio, Texas 78249**
(Street or RFD) (City) (State) (Zip)

(Signed) Glen H. Haskin (Registered Driller Trainee)
Glen H. Haskin
Please attach electric log, chemical analysis, and other pertinent information, if available.

For TWC use only
Well No. _____
Located on map _____

REQUEST FOR CHEMICAL ANALYSIS OF WATER
 TEXAS DEPARTMENT OF HEALTH
 170 WEST 106th STREET, AUSTIN, TEXAS 78758

NAME OF WATER SYSTEM
MR. GLEN HARRIS
12402 CAPITAL POINT
LEN ARNOLD, TX 78247

NAME OF WATER SYSTEM
 [REDACTED]
 Area Served SUBRV.
 County [REDACTED]
 Date Collected [REDACTED]

TYPE OF COLLECTION POINT
 Raw Supply _____
 Distribution _____
 Other _____
 Flow Supply _____
 Volume 580
 Chlor. _____
 Distribution _____
 Other _____
 Volume 1

REMARKS Water used for drinking water & household purposes
 Name of Public Official, Water Utility, District, or other authority responsible for analysis
Raymond B. [REDACTED] REG 9
P.O. DR. 630, MOORE, TX 75841
 (Signature) (Address (if rural))

FOR LABORATORY USE ONLY

CHEMICAL ANALYSIS RESULTS		PHYSICAL ANALYSIS	
Concentration	Units	Concentration	Units
Calcium	97	Hardness	142
Magnesium	2.2	Color	1.0
Sulfate	7	Chloride	17
Chloride	17	Iron	0.2
Bicarbonate	346	Copper	0.02
Sulfate	17	Zinc	0.01
Chloride	17	Manganese	0.01
Fluoride	0.3	Nitrate	0.1
Nitrate (as N)	2.1	Silica	0.1
Hardness (CaCO ₃)	100	Dissolved Solids	326
Total Solids	175	Total Solids	0
Total Solids	175	Total Solids	2.1
Total Solids	175	Total Solids	3.0

6821488



FINAL ANALYSIS REPORT

LAB ID: 9906306 SAMPLE DESCRIPTION: Groundwater
 COMPANY: TX Water Dev. Board SAMPLE DATE: 04/06/99
 ACCT NO: SAMPLE TIME: 1130
 REQUISITION No.: R10584 DATE RECEIVED: 04/09/99
 LOCATION ID: 68-21-405 REPORT DATE: 05/05/99

PARAMETER	RESULTS	UNITS	STORET #	PQL in WATER	DATE ANALYZED
Bromide	0.10	mg/L	71870	0.02	04/14/99
Chloride	13.4	mg/L	00941	1.5	04/14/99
Fluoride	0.62	mg/L	00950	0.01	04/14/99
Nit., nitri/nitra-AFA	0.685	mg/L	00630	0.010	04/28/99
Nitrogen, Kjeldahl	0.302	mg/L	00623	0.040	04/14/99
Nitrogen, ammonia	<0.050	mg/L	00608	0.050	04/15/99
Phosphorus, Total	<0.040	mg/L	00665	0.040	04/14/99
Silica	11.80	mg/L	00955	0.50	04/13/99
Sulfate	26.20	mg/L	00946	1.50	04/14/99
Alkalinity, Total	267	mg/L	00410	1	04/12/99
Alkalinity, Phenol.	0	mg/L	00415	0	04/12/99
Boron, Dissolved	82.00	ug/L	01020	50.00	04/13/99
Cobalt, Diss. ICPMS	<1.0	ug/L	01035	1.0	04/12/99
Iron, Dissolved	58.00	ug/L	01046	50.00	04/13/99
Lithium, Diss. ICPMS	5.9	ug/L	01130	2.0	04/13/99
Molybdenum Dis ICPMS	2.3	ug/L	01060	1.0	04/12/99
Potassium, Dissolved	1.98	mg/L	00935	0.20	04/13/99
Strontium, Dissolved	1600.00	ug/L	01080	20.00	04/13/99
Vanadium, Diss ICPMS	4.6	ug/L	01085	1.0	04/12/99
Aluminum, Dis. ICPMS	<4.0	ug/L	01106	4.0	04/12/99
Arsenic, Diss. ICPMS	<2.0	ug/L	01000	2.0	04/12/99
Barium, Diss. ICPMS	30.9	ug/L	01005	1.0	04/12/99
Cadmium, Diss. ICPMS	<1.0	ug/L	01025	1.0	04/12/99
Calcium, Dissolved	76.00	mg/L	00915	0.20	04/13/99
Chromium, Diss ICPMS	11.9	ug/L	01030	1.0	04/12/99
Copper, Diss. ICPMS	3.4	ug/L	01040	2.0	04/12/99
Lead, Diss. ICPMS	<1.0	ug/L	01049	1.0	04/12/99
Magnesium, Dissolved	30.40	mg/L	00925	0.20	04/13/99
Manganese, Dis ICPMS	<1.0	ug/L	01056	1.0	04/12/99
Nickel, Diss. ICPMS	10.8	ug/L	01065	1.0	04/12/99
Selenium, Dis. ICPMS	<4.0	ug/L	01145	4.0	04/12/99
Sodium, Dissolved	8.90	mg/L	00930	0.20	04/13/99
Antimony, Dis. ICPMS	<1.0	ug/L	01095	1.0	04/12/99
Beryllium, Dis ICPMS	<1.0	ug/L	01010	1.0	04/12/99
Thallium, Diss ICPMS	<1.0	ug/L	01057	1.0	04/12/99
Zinc, Diss. ICPMS	132.0	ug/L	01090	2.0	04/12/99

LCRA Environmental Laboratory Services

Date: 03-Jul-00

CLIENT: Texas Water Development Board
Lab Order: 0006145 **COC ID:** 13701
Project: TWDB 9/99 thru 8/00
Lab ID: 0006145-05

Client Sample ID: 68-21-405
 BM-3118-2000
Collection Date: 06/07/2000 11:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	QC Batch	Date Analyzed
ICP METALS, DISSOLVED		E200.7					Analyst: BL
Calcium	82.0	0.200		mg/L	1	R4757	06/29/2000
Magnesium	27.4	0.200		mg/L	1	R4757	06/29/2000
Potassium	2.01	0.200		mg/L	1	R4757	06/29/2000
Sodium	9.48	0.700		mg/L	1	R4757	06/29/2000
ICP METALS, DISSOLVED		E200.7					Analyst: BL
Boron	82.9	50.0		µg/L	1	R4758	06/29/2000
Iron	ND	50.0		µg/L	1	R4758	06/29/2000
Strontium	1550	20.0		µg/L	1	R4758	06/29/2000
ICPMS METALS, DISSOLVED		E200.8					Analyst: PJM
Aluminum	ND	4.00		µg/L	1	R4784	06/30/2000
Antimony	ND	1.00		µg/L	1	R4784	06/30/2000
Arsenic	ND	2.00		µg/L	1	R4784	06/30/2000
Barium	29.5	1.00		µg/L	1	R4784	06/30/2000
Beryllium	ND	1.00		µg/L	1	R4784	06/30/2000
Cadmium	ND	1.00		µg/L	1	R4784	06/30/2000
Chromium	5.12	1.00		µg/L	1	R4784	06/30/2000
Cobalt	ND	1.00		µg/L	1	R4784	06/30/2000
Copper	6.42	2.00		µg/L	1	R4784	06/30/2000
Lead	ND	1.00		µg/L	1	R4784	06/30/2000
Lithium	6.22	2.00	B	µg/L	1	R4784	06/30/2000
Manganese	1.29	1.00		µg/L	1	R4784	06/30/2000
Molybdenum	1.79	1.00		µg/L	1	R4784	06/30/2000
Nickel	2.70	1.00		µg/L	1	R4784	06/30/2000
Selenium	ND	4.00		µg/L	1	R4784	06/30/2000
Thallium	ND	1.00		µg/L	1	R4784	06/30/2000
Vanadium	2.51	1.00		µg/L	1	R4784	06/30/2000
Zinc	119	4.00		µg/L	1	R4784	06/30/2000
ANIONS BY ION CHROMATOGRAPHY		E300					Analyst: AMJ
Bromide	0.0800	0.0200		mg/L	1	R4715A	06/26/2000
Chloride	14.4	1.50		mg/L	1	R4715A	06/26/2000
Fluoride	0.590	0.0100		mg/L	1	R4715A	06/26/2000
Sulfate	25.4	1.50		mg/L	1	R4715A	06/26/2000
ALKALINITY		M2320 B					Analyst: WR
Alkalinity, Phenolphthalein	ND	0		mg/L CaCO3	1	R4636	06/20/2000
Alkalinity, Total (As CaCO3)	282	2.00		mg/L CaCO3	1	R4636	06/20/2000
CATION/ANION BALANCE		CALCULATION					Analyst: AMJ

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank E - Value above quantitation range
 * - Value exceeds Maximum Contaminant Level

LCRA Environmental Laboratory Services

Date: 03-Jul-00

CLIENT: Texas Water Development Board
 Lab Order: 0006145 COC ID: 13701
 Project: TWDB 9/99 thru 8/00
 Lab ID: 0006145-05

Client Sample ID: 68-21-405
 BM-3118-2000
 Collection Date: 06/07/2000 11:45:00 AM
 Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	QC Batch	Date Analyzed
Cation/Anion Balance	Balanced	0		Date	1	R4796	06/30/2000
NITRATE AND NITRITE		E353.2					Analyst: CL
Nitrogen, Nitrate & Nitrite	1.30	0.0200		mg/L	1	R4727H	06/27/2000
SILICA		E370.1					Analyst: CL
Silica, Dissolved (as SiO2)	12.0	0.500		mg/L	1	R4676E	06/23/2000

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

TWDB Water Quality Field Data Sheet

New Well: State Well Number: 88-21-405 County: BEXAR Aquifer Code: EDWARDS Aquifer id: EDWARDS

Send Results To: Owner's Name: B.M.W.D. Lessee's Name: MICHAEL J. ALBACH Attention: MICHAEL J. ALBACH Mailing Address: 2047 W. MALONE S.A. TX. 78225

Type of Sample: Sample Number: BM-3118-2000 Date: JUNE 7, 2000 Sampler(s): ROGER P.

Well Number: W/P #1

1 (on job) 500ml (filtered) Anions n/a	2 500ml (filtered) Cations 1ml Nitric (HNO3)	3 (on job) 250ml (filtered) Nitrate 0.5ml Sulfuric (H2SO4)	
---	---	---	--

Water Level from LSD: _____ ft

Remark code: _____

Temperature (00010): 23.2 C

Specific Conductance: 616 umho/cm

pH: 6.87

Phenol Alkalinity (82244): 0.0 mg/L

Total Alkalinity (39086): 288.0 mg/L

Carbonate: 0.00 meq/L

Bicarbonate: 5.36 meq/L

Carbonate: 0.0 mg/L

Bicarbonate: 327.1 mg/L

Total Hardness: 327 mg/L

TDS: 350 mg/L

Balanced: By

Time In: 11:00 Time Out: 12:00

Pumping Since: 11:20 Weather: SUNNY/COOL

Outside Temperature: 82

Sampling Point: F@W

Sample Time: 11:45

Well Use: PUBLIC Lift: S

Power: ELECTRIC Latitude: 29-40-35

Longitude: 98-37-04 Elevation: _____

Titration	
Start pH	<u>6.95</u>
End pH	<u>4.5</u>
50 ml. Sample	<u>13.4</u> ml. Acid added for Total
	<u> </u> ml. Acid added for Phenol

Daily Meter Calibration	
Reading	
pH	<u>7</u>
4 or 10	<u>10.04</u>
Conductivity (uS/cm, umhos/cm)	
500	<u>501</u>
1000	<u>1000</u>
2000	<u> </u>
5000	<u> </u>

(mark)

Time:	<u>11:25</u>	<u>11:30</u>	<u>11:35</u>
pH:	<u>6.81</u>	<u>6.84</u>	<u>6.87</u>
Temperature:	<u>22.8</u>	<u>23.0</u>	<u>23.2</u>
Conductivity:	<u>602</u>	<u>610</u>	<u>616</u>
Conductivity Temp.	<u>22.7</u>	<u>22.9</u>	<u>23.1</u>

Other notes: PRESSURE LINE FILTERED

Entered Screen 1 2 3 4

2002FY

TWDB Water Quality Field Data Sheet

State Well Number: 68-21-405

Name: BEXAR METRO WATER

Sample ID Number: RM 1418-02

County: BEXAR

Address: 2055 W. MALONE

Date: 6-6-02

County Code: 029

SAN ANTONIO TX, 78225

Sampler(s): M. APAEZ

Aquifer Code: TRINITY 218 GRCC U

Phone Number: (210) 357-5706

Aquifer Id: 28

Attention: ROGER PLACENCIA

Well Name or #: 07 SW. P#1

Timberwood Park

CIRCLE EACH SAMPLE FRACTION COLLECTED:				
1	2	3	4	5
500ml (filtered)	500ml (filtered)	250ml (filtered)		
Anions / Total Alk.	Cations	Nitrate		
Ice	Nitric (HNO3)	Ice + H2SO4		

Proper preservation requires adding enough of the correct acid to each sample fraction to bring the pH below 2.0.

Calibration Verification Readings	
pH	7.00 7.00
	4 or 10 10.01
SLP =	56.8
Conductivity	500 500
	1000 1000
	2000
	5000

Time In: 1010

Time Out: 1050

W. L. depth from LSD (ft.): 647

W.L. remark:

M.P. =

Pumping Since: 1010

Sampling Point: F.A.W

Well Use: PUBLIC

FIELD G.P.S. readings

Lift: SUBMERSIBLE

Latitude:

Power: ELECTRIC

Longitude:

Sample Time: 1035

Filter pressure: hand pump / (line)

Field Alkalinity Titration:	
7.15	Start pH 4.5 End pH
50.0	mL Sample Size
	mL Acid added for Phenol (> 8.3)
14.4	mL Acid added for Total (8.3 - 4.5)
Items below calculated from: mL acid added x 20 = Alkalinity	
Phenol Alkalinity (82244):	mg/L
Total Alkalinity (190889):	288 mg/L

Items Below Calculated Later From Results:	
Dissolved Solids (mg/L):	352
Hardness (as CaCO3):	307
Balanced:	✓

Water Quality Stabilization Parameters Table

(at least 3 readings at five minute intervals)

Notes:

Time:	1015	1020	1025	1030		
pH:	6.79	6.98	7.01	7.01		
Celsius Temp. (00010):	25.0	25.0	25.0	25.0		
Conductivity (µS/cm):	641	641	642	642		

Data Entered By Sampler Into Database: yes / no

LCRA Environmental Laboratory Services

Date: 27-Jun-02

CLIENT: Texas Water Development Board **Client Sample ID:** 68-21-405
Lab Order: 0206103 **File No:** 20140
Project: TWDB FY02 **Collection Date:** 6/6/02 10:35:00 AM
Lab ID: 0206103-05 **Matrix:** GROUNDWATER

Analyses	Storet	Result	PQL	Qual	Units	DF	BatchID	Date Analyzed
ICP METALS DISSOLVED			E200.7					Analyst: MLP
Calcium		88.1	0.20		mg/L	1	R14721A	6/18/02 7:25:26 PM
Magnesium		21.2	0.20		mg/L	1	R14721A	6/18/02 7:25:26 PM
Potassium		1.10	0.20		mg/L	1	R14721A	6/18/02 7:25:26 PM
Sodium		12.3	0.70		mg/L	1	R14721A	6/18/02 7:25:26 PM
ICP METALS DISSOLVED			E200.7					Analyst: MLP
Boron		ND	50		µg/L	1	R14665A	6/18/02 7:25:26 PM
Iron		ND	50		µg/L	1	R14665A	6/18/02 7:25:26 PM
Strontium		554	20		µg/L	1	R14665A	6/18/02 7:25:26 PM
ICPMS DISSOLVED METALS			E200.8					Analyst: SW
Aluminum		ND	4.00		µg/L	1	R14656A	6/18/02
Antimony		ND	1.00		µg/L	1	R14656A	6/18/02
Arsenic		ND	2.00		µg/L	1	R14656A	6/18/02
Barium		31.2	1.00		µg/L	1	R14656A	6/18/02
Beryllium		ND	1.00		µg/L	1	R14656A	6/18/02
Cadmium		ND	1.00		µg/L	1	R14656A	6/18/02
Chromium		2.22	1.00		µg/L	1	R14656A	6/18/02
Cobalt		ND	1.00		µg/L	1	R14656A	6/18/02
Copper		3.25	1.00		µg/L	1	R14656A	6/18/02
Lead		ND	1.00		µg/L	1	R14656A	6/18/02
Lithium		2.94	2.00		µg/L	1	R14656A	6/18/02
Manganese		2.28	1.00		µg/L	1	R14656A	6/18/02
Molybdenum		ND	1.00		µg/L	1	R14656A	6/18/02
Nickel		3.78	1.00		µg/L	1	R14656A	6/18/02
Selenium		ND	4.00		µg/L	1	R14656A	6/18/02
Thallium		ND	1.00		µg/L	1	R14656A	6/18/02
Vanadium		1.55	1.00		µg/L	1	R14656A	6/18/02
Zinc		89.3	4.00		µg/L	1	R14656A	6/18/02
CATION/ANION BALANCES			CALCULATION					Analyst: AMJ
Cation/Anion Balance		Balanced			Date	1	R14778	6/26/02
ANIONS BY ION CHROMATOGRAPHY, DISSOLVE E300			E300					Analyst: WR
Bromide Dissolved		0.06	0.02		mg/L	1	R14737B	6/21/02 9:44:38 PM
Chloride Dissolved		25.2	1.00		mg/L	1	R14737B	6/21/02 9:44:38 PM

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank E - Value above quantitation range
 * - Value exceeds Maximum Contaminant Level

LCRA Environmental Laboratory Services

Date: 27-Jun-02

CLIENT: Texas Water Development Board
Lab Order: 0206103 **File No:** 20140
Project: TWDB FY02
Lab ID: 0206103-05

Client Sample ID: 68-21-405
Collection Date: 6/6/02 10:35:00 AM
Matrix: GROUNDWATER

Analyses	Storet	Result	PQL	Qual	Units	DF	BatchID	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY, DISSOLVE E300								
Fluoride Dissolved		0.28	0.01		mg/L	1	R14737B	6/21/02 9:44:38 PM
Sulfate Dissolved		16.8	1.00		mg/L	1	R14737B	6/21/02 9:44:38 PM
ALKALINITY								
			M2320 B					
Alkalinity, Phenolphthalein		ND	0		mg/L CaCO	1	R14631	6/14/02
Alkalinity, Total (As CaCO3)		276	2		mg/L CaCO	1	R14631	6/14/02
NITRATE AND NITRITE								
			E353.2					
Nitrogen, Nitrate & Nitrite		1.95	0.02		mg/L	1	R14649A	6/17/02
SILICA								
			E370.1					
Silica, Dissolved (as SiO2)		12.5	0.50		mg/L	1	R14587C	6/12/02

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

2003FY TWDB Water Quality Field Data Sheet

Newly Invented Well

State Well Number: 6821405 Name: Bear Metro Water Dist.
 County: Comal Behan Address: 2655 W Malone
 County Code: 091 Phone Number: 210 357 5706
 Aquifer Code: 218GRCCU Attention: Roger Plecinski
 Aquifer Id: 28 Well Name or #: 075 W#1

Sample ID Number: 1403

Date: 5-13-03
 Sampler(s): M. Agostini

CIRCLE EACH SAMPLE FRACTION COLLECTED:				
1	2	3	4	5
500ml (filtered)	500ml (filtered)	250ml (filtered)		
Anions / Total Alk.	Cations	Nitrate		
Ice	Nitric (HNO3)	Ice + H2SO4		

Proper preservation requires adding enough of the correct acid to each sample fraction to bring the pH below 2.0.

Calibration Verification Readings	
pH	7 = 5.72
	4 or 10 = 8.69
SLP = 55.4	7.36
Conductivity	500 = 499
	1000 = 1002
	2000 =
	5000 =

Time In: 1330 Time Out: 1435
 W.L. depth from LSD (ft.): 647 W.L. remark: _____ M.P. = _____

Pumping Since: 1335 Sampling Point: FAW

Well Use: Public FIELD G.P.S. readings
 Lift: Submersible Latitude: 29° 41' 55.0"
 Power: Electric Longitude: 98° 29' 24.0"

Casing Type: _____ Casing Size: _____"
 Sample Time: 1400 Filter pressure: hand pump / line

Water Quality Stabilization Parameters Table (at least 3 readings at five minute intervals)

Time:	1340	1345	1350	1355		
pH:	6.60	6.68	6.73	6.73		
Celsius Temp. (00010)	22.2	22.5	22.5	22.6		
Conductivity (US/cm):	678	661	657	658		

Notes: _____

Field Alkalinity Titration:	
7.49 Start pH	4.56 End pH
50.0 mL Sample Size	
12.5 mL Acid added for Phenol (> 8.3)	
mL Acid added for Total (8.3 - 4.5)	
Items below calculated from: mL acid added x 20 = Alkalinity	
Phenol Alkalinity (82244):	mg/L
Total Alkalinity (39086):	250 mg/L

Items Below Calculated Later From Results:	
Dissolved Solids (mg/L):	358
Hardness (as CaCO3):	316
Balanced:	✓

Data Entered By Sampler Into Database: Yes / no

LCRA Environmental Laboratory Services

Date: 17-Jun-03

CLIENT: Texas Water Development Board
Lab Order: 0305311 **File No:** 24761
Project: TWDB FY03
Lab ID: 0305311-02

Client Sample ID: 68-21-405
Collection Date: 5/13/2003 2:00:00 PM
Matrix: GROUNDWATER

Analyses	Storet	Result	PQL	Qual	Units	DF	BatchID	Date Analyzed
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ICP METALS DISSOLVED		E200.7		Analyst: MLP				
Calcium		87.5	0.20		mg/L	1	R20184C	6/11/2003 6:50:44 PM
Magnesium		23.6	0.20		mg/L	1	R20184C	6/11/2003 6:50:44 PM
Potassium		1.46	0.20		mg/L	1	R20184C	6/11/2003 6:50:44 PM
Sodium		12.2	0.70		mg/L	1	R20184C	6/11/2003 6:50:44 PM

ICP METALS DISSOLVED		E200.7		Analyst: MLP				
Boron		61	50		µg/L	1	R20186C	6/11/2003 6:50:44 PM
Iron		ND	50		µg/L	1	R20186C	6/11/2003 6:50:44 PM
Strontium		956	20		µg/L	1	R20186C	6/11/2003 6:50:44 PM

ICPMS DISSOLVED METALS		E200.8		Analyst: SW				
Aluminum		ND	4.00		µg/L	1	R19981B	5/30/2003
Antimony		ND	1.00		µg/L	1	R19981B	5/30/2003
Arsenic		ND	2.00		µg/L	1	R19981B	5/30/2003
Barium		32.4	1.00		µg/L	1	R19981B	5/30/2003
Beryllium		ND	1.00		µg/L	1	R19981B	5/30/2003
Cadmium		ND	1.00		µg/L	1	R19981B	5/30/2003
Chromium		4.36	1.00		µg/L	1	R19981B	5/30/2003
Cobalt		ND	1.00		µg/L	1	R19981B	5/30/2003
Copper		5.02	1.00		µg/L	1	R19981B	5/30/2003
Lead		1.17	1.00		µg/L	1	R19981B	5/30/2003
Lithium		4.18	2.00		µg/L	1	R19981B	5/30/2003
Manganese		ND	1.00		µg/L	1	R19981B	5/30/2003
Molybdenum		1.29	1.00		µg/L	1	R19981B	5/30/2003
Nickel		2.93	1.00		µg/L	1	R19981B	5/30/2003
Selenium		ND	4.00		µg/L	1	R19981B	5/30/2003
Thallium		ND	1.00		µg/L	1	R19981B	5/30/2003
Vanadium		2.46	1.00		µg/L	1	R19981B	5/30/2003
Zinc		52.5	4.00		µg/L	1	R19981B	5/30/2003

CATION/ANION BALANCES		CALCULATION		Analyst: AMJ				
Cation/Anion Balance		Balanced		Date		1	R20192	6/12/2003

ANIONS BY ION CHROMATOGRAPHY, DISSOLVE E300		E300		Analyst: WR				
Bromide Dissolved		0.10	0.02		mg/L	1	R19989D	5/30/2003 10:01:10 PM
Chloride Dissolved		21.8	1.00		mg/L	1	R19989D	5/30/2003 10:01:10 PM

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank E - Value above quantitation range
 * - Value exceeds Maximum Contaminant Level

LCRA Environmental Laboratory Services

Date: 17-Jun-03

CLIENT: Texas Water Development Board
Lab Order: 0305311 **File No:** 24761
Project: TWDB FY03
Lab ID: 0305311-02

Client Sample ID: 68-21-405
Collection Date: 5/13/2003 2:00:00 PM
Matrix: GROUNDWATER

Analyses	Storet	Result	PQL	Qual	Units	DF	BatchID	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY, DISSOLVE E300								
Fluoride Dissolved		0.37	0.01		mg/L	1	R19989D	5/30/2003 10:01:10 PM
Sulfate Dissolved		20.5	1.00		mg/L	1	R19989D	5/30/2003 10:01:10 PM
ALKALINITY								
			M2320 B					Analyst: CMM
Alkalinity, Phenolphthalein		ND	0		mg/L CaCO	1	R19928	5/27/2003
Alkalinity, Total (As CaCO3)		284	2		mg/L CaCO	1	R19928	5/27/2003
NITRATE AND NITRITE								
			E353.2					Analyst: WM
Nitrogen, Nitrate & Nitrite		1.60	0.02		mg/L	1	R19976E	5/30/2003
SILICA								
			E370.1					Analyst: WM
Silica, Dissolved (as SiO2)		13.0	0.50		mg/L	1	R20053C	6/4/2003

Qualifiers:
 ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

[GWDB Reports and Downloads](#)

Well Basic Details

[Scanned Documents](#)

State Well Number	6821408
County	Bexar
River Basin	San Antonio
Groundwater Management Area	9
Regional Water Planning Area	L - South Central Texas
Groundwater Conservation District	Trinity Glen Rose GCD
Latitude (decimal degrees)	29.698334
Latitude (degrees minutes seconds)	29° 41' 54" N
Longitude (decimal degrees)	-98.490834
Longitude (degrees minutes seconds)	098° 29' 27" W
Coordinate Source	Global Positioning System - GPS
Aquifer Code	218GRCCU - Lower Glen Rose and Cow Creek Limestones
Aquifer	Trinity
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	1250
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	640
Well Depth Source	Driller's Log
Drilling Start Date	
Drilling End Date	1/18/1979
Drilling Method	Mud (Hydraulic) Rotary
Borehole Completion	Open Hole

Well Type	Withdrawal of Water
Well Use	Public Supply
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	BMW-Timberwood Park Well #2
Driller	Haskin Pump Service
Other Data Available	Drillers Log
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	G01500540
Groundwater Conservation District Well Number	
Owner Well Number	2
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	11/13/1995
Last Update Date	9/16/2014

Remarks Owners well #2. TCEQ ID #0150270.

Casing

Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
6	Blank	Steel			0	303
	Open Hole				303	640

Well Tests - No Data

Lithology - No Data

Annular Seal Range - No Data

Borehole - No Data

Plugged Back - No Data

Filter Pack - No Data

Packers - No Data

Water Level Measurements



Status Code	Date	Time	Water Level (ft. below land surface)	Change value in () indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
Q	1/8/1979		316		934	1	Registered Water Well Driller	Unknown	17	

Code Descriptions

Status Code	Status Description
Q	Questionable

Remark ID	Remark Description
17	Measurement before well completion

Water Quality Analysis

Sample Date: 6/17/1980 **Sample Time:** 0000 **Sample Number:** 1 **Collection Entity:** Texas Department of Health

Sampled Aquifer: Lower Glen Rose and Cow Creek Limestones

Analyzed Lab: Texas Department of Health

Reliability: From well not sufficiently pumped; not filtered or preserved

Collection Remarks: plant discharge - chlorinated

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		283	mg/L as CaCO 3	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		345.36	mg/L	
00910	CALCIUM (MG/L)		80	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		14	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.5	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		314	mg/L as CaCO 3	
01045	IRON, TOTAL (UG/L AS FE)		30	ug/L	
00920	MAGNESIUM (MG/L)		28	mg/L	
01055	MANGANESE, TOTAL (UG/L AS MN)	<	20	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		6.82	mg/L as NO3	
00620	NITRATE NITROGEN, TOTAL (MG/L AS N)		1.54	mg/L as N	
00400	PH (STANDARD UNITS), FIELD		8.3	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		0.2		
00932	SODIUM, CALCULATED, PERCENT		5	PCT	
00929	SODIUM, TOTAL (MG/L AS Na)		8	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		652	MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)		27	mg/L as SO4	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		334	mg/L	
01092	ZINC, TOTAL (UG/L AS ZN)		280	ug/L	

Water Quality Analysis

Sample Date: 4/7/1999 **Sample Time:** 1000 **Sample Number:** 1 **Collection Entity:** Bexar Metropolitan Water District

Sampled Aquifer: Lower Glen Rose and Cow Creek Limestones

Analyzed Lab: LCRA - Lower Colorado River Authority

Reliability: Sampled using TWDB protocols

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
39086	ALKALINITY FIELD DISSOLVED AS CaCO3		284	mg/L as CaCO 3	
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		275	mg/L as CaCO 3	
01106	ALUMINUM, DISSOLVED (UG/L AS AL)	<	4	ug/L	
01095	ANTIMONY, DISSOLVED (UG/L AS SB)	<	1	ug/L	
01000	ARSENIC, DISSOLVED (UG/L AS AS)	<	2	ug/L	
01005	BARIUM, DISSOLVED (UG/L AS BA)		28.2	ug/L	
01010	BERYLLIUM, DISSOLVED (UG/L AS BE)	<	1	ug/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		335.6	mg/L	
01020	BORON, DISSOLVED (UG/L AS B)		86	ug/L	
71870	BROMIDE, DISSOLVED, (MG/L AS BR)		0.11	mg/L	
01025	CADMIUM, DISSOLVED (UG/L AS CD)	<	1	ug/L	
00915	CALCIUM, DISSOLVED (MG/L AS CA)		77.4	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00941	CHLORIDE, DISSOLVED (MG/L AS CL)		13.5	mg/L	
01030	CHROMIUM, DISSOLVED (UG/L AS CR)		12	ug/L	
01035	COBALT, DISSOLVED (UG/L AS CO)	<	1	ug/L	
01040	COPPER, DISSOLVED (UG/L AS CU)		4.2	ug/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.67	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		326	mg/L as CaCO 3	
01046	IRON, DISSOLVED (UG/L AS FE)	<	50	ug/L	
01049	LEAD, DISSOLVED (UG/L AS PB)	<	1	ug/L	
01130	LITHIUM, DISSOLVED (UG/L AS LI)		6.5	ug/L	
00925	MAGNESIUM, DISSOLVED (MG/L AS MG)		31.9	mg/L	
01056	MANGANESE, DISSOLVED (UG/L AS MN)	<	1	ug/L	
01060	MOLYBDENUM, DISSOLVED (UG/L AS MO)		5.8	ug/L	
01065	NICKEL, DISSOLVED (UG/L AS NI)		10.9	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		2.33	mg/L as NO3	
00631	NITRITE PLUS NITRATE, DISSOLVED (MG/L AS N)		0.527	mg/L as N	

**Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-408**

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00608	NITROGEN, AMMONIA, DISSOLVED (MG/L AS N)		< 0.05	mg/L as N	
00623	NITROGEN, KJELDAHL, DISSOLVED (MG/L AS N)		0.129	mg/L as N	
00090	OXIDATION REDUCTION POTENTIAL (ORP), MILLIVOLTS		299.9	MV	
00400	PH (STANDARD UNITS), FIELD		7.23	SU	
00666	PHOSPHORUS, DISSOLVED (MG/L AS P)		< 0.04	mg/L as P	
00935	POTASSIUM, DISSOLVED (MG/L AS K)		2.26	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
01145	SELENIUM, DISSOLVED (UG/L AS SE)		< 4	ug/L	
00955	SILICA, DISSOLVED (MG/L AS SI02)		11.85	mg/L as SIO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		0.22		
00932	SODIUM, CALCULATED, PERCENT		5	PCT	
00930	SODIUM, DISSOLVED (MG/L AS NA)		9.19	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		629	MICR	
01080	STRONTIUM, DISSOLVED (UG/L AS SR)		2100	ug/L	
00946	SULFATE, DISSOLVED (MG/L AS SO4)		28.8	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		22.4	C	
01057	THALLIUM, DISSOLVED (UG/L AS TL)		< 1	ug/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		345	mg/L	
01085	VANADIUM, DISSOLVED (UG/L AS V)		4.1	ug/L	
01090	ZINC, DISSOLVED (UG/L AS ZN)		11.7	ug/L	

* Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..

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Community Water Supply Chemical Analysis Report
 Texas Department of Health — Division of Water Hygiene
 1100 West 49th Street Austin, Texas 78756

Report No. 18044
 Name of Water Supply HAIRING WATER UTILITY, INC.
TIMBERWOOD PARK
 Water Supply I.D. No. 0150270
 City BEXAR
 Name of Source _____
 Date Collected 6/17/80
 Signature _____
 Date Received _____
 Date Reported _____

NAME OF WATER SUPPLY:
HAIRING WATER UTILITY, INC.
TIMBERWOOD PARK
 Water Supply I.D. No. 0150270
 City BEXAR
 Name of Source _____

part
 Date Received (17-20) _____
 Date Reported (17-20) _____
 1005 Arsenic 0.01 mg/l
 1010 Barium 0.5 mg/l
 1015 Cadmium 0.005 mg/l
 1020 Chromium 0.02 mg/l
 1022 Copper 0.02 mg/l
 1028 Iron 2.3 mg/l
 1030 Lead 0.2 mg/l
 1032 Manganese 0.2 mg/l
 1035 Mercury 0.0002 mg/l
 1037 Selenium 0.2 mg/l
 1040 Silver 0.1 mg/l
 1095 Zinc 0.3 mg/l
 2005 Endrin _____ mg/l
 2010 Dieldrin _____ mg/l
 2015 Methoxychlor _____ mg/l
 2020 Toxaphene _____ mg/l
 2105 2,4-D _____ mg/l
 2110 2,4,5-TP _____ mg/l

Date Received (17-20)	mg/l	Date Reported (17-20)	mg/l
80	mg/l	0.01	mg/l
28	mg/l	0.5	mg/l
8	mg/l	0.005	mg/l
0	mg/l	0.02	mg/l
345	mg/l	0.02	mg/l
27	mg/l	0.02	mg/l
14	mg/l	2.3	mg/l
0.5	mg/l	0.2	mg/l
1.54	mg/l	0.0002	mg/l
334	mg/l	0.2	mg/l
0	mg/l	0.1	mg/l
283	mg/l	0.3	mg/l
316	part		
8.3			
652			

6821408

BA

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

State of Texas
WATER WELL REPORT

For TWDB use only
Well No. _____
Located on map No. _____
Received: _____

1) OWNER:
Person having well drilled Haskin Water Utility, Inc. Address 15403 Capital Port
(Name) (Street or RFD) (City) (State)
Landowner Same Address San Antonio, Texas 78249
(Name) (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County Bexar 19-1/2 miles in North direction from San Antonio
(N.E., S.W., etc.) (Town)

Locate by sketch map showing landmarks, roads, creeks, highway number, etc.
West of Lot #2 & #3, Block #1, Unit II
Timberwood Park
North ↑
(Use reverse side if necessary)

Give legal location with distances and directions from adjacent sections or survey lines.
Labor _____ League _____
Block _____ Survey _____
Abstract No. _____
(NW 1/4 SW 1/4 SE 1/4) of Section _____

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

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

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

6) WELL LOG:
Diameter of hole 8-1/2 in. Depth drilled 640 ft. Depth of completed well 640 ft. Date drilled 1-18-79
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material	9) Casing: Type: Old _____ New <input checked="" type="checkbox"/> Steel _____ Plastic _____ Other _____ Cemented from <u>303</u> ft. to <u>0</u>
0	15	TOP SOIL	Diameter (inches) _____ From (ft.) _____ To (ft.) _____ Gauge _____ <u>6"</u> <u>0</u> <u>303</u> <u>18.974</u> 10) SCREEN: Type <u>NONE</u> Perforated _____ Slotted _____ Diameter (inches) _____ Setting From (ft.) _____ To (ft.) _____ Slot Size _____
15	25	Brown Lime	
25	75	Gray Lime	
75	100	Blue Gray Lime	
100	200	Gray Lime	
200	225	Light Brown Lime	
225	300	Light Gray Lime	
300	350	Light Brown Lime	
350	475	Grayish Brown Lime	
475	525	Light Brown Lime	
525	550	Yellowish Brown Lime	
550	575	DARK GRAY SHALE	
575	625	DARK GRAY SHALE	
625	640	Blueish Gray Shale	

(Use reverse side if necessary)

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

8) WATER LEVEL:
Static level 316 ft. below land surface Date 1-8-79
Artesian pressure _____ lbs. per square inch Date _____
Depth to pump bowls, cylinder, jet, etc., _____ ft. below land surface.
20 H.P. Sub installed 3-30-79
Pump setting- 525'
Electrical is not complete-pump is not hooked up yet.

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

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

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

NAME Glen H. Haskin Water Well Drillers Registration No. 935
(Type or Print)

ADDRESS 15403 Capital Port, San Antonio, Texas 78249
(Street or RFD) (City) (State)

(Signed) Glen H. Haskin Haskin Pump Service, Inc.
(Water Well Driller) (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

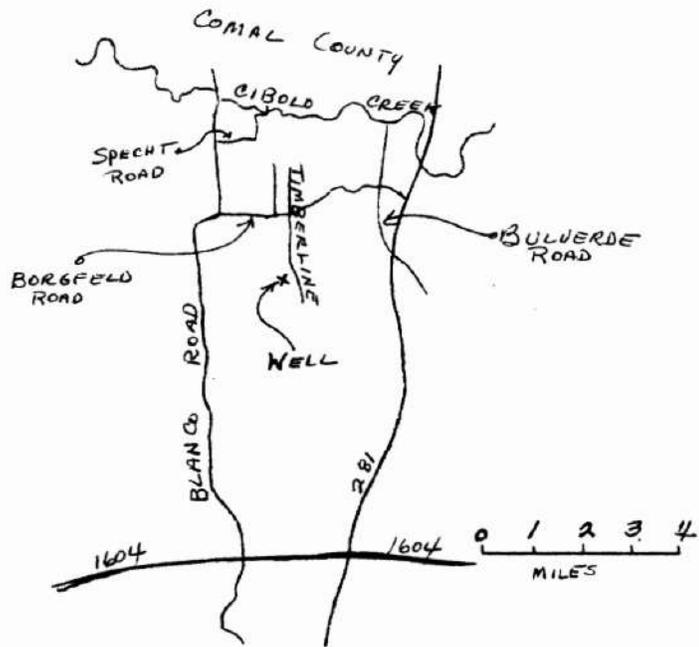
2) LOCATION OF WELL:

The sketch showing the well location must be as accurate as possible, showing landmarks, in sufficient detail so that the well may be plotted on a General Highway Map of the county in which the well is located.

Reference points from which distances are measured and directions given should be of a permanent nature (e.g. highway intersections, center of towns, river and creek bridges, railroad crossings). The distance and direction from the nearest town should always be indicated.

When giving a legal description include a sketch showing location of the well within the described area, e.g. survey abstract.

Information furnished in Section 2) of the TWDBE-GW-53 is very important. Unless the well can be accurately located on a map the value of the other data contained in the Report is greatly reduced.



TO SAN ANTONIO



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WELL LOG

Date 1-9-79

HASKIN PUMP SERVICE, INC.

15403 Capital Port
San Antonio, Texas

492-2141

78249

Name Timberwood #2

Location Pumping Station #2 (inside yard)

Total Depth 640' Well Capacity 90-100 gal-a-min

Total Pipe 303'-6" Date Started 1-3-79

Drilling Time _____ Date Completed 1-8-79

Kind of Formation Glen-Rose Water Level 316'

0-15	Top Soil
15-25	Brown Lime
25-50	Gray Lime
50-75	Gray Lime
75-100	Blue Gray Lime
100-125	Gray Lime
125-150	Gray Lime
150-175	Gray Lime
175-200	Gray Lime
200-225	Light Brown Lime
225-250	Light Gray Lime
250-275	Light Gray Lime
275-300	Light Gray Lime (set casing)
300-325	Light Brown Lime (picked up water)
325-350	Light Brown Lime (Cemented by use of tremie pipe)
350-375	Grayish Brown Lime by HASKIN PUMP SVC. INC.
375-400	Grayish Brown Lime
400-425	Grayish Brown Lime <i>Glen H. Haskin, Pres.</i>
425-450	Grayish Brown Lime
450-475	Grayish Brown Lime
475-500	Light Brown Lime (picked up more water)
500-525	Light Brown Lime
525-550	Yellowish Brown Lime
550-575	Dark Gray Shale
575-600	Dark Gray Shale
600-625	Dark Gray Shale
625-640	Blueish Gray Shale

Drilled by Glen H. Haskin
Rig No. NO. 9



FINAL ANALYSIS REPORT

LAB ID: 9906307 SAMPLE DESCRIPTION: Groundwater
 COMPANY: TX Water Dev. Board SAMPLE DATE: 04/07/99
 ACCT NO: SAMPLE TIME: 1000
 REQUISITION No.: R10584 DATE RECEIVED: 04/09/99
 LOCATION ID: 68-21-408 REPORT DATE: 05/05/99

PARAMETER	RESULTS	UNITS	STORET #	PQL in WATER	DATE ANALYZED
Bromide	0.11	mg/L	71870	0.02	04/14/99
Chloride	13.5	mg/L	00941	1.5	04/14/99
Fluoride	0.67	mg/L	00950	0.01	04/14/99
Nit., nitri/nitra-AFA	0.527	mg/L	00630	0.010	04/28/99
Nitrogen, Kjeldahl	0.129	mg/L	00623	0.040	04/14/99
Nitrogen, ammonia	<0.050	mg/L	00608	0.050	04/15/99
Phosphorus, Total	<0.040	mg/L	00665	0.040	04/14/99
Silica	11.85	mg/L	00955	0.50	04/13/99
Sulfate	28.80	mg/L	00946	1.50	04/14/99
Alkalinity, Total	275	mg/L	00410	1	04/28/99
Alkalinity, Phenol.	0	mg/L	00415	0	04/12/99
Boron, Dissolved	86.00	ug/L	01020	50.00	04/13/99
Cobalt, Diss. ICPMS	<1.0	ug/L	01035	1.0	04/12/99
Iron, Dissolved	<50.00	ug/L	01046	50.00	04/13/99
Lithium, Diss. ICPMS	6.5	ug/L	01130	2.0	04/13/99
Molybdenum Dis ICPMS	5.8	ug/L	01060	1.0	04/12/99
Potassium, Dissolved	2.26	mg/L	00935	0.20	04/13/99
Strontium, Dissolved	2100.00	ug/L	01080	20.00	04/13/99
Vanadium, Diss ICPMS	4.1	ug/L	01085	1.0	04/12/99
Aluminum, Dis. ICPMS	<4.0	ug/L	01106	4.0	04/12/99
Arsenic, Diss. ICPMS	<2.0	ug/L	01000	2.0	04/12/99
Barium, Diss. ICPMS	28.2	ug/L	01005	1.0	04/12/99
Cadmium, Diss. ICPMS	<1.0	ug/L	01025	1.0	04/12/99
Calcium, Dissolved	77.40	mg/L	00915	0.20	04/13/99
Chromium, Diss ICPMS	12.0	ug/L	01030	1.0	04/12/99
Copper, Diss. ICPMS	4.2	ug/L	01040	2.0	04/12/99
Lead, Diss. ICPMS	<1.0	ug/L	01049	1.0	04/12/99
Magnesium, Dissolved	31.90	mg/L	00925	0.20	04/13/99
Manganese, Dis ICPMS	<1.0	ug/L	01056	1.0	04/12/99
Nickel, Diss. ICPMS	10.9	ug/L	01065	1.0	04/12/99
Selenium, Dis. ICPMS	<4.0	ug/L	01145	4.0	04/12/99
Sodium, Dissolved	9.19	mg/L	00930	0.20	04/13/99
Antimony, Dis. ICPMS	<1.0	ug/L	01095	1.0	04/12/99
Beryllium, Dis ICPMS	<1.0	ug/L	01010	1.0	04/12/99
Thallium, Diss ICPMS	<1.0	ug/L	01057	1.0	04/12/99
Zinc, Diss. ICPMS	11.7	ug/L	01090	2.0	04/12/99

[GWDB Reports and Downloads](#)

Well Basic Details

[Scanned Documents](#)

State Well Number	6821409
County	Bexar
River Basin	San Antonio
Groundwater Management Area	9
Regional Water Planning Area	L - South Central Texas
Groundwater Conservation District	Trinity Glen Rose GCD
Latitude (decimal degrees)	29.698611
Latitude (degrees minutes seconds)	29° 41' 55" N
Longitude (decimal degrees)	-98.491111
Longitude (degrees minutes seconds)	098° 29' 28" W
Coordinate Source	Global Positioning System - GPS
Aquifer Code	218GRCCU - Lower Glen Rose and Cow Creek Limestones
Aquifer	Trinity
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	1258
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	650
Well Depth Source	Driller's Log
Drilling Start Date	
Drilling End Date	11/16/1983
Drilling Method	Mud (Hydraulic) Rotary
Borehole Completion	Open Hole

Well Type	Withdrawal of Water
Well Use	Public Supply
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	BMW-Timberwood Park Well #3
Driller	Haskin Pump Service
Other Data Available	Drillers Log
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	G0150054P
Groundwater Conservation District Well Number	
Owner Well Number	1
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Commission on Environmental Quality
Created Date	6/6/2002
Last Update Date	7/25/2016

Remarks

Casing						
Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
7	Blank	Steel			0	310
	Open Hole				310	650

Well Tests - No Data

Lithology - No Data

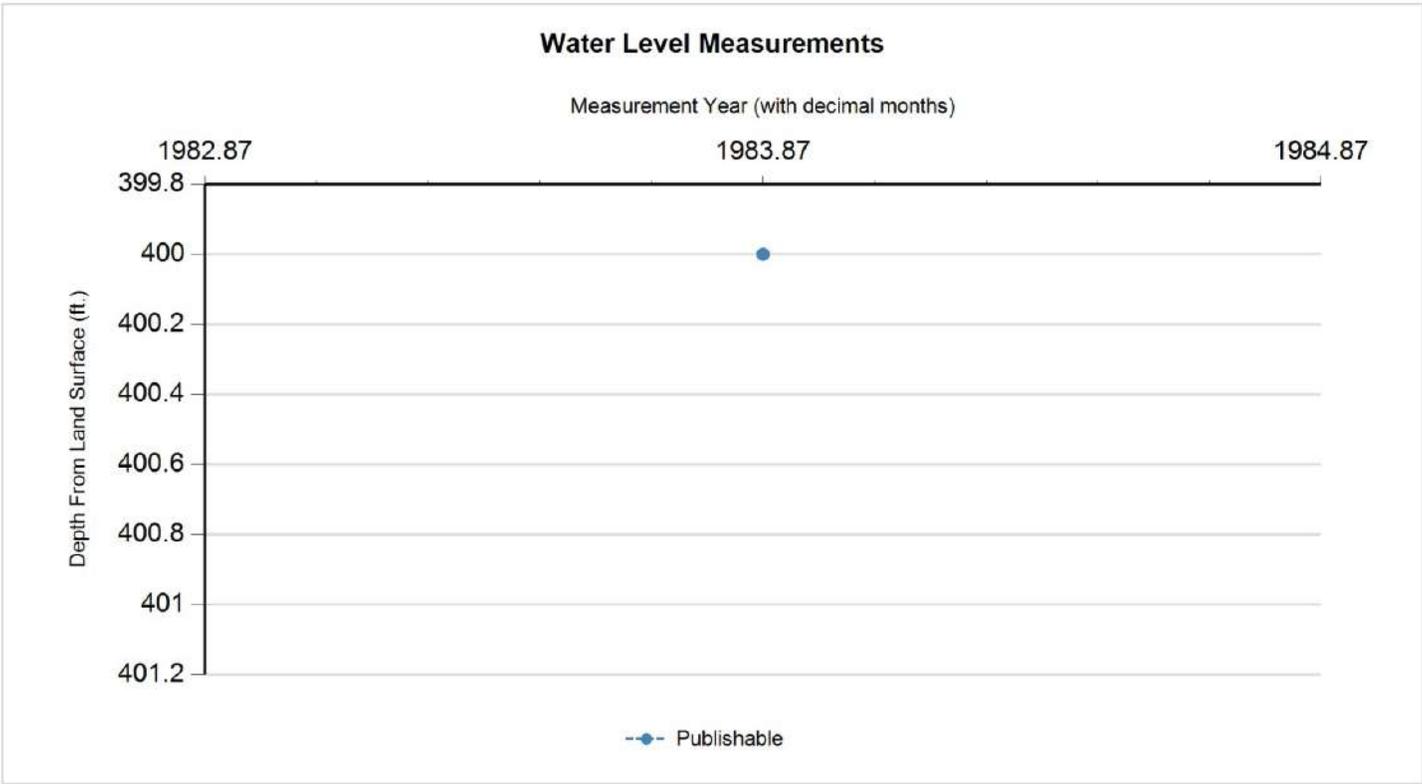
Annular Seal Range - No Data

Borehole - No Data

Plugged Back - No Data

Filter Pack - No Data

Packers - No Data



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	11/16/1983		400		858	1	Registered Water Well Driller	Unknown		

Code Descriptions

Status Code	Status Description
P	Publishable

Water Quality Analysis

Sample Date: 4/7/1999 **Sample Time:** 1110 **Sample Number:** 1 **Collection Entity:** Bexar Metropolitan Water District

Sampled Aquifer: Lower Glen Rose and Cow Creek Limestones

Analyzed Lab: LCRA - Lower Colorado River Authority

Reliability: Sampled using TWDB protocols

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
39086	ALKALINITY FIELD DISSOLVED AS CaCO3		272	mg/L as CaCO3	
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		266	mg/L as CaCO3	
01106	ALUMINUM, DISSOLVED (UG/L AS AL)	<	4	ug/L	
01095	ANTIMONY, DISSOLVED (UG/L AS SB)	<	1	ug/L	
01000	ARSENIC, DISSOLVED (UG/L AS AS)	<	2	ug/L	
01005	BARIUM, DISSOLVED (UG/L AS BA)		31	ug/L	
01010	BERYLLIUM, DISSOLVED (UG/L AS BE)	<	1	ug/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		324.61	mg/L	
01020	BORON, DISSOLVED (UG/L AS B)		78	ug/L	
71870	BROMIDE, DISSOLVED, (MG/L AS BR)		0.12	mg/L	
01025	CADMIUM, DISSOLVED (UG/L AS CD)	<	1	ug/L	
00915	CALCIUM, DISSOLVED (MG/L AS CA)		91.9	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00941	CHLORIDE, DISSOLVED (MG/L AS CL)		18.5	mg/L	
01030	CHROMIUM, DISSOLVED (UG/L AS CR)		11.4	ug/L	
01035	COBALT, DISSOLVED (UG/L AS CO)	<	1	ug/L	
01040	COPPER, DISSOLVED (UG/L AS CU)		5	ug/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.41	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		317	mg/L as CaCO3	
01046	IRON, DISSOLVED (UG/L AS FE)	<	50	ug/L	
01049	LEAD, DISSOLVED (UG/L AS PB)		1.9	ug/L	
01130	LITHIUM, DISSOLVED (UG/L AS LI)		4.5	ug/L	
00925	MAGNESIUM, DISSOLVED (MG/L AS MG)		21.2	mg/L	
01056	MANGANESE, DISSOLVED (UG/L AS MN)	<	1	ug/L	
01060	MOLYBDENUM, DISSOLVED (UG/L AS MO)		1.1	ug/L	
01065	NICKEL, DISSOLVED (UG/L AS NI)		12.6	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		5.36	mg/L as NO3	

Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-409

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00631	NITRITE PLUS NITRATE, DISSOLVED (MG/L AS N)		1.21	mg/L as N	
00608	NITROGEN, AMMONIA, DISSOLVED (MG/L AS N)	<	0.05	mg/L as N	
00623	NITROGEN, KJELDAHL, DISSOLVED (MG/L AS N)		0.231	mg/L as N	
00090	OXIDATION REDUCTION POTENTIAL (ORP), MILLIVOLTS		261.9	MV	
00400	PH (STANDARD UNITS), FIELD		7.13	SU	
00666	PHOSPHORUS, DISSOLVED (MG/L AS P)	<	0.04	mg/L as P	
00935	POTASSIUM, DISSOLVED (MG/L AS K)		1.54	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
01145	SELENIUM, DISSOLVED (UG/L AS SE)	<	4	ug/L	
00955	SILICA, DISSOLVED (MG/L AS SI02)		11.02	mg/L as SIO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		0.26		
00932	SODIUM, CALCULATED, PERCENT		6	PCT	
00930	SODIUM, DISSOLVED (MG/L AS NA)		10.8	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		623	MICR	
01080	STRONTIUM, DISSOLVED (UG/L AS SR)		1180	ug/L	
00946	SULFATE, DISSOLVED (MG/L AS SO4)		24.7	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		22	C	
01057	THALLIUM, DISSOLVED (UG/L AS TL)	<	1	ug/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		346	mg/L	
01085	VANADIUM, DISSOLVED (UG/L AS V)		4	ug/L	
01090	ZINC, DISSOLVED (UG/L AS ZN)		60.1	ug/L	

Water Quality Analysis

Sample Date: 6/8/2000 **Sample Time:** 1130 **Sample Number:** 1 **Collection Entity:** Bexar Metropolitan Water District

Sampled Aquifer: Lower Glen Rose and Cow Creek Limestones

Analyzed Lab: LCRA - Lower Colorado River Authority

Reliability: Sampled using TWDB protocols

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
39086	ALKALINITY FIELD DISSOLVED AS CaCO3		258	mg/L as CaCO3	
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		263	mg/L as CaCO3	
01106	ALUMINUM, DISSOLVED (UG/L AS AL)	<	4	ug/L	
01095	ANTIMONY, DISSOLVED (UG/L AS SB)	<	1	ug/L	
01000	ARSENIC, DISSOLVED (UG/L AS AS)	<	2	ug/L	
01005	BARIUM, DISSOLVED (UG/L AS BA)		34.1	ug/L	
01010	BERYLLIUM, DISSOLVED (UG/L AS BE)	<	1	ug/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		320.95	mg/L	
01020	BORON, DISSOLVED (UG/L AS B)		81.5	ug/L	
71870	BROMIDE, DISSOLVED, (MG/L AS BR)		0.05	mg/L	
01025	CADMIUM, DISSOLVED (UG/L AS CD)	<	1	ug/L	
00915	CALCIUM, DISSOLVED (MG/L AS CA)		63	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00941	CHLORIDE, DISSOLVED (MG/L AS CL)		11	mg/L	
01030	CHROMIUM, DISSOLVED (UG/L AS CR)		5.32	ug/L	
01035	COBALT, DISSOLVED (UG/L AS CO)	<	1	ug/L	
01040	COPPER, DISSOLVED (UG/L AS CU)		3.69	ug/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.81	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		298	mg/L as CaCO3	
01046	IRON, DISSOLVED (UG/L AS FE)	<	50	ug/L	
01049	LEAD, DISSOLVED (UG/L AS PB)		3.95	ug/L	
01130	LITHIUM, DISSOLVED (UG/L AS LI)		7.98	ug/L	
00925	MAGNESIUM, DISSOLVED (MG/L AS MG)		33.9	mg/L	
01056	MANGANESE, DISSOLVED (UG/L AS MN)	<	1	ug/L	
01060	MOLYBDENUM, DISSOLVED (UG/L AS MO)		4.29	ug/L	
01065	NICKEL, DISSOLVED (UG/L AS NI)		1.66	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)	<	0.09	mg/L as NO3	
00631	NITRITE PLUS NITRATE, DISSOLVED (MG/L AS N)	<	0.02	mg/L as N	

Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-409

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00400	PH (STANDARD UNITS), FIELD		7.04	SU	
00935	POTASSIUM, DISSOLVED (MG/L AS K)		2.63	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
01145	SELENIUM, DISSOLVED (UG/L AS SE)	<	4	ug/L	
00955	SILICA, DISSOLVED (MG/L AS SI02)		13	mg/L as SIO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		0.2		
00932	SODIUM, CALCULATED, PERCENT		5	PCT	
00930	SODIUM, DISSOLVED (MG/L AS NA)		7.78	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		575	MICR	
01080	STRONTIUM, DISSOLVED (UG/L AS SR)		2030	ug/L	
00946	SULFATE, DISSOLVED (MG/L AS SO4)		33.3	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		24.6	C	
01057	THALLIUM, DISSOLVED (UG/L AS TL)	<	1	ug/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		325	mg/L	
01085	VANADIUM, DISSOLVED (UG/L AS V)		1.51	ug/L	
01090	ZINC, DISSOLVED (UG/L AS ZN)		527	ug/L	

Water Quality Analysis

Sample Date: 6/6/2002 **Sample Time:** 1120 **Sample Number:** 1 **Collection Entity:** Bexar Metropolitan Water District

Sampled Aquifer: Lower Glen Rose and Cow Creek Limestones

Analyzed Lab: LCRA - Lower Colorado River Authority

Reliability: Sampled using TWDB protocols

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
39086	ALKALINITY FIELD DISSOLVED AS CaCO3		292	mg/L as CaCO 3	
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		284	mg/L as CaCO 3	
01106	ALUMINUM, DISSOLVED (UG/L AS AL)	<	4	ug/L	
01095	ANTIMONY, DISSOLVED (UG/L AS SB)	<	1	ug/L	
01000	ARSENIC, DISSOLVED (UG/L AS AS)	<	2	ug/L	
01005	BARIUM, DISSOLVED (UG/L AS BA)		31.7	ug/L	
01010	BERYLLIUM, DISSOLVED (UG/L AS BE)	<	1	ug/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		346.58	mg/L	
01020	BORON, DISSOLVED (UG/L AS B)	<	50	ug/L	
71870	BROMIDE, DISSOLVED, (MG/L AS BR)		0.0637	mg/L	
01025	CADMIUM, DISSOLVED (UG/L AS CD)	<	1	ug/L	
00915	CALCIUM, DISSOLVED (MG/L AS CA)		96.1	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00941	CHLORIDE, DISSOLVED (MG/L AS CL)		27.2	mg/L	
01030	CHROMIUM, DISSOLVED (UG/L AS CR)		2.18	ug/L	
01035	COBALT, DISSOLVED (UG/L AS CO)	<	1	ug/L	
01040	COPPER, DISSOLVED (UG/L AS CU)		4.43	ug/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.27	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		319	mg/L as CaCO 3	
01046	IRON, DISSOLVED (UG/L AS FE)	<	50	ug/L	
01049	LEAD, DISSOLVED (UG/L AS PB)	<	1	ug/L	
01130	LITHIUM, DISSOLVED (UG/L AS LI)		3.05	ug/L	
00925	MAGNESIUM, DISSOLVED (MG/L AS MG)		19.3	mg/L	
01056	MANGANESE, DISSOLVED (UG/L AS MN)		3.84	ug/L	
01060	MOLYBDENUM, DISSOLVED (UG/L AS MO)		1.06	ug/L	
01065	NICKEL, DISSOLVED (UG/L AS NI)		4.13	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		7.75	mg/L as NO3	
00631	NITRITE PLUS NITRATE, DISSOLVED (MG/L AS N)		1.75	mg/L as N	

**Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-409**

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00400	PH (STANDARD UNITS), FIELD		7	SU	
00935	POTASSIUM, DISSOLVED (MG/L AS K)		1.19	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
01145	SELENIUM, DISSOLVED (UG/L AS SE)	<	4	ug/L	
00955	SILICA, DISSOLVED (MG/L AS SI02)		11.7	mg/L as SIO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		0.33		
00932	SODIUM, CALCULATED, PERCENT		8	PCT	
00930	SODIUM, DISSOLVED (MG/L AS NA)		13.5	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		670	MICR	
01080	STRONTIUM, DISSOLVED (UG/L AS SR)		582	ug/L	
00946	SULFATE, DISSOLVED (MG/L AS SO4)		22.7	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		25	C	
01057	THALLIUM, DISSOLVED (UG/L AS TL)	<	1	ug/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		370	mg/L	
01085	VANADIUM, DISSOLVED (UG/L AS V)		1.26	ug/L	
01090	ZINC, DISSOLVED (UG/L AS ZN)		90.9	ug/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/gwdbprt.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.

WELL LOG

Date 11/17/83

HASKIN PUMP SERVICE, INC.

15403 Capital Port
San Antonio, Texas

492-2141

78249

Name Timberwood Park #3

Location Next to Water Co. Yard

Total Depth 650' Well Capacity 45 GPM

Total Pipe 310' of 7" Date Started 11/10/83
---broken down 3 days

Drilling Time 3 days Date Completed 11/16/83

Kind of Formation Glenrose Water Level 400'

0	--	2	Top Soil
2	--	12	Red Clay & Caliche
12	--	20	Gray Clay
20	--	43	Brown Lime & Red Clay
43	--	73	Just Clay Lime & Shale
75	--	95	Gray Lime
95	--	120	White Lime
120	--	220	Brown & Gray Lime
220	--	318	Light Gray Lime
318	--	355	Brown Lime
355	--	623	Gray Lime
623	--	647	Brown Lime
647	--	650	Pine Island Shale

Water @ 35', 370', 530',
and 620'

Cemented by use of tremie pipe
by HASKIN PUMP SERVICE INC.

Glen H. Haskin
Glen H. Haskin, President

Driller Mike McNitt

Rig No. 9

68 21 409

BOND - Timber wood

#3 WELL

26802 HARMONY Hills

Please use black ink. Send original copy by certified mail to the Texas Water Commission P.O. Box 13087 Austin, Texas 78711

State of Texas WATER WELL REPORT

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

ATTENTION OWNER: Confidentiality Privilege Notice on Reverse Side

1) OWNER Haskin Water Utility, Inc. Address 15403 Capital Port San Antonio, TX 7824

2) LOCATION OF WELL: County Bexar 19 1/2 miles in North direction from San Antonio

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines...

Legal description: Section No. Block No. Township Abstract No. Survey Name Distance and direction from two intersecting section or survey lines

See attached map.

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

4) PROPOSED USE (Check): Domestic Industrial Monitor Public Supply Irrigation Test Well Injection Other

5) DRILLING METHOD (Check): Driven Mud Rotary Air Hammer Jetted Bored Air Rotary Cable Tool Other

6) WELL LOG:

Table with columns: Date Drilling, Started, Completed, DIAMETER OF HOLE (Dia. in., From ft., To ft.), Surface, 7) BOREHOLE COMPLETION: Open Hole, Straight Wall, Underreamed, Gravel Packed, Other

Table with columns: From (ft.), To (ft.), Description and color of formation material. Rows include Top Soil, Red Clay & Caliche, Gray Clay, Brown Lime & Red Clay, Soft Gray Lime & Shale, Gray Lime, White Lime, Brown & Gray Lime, Light Gray Lime, Brown Lime, Gray Lime, Brown Lime, Pine Island Shale.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA: Table with columns: Dia. (in.), New or Used, Steel, Plastic, etc., Setting (ft.), Gage Casing Screen

9) CEMENTING DATA [Rule 319.44(b)] Cemented from 310 ft. to 0 ft. No. of Sacks Used 92 Method used Pressure Cemented Cemented by Haskin Pump Service pressure cemented with 1" tremmi pipe

10) SURFACE COMPLETION Specified Surface Slab Installed [Rule 319.44(c)] Pitless Adapter Used [Rule 319.44(d)] Approved Alternative Procedure Used [Rule 319.71]

11) WATER LEVEL: Static level 400 ft. below land surface Date 11-16-83 Artesian flow 125 gpm. Date 11-16-83

12) PACKERS: Type Depth

13) TYPE PUMP: Turbine Jet Submersible Cylinder Other Depth to pump bowls, cylinder, jet, etc., ft.

15) WATER QUALITY: Did you knowingly penetrate any strata which contained undesirable water? If yes, submit "REPORT OF UNDESIRABLE WATER" Type of water? Depth of strata? Was a chemical analysis made?

14) WELL TESTS: Type Test: Pump Bailer Jetted Estimated Yield: gpm with ft. drawdown after hrs.

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

COMPANY NAME Haskin Pump Service, Inc. Water Well Driller's License No. 935 ADDRESS 15403 Capital Port San Antonio, Texas 78249

(Signed) Glen H. Haskin (Licensed Water Well Driller) (Signed) (Registered Driller Trainee) For TWC use only Well No. Located on map

Water Quality Field Data

SWN: 68-21-409 Sample No BM 1999-3103
 County: BEXAR Date: APRIL 7, 1999
 Aquifer(s): GLENROSE By: ROBERT
 Name: B.M.W.D.
 Address: 26802 HARMONY HILLS
S.A. TX 76258
 owner's well # WIP #1

		Bottle 1	Bottle 2	Bottle 3	Bottle 4	Bottle 5	Bottle 6	Bottle 7	Total		
500 ml	1 liter	250 ml	1 liter	1 liter	Radioactivity				SUB-Samples		
Anions	Cations	Nitrate	0.5 ml	2 ml	HNO ₃ (Nitric)	H ₂ SO ₄ (Sulfuric)	HNO (Nitric)		(All filtered unless otherwise stipulated)		
Water Level	_____ LSD	Remark	NOT AMPING	Time In	1040	Time out	1130	Sample time	1110		
Temperature (00010)	_____	22.0	0	Weather	CLOUDY/AMPD	well use	PUBLIC	Starting pH	7.30		
Specific Conductance (00094)	_____	623	umhos/cm	Outside Temp	78°	Ending pH	4.50	ml. of 0.02N to	13.6		
pH (00400)	_____	7.13		Sampling point	FAUCET	ml. of Sample	50		50		
Eh (00090)	_____ mv.	261.9		Time	1045 1050 1055			pH	7.07		
Phenol ALK (82244)	_____ mg/l	0		pH:	6.97 7.10 7.13			ml.	11		
Total ALK (39086)	_____ meq/l	272		Temp:	21.9 21.9 22.0			pH	6.91		
Carbonate (00452)	_____ meq/l	0		Eh:				ml.	12		
Bicarbonate (00453)	_____ meq/l	332		Cond.	612 618 623			pH	6.78		
Total Cations(+)	<u>Balanced</u>			other notes: Pumping since <u>STARTED AT 1045</u> Lift <u>SUMERSIBLE</u>							
Total Anions (-)				Latitude <u>29-41-54</u> Power <u>ELECTRIC</u>							
Total Hardness (00900)	_____	320		Longitude <u>98-29-27</u> Gpm <u>100</u>							
Dissolved Solids		346									



FINAL ANALYSIS REPORT

LAB ID: 9906308 SAMPLE DESCRIPTION: Groundwater
 COMPANY: TX Water Dev. Board SAMPLE DATE: 04/07/99
 ACCT NO: SAMPLE TIME: 1110
 REQUISITION No.: R10584 DATE RECEIVED: 04/09/99
 LOCATION ID: 68-21-409 REPORT DATE: 05/05/99

PARAMETER	RESULTS	UNITS	STORET #	PQL in WATER	DATE ANALYZED
Bromide	0.12	mg/L	71870	0.02	04/14/99
Chloride	18.5	mg/L	00941	1.5	04/14/99
Fluoride	0.41	mg/L	00950	0.01	04/14/99
Nit., nitri/nitra-AFA	1.210	mg/L	00630	0.010	04/28/99
Nitrogen, Kjeldahl	0.231	mg/L	00623	0.040	04/14/99
Nitrogen, ammonia	<0.050	mg/L	00608	0.050	04/15/99
Phosphorus, Total	<0.040	mg/L	00665	0.040	04/14/99
Silica	11.02	mg/L	00955	0.50	04/13/99
Sulfate	24.70	mg/L	00946	1.50	04/14/99
Alkalinity, Total	266	mg/L	00410	1	04/12/99
Alkalinity, Phenol.	0	mg/L	00415	0	04/12/99
Boron, Dissolved	78.00	ug/L	01020	50.00	04/13/99
Cobalt, Diss. ICPMS	<1.0	ug/L	01035	1.0	04/12/99
Iron, Dissolved	<50.00	ug/L	01046	50.00	04/13/99
Lithium, Diss. ICPMS	4.5	ug/L	01130	2.0	04/13/99
Molybdenum Dis ICPMS	1.1	ug/L	01060	1.0	04/12/99
Potassium, Dissolved	1.54	mg/L	00935	0.20	04/13/99
Strontium, Dissolved	1180.00	ug/L	01080	20.00	04/13/99
Vanadium, Diss ICPMS	4.0	ug/L	01085	1.0	04/12/99
Aluminum, Dis. ICPMS	<4.0	ug/L	01106	4.0	04/12/99
Arsenic, Diss. ICPMS	<2.0	ug/L	01000	2.0	04/12/99
Barium, Diss. ICPMS	31.0	ug/L	01005	1.0	04/12/99
Cadmium, Diss. ICPMS	<1.0	ug/L	01025	1.0	04/12/99
Calcium, Dissolved	91.90	mg/L	00915	0.20	04/13/99
Chromium, Diss ICPMS	11.4	ug/L	01030	1.0	04/12/99
Copper, Diss. ICPMS	5.0	ug/L	01040	2.0	04/12/99
Lead, Diss. ICPMS	1.9	ug/L	01049	1.0	04/12/99
Magnesium, Dissolved	21.20	mg/L	00925	0.20	04/13/99
Manganese, Dis ICPMS	<1.0	ug/L	01056	1.0	04/12/99
Nickel, Diss. ICPMS	12.6	ug/L	01065	1.0	04/12/99
Selenium, Dis. ICPMS	<4.0	ug/L	01145	4.0	04/12/99
Sodium, Dissolved	10.80	mg/L	00930	0.20	04/13/99
Antimony, Dis. ICPMS	<1.0	ug/L	01095	1.0	04/12/99
Beryllium, Dis ICPMS	<1.0	ug/L	01010	1.0	04/12/99
Thallium, Diss ICPMS	<1.0	ug/L	01057	1.0	04/12/99
Zinc, Diss. ICPMS	60.1	ug/L	01090	2.0	04/12/99

LCRA Environmental Laboratory Services

Date: 03-Jul-00

CLIENT: Texas Water Development Board
Lab Order: 0006145 **COC ID:** 13701
Project: TWDB 9/99 thru 8/00
Lab ID: 0006145-08

Client Sample ID: 68-21-409
 BM-3121-2000
Collection Date: 06/08/2000 11:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	QC Batch	Date Analyzed
ICP METALS, DISSOLVED		E200.7					Analyst: BL
Calcium	63.0	0.200		mg/L	1	R4757	06/29/2000
Magnesium	33.9	0.200		mg/L	1	R4757	06/29/2000
Potassium	2.63	0.200		mg/L	1	R4757	06/29/2000
Sodium	7.78	0.700		mg/L	1	R4757	06/29/2000
ICP METALS, DISSOLVED		E200.7					Analyst: BL
Boron	81.5	50.0		µg/L	1	R4758	06/29/2000
Iron	ND	50.0		µg/L	1	R4758	06/29/2000
Strontium	2030	20.0		µg/L	1	R4758	06/29/2000
ICPMS METALS, DISSOLVED		E200.8					Analyst: PJM
Aluminum	ND	4.00		µg/L	1	R4784	06/30/2000
Antimony	ND	1.00		µg/L	1	R4784	06/30/2000
Arsenic	ND	2.00		µg/L	1	R4784	06/30/2000
Barium	34.1	1.00		µg/L	1	R4784	06/30/2000
Beryllium	ND	1.00		µg/L	1	R4784	06/30/2000
Cadmium	ND	1.00		µg/L	1	R4784	06/30/2000
Chromium	5.32	1.00		µg/L	1	R4784	06/30/2000
Cobalt	ND	1.00		µg/L	1	R4784	06/30/2000
Copper	3.69	2.00		µg/L	1	R4784	06/30/2000
Lead	3.95	1.00		µg/L	1	R4784	06/30/2000
Lithium	7.98	2.00	B	µg/L	1	R4784	06/30/2000
Manganese	ND	1.00		µg/L	1	R4784	06/30/2000
Molybdenum	4.29	1.00		µg/L	1	R4784	06/30/2000
Nickel	1.66	1.00		µg/L	1	R4784	06/30/2000
Selenium	ND	4.00		µg/L	1	R4784	06/30/2000
Thallium	ND	1.00		µg/L	1	R4784	06/30/2000
Vanadium	1.51	1.00		µg/L	1	R4784	06/30/2000
Zinc	527	80.0		µg/L	20	R4799	06/30/2000
ANIONS BY ION CHROMATOGRAPHY		E300					Analyst: AMJ
Bromide	0.0500	0.0200		mg/L	1	R4715B	06/26/2000
Chloride	11.0	1.50		mg/L	1	R4715B	06/26/2000
Fluoride	0.810	0.0100		mg/L	1	R4715B	06/26/2000
Sulfate	33.3	1.50		mg/L	1	R4715B	06/26/2000
ALKALINITY		M2320 B					Analyst: WR
Alkalinity, Phenolphthalein	ND	0		mg/L CaCO3	1	R4636	06/20/2000
Alkalinity, Total (As CaCO3)	263	2.00		mg/L CaCO3	1	R4636	06/20/2000
CATION/ANION BALANCE		CALCULATION					Analyst: AMJ

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank E - Value above quantitation range
 * - Value exceeds Maximum Contaminant Level

LCRA Environmental Laboratory Services

Date: 03-Jul-00

CLIENT: Texas Water Development Board
Lab Order: 0006145 **COC ID:** 13701
Project: TWDB 9/99 thru 8/00
Lab ID: 0006145-08

Client Sample ID: 68-21-409
 BM-3121-2000
Collection Date: 06/08/2000 11:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	QC Batch	Date Analyzed
Cation/Anion Balance	Balanced	0		Date	1	R4796	06/30/2000
NITRATE AND NITRITE		E353.2					Analyst: CL
Nitrogen, Nitrate & Nitrite	ND	0.0200		mg/L	1	R4727H	06/27/2000
SILICA		E370.1					Analyst: CL
Silica, Dissolved (as SiO2)	13.0	0.500		mg/L	1	R4676E	06/23/2000

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank E - Value above quantitation range
 * - Value exceeds Maximum Contaminant Level

TWDB Water Quality Field Data Sheet

New Well:

State Well Number: 68-21-409
 County: BEXAR
 Aquifer Code: _____
 Aquifer Id: EDWARDS

Send Results To:

Owner's Name: B.M.W.D.
 Lessee's Name: _____
 Attention: MICHAEL J. ALBACH
 Mailing Address: 2047 W. MALONE
S.A. TX. 78225

Type of Sample:

Sample Number: BM-3121-2000
 Date: JUNE 8, 2000
 Sampler(s): ROGER P.

1 (on ice) 500ml (filtered) Anions n/a	2 500ml (filtered) Cations 1ml Nitric (HNO3)	3 (on ice) 250ml (filtered) Nitrate 0.5ml Sulfuric (H2SO4)	
---	---	---	--

Water Level from LSD: _____ ft

Remark code: _____

Temperature (90010): 24.6 C

Specific Conductance: 575 umho/cm

pH: 7.04

Phenol Alkalinity (82244): 0.0 mg/L

Total Alkalinity (39089): 258.0 mg/L

Carbonate: 0.00 meq/L

Bicarbonate: 5.16 meq/L

Carbonate: 0.0 mg/L

Bicarbonate: 314.8 mg/L

Total Hardness: 320 mg/L

TDS: 330 mg/L

Balanced: Pa

Time In: 10:45

Time Out: 12:00

Pumping Since: 11:05

Weather: CLOUDY/HUMID

Outside Temperature: 84

Sampling Point: F@W

Sample Time: 11:30

Well Use: PUBLIC

Lift: S

Power: ELECTRIC

Latitude: 29-41-54

Longitude: 98-28-27

Elevation: _____

Titration	
<u>7.05</u> Start pH	
<u>4.5</u> End pH	

50 ml. Sample
12.9 ml. Acid added for Total
 ml. Acid added for Phenol

Daily Meter Calibration	
pH	Reading
<u>7</u>	<u>7.01</u>
<u>4 or 10</u>	<u>10.05</u>
Conductivity (uS/cm, umho/cm)	
<u>500</u>	<u>500</u>
<u>1000</u>	<u>1000</u>
<u>2000</u>	
<u>5000</u>	

Other notes: _____

PRESSURE LINE FILTERED

Time:	11:10	11:15	11:20
pH:	7.03	7.04	7.04
Temperature:	23.9	24.3	24.6
Conductivity:	649	627	575
Conductivity Temp:	24.1	24.4	24.6

Hand-pump filtered
 Line-pressure filtered
 Entland Screen

1 2 3 4

LCRA Environmental Laboratory Services

Date: 27-Jun-02

CLIENT: Texas Water Development Board **Client Sample ID:** 68-21-409
Lab Order: 0206103 **File No:** 20140
Project: TWDB FY02 **Collection Date:** 6/6/02 11:20:00 AM
Lab ID: 0206103-06 **Matrix:** GROUNDWATER

Analyses	Storet	Result	PQL	Qual	Units	DF	BatchID	Date Analyzed
ICP METALS DISSOLVED			E200.7					Analyst: MLP
Calcium		96.1	0.20		mg/L	1	R14721A	6/18/02 7:30:59 PM
Magnesium		19.3	0.20		mg/L	1	R14721A	6/18/02 7:30:59 PM
Potassium		1.19	0.20		mg/L	1	R14721A	6/18/02 7:30:59 PM
Sodium		13.5	0.70		mg/L	1	R14721A	6/18/02 7:30:59 PM
ICP METALS DISSOLVED			E200.7					Analyst: MLP
Boron		ND	50		µg/L	1	R14665A	6/18/02 7:30:59 PM
Iron		ND	50		µg/L	1	R14665A	6/18/02 7:30:59 PM
Strontium		582	20		µg/L	1	R14665A	6/18/02 7:30:59 PM
ICPMS DISSOLVED METALS			E200.8					Analyst: SW
Aluminum		ND	4.00		µg/L	1	R14656A	6/18/02
Antimony		ND	1.00		µg/L	1	R14656A	6/18/02
Arsenic		ND	2.00		µg/L	1	R14656A	6/18/02
Barium		31.7	1.00		µg/L	1	R14656A	6/18/02
Beryllium		ND	1.00		µg/L	1	R14656A	6/18/02
Cadmium		ND	1.00		µg/L	1	R14656A	6/18/02
Chromium		2.18	1.00		µg/L	1	R14656A	6/18/02
Cobalt		ND	1.00		µg/L	1	R14656A	6/18/02
Copper		4.43	1.00		µg/L	1	R14656A	6/18/02
Lead		ND	1.00		µg/L	1	R14656A	6/18/02
Lithium		3.05	2.00		µg/L	1	R14656A	6/18/02
Manganese		3.84	1.00		µg/L	1	R14656A	6/18/02
Molybdenum		1.06	1.00		µg/L	1	R14656A	6/18/02
Nickel		4.13	1.00		µg/L	1	R14656A	6/18/02
Selenium		ND	4.00		µg/L	1	R14656A	6/18/02
Thallium		ND	1.00		µg/L	1	R14656A	6/18/02
Vanadium		1.26	1.00		µg/L	1	R14656A	6/18/02
Zinc		90.9	4.00		µg/L	1	R14656A	6/18/02
CATION/ANION BALANCES			CALCULATION					Analyst: AMJ
Cation/Anion Balance		Balanced			Date	1	R14778	6/26/02
ANIONS BY ION CHROMATOGRAPHY, DISSOLVE E300								Analyst: WR
Bromide Dissolved		0.06	0.02		mg/L	1	R14737C	6/21/02 10:55:58 PM
Chloride Dissolved		27.2	1.00		mg/L	1	R14737C	6/21/02 10:55:58 PM

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

LCRA Environmental Laboratory Services

Date: 27-Jun-02

CLIENT: Texas Water Development Board
Lab Order: 0206103 **File No:** 20140
Project: TWDB FY02
Lab ID: 0206103-06

Client Sample ID: 68-21-409
Collection Date: 6/6/02 11:20:00 AM
Matrix: GROUNDWATER

Analyses	Storet	Result	PQL	Qual	Units	DF	BatchID	Date Analyzed	
ANIONS BY ION CHROMATOGRAPHY, DISSOLVE E300									Analyst: WR
Fluoride Dissolved		0.27	0.01		mg/L	1	R14737C	6/21/02 10:55:58 PM	
Sulfate Dissolved		22.7	1.00		mg/L	1	R14737C	6/21/02 10:55:58 PM	
ALKALINITY									Analyst: CMM
			M2320 B						
Alkalinity, Phenolphthalein		ND	0		mg/L CaCO	1	R14631	6/14/02	
Alkalinity, Total (As CaCO3)		284	2		mg/L CaCO	1	R14631	6/14/02	
NITRATE AND NITRITE									Analyst: WM
			E353.2						
Nitrogen, Nitrate & Nitrite		1.75	0.02		mg/L	1	R14649A	6/17/02	
SILICA									Analyst: WM
			E370.1						
Silica, Dissolved (as SiO2)		11.7	0.50		mg/L	1	R14587C	6/12/02	

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

[GWDB Reports and Downloads](#)

Well Basic Details

[Scanned Documents](#)

State Well Number	6821410
County	Bexar
River Basin	San Antonio
Groundwater Management Area	9
Regional Water Planning Area	L - South Central Texas
Groundwater Conservation District	Trinity Glen Rose GCD
Latitude (decimal degrees)	29.698611
Latitude (degrees minutes seconds)	29° 41' 55" N
Longitude (decimal degrees)	-98.494445
Longitude (degrees minutes seconds)	098° 29' 40" W
Coordinate Source	Global Positioning System - GPS
Aquifer Code	218GRCCU - Lower Glen Rose and Cow Creek Limestones
Aquifer	Trinity
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	1261
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	650
Well Depth Source	Driller's Log
Drilling Start Date	
Drilling End Date	4/5/1985
Drilling Method	Mud (Hydraulic) Rotary
Borehole Completion	Open Hole

Well Type	Withdrawal of Water
Well Use	Public Supply
Water Level Observation	Historical
Water Quality Available	Yes
Pump	Submersible
Pump Depth (feet below land surface)	
Power Type	Electric Motor
Annular Seal Method	
Surface Completion	
Owner	BMW-Timberwood Park Well #4
Driller	Haskin Pump Service
Other Data Available	Drillers Log
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	G0150270D
Groundwater Conservation District Well Number	
Owner Well Number	4
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Commission on Environmental Quality
Created Date	8/4/1998
Last Update Date	7/25/2016

Remarks

Casing

Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
7	Blank	Steel			0	320
	Open Hole				320	650

Well Tests - No Data

Lithology - No Data

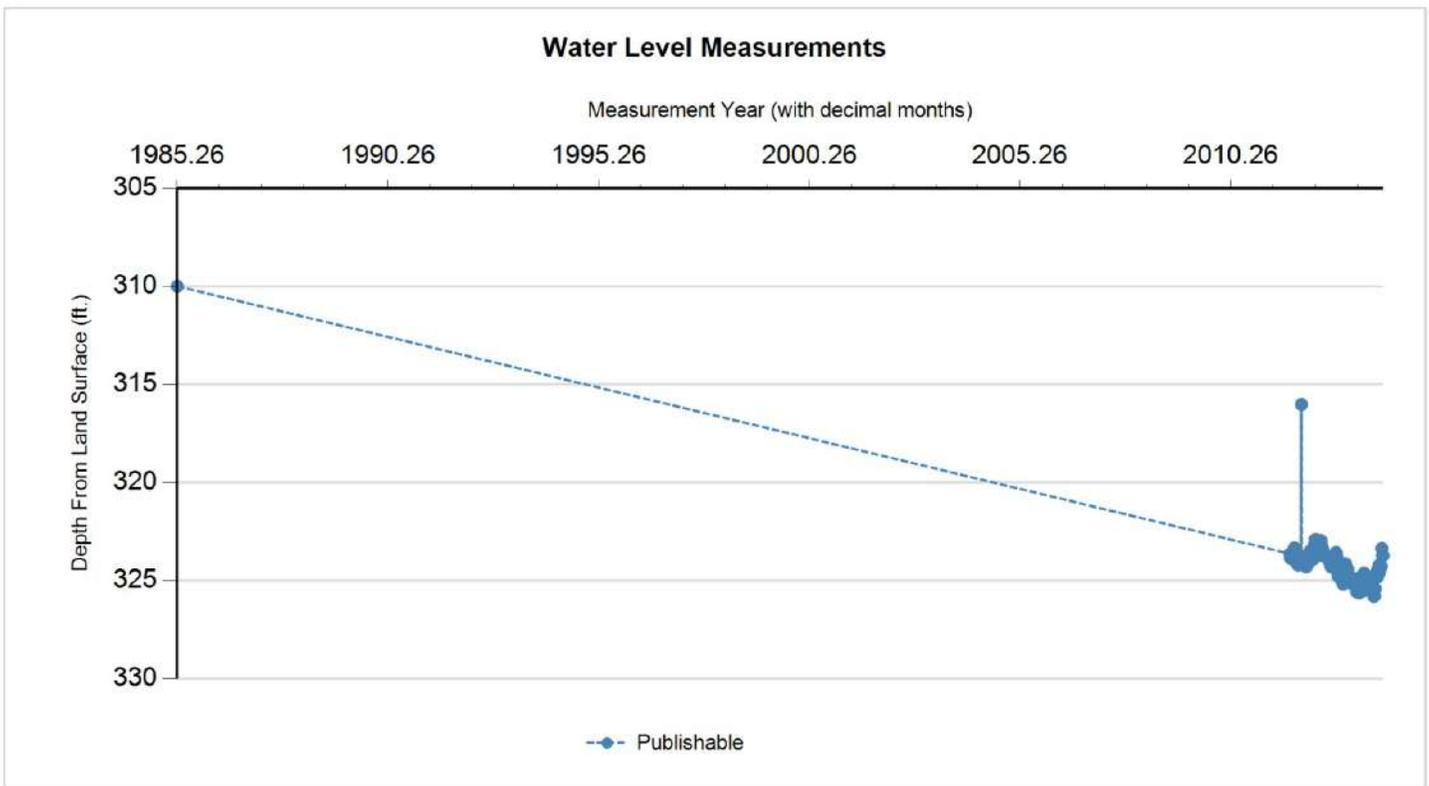
Annular Seal Range - No Data

Borehole - No Data

Plugged Back - No Data

Filter Pack - No Data

Packers - No Data



Status Code	Date	Time	Water Level (ft. below land surface)	Change value in () indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	4/5/1985		310		951	1	Registered Water Well Driller	Unknown		
P	8/30/2011		323.63	13.63	937.37	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/5/2011		323.86	0.23	937.14	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/10/2011		323.88	0.02	937.12	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/15/2011		323.88	0.00	937.12	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/20/2011		323.89	0.01	937.11	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/25/2011		323.77	(0.12)	937.23	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/30/2011		323.93	0.16	937.07	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/5/2011		323.78	(0.15)	937.22	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/10/2011		323.33	(0.45)	937.67	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/13/2011		323.6	0.27	937.4	1	Texas Water Development Board	Electric Line		

**Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-410**

Status Code	Date	Time	Water Level (ft. below land surface)	Change value in () indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	10/15/2011		323.62	0.02	937.38	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/20/2011		323.84	0.22	937.16	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/25/2011		323.93	0.09	937.07	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/30/2011		323.99	0.06	937.01	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/5/2011		323.99	0.00	937.01	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/10/2011		324.2	0.21	936.8	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/15/2011		323.86	(0.34)	937.14	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/20/2011		323.89	0.03	937.11	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/25/2011		324.07	0.18	936.93	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/30/2011		324.13	0.06	936.87	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/5/2011		324.06	(0.07)	936.94	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/9/2011		316.02	(8.04)	944.98	1	U.S. Geological Survey	Electric Line		
P	12/10/2011		324.14	8.12	936.86	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/15/2011		323.9	(0.24)	937.1	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/20/2011		323.96	0.06	937.04	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/25/2011		324.02	0.06	936.98	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/30/2011		324.03	0.01	936.97	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/5/2012		324.08	0.05	936.92	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/10/2012		324.11	0.03	936.89	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/15/2012		324.29	0.18	936.71	1	Texas Water Development Board	Recorder (Float or Transducer)		

Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-410

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	1/20/2012		324.09	(0.20)	936.91	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/25/2012		324.13	0.04	936.87	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/30/2012		324.12	(0.01)	936.88	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/5/2012		323.63	(0.49)	937.37	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/10/2012		323.84	0.21	937.16	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/15/2012		323.67	(0.17)	937.33	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/20/2012		323.49	(0.18)	937.51	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/25/2012		323.65	0.16	937.35	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/28/2012		323.65	0.00	937.35	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/5/2012		323.89	0.24	937.11	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/10/2012		323.93	0.04	937.07	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/20/2012		323.42	(0.51)	937.58	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/25/2012		323.22	(0.20)	937.78	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/5/2012		322.91	(0.31)	938.09	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/10/2012		323.02	0.11	937.98	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/15/2012		323.29	0.27	937.71	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/20/2012		323.4	0.11	937.6	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/25/2012		323.53	0.13	937.47	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/30/2012		323.58	0.05	937.42	1	Texas Water Development Board	Recorder (Float or Transducer)		

**Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-410**

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	5/5/2012		323.7	0.12	937.3	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/10/2012		323.46	(0.24)	937.54	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/15/2012		323.04	(0.42)	937.96	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/20/2012		322.95	(0.09)	938.05	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/25/2012		323.1	0.15	937.9	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/30/2012		323.27	0.17	937.73	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/5/2012		323.38	0.11	937.62	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/10/2012		323.44	0.06	937.56	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/15/2012		323.74	0.30	937.26	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/20/2012		323.72	(0.02)	937.28	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/5/2012		323.96	0.24	937.04	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/10/2012		324.05	0.09	936.95	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/15/2012		324.09	0.04	936.91	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/20/2012		324.29	0.20	936.71	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/25/2012		324.22	(0.07)	936.78	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/30/2012		324.14	(0.08)	936.86	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/5/2012		324.16	0.02	936.84	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/10/2012		324.34	0.18	936.66	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/15/2012		323.96	(0.38)	937.04	1	Texas Water Development Board	Recorder (Float or Transducer)		

**Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-410**

Status Code	Date	Time	Water Level (ft. below land surface)	Change value in () indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	9/20/2012		324.08	0.12	936.92	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/25/2012		324.1	0.02	936.9	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/30/2012		323.64	(0.46)	937.36	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/5/2012		323.57	(0.07)	937.43	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/10/2012		323.8	0.23	937.2	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/15/2012		323.97	0.17	937.03	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/20/2012		324.23	0.26	936.77	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/25/2012		324.78	0.55	936.22	1	Texas Water Development Board	Electric Line		
X	10/30/2012					1	Texas Water Development Board		37	
P	11/5/2012		324.79		936.21	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/10/2012		324.81	0.02	936.19	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/15/2012		324.93	0.12	936.07	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/20/2012		324.73	(0.20)	936.27	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/25/2012		324.87	0.14	936.13	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/30/2012		324.85	(0.02)	936.15	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/5/2012		325.17	0.32	935.83	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/15/2012		324.39	(0.78)	936.61	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/25/2012		324.14	(0.25)	936.86	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/30/2012		324.57	0.43	936.43	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/10/2013		324.43	(0.14)	936.57	1	Texas Water Development Board	Recorder (Float or Transducer)		

**Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-410**

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	1/20/2013		325.08	0.65	935.92	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/25/2013		325.04	(0.04)	935.96	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/30/2013		324.98	(0.06)	936.02	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/5/2013		324.98	0.00	936.02	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/10/2013		324.9	(0.08)	936.1	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/15/2013		325.14	0.24	935.86	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/20/2013		325.04	(0.10)	935.96	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/25/2013		324.89	(0.15)	936.11	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/28/2013		324.89	0.00	936.11	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/5/2013		324.95	0.06	936.05	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/10/2013		324.88	(0.07)	936.12	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/15/2013		325.17	0.29	935.83	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/20/2013		325.14	(0.03)	935.86	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/25/2013		325.56	0.42	935.44	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/30/2013		325.36	(0.20)	935.64	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/5/2013		325.53	0.17	935.47	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/10/2013		325.33	(0.20)	935.67	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/15/2013		325.39	0.06	935.61	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/20/2013		325.61	0.22	935.39	1	Texas Water Development Board	Recorder (Float or Transducer)		

**Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-410**

Status Code	Date	Time	Water Level (ft. below land surface)	Change value in () indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	4/25/2013		325.55	(0.06)	935.45	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/30/2013		325.34	(0.21)	935.66	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/5/2013		325.5	0.16	935.5	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/10/2013		325.45	(0.05)	935.55	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/15/2013		325.38	(0.07)	935.62	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/20/2013		325.38	0.00	935.62	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/25/2013		325.52	0.14	935.48	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/30/2013		324.61	(0.91)	936.39	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/5/2013		325.04	0.43	935.96	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/10/2013		325.19	0.15	935.81	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/15/2013		325.19	0.00	935.81	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/20/2013		325.24	0.05	935.76	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/25/2013		325.25	0.01	935.75	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/30/2013		325.23	(0.02)	935.77	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/5/2013		325.33	0.10	935.67	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/10/2013		325.36	0.03	935.64	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/15/2013		325.32	(0.04)	935.68	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/20/2013		325.31	(0.01)	935.69	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/25/2013		325.38	0.07	935.62	1	Texas Water Development Board	Recorder (Float or Transducer)		

**Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-410**

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	7/30/2013		325.39	0.01	935.61	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/5/2013		325.38	(0.01)	935.62	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/10/2013		325.48	0.10	935.52	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/15/2013		325.47	(0.01)	935.53	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/20/2013		325.68	0.21	935.32	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/25/2013		325.79	0.11	935.21	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/30/2013		325.78	(0.01)	935.22	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/5/2013		325.42	(0.36)	935.58	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/10/2013		324.68	(0.74)	936.32	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/15/2013		324.78	0.10	936.22	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/20/2013		324.74	(0.04)	936.26	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/25/2013		324.82	0.08	936.18	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/30/2013		324.45	(0.37)	936.55	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/5/2013		324.51	0.06	936.49	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/10/2013		324.62	0.11	936.38	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/15/2013		324.2	(0.42)	936.8	1	Texas Water Development Board	Recorder (Float or Transducer)		
X	10/17/2013					1	Texas Water Development Board		37	
P	10/20/2013		324.23		936.77	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/25/2013		324.36	0.13	936.64	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/30/2013		324.28	(0.08)	936.72	1	Texas Water Development Board	Recorder (Float or Transducer)		

Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-410

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	11/5/2013		323.36	(0.92)	937.64	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/10/2013		323.71	0.35	937.29	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/15/2013		323.72	0.01	937.28	1	Texas Water Development Board	Recorder (Float or Transducer)		

Code Descriptions

Status Code	Status Description
P	Publishable
X	No Measurement

Remark ID	Remark Description
37	No measurement due to admin decision

Water Quality Analysis

Sample Date: 5/24/1999 **Sample Time:** 1050 **Sample Number:** 1 **Collection Entity:** Bexar Metropolitan Water District

Sampled Aquifer: Lower Glen Rose and Cow Creek Limestones

Analyzed Lab: LCRA - Lower Colorado River Authority

Reliability: Sampled using TWDB protocols

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
39086	ALKALINITY FIELD DISSOLVED AS CaCO3		246	mg/L as CaCO3	
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		254	mg/L as CaCO3	
01106	ALUMINUM, DISSOLVED (UG/L AS AL)	<	4	ug/L	
01095	ANTIMONY, DISSOLVED (UG/L AS SB)	<	1	ug/L	
01000	ARSENIC, DISSOLVED (UG/L AS AS)	<	2	ug/L	
01005	BARIUM, DISSOLVED (UG/L AS BA)		30.3	ug/L	
01010	BERYLLIUM, DISSOLVED (UG/L AS BE)	<	1	ug/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		309.97	mg/L	
01020	BORON, DISSOLVED (UG/L AS B)		79	ug/L	
71870	BROMIDE, DISSOLVED, (MG/L AS BR)		0.1	mg/L	
01025	CADMIUM, DISSOLVED (UG/L AS CD)	<	1	ug/L	
00915	CALCIUM, DISSOLVED (MG/L AS CA)		83.5	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00941	CHLORIDE, DISSOLVED (MG/L AS CL)		13.9	mg/L	
01030	CHROMIUM, DISSOLVED (UG/L AS CR)		8.2	ug/L	
01035	COBALT, DISSOLVED (UG/L AS CO)	<	1	ug/L	
01040	COPPER, DISSOLVED (UG/L AS CU)	<	2	ug/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.22	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		265	mg/L as CaCO3	
01046	IRON, DISSOLVED (UG/L AS FE)		58	ug/L	
01049	LEAD, DISSOLVED (UG/L AS PB)		4.3	ug/L	
01130	LITHIUM, DISSOLVED (UG/L AS LI)		4	ug/L	
00925	MAGNESIUM, DISSOLVED (MG/L AS MG)		13.7	mg/L	
01056	MANGANESE, DISSOLVED (UG/L AS MN)	<	1	ug/L	
01060	MOLYBDENUM, DISSOLVED (UG/L AS MO)	<	1	ug/L	
01065	NICKEL, DISSOLVED (UG/L AS NI)		4.3	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		4.12	mg/L as NO3	

**Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-410**

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00631	NITRITE PLUS NITRATE, DISSOLVED (MG/L AS N)		0.931	mg/L as N	
00608	NITROGEN, AMMONIA, DISSOLVED (MG/L AS N)	<	0.04	mg/L as N	
00623	NITROGEN, KJELDAHL, DISSOLVED (MG/L AS N)		0.048	mg/L as N	
00090	OXIDATION REDUCTION POTENTIAL (ORP), MILLIVOLTS		286.1	MV	
00400	PH (STANDARD UNITS), FIELD		6.45	SU	
00666	PHOSPHORUS, DISSOLVED (MG/L AS P)	<	0.04	mg/L as P	
00935	POTASSIUM, DISSOLVED (MG/L AS K)		1.24	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
01145	SELENIUM, DISSOLVED (UG/L AS SE)	<	4	ug/L	
00955	SILICA, DISSOLVED (MG/L AS SI02)		11	mg/L as SIO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		0.22		
00932	SODIUM, CALCULATED, PERCENT		6	PCT	
00930	SODIUM, DISSOLVED (MG/L AS NA)		8.24	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		564	MICR	
01080	STRONTIUM, DISSOLVED (UG/L AS SR)		449	ug/L	
00946	SULFATE, DISSOLVED (MG/L AS SO4)		16.7	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		23.5	C	
01057	THALLIUM, DISSOLVED (UG/L AS TL)	<	1	ug/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		305	mg/L	
01085	VANADIUM, DISSOLVED (UG/L AS V)		4.1	ug/L	
01090	ZINC, DISSOLVED (UG/L AS ZN)		84.8	ug/L	

* Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..

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WELL LOG

Date _____

HASKIN PUMP SERVICE, INC.

15403 Capital Port
San Antonio, Texas

492-2141

78249

Name Timberwood Park #6

Location _____

Total Depth 650' Well Capacity 75 GPM

Total Pipe 7" O.D. 320' Date Started 4-3-85

Drilling Time 15 hrs. Date Completed 4-5-85

Kind of Formation Glenrose Water Level 310'

0 - 1	Top Soil
1 - 4	Gravel
4 - 10	Caliche
10 - 12	Hard White Lime
12 - 18	Soft Grey Lime
18 - 23	Hard White Lime
23 - 30	Clay
30 - 40	Hard White Lime
40 - 88	Hard Grey Lime
88 - 108	Soft White Lime
108 - 113	Hard Grey Lime
113 - 133	Hard White Lime
133 - 180	Hard Grey Lime
180 - 186	Clay
186 - 221	Hard Grey Lime
221 - 225	Soft Brown Lime
225 - 240	Hard Grey Lime
240 - 270	Soft White Lime
270 - 297	Hard Grey Lime
297 - 320	Hard White Lime
320 - 509	Glenrose White Lime
509 - 612	Cow Creek
612 - 650	Shale

Cemented by use of tremie
by HASKIN PUMP SERVICE INC
Glen H. Haskin
Glen H. Haskin, President

DRILLER: STEVE WEST
RIG NO. # 10

Driller _____
Rig No. _____

Water Quality Field Data Sheet

SWN: 68-21-410 Name: B.M.W.D. Sample No. BM-3110-1999
 County: BEXAR Address: 801 BEST WAY Date: MAY 24, 1999
 Aquifer: GLENROSE owners well # W/P #1 By: ROGER P.

Bottle 1 500 ml Bottle 2 1 liter Bottle 3 250 ml Bottle 4 1 liter Bottle 5 250 ml Bottle 6 1 liter Bottle 7 250 ml
 Anions 500 ml Cations 1 liter Nitrate 250 ml Radioactivity 1 liter
 2 ml 0.5 ml 2 ml 2 ml
 HNO3 HNO3 H2SO4 HNO
 (Nitric) (Sulfuric) (Nitric)

Water level LSD Remark _____ Starting ph 7.00 @ 25.8
 Temperature(00010) 23.5 c Time out 1115 Sample time 1050 ml. of 0.02N to 50
 Specific Cond.(00094) 564 umhos/cm Weather PARTLY/CLOUDY Ending ph 4.50 @ 27.4
 ph (00400) 6.45 Outside temp 80
 Eh (00090) 286.1 mv. Sampling point DISCHARGE(FAUCET)

Time:	1030	1035	1040	ml	ph
ph:	6.48	6.50	6.45		1 6.76
Temperature:	23.0	23.3	23.5		2 6.58
Eh			286.1		3 6.42
Conductivity:	569	563	564		4 6.28
	other notes				5 6.16
	Lift		SUBMERSIBLE		6 6.04
	Power		ELECTRIC		7 5.92
	Gpm		40		8 5.79
					9 5.65
					10 5.47
					11 5.21
					12 4.8
					12.3 4.5

Pumping since 1020 _____
 Latitude 29-41-54 Power _____
 Longitude 98-29-29 Gpm 40

Total Cations(+) Balanced
 Total Anions(-) _____
 Total Hardness(00900) 265
305

TDS



FINAL ANALYSIS REPORT

LAB ID: 9907749 SAMPLE DESCRIPTION: Groundwater
 COMPANY: TX Water Dev. Board SAMPLE DATE: 05/24/99
 ACCT NO: SAMPLE TIME: 1050
 REQUISITION No.: R10988 DATE RECEIVED: 05/28/99
 LOCATION ID: 68-21-410 REPORT DATE: 06/23/99

PARAMETER	RESULTS	UNITS	STORET #	PQL in WATER	DATE ANALYZED
Bromide	0.10	mg/L	71870	0.02	06/02/99
Chloride	13.9	mg/L	00941	1.5	06/02/99
Fluoride	0.22	mg/L	00950	0.01	06/02/99
Nit., nitri/nitra-AFA	0.931	mg/L	00630	0.010	06/03/99
Nitrogen, Kjeldahl	0.048	mg/L	00623	0.040	06/08/99
Nitrogen, ammonia	<0.040	mg/L	00608	0.040	06/10/99
Phosphorus, Total	<0.040	mg/L	00665	0.040	06/08/99
Silica	11.00	mg/L	00955	0.50	06/07/99
Sulfate	16.70	mg/L	00946	1.50	06/02/99
Alkalinity, Total	254	mg/L	00410	1	06/02/99
Alkalinity, Phenol.	0	mg/L	00415	0	06/02/99
Boron, Dissolved	79.00	ug/L	01020	50.00	06/10/99
Cobalt, Diss. ICPMS	<1.0	ug/L	01035	1.0	06/08/99
Iron, Dissolved	58.00	ug/L	01046	50.00	06/10/99
Lithium, Diss. ICPMS	4.0	ug/L	01130	2.0	06/08/99
Molybdenum Dis ICPMS	<1.0	ug/L	01060	1.0	06/08/99
Potassium, Dissolved	1.24	mg/L	00935	0.20	06/10/99
Strontium, Dissolved	449.00	ug/L	01080	20.00	06/10/99
Vanadium, Diss ICPMS	4.1	ug/L	01085	1.0	06/08/99
Aluminum, Dis. ICPMS	<4.0	ug/L	01106	4.0	06/08/99
Arsenic, Diss. ICPMS	<2.0	ug/L	01000	2.0	06/08/99
Barium, Diss. ICPMS	30.3	ug/L	01005	1.0	06/08/99
Cadmium, Diss. ICPMS	<1.0	ug/L	01025	1.0	06/08/99
Calcium, Dissolved	83.50	mg/L	00915	0.20	06/22/99
Chromium, Diss ICPMS	8.2	ug/L	01030	1.0	06/08/99
Copper, Diss. ICPMS	<2.0	ug/L	01040	2.0	06/08/99
Lead, Diss. ICPMS	4.3	ug/L	01049	1.0	06/08/99
Magnesium, Dissolved	13.70	mg/L	00925	0.20	06/10/99
Manganese, Dis ICPMS	<1.0	ug/L	01056	1.0	06/08/99
Nickel, Diss. ICPMS	4.3	ug/L	01065	1.0	06/08/99
Selenium, Dis. ICPMS	<4.0	ug/L	01145	4.0	06/08/99
Sodium, Dissolved	8.24	mg/L	00930	0.20	06/10/99
Antimony, Dis. ICPMS	<1.0	ug/L	01095	1.0	06/08/99
Beryllium, Dis ICPMS	<1.0	ug/L	01010	1.0	06/08/99
Thallium, Diss ICPMS	<1.0	ug/L	01057	1.0	06/08/99
Zinc, Diss. ICPMS	84.8	ug/L	01090	2.0	06/08/99

GWDB Reports and Downloads

Well Basic Details

Scanned Documents

State Well Number	6821411
County	Bexar
River Basin	San Antonio
Groundwater Management Area	9
Regional Water Planning Area	L - South Central Texas
Groundwater Conservation District	Trinity Glen Rose GCD
Latitude (decimal degrees)	29.698334
Latitude (degrees minutes seconds)	29° 41' 54" N
Longitude (decimal degrees)	-98.492778
Longitude (degrees minutes seconds)	098° 29' 34" W
Coordinate Source	Global Positioning System - GPS
Aquifer Code	218GRCCU - Lower Glen Rose and Cow Creek Limestones
Aquifer	Trinity
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	1266
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	725
Well Depth Source	Driller's Log
Drilling Start Date	
Drilling End Date	9/5/1986
Drilling Method	Mud (Hydraulic) Rotary
Borehole Completion	Open Hole

Well Type	Withdrawal of Water
Well Use	Public Supply
Water Level Observation	None
Water Quality Available	Yes
Pump	Submersible
Pump Depth (feet below land surface)	
Power Type	Electric Motor
Annular Seal Method	
Surface Completion	
Owner	BMW-Timberwood Park Well #5
Driller	Haskin Pump Service
Other Data Available	Drillers Log
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	G0150270E
Groundwater Conservation District Well Number	
Owner Well Number	5
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Commission on Environmental Quality
Created Date	8/4/1998
Last Update Date	7/21/2016

Remarks

Casing - No Data

Well Tests - No Data

Lithology - No Data

Annular Seal Range - No Data

Borehole - No Data

Plugged Back - No Data

Filter Pack - No Data

Packers - No Data

Water Level Measurements

No Data Available

Water Quality Analysis

Sample Date: 6/18/1999 **Sample Time:** 1005 **Sample Number:** 1 **Collection Entity:** Bexar Metropolitan Water District

Sampled Aquifer: Lower Glen Rose and Cow Creek Limestones

Analyzed Lab: LCRA - Lower Colorado River Authority

Reliability: Sampled using TWDB protocols

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
39086	ALKALINITY FIELD DISSOLVED AS CaCO3		292	mg/L as CaCO3	
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		291	mg/L as CaCO3	
01106	ALUMINUM, DISSOLVED (UG/L AS AL)	<	4	ug/L	
01095	ANTIMONY, DISSOLVED (UG/L AS SB)	<	1	ug/L	
01000	ARSENIC, DISSOLVED (UG/L AS AS)	<	2	ug/L	
01005	BARIUM, DISSOLVED (UG/L AS BA)		36.8	ug/L	
01010	BERYLLIUM, DISSOLVED (UG/L AS BE)	<	1	ug/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		355.12	mg/L	
01020	BORON, DISSOLVED (UG/L AS B)		52	ug/L	
71870	BROMIDE, DISSOLVED, (MG/L AS BR)		0.11	mg/L	
01025	CADMIUM, DISSOLVED (UG/L AS CD)	<	1	ug/L	
00915	CALCIUM, DISSOLVED (MG/L AS CA)		103	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00941	CHLORIDE, DISSOLVED (MG/L AS CL)		20.3	mg/L	
01030	CHROMIUM, DISSOLVED (UG/L AS CR)		10.8	ug/L	
01035	COBALT, DISSOLVED (UG/L AS CO)	<	1	ug/L	
01040	COPPER, DISSOLVED (UG/L AS CU)	<	2	ug/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.19	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		321	mg/L as CaCO3	
01046	IRON, DISSOLVED (UG/L AS FE)	<	50	ug/L	
01049	LEAD, DISSOLVED (UG/L AS PB)		2.7	ug/L	
01130	LITHIUM, DISSOLVED (UG/L AS LI)		3.9	ug/L	
00925	MAGNESIUM, DISSOLVED (MG/L AS MG)		15.6	mg/L	
01056	MANGANESE, DISSOLVED (UG/L AS MN)	<	1	ug/L	
01060	MOLYBDENUM, DISSOLVED (UG/L AS MO)	<	1	ug/L	
01065	NICKEL, DISSOLVED (UG/L AS NI)		12.8	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		6.6	mg/L as NO3	

**Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-411**

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00631	NITRITE PLUS NITRATE, DISSOLVED (MG/L AS N)		1.49	mg/L as N	
00608	NITROGEN, AMMONIA, DISSOLVED (MG/L AS N)	<	0.02	mg/L as N	
00623	NITROGEN, KJELDAHL, DISSOLVED (MG/L AS N)	<	0.04	mg/L as N	
00090	OXIDATION REDUCTION POTENTIAL (ORP), MILLIVOLTS		179.7	MV	
00400	PH (STANDARD UNITS), FIELD		6.84	SU	
00666	PHOSPHORUS, DISSOLVED (MG/L AS P)	<	0.04	mg/L as P	
00935	POTASSIUM, DISSOLVED (MG/L AS K)		1.32	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
01145	SELENIUM, DISSOLVED (UG/L AS SE)	<	4	ug/L	
00955	SILICA, DISSOLVED (MG/L AS SI02)		11.4	mg/L as SIO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		0.27		
00932	SODIUM, CALCULATED, PERCENT		7	PCT	
00930	SODIUM, DISSOLVED (MG/L AS NA)		11.2	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		670	MICR	
01080	STRONTIUM, DISSOLVED (UG/L AS SR)		327	ug/L	
00946	SULFATE, DISSOLVED (MG/L AS SO4)		26	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		22.4	C	
01057	THALLIUM, DISSOLVED (UG/L AS TL)	<	1	ug/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		370	mg/L	
01085	VANADIUM, DISSOLVED (UG/L AS V)		4.2	ug/L	
01090	ZINC, DISSOLVED (UG/L AS ZN)		586.6	ug/L	

* Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..

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WELL LOG

HASKIN PUMP SERVICE, INC.

15408 Capital Port
San Antonio, Texas

492-2141 78249

Name Timberwood Park Subdivision Well #5
 Location Timberwood Park Subdivision
 Total Depth 725 Well Capacity 100 GPM
 Total Pipe 430' 8 5/8" - 8 3/4" Date Started 8-28-86
 Drilling Time _____ Date Completed 9-5-86
 Kind of Formation Glenrose Water Level 289'

0 - 2	Top Soil
2 - 4	White Lime
4 - 13	Brown Lime & Caliche
13 - 22	Grey Lime
22 - 53	Brown Lime
53 - 91	Grey Lime & Black Streaks
91 - 125	Brown Lime
125 - 148	Grey Lime
148 - 160	Brown Lime
160 - 230	Grey Lime & Black Streaks
230 - 240	Brown Lime
240 - 281	Grey Lime (Water at 330' to 375')
281 - 300	Gray & Brown Lime
300 - 447	White Lime & Strbs. Grey Lime w/ pockets of red clay 300' to 392'
447 - 498	Light Grey Lime
498 - 517	Light Brown Lime
517 - 522	Grey Lime
522 - 556	Dark Grey Lime
556 - 591	Grey Lime
591 - 664	Brown Lime & Light Grey Lime
664 - 703	Grey Lime
703 - 720	Dark Grey Lime soft
720 - 725	Pine Island Shale More water at 605' to 620' 355' to 347' Cave

DRILLER: GLEN D. HASKIN Rig#9 Speedstar
 Drilled Cemented by use of tremie pipe
 by Haskin Pump Service Inc.
 Rio No. Glen D. Haskin President

6824 411

#5 WELL

078

26719 Shadow Pass

Please use black ink. Send original copy by certified mail to the Texas Water Commission P.O. Box 13087 Austin, Texas 78711

State of Texas WATER WELL REPORT

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

ATTENTION OWNER: Confidentiality Privilege Notice on Reverse Side

1) OWNER Haskin Water Utility, Inc. Address 15403 Capital Port San Antonio, TX 78249
2) LOCATION OF WELL: County Bexar 19 1/2 miles in North direction from San Antonio

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines...
Legal description: Section No. Block No. Township
Abstract No. Survey Name
Distance and direction from two intersecting section or survey lines
See attached map.

3) TYPE OF WORK (Check): New Well, Deepening, Reconditioning, Plugging
4) PROPOSED USE (Check): Domestic, Industrial, Monitor, Public Supply, Irrigation, Test Well, Injection, Other
5) DRILLING METHOD (Check): Mud Rotary, Air Hammer, Jetted, Bored, Air Rotary, Cable Tool, Other

6) WELL LOG: Date Drilling: Started 8-28-86 Completed 9-5-86
DIAMETER OF HOLE: Dia. (in.) From (ft.) To (ft.)
11 7/8 Surface 430
8 725
7) BOREHOLE COMPLETION: Open Hole, Straight Wall, Underreamed, Gravel Packed, Other

Table with columns: From (ft.), To (ft.), Description and color of formation material, Dia. (in.), New or Used, Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial, Setting (ft.) From, To, Gage Casing Screen. Rows include Top Soil, White Lime, Brown Lime & Caliche, Gray Lime, Brown Lime, Gray Lime & Black Streaks, etc.

9) CEMENTING DATA [Rule 319.44(b)] Cemented from 430 ft. to 0 ft. No. of Sacks Used 132
Method used Pressure Cemented
Cemented by Haskin Pump Service
pressure cemented with 1" tremmi pipe
10) SURFACE COMPLETION: Specified Surface Slab Installed, Pitless Adapter Used, Approved Alternative Procedure Used
11) WATER LEVEL: Static level 289 ft. below land surface Date 9-5-86
Artesian flow 125 gpm. Date 9-5-86
12) PACKERS: Type Depth
13) TYPE PUMP: Turbine, Jet, Submersible, Cylinder, Other
Depth to pump bowls, cylinder, jet, etc., ft.

14) WELL TESTS: Type Test: Pump, Bailer, Jetted, Estimated
Yield: gpm with ft. drawdown after hrs.

5) WATER QUALITY: Did you knowingly penetrate any strata which contained undesirable water? Yes No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? Depth of strata?
Was a chemical analysis made? Yes No
I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief...
COMPANY NAME Haskin Pump Service, Inc - Water Well Driller's License No. 2327
ADDRESS 15403 Capital Port San Antonio, Texas 78249
Signed: Glen D. Haskin (Registered Water Well Driller) (Signed) (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available. For TWC use only Well No. Located on map



FINAL ANALYSIS REPORT

LAB ID: 9908389 SAMPLE DESCRIPTION: Groundwater
 COMPANY: TX Water Dev. Board SAMPLE DATE: 06/18/99
 ACCT NO: SAMPLE TIME: 10:05
 REQUISITION No.: R11209 DATE RECEIVED: 06/25/99
 LOCATION ID: 68-21-411 REPORT DATE: 07/30/99

PARAMETER	RESULTS	UNITS	STORET #	PQL in WATER	DATE ANALYZED
Bromide	0.11	mg/L	71870	0.02	06/29/99
Chloride	20.3	mg/L	00941	1.5	06/29/99
Fluoride	0.19	mg/L	00950	0.01	06/29/99
Nit., nitri/nitra-AFA	1.490	mg/L	00630	0.010	06/29/99
Nitrogen, Kjeldahl	<0.040	mg/L	00623	0.040	07/12/99
Nitrogen, ammonia	<0.020	mg/L	00608	0.020	06/28/99
Phosphorus, Total	<0.040	mg/L	00665	0.040	07/12/99
Silica	11.40	mg/L	00955	0.50	06/29/99
Sulfate	26.00	mg/L	00946	1.50	06/29/99
Alkalinity, Total	291	mg/L	00410	1	06/28/99
Alkalinity, Phenol.	0	mg/L	00415	0	06/28/99
Boron, Dissolved	52.00	ug/L	01020	50.00	06/29/99
Cobalt, Diss. ICPMS	<1.0	ug/L	01035	1.0	07/13/99
Iron, Dissolved	<50.00	ug/L	01046	50.00	06/29/99
Lithium, Diss. ICPMS	3.9	ug/L	01130	2.0	07/13/99
Molybdenum Dis ICPMS	<1.0	ug/L	01060	1.0	07/13/99
Potassium, Dissolved	1.32	mg/L	00935	0.20	06/29/99
Strontium, Dissolved	327.00	ug/L	01080	20.00	06/29/99
Vanadium, Diss ICPMS	4.2	ug/L	01085	1.0	07/13/99
Aluminum, Dis. ICPMS	<4.0	ug/L	01106	4.0	07/13/99
Arsenic, Diss. ICPMS	<2.0	ug/L	01000	2.0	07/13/99
Barium, Diss. ICPMS	36.8	ug/L	01005	1.0	07/13/99
Cadmium, Diss. ICPMS	<1.0	ug/L	01025	1.0	07/13/99
Calcium, Dissolved	103.00	mg/L	00915	0.20	06/29/99
Chromium, Diss ICPMS	10.8	ug/L	01030	1.0	07/13/99
Copper, Diss. ICPMS	<2.0	ug/L	01040	2.0	07/13/99
Lead, Diss. ICPMS	2.7	ug/L	01049	1.0	07/13/99
Magnesium, Dissolved	15.60	mg/L	00925	0.20	06/29/99
Manganese, Dis ICPMS	<1.0	ug/L	01056	1.0	07/13/99
Nickel, Diss. ICPMS	12.8	ug/L	01065	1.0	07/13/99
Selenium, Dis. ICPMS	<4.0	ug/L	01145	4.0	07/13/99
Sodium, Dissolved	11.20	mg/L	00930	0.20	06/29/99
Antimony, Dis. ICPMS	<1.0	ug/L	01095	1.0	07/13/99
Beryllium, Dis ICPMS	<1.0	ug/L	01010	1.0	07/13/99
Thallium, Diss ICPMS	<1.0	ug/L	01057	1.0	07/13/99
Zinc, Diss. ICPMS	586.6	ug/L	01090	2.0	07/13/99

[GWDB Reports and Downloads](#)

Well Basic Details

[Scanned Documents](#)

State Well Number	6821412
County	Bexar
River Basin	San Antonio
Groundwater Management Area	9
Regional Water Planning Area	L - South Central Texas
Groundwater Conservation District	Trinity Glen Rose GCD
Latitude (decimal degrees)	29.698889
Latitude (degrees minutes seconds)	29° 41' 56" N
Longitude (decimal degrees)	-98.491111
Longitude (degrees minutes seconds)	098° 29' 28" W
Coordinate Source	Global Positioning System - GPS
Aquifer Code	218GRCCU - Lower Glen Rose and Cow Creek Limestones
Aquifer	Trinity
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	1297
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	620
Well Depth Source	Driller's Log
Drilling Start Date	
Drilling End Date	3/7/1986
Drilling Method	Mud (Hydraulic) Rotary
Borehole Completion	Other

Well Type	Withdrawal of Water
Well Use	Unused
Water Level Observation	Miscellaneous Measurements
Water Quality Available	Yes
Pump	None
Pump Depth (feet below land surface)	
Power Type	
Annular Seal Method	
Surface Completion	
Owner	BMW-Timberwood Park Well #4
Driller	Haskin Pump Service, Inc.
Other Data Available	Drillers Log
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	G0150270J
Groundwater Conservation District Well Number	
Owner Well Number	26802 Harmony Hills
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	1/26/1999
Last Update Date	7/25/2016

Remarks

Casing						
Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
6	Blank	Steel			0	310
6	Open Hole				310	620

Well Tests - No Data

Lithology - No Data

Annular Seal Range - No Data

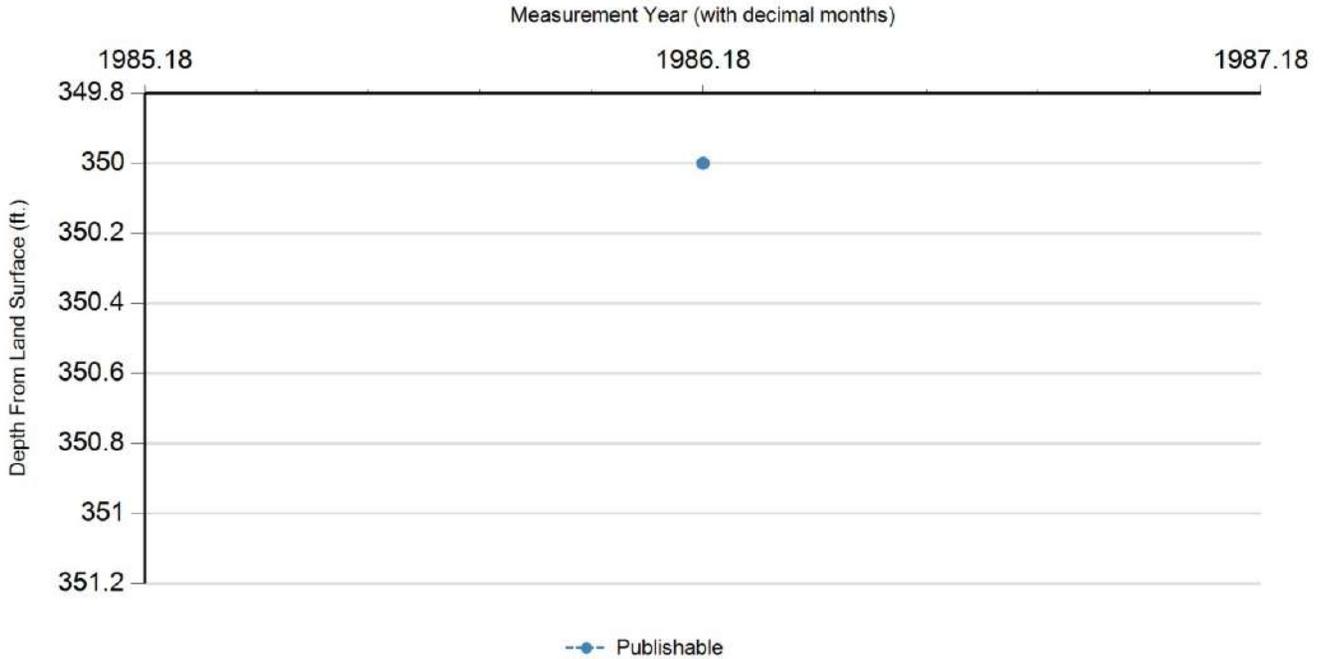
Borehole - No Data

Plugged Back - No Data

Filter Pack - No Data

Packers - No Data

Water Level Measurements



Status Code	Date	Time	Water Level (ft. below land surface)	Change value in () indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	3/7/1986		350		947	1	Registered Water Well Driller	Unknown		

Code Descriptions

Status Code	Status Description
P	Publishable

Water Quality Analysis

Sample Date: 6/7/1999 **Sample Time:** 1010 **Sample Number:** 1 **Collection Entity:** Bexar Metropolitan Water District

Sampled Aquifer: Lower Glen Rose and Cow Creek Limestones

Analyzed Lab: LCRA - Lower Colorado River Authority

Reliability: Sampled using TWDB protocols

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
39086	ALKALINITY FIELD DISSOLVED AS CaCO3		284	mg/L as CaCO3	
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		283	mg/L as CaCO3	
01106	ALUMINUM, DISSOLVED (UG/L AS AL)	<	4	ug/L	
01095	ANTIMONY, DISSOLVED (UG/L AS SB)	<	1	ug/L	
01000	ARSENIC, DISSOLVED (UG/L AS AS)	<	2	ug/L	
01005	BARIUM, DISSOLVED (UG/L AS BA)		33.8	ug/L	
01010	BERYLLIUM, DISSOLVED (UG/L AS BE)	<	1	ug/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		345.36	mg/L	
01020	BORON, DISSOLVED (UG/L AS B)		90	ug/L	
71870	BROMIDE, DISSOLVED, (MG/L AS BR)		0.11	mg/L	
01025	CADMIUM, DISSOLVED (UG/L AS CD)	<	1	ug/L	
00915	CALCIUM, DISSOLVED (MG/L AS CA)		93.7	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00941	CHLORIDE, DISSOLVED (MG/L AS CL)		16.6	mg/L	
01030	CHROMIUM, DISSOLVED (UG/L AS CR)	<	1	ug/L	
01035	COBALT, DISSOLVED (UG/L AS CO)	<	1	ug/L	
01040	COPPER, DISSOLVED (UG/L AS CU)		3	ug/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.2	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		292	mg/L as CaCO3	
01046	IRON, DISSOLVED (UG/L AS FE)		60	ug/L	
01049	LEAD, DISSOLVED (UG/L AS PB)		1.4	ug/L	
01130	LITHIUM, DISSOLVED (UG/L AS LI)		2.6	ug/L	
00925	MAGNESIUM, DISSOLVED (MG/L AS MG)		14.1	mg/L	
01056	MANGANESE, DISSOLVED (UG/L AS MN)	<	1	ug/L	
01060	MOLYBDENUM, DISSOLVED (UG/L AS MO)	<	1	ug/L	
01065	NICKEL, DISSOLVED (UG/L AS NI)		10.9	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		5.49	mg/L as NO3	

**Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-412**

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00631	NITRITE PLUS NITRATE, DISSOLVED (MG/L AS N)		1.24	mg/L as N	
00608	NITROGEN, AMMONIA, DISSOLVED (MG/L AS N)	<	0.02	mg/L as N	
00623	NITROGEN, KJELDAHL, DISSOLVED (MG/L AS N)	<	0.04	mg/L as N	
00090	OXIDATION REDUCTION POTENTIAL (ORP), MILLIVOLTS		167.1	MV	
00400	PH (STANDARD UNITS), FIELD		6.85	SU	
00666	PHOSPHORUS, DISSOLVED (MG/L AS P)	<	0.04	mg/L as P	
00935	POTASSIUM, DISSOLVED (MG/L AS K)		1.19	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
01145	SELENIUM, DISSOLVED (UG/L AS SE)	<	4	ug/L	
00955	SILICA, DISSOLVED (MG/L AS SI02)		11.7	mg/L as SIO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		0.22		
00932	SODIUM, CALCULATED, PERCENT		5	PCT	
00930	SODIUM, DISSOLVED (MG/L AS NA)		8.52	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		626	MICR	
01080	STRONTIUM, DISSOLVED (UG/L AS SR)		225	ug/L	
00946	SULFATE, DISSOLVED (MG/L AS SO4)		14.7	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		22.7	C	
01057	THALLIUM, DISSOLVED (UG/L AS TL)	<	1	ug/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		336	mg/L	
01085	VANADIUM, DISSOLVED (UG/L AS V)		1.2	ug/L	
01090	ZINC, DISSOLVED (UG/L AS ZN)		59.3	ug/L	

* Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..

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7

Bmud - Timber wood

#4 WELL 077 26802 HARMONY hills

Please use black ink. Send original copy by certified mail to the Texas Water Commission P.O. Box 13087 Austin, Texas 78711

State of Texas WATER WELL REPORT

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

ATTENTION OWNER: Confidentiality Privilege Notice on Reverse Side

1) OWNER Haskin Water Utility, Inc. Address 15403 Capital Port San Antonio, TX 78249
2) LOCATION OF WELL: County Bexar 19 1/2 miles in North direction from San Antonio

Legal description: Section No. Block No. Township Abstract No. Survey Name Distance and direction from two intersecting section or survey lines See attached map.

3) TYPE OF WORK (Check): New Well Deepening Reconditioning Plugging
4) PROPOSED USE (Check): Domestic Industrial Monitor Public Supply Irrigation Test Well Injection Other
5) DRILLING METHOD (Check): Driven Mud Rotary Air Hammer Jetted Bored Air Rotary Cable Tool Other

6) WELL LOG: Date Drilling: Started 3-3-86 Completed 3-7-86
DIAMETER OF HOLE: Dis. (in.) From (ft.) To (ft.)
7) BOREHOLE COMPLETION: Open Hole Straight Wall Underreamed Gravel Packed Other

Table with 3 columns: From (ft.), To (ft.), Description and color of formation material. Rows include Top Soil & Caliche, Brown Lime & Yellow Clay, Gray Lime, Brown Lime, Brown & White Lime, etc.

9) CEMENTING DATA [Rule 319.44(b)] Cemented from 310 ft. to 0 ft. No. of Sacks Used 110 Method used Pressure Cemented Cemented by Haskin Pump Service pressure cemented with 1" tremmi pipe

10) SURFACE COMPLETION Specified Surface Slab Installed [Rule 319.44(c)] Pitless Adapter Used [Rule 319.44(d)] Approved Alternative Procedure Used [Rule 319.71]

11) WATER LEVEL: Static level 350 ft. below land surface Date 3-7-86 Artesian flow 125 gpm. Date 3-7-86

12) PACKERS: Type Depth

13) TYPE PUMP: Turbine Jet Submersible Cylinder Other Depth to pump bowls, cylinder, jet, etc.

15) WATER QUALITY: Did you knowingly penetrate any strata which contained undesirable water? If yes, submit "REPORT OF UNDESIRABLE WATER" Type of water? Depth of strata? Was a chemical analysis made?

14) WELL TESTS: Type Test: Pump Bailer Jetted Estimated Yield: gpm with ft. drawdown after hrs.

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

COMPANY NAME Haskin Pump Service, Inc. Water Well Driller's License No. 935 ADDRESS 15403 Capital Port San Antonio, Texas 78249 Signed Glen H. Haskin (Registered Driller Trainee)

Water Quality Field Data Sheet

SWN: 66-21-412 Name: B.M.W.D. Sample No. BM-1999-3112
 County: BEXAR Address: 26802 HARMONY HILLS Date: JUNE 7, 1999
 Aquifer: GLENROSE owners well # W/P #1 By: ROGER P.

Bottle 1 500 ml Bottle 2 1 liter Bottle 3 250 ml Bottle 4 1 liter Bottle 5 250 ml Bottle 6 1 liter Bottle 7 250 ml
 Anions 2 ml Cations 0.5 ml Nitrate 2 ml Radioactivity All filtered unless other wise stipulated

HNO3 H2SO4 HNO
 (Nitric) (Sulfuric) (Nitric)

Water level LSD Remark 0940 Starting ph 6.80 @ 27.2
 Temperature(00010) 22.7 c Time out 1100 Sample time 1010 ml. of 0.02N to 50
 Specific Cond.(00094) 626 umhos/cm Weather PARTLY CLOUDY Ending ph 4.50 @ 33.3
 Outside temp 86

Sampling point DISCHARGE(HOSE-BIB)

Time:	0950	0955	1000	ml.	ph
ph:	6.68	6.84	6.85		1 6.67
Temperature:	24.3	23.5	22.7		2 6.55
Eh			187.1		3 6.45
Conductivity:	632	628	626		4 6.34
	other notes				5 6.24
	SUBMERSIBLE				6 6.15
	0900	Lift			7 6.06
	29-41-55	Power			8 5.96
	98-29-27	Gpm	100		9 5.85
					10 5.73
					11 5.59
					12 5.43
					13 5.18
					14 4.68
					14.2 4.5

Total Cations(+) Pat.
 Total Anions(-) Pat.
 Total Hardness(00900) 295
 Dissolved Solids 340



FINAL ANALYSIS REPORT

LAB ID: 9908117 SAMPLE DESCRIPTION: Groundwater
 COMPANY: TX Water Dev. Board SAMPLE DATE: 06/07/99
 ACCT NO: SAMPLE TIME: 1010
 REQUISITION No.: R11106 DATE RECEIVED: 06/14/99
 LOCATION ID: 68-21-412 REPORT DATE: 07/06/99

PARAMETER	RESULTS	UNITS	STORET #	PQL in WATER	DATE ANALYZED
Bromide	0.11	mg/L	71870	0.02	06/17/99
Chloride	16.6	mg/L	00941	1.5	06/17/99
Fluoride	0.20	mg/L	00950	0.01	06/17/99
Nit., nitri/nitra-AFA	1.240	mg/L	00630	0.010	06/29/99
Nitrogen, Kjeldahl	<0.040	mg/L	00623	0.040	06/22/99
Nitrogen, ammonia	<0.020	mg/L	00608	0.020	06/21/99
Phosphorus, Total	<0.040	mg/L	00665	0.040	06/22/99
Silica	11.70	mg/L	00955	0.50	06/24/99
Sulfate	14.70	mg/L	00946	1.50	06/17/99
Alkalinity, Total	283	mg/L	00410	1	06/16/99
Alkalinity, Phenol.	0	mg/L	00415	0	06/16/99
Boron, Dissolved	90.00	ug/L	01020	50.00	06/16/99
Cobalt, Diss. ICPMS	<1.0	ug/L	01035	1.0	07/01/99
Iron, Dissolved	60.00	ug/L	01046	50.00	06/16/99
Lithium, Diss. ICPMS	2.6	ug/L	01130	2.0	07/01/99
Molybdenum Dis ICPMS	<1.0	ug/L	01060	1.0	07/01/99
Potassium, Dissolved	1.19	mg/L	00935	0.20	06/16/99
Strontium, Dissolved	225.00	ug/L	01080	20.00	06/16/99
Vanadium, Diss ICPMS	1.2	ug/L	01085	1.0	07/01/99
Aluminum, Dis. ICPMS	<4.0	ug/L	01106	4.0	07/01/99
Arsenic, Diss. ICPMS	<2.0	ug/L	01000	2.0	07/01/99
Barium, Diss. ICPMS	33.8	ug/L	01005	1.0	07/01/99
Cadmium, Diss. ICPMS	<1.0	ug/L	01025	1.0	07/01/99
Calcium, Dissolved	93.70	mg/L	00915	0.20	06/16/99
Chromium, Diss ICPMS	<1.0	ug/L	01030	1.0	07/01/99
Copper, Diss. ICPMS	3.0	ug/L	01040	2.0	07/01/99
Lead, Diss. ICPMS	1.4	ug/L	01049	1.0	07/01/99
Magnesium, Dissolved	14.10	mg/L	00925	0.20	06/16/99
Manganese, Dis ICPMS	<1.0	ug/L	01056	1.0	07/01/99
Nickel, Diss. ICPMS	10.9	ug/L	01065	1.0	07/01/99
Selenium, Dis. ICPMS	<4.0	ug/L	01145	4.0	07/01/99
Sodium, Dissolved	8.52	mg/L	00930	0.20	06/16/99
Antimony, Dis. ICPMS	<1.0	ug/L	01095	1.0	07/01/99
Beryllium, Dis ICPMS	<1.0	ug/L	01010	1.0	07/01/99
Thallium, Diss ICPMS	<1.0	ug/L	01057	1.0	07/01/99
Zinc, Diss. ICPMS	59.3	ug/L	01090	2.0	07/01/99

[GWDB Reports and Downloads](#)

Well Basic Details

[Scanned Documents](#)

State Well Number	6821413
County	Bexar
River Basin	San Antonio
Groundwater Management Area	9
Regional Water Planning Area	L - South Central Texas
Groundwater Conservation District	Trinity Glen Rose GCD
Latitude (decimal degrees)	29.683889
Latitude (degrees minutes seconds)	29° 41' 02" N
Longitude (decimal degrees)	-98.490278
Longitude (degrees minutes seconds)	098° 29' 25" W
Coordinate Source	Global Positioning System - GPS
Aquifer Code	218GRCCU - Lower Glen Rose and Cow Creek Limestones
Aquifer	Trinity
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	1212
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	850
Well Depth Source	Driller's Log
Drilling Start Date	
Drilling End Date	8/10/1998
Drilling Method	Air Rotary
Borehole Completion	Open Hole

Well Type	Withdrawal of Water
Well Use	Public Supply
Water Level Observation	Miscellaneous Measurements
Water Quality Available	No
Pump	Submersible
Pump Depth (feet below land surface)	
Power Type	Electric Motor
Annular Seal Method	
Surface Completion	
Owner	BMWWD - Wild Turkey #1 Well #095WP1
Driller	Davenport Drilling & Pump Service
Other Data Available	Drillers Log
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	G0150270M
Groundwater Conservation District Well Number	
Owner Well Number	Wild Turkey #1 (26434 Wild Turkey)
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	2/3/2003
Last Update Date	7/21/2016

Remarks Reported yield 500 GPM with 7 feet drawdown after pumping 36 hours in 1998. Pumping level 400 feet. Cemented from 0 to 400 feet. Specific Capacity 71.4 GPM/ft.

Casing						
Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
10	Blank	Steel			0	396
10	Open Hole				396	850

Well Tests - No Data

Lithology - No Data

Annular Seal Range - No Data

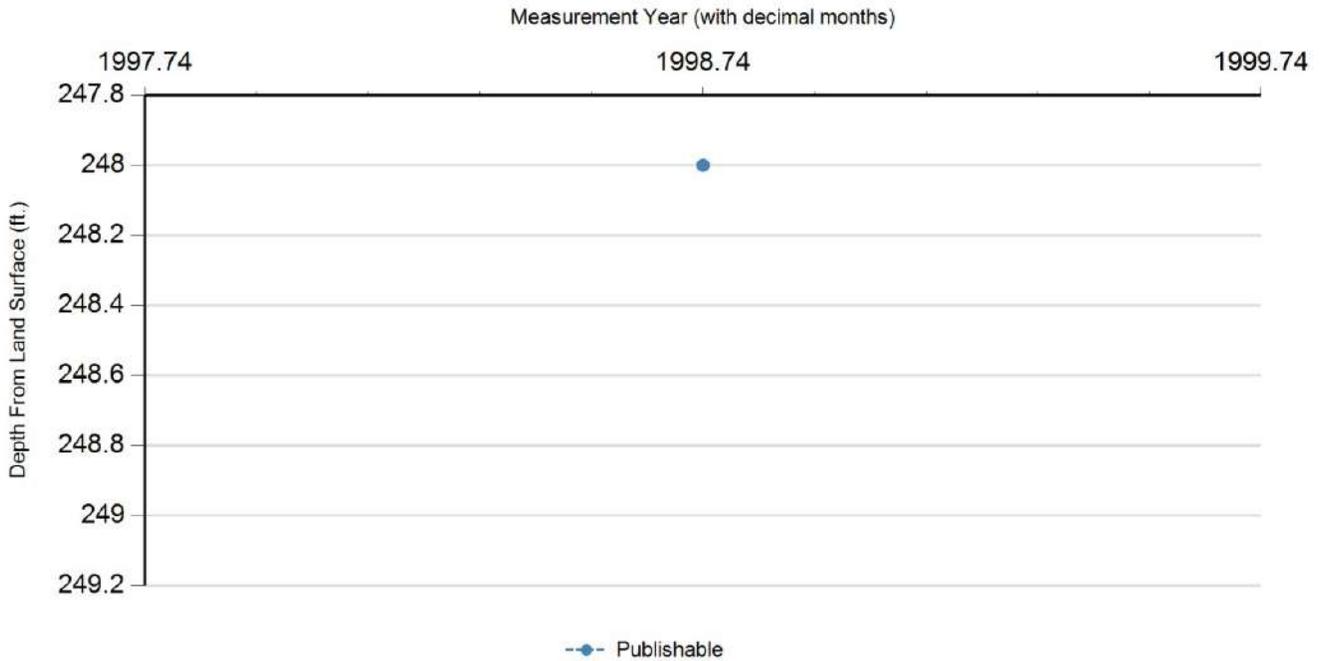
Borehole - No Data

Plugged Back - No Data

Filter Pack - No Data

Packers - No Data

Water Level Measurements



Status Code	Date	Time	Water Level (ft. below land surface)	Change value in () indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	9/30/1998		248		964	1	Registered Water Well Driller	Steel Tape		

Code Descriptions

Status Code	Status Description
P	Publishable

Water Quality Analysis - No Data Available

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TEXAS WATER DEVELOPMENT BOARD
WELL SCHEDULE

State Well Number - 68 21 413 Previous Well Number - County - Bexar 029
River Basin - San Antonio River - 19 Zone - 1 Latitude - 29 41 02 Longitude - 98 29 25 Source of Coords - 1

Owners Well No. _____ Location _____ 1/4, _____ 1/4, Section _____, Block _____, Survey _____

Owner - BMWD - Wild Turkey #1 Driller - Davenport Drilling & Pump Service
095WP1

Address _____ Tenant/Oper. _____

Date Drilled - 08/10/1998 Depth - 850 ft. Source of Depth - D Altitude - 1,212 ft. Source of Alt. - M
Aquifer - 218GRCCU LOWER GLEN ROSE AND COW CREEK LIMESTONES Well Type - W User -

WELL Const. Casing Material - STEEL Casing or Blank Pipe (C)
CONSTRUCTION Method - AIR ROTARY Screen Well Screen or Slotted Zone ()
Completion - OPEN HOLE Material - _____ Open Hole (O)
Cemented from _____ to _____

LIFT DATA - Pump Mfr. _____ Type - SUBMERSIBLE PUMP No. Stages _____
Bowls Diam. - _____ in. Setting - _____ ft. Column Diam. - _____ in.
Diam. Setting(feet)
(in.) From To

Motor Mfr. - _____ Fuel or Power - ELECTRIC MOTOR Horsepower - 100
1 | C 10 0 396
2 | O 10 396 850

YIELD Flow- _____ GPM Pump- _____ GPM Meas., Rept., Est- _____ Date- _____
3 |
4 |

PERFORMANCE TEST Date- _____ Length of Test- _____ Production- _____ GPM
5 |
6 |

Static Level- _____ ft. Pumping Level- _____ ft. Drawdown- _____ ft. Sp.Cap.- _____ GPM/ft
7 |
8 |

QUALITY (Remarks- _____
9 |
10 |

WATER USE Primary- PUBLIC SUPPLY Secondary- _____ Tertiary- _____
11 |
12 |

OTHER DATA AVAILAIBLE Water Levels- M Quality- N Logs- D Other Data-
13 |
14 |

WATER LEVELS Date- 09/31/1998 Measurement- -248.00
15 |
16 |

Date- / / Measurement-
17 |
18 |

Recorded By J. Franklin Date Record Collected or Updated- 02/03/2003
19 |

Reporting Agency - TEXAS WATER DEVELOPMENT BOARD

REMARKS -
26434 Wild Turkey
Reported yield 500 GPM with 7 feet
drawdown after pumping 36 hours in
1998. Pumping level 400 feet.
Cemented from 0 to 400 feet.
Specific Capacity 71.4 GPM/ft.

27434 WILD TURKEY

095WPI

Send original copy by certified mail to: TNRCC, P.O. Box 13087, Austin, TX 78711-3087

Please use black ink

ATTENTION OWNER: Confidentiality
Privilege Notice on Reverse Side

State of Texas WELL REPORT

Texas Water Well Drillers Advisory Council
P.O. Box 13087
Austin, TX 78711-3087
512-239-0530

1) OWNER **BEXAR MET WATER DISTRICT** ADDRESS **2047 W. MALONE** **SAT** **TX**
(Name) (Street or RFD) (City) (State) (Zip)

2) ADDRESS OF WELL:
County **BEXAR** **WILD TURKEY- WELL** **SAT** **TX** GRID # **68-21-413**
#1
(Street, RFD or other) (City) (State) (Zip)

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

4) PROPOSED USE (Check): Monitor Environmental Soil Boding Domestic
 Industrial Irrigation Injection Public Supply De-watering Testwell
 If Public Supply well, were plans submitted to the TNRCC? Yes No

5)

6) WELL LOG:
 Date Drilling:
 Started **8/10** 19 **98**
 Completed **9-24** 19 **98**

DIAMETER OF HOLE		
Dia. (in.)	From (ft.)	To (ft.)
1 1/4	Surface	396
9 7/8	396	850

7) DRILLING METHOD (Check): Driven
 Air Rotary Mud Rotary Bored
 Air Hammer Cable Tool Jetted
 Other

From (ft.)	To (ft.)	Description and color of formation material
0	1	TOP SOIL
1	45	CALICHE & WHITE LIMESTONE
45	180	TAN LIMESTONE
180	210	GRAY LIMESTONE
210	230	BEIGE LIMESTONE
230	345	LIGHT BLUE LIMESTONE
345	460	BEIGE LIMESTONE
460	530	WHITE&REDBROKENLIMESTONE
530	610	GRAY LIMESTONE
610	685	TAN & BEIGE LIMESTONE
685	760	BLUE SHALE
760	845	BROWN LIMESTONE
845	850	PINE-ISLAND SHALE

8) Borehole Completion (Check): Open Hole Straight Wall
 Underreamed Gravel Packed Other _____
 If Gravel Packed give interval ... from _____ ft. to _____ ft.

CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New Or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.)		Gage Casting Screen
			From	To	
10	N	STEEL CASING	0	396	365

9) CEMENTING DATA [Rule 338.44(1)]
 Cemented from **0** ft. to **396** ft. No. of sacks used **145**
 _____ ft. to _____ ft. No. of sacks used _____
 Method used **PRESSURE**
 Cemented by **DOWELL**
 Distance to septic system field lines or other concentrated contamination **150** ft.
 Method of verification of above distance **Measured**

13) TYPE PUMP:
 Turbine Jet Submersible Cylinder
 Other **NO PUMP AT THIS DATE**
 Depth to pump bowls, cylinder, jet, etc., _____ ft.

14) WELL TESTS:
 Type Test: Pump Bailer Jetted Estimated
 Yield: **500** gpm with **7** ft. drawdown after **36** hrs.

16) WATER QUALITY:
 Did you knowingly penetrate any strata which contained undesirable constituents?
 Yes No If yes, submit "REPORT OF UNDESIRABLE WATER"
 Type of water? **GOOD** Depth of strata _____
 Was a chemical analysis made? Yes No

10) SURFACE COMPLETION
 Specified Surface Slab Installed [Rule 338.44(2)(A)]
 Specified Steel Sleeve Installed [Rule 338.44(3)(A)]
 Pitless Adapter Used [Rule 338.44(3)(b)]
 Approved Alternative Procedure Used [Rule 338.71]

11) WATER LEVEL
 Static Level **248** ft. below land surface Date **9-31-98**
 Artesian flow _____ gpm Date _____

12) PACKERS: Type Depth
NONE

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME **DAVENPORT DRILLING & PUMP SERVICE** WELL DRILLER'S LICENSE NO. **2669-WPKT**
(Type or print)

ADDRESS **7028 BANDERA RD. BOX 228** **SAN ANTONIO** **TEXAS** **78238**
(Street or RFD) (City) (State) (Zip)

(Signed) *[Signature]* (Signed) _____
(Licensed Well Driller) (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

68-21-413

[GWDB Reports and Downloads](#)

Well Basic Details

[Scanned Documents](#)

State Well Number	6821414
County	Bexar
River Basin	San Antonio
Groundwater Management Area	9
Regional Water Planning Area	L - South Central Texas
Groundwater Conservation District	Trinity Glen Rose GCD
Latitude (decimal degrees)	29.6825
Latitude (degrees minutes seconds)	29° 40' 57" N
Longitude (decimal degrees)	-98.490278
Longitude (degrees minutes seconds)	098° 29' 25" W
Coordinate Source	Global Positioning System - GPS
Aquifer Code	218GRCCU - Lower Glen Rose and Cow Creek Limestones
Aquifer	Trinity
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	1249
Land Surface Elevation Method	Digital Elevation Model -DEM
Well Depth (feet below land surface)	850
Well Depth Source	Driller's Log
Drilling Start Date	
Drilling End Date	10/16/1998
Drilling Method	Air Rotary
Borehole Completion	Open Hole

Well Type	Withdrawal of Water
Well Use	Public Supply
Water Level Observation	Miscellaneous Measurements
Water Quality Available	No
Pump	Submersible
Pump Depth (feet below land surface)	
Power Type	Electric Motor
Annular Seal Method	
Surface Completion	
Owner	BMWd- Wild Turkey #2 Well #095WP2
Driller	Davenport Drilling & Pump 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	G0150270L
Groundwater Conservation District Well Number	
Owner Well Number	Wild Turkey well #2
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	1/15/2002
Last Update Date	7/21/2016

Remarks Measured yield 500 GPM with 4 feet drawdown after pumping 36 hours in 1998. Cemented from 0 to 400 feet. Specific capacity 125 GPM/ft.

Casing

Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
10	Blank	Steel			0	400
10	Open Hole				400	850

Well Tests - No Data

Lithology - No Data

Annular Seal Range - No Data

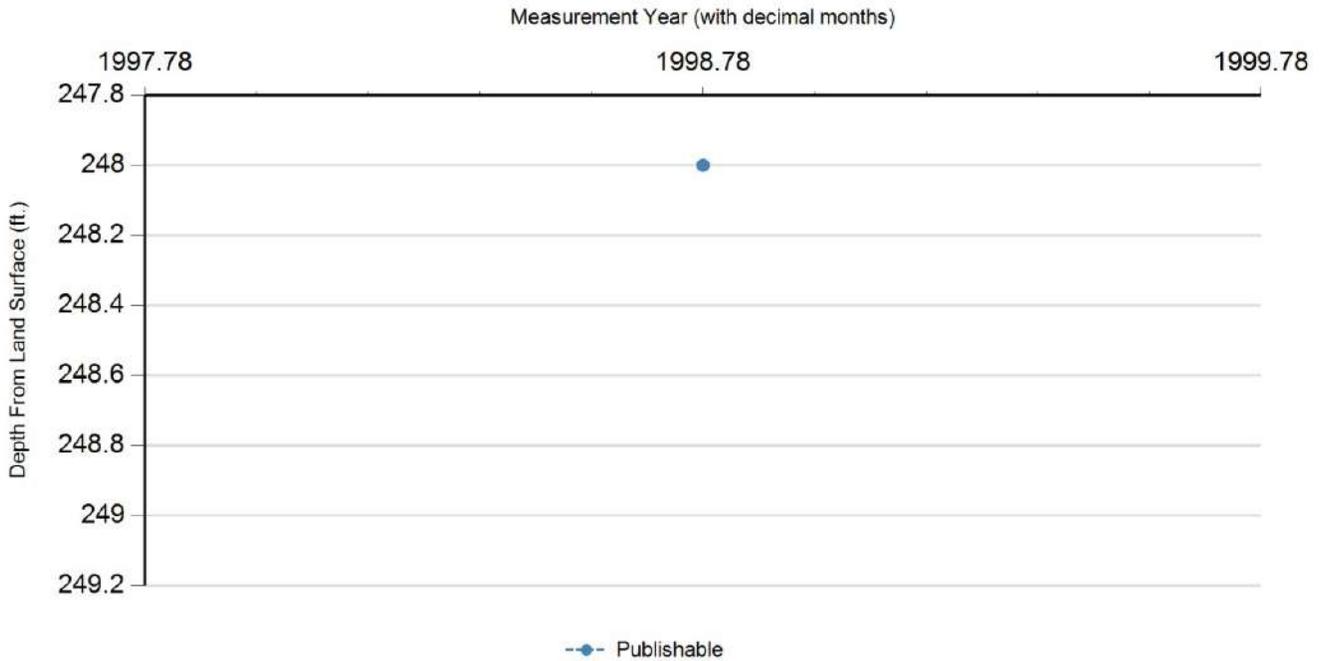
Borehole - No Data

Plugged Back - No Data

Filter Pack - No Data

Packers - No Data

Water Level Measurements



Status Code	Date	Time	Water Level (ft. below land surface)	Change value in () indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	10/16/1998		248		1001	1	Registered Water Well Driller	Unknown		

Code Descriptions

Status Code	Status Description
P	Publishable

Water Quality Analysis - No Data Available

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/gwdb rpt.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.

TEXAS WATER DEVELOPMENT BOARD
WELL SCHEDULE

State Well Number - 68 21 414 Previous Well Number - County - Bexar 029
River Basin - San Antonio River - 19 Zone - 1 Latitude - 29 40 57 Longitude - 98 29 25 Source of Coords - 1

Owners Well No. _____ Location _____ 1/4, _____ 1/4, Section _____, Block _____, Survey _____

Owner - BMWD- Wild Turkey #2 Driller - Davenport Drilling & Pump Service
095WP2

Address _____ Tenant/Oper. _____

Date Drilled - 10/16/1998 Depth - 850 ft. Source of Depth - D Altitude - 1,198 ft. Source of Alt. - M

Aquifer - 218GRCCU LOWER GLEN ROSE AND COW CREEK LIMESTONES Well Type - W User -

WELL Const. Casing
CONSTRUCTION Method - AIR ROTARY Material - STEEL | Casing or Blank Pipe (C)
Screen | Well Screen or Slotted Zone (
Completion - OPEN HOLE Material - _____ | Open Hole (O)
Cemented from _____ to _____

LIFT DATA - Pump Mfr. _____ Type - SUBMERSIBLE PUMP No. Stages _____ | Diam. Setting(feet)
(in.) From To

Bowls Diam. - _____ in. Setting - _____ ft. Column Diam. - _____ in. |

Motor Mfr. - _____ Fuel or Power - ELECTRIC MOTOR Horsepower - 100 | 1| C 10 0 400

YIELD Flow- _____ GPM Pump- _____ GPM Meas., Rept., Est- _____ Date- _____ | 2| 0 10 400 850

PERFORMANCE TEST Date- _____ Length of Test- _____ Production- _____ GPM | 3|

Static Level- _____ ft. Pumping Level- _____ ft. Drawdown- _____ ft. Sp.Cap.- _____ GPM/ft | 4|

QUALITY (Remarks- _____ | 5|

WATER USE Primary- PUBLIC SUPPLY Secondary- _____ Tertiary- _____ | 6|

OTHER DATA AVAILAIBLE Water Levels- M Quality- N Logs- D Other Data- C | 7|

WATER LEVELS Date- 10/16/1998 Measurement- -248.00 | 8|

Date- / / Measurement- | 9|

Recorded By D. Franklin Date Record Collected or Updated- 01/15/2002 | 10|

Reporting Agency - TEXAS WATER DEVELOPMENT BOARD

REMARKS -
Owner's Wild Turkey well #2.
Measured yield 500 GPM with 4 feet
drawdown after pumping 36 hours in
1998. Cemented from 0 to 400 feet.
Specific capacity 125 GPM/ft.

25734 WILD TURKEY

095WP2

Send original copy by certified mail to: TNRCC, P.O. Box 13087, Austin, TX 78711-3087

Please use black ink

ATTENTION OWNER: Confidentiality
Privilege Notice on Reverse Side

State of Texas WELL REPORT

Texas Water Well Drillers Advisory Council
P.O. Box 13087
Austin, TX 78711-3087
512-239-0530

OWNER **BEXAR MET WATER DISTRICT** ADDRESS **2047 W. MALONE** **SAT** **TX**
(Name) (Street or RFD) (City) (State) (Zip)

2) ADDRESS OF WELL: **WILD TURKEY- WELL #2** **SAT** **TX** GRID# **68-21-414**
County (Street, RFD or other) (City) (State) (Zip)

3) TYPE OF WORK (Check): <input checked="" type="checkbox"/> New Well <input type="checkbox"/> Deepening <input type="checkbox"/> Reconditioning <input type="checkbox"/> Plugging	4) PROPOSED USE (Check): <input type="checkbox"/> Industrial Irrigation <input type="checkbox"/> Injection <input checked="" type="checkbox"/> Public Supply <input type="checkbox"/> De-watering <input type="checkbox"/> Testwell If Public Supply well, were plans submitted to the TNRCC? X Yes <input type="checkbox"/> No	5)
6) WELL LOG: Date Drilling: Started 9-25 19 98 Completed 10-16 19 98	DIAMETER OF HOLE Dia. (in.) From (ft.) To (ft.) 14 3/4 Surface 400 9 7/8 400 850	7) DRILLING METHOD (Check): <input checked="" type="checkbox"/> Air Rotary <input type="checkbox"/> Mud Rotary <input type="checkbox"/> Bored <input type="checkbox"/> Air Hammer <input type="checkbox"/> Cable Tool <input type="checkbox"/> Jetted <input type="checkbox"/> Other

From (ft.)	To (ft.)	Description and color of formation material	8) Borehole Completion (Check): <input checked="" type="checkbox"/> Open Hole <input type="checkbox"/> Straight Wall			
0	1	TOP SOIL	<input type="checkbox"/> Underreamed	<input type="checkbox"/> Gravel Packed	Other _____	
1	45	CALICHE & WHITE LIMESTONE	If Gravel Packed give interval ... from _____ ft. to _____ ft.			
45	180	TAN LIMESTONE	CASING, BLANK PIPE, AND WELL SCREEN DATA:			
180	210	GRAY LIMESTONE	Dia. (in.)	New Or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From To
210	230	BEIGE LIMESTONE	10	N	STEEL CASING	0 400 365
230	345	LIGHT BLUE LIMESTONE				
345	460	BEIGE LIMESTONE				
460	530	WHITE & RED BROKEN LIMESTONE				
530	610	GRAY LIMESTONE				
610	685	TAN & BEIGE LIMESTONE				
680	760	BLUE SHALE				
760	845	BROWN LIMESTONE				
845	850	PINE-ISLAND SHALE				

9) CEMENTING DATA [Rule 338.44(1)]
Cemented from **0** ft. to **400** ft. No. of sacks used **155**
ft. to _____ ft. No. of sacks used _____
Method used **PRESSURE**
Cemented by **DOWELL**
Distance to septic system field lines or other concentrated contamination **150** ft.
Method of verification of above distance **Measured**

13) TYPE PUMP:
 Turbine Jet Submersible Cylinder
 Other **NO PUMP AT THIS DATE**
Depth to pump bowls, cylinder, jet, etc., _____ ft.

14) WELL TESTS:
Type Test: Pump Bailer Jetted Estimated
Yield: **500** gpm with **4** ft. drawdown after **36** hrs.

10) SURFACE COMPLETION
 Specified Surface Slab Installed [Rule 338.44(2)(A)]
 Specified Steel Sleeve Installed [Rule 338.44(3)(A)]
 Pitless Adapter Used [Rule 338.44(3)(b)]
 Approved Alternative Procedure Used [Rule 338.71]

11) WATER LEVEL
Static Level **248** ft. below land surface Date **10-16-98**
Artesian flow _____ gpm Date _____

12) PACKERS: Type Depth
NONE

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME **DAVENPORT DRILLING & PUMP SERVICE** WELL DRILLER'S LICENSE NO. **2669-WPKT**
(Type or print)
ADDRESS **7028 BANDERA RD. BOX 226** **SAN ANTONIO** **TEXAS** **78238**
(Street or RFD) (City) (State) (Zip)
(Signed) *[Signature]* (Signed) _____
(Licensed Well Driller) (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

68-21-414

[GWDB Reports and Downloads](#)

Well Basic Details

[Scanned Documents](#)

State Well Number	6821424
County	Bexar
River Basin	San Antonio
Groundwater Management Area	9
Regional Water Planning Area	L - South Central Texas
Groundwater Conservation District	Trinity Glen Rose GCD
Latitude (decimal degrees)	29.695556
Latitude (degrees minutes seconds)	29° 41' 44" N
Longitude (decimal degrees)	-98.499445
Longitude (degrees minutes seconds)	098° 29' 58" W
Coordinate Source	Global Positioning System - GPS
Aquifer Code	218GRCCU - Lower Glen Rose and Cow Creek Limestones
Aquifer	Trinity
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	1287
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	740
Well Depth Source	Another Government Agency
Drilling Start Date	
Drilling End Date	
Drilling Method	
Borehole Completion	

Well Type	Withdrawal of Water
Well Use	Plugged or Destroyed
Water Level Observation	None
Water Quality Available	No
Pump	None
Pump Depth (feet below land surface)	
Power Type	
Annular Seal Method	
Surface Completion	
Owner	BMWD-Timberwood Park Well-079WP1
Driller	
Other Data Available	Other
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	G0150270I
Groundwater Conservation District Well Number	
Owner Well Number	079WP1
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Commission on Environmental Quality
Created Date	9/21/2009
Last Update Date	7/25/2016

Remarks | Plugged PS well 3/17/1999.

Casing - No Data

Well Tests - No Data

Lithology - No Data

Annular Seal Range - No Data

Borehole - No Data

Plugged Back - No Data

Filter Pack - No Data

Packers - No Data

Water Level Measurements

No Data Available

Water Quality Analysis - No Data Available

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**Texas Water Development Board
Well Schedule**



State Well Number: **68-21-424** Previous Well Number: County: **Bexar** **29**

Latitude (dms): **294144** Longitude (dms): **982958** Coordinate Accuracy: **Global Positioning System - GPS**

River Basin: **San Antonio River** GMA: **9** RWPA: **L** GCD: **Trinity Glen Rose GCD**

Owner: **BMWD-Timberwood Par** Driller:
Well-079WP1

Aquifer ID: **Trinity**

Aquifer Code: **218GRCCU**

Depth (ft): **740**

Elevation (ft): **1287**

**LOWER GLEN ROSE AND
COW CREEK
LIMESTONES**

Source of Depth: **Another Government Agency**

Source of Elevation: **Interpolated From Topo Map**

Date Drilled: Well Type: **Withdrawal of Water**

Type of Lift: **None**

Power:

Horsepower:

Construction:

Completion:

Casing Material:

Screen Material:

CASING INTERVALS:		
Casing/Blank Pipe (C)		
Well Screen/Slotted Zone (S)		
Open Hole (O)		
Dia. (in.)	Top (ft.)	Bottom (ft.)

WATER USE

Primary: **Unused**

Secondary:

Tertiary:

Water Levels: **None**

Water Quality: **N**

Other Data:

Logs: **Z**

REMARKS:

Owners 079WP1 well. Plugged PS w
3/17/1999. TCEQ ID #01502701.

Reporting Agency: **TWC/TNRCC/TCEQ**

Date Collected or Reported: **09/21/2009**

Recorded by:

D.R. Jones

ATTENTION OWNER: Confidentiality
Privilege Notice on an reverse side
of Well Owner's copy (pink)

State of Texas WELL REPORT

Texas Water Well Drillers Advisory Council
MC 177
P.O. Box 13087
Austin, TX 78711-3087
512-239-0530

1) OWNER BexarMet Water District ADDRESS P.O. Box 3577 San Antonio Texas 78211
(Name) (Street or RFD) (City) (State) (Zip)

2) ADDRESS OF WELL:
County Bexar 26719 Shadow Pass San Antonio Texas 78258 GRID # 68214
Well # 10 (Street, RFD or other) (City) (State) (Zip)

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

4) PROPOSED USE (Check): Monitor Environmental Soil Boring Domestic
 Industrial Irrigation Injection Public Supply De-watering Testwell
If Public Supply well, were plans submitted to the TNRCC? Yes No

5) X

6) WELL LOG: Old Well
Date Drilling:
Started 19
Completed 19

DIAMETER OF HOLE		
Dia. (in.)	From (ft.)	To (ft.)
8	Surface	250

7) DRILLING METHOD (Check): Driven
 Air Rotary Mud Rotary Bored
 Air Hammer Cable Tool Jetted
 Other _____

N

From (ft.)	To (ft.)	Description and color of formation material	8) Borehole Completion (Check):
			<input checked="" type="checkbox"/> Open Hole <input type="checkbox"/> Straight Wall <input type="checkbox"/> Underreamed <input type="checkbox"/> Gravel Packed <input type="checkbox"/> Other _____ If Gravel Packed give interval ... from _____ ft. to _____ ft.
		Glen Rose	

CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.)		Gage Casting Screen
			From	To	
85/8		Steel	0	280	

9) CEMENTING DATA [Rule 338.44(1)]
Cemented from 0 ft. to 250 ft. No. of sacks used 7-1/2 yds.
_____ ft. to _____ ft. No. of sacks used _____
Method used Grouted from top
Cemented by T.M. Johnson
Distance to septic system field lines or other concentrated contamination _____ ft.
Method of verification of above distance _____

(Use reverse side of Well Owner's copy, if necessary)

13) TYPE PUMP: Pulled
 Turbine Jet Submersible Cylinder
 Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

14) WELL TESTS: NONE
Type test: Pump Bailor Jetted Estimated
Yield: 25 gpm with 320 ft. drawdown after 1 hrs.

15) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable constituents?
 Yes No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? Yes No

10) SURFACE COMPLETION
 Specified Surface Slab Installed [Rule 338.44(2)(A)]
 Specified Steel Sleeve Installed [Rule 338.44(3)(A)]
 Pitless Adapter Used [Rule 338.44(3)(b)]
 Approved Alternative Procedure Used [Rule 338.71]

11) WATER LEVEL:
Static level 300 ± ft. below land surface Date 03/17/99
Artesian flow _____ gpm. Date _____

12) PACKERS:

Type	Depth
None	

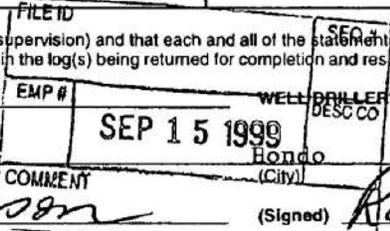
I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME T.M. Johnson EMP # _____ WELL DRILLER'S LICENSE NO. 0857W1
(Type or print)

ADDRESS 1501 29th Street Hondo Texas 78861
(Street or RFD) (City) (State) (Zip)

(Signed) T.M. Johnson (Signed) Robert Essary
(Licensed Well Driller) (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.



68.27424

[GWDB Reports and Downloads](#)

Well Basic Details

[Scanned Documents](#)

State Well Number	6821426
County	Bexar
River Basin	San Antonio
Groundwater Management Area	9
Regional Water Planning Area	L - South Central Texas
Groundwater Conservation District	Trinity Glen Rose GCD
Latitude (decimal degrees)	29.6827778
Latitude (degrees minutes seconds)	29° 40' 58" N
Longitude (decimal degrees)	-98.4911111
Longitude (degrees minutes seconds)	098° 29' 28" W
Coordinate Source	Global Positioning System - GPS
Aquifer Code	218GRCCU - Lower Glen Rose and Cow Creek Limestones
Aquifer	Trinity
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	1270
Land Surface Elevation Method	Digital Elevation Model -DEM
Well Depth (feet below land surface)	860
Well Depth Source	Driller's Log
Drilling Start Date	3/2/2004
Drilling End Date	4/20/2004
Drilling Method	Air Rotary
Borehole Completion	Open Hole

Well Type	Withdrawal of Water
Well Use	Public Supply
Water Level Observation	Miscellaneous Measurements
Water Quality Available	Yes
Pump	Submersible
Pump Depth (feet below land surface)	
Power Type	Electric Motor
Annular Seal Method	Pressure
Surface Completion	Surface Slab Installed
Owner	BMW-D-Timberwood Park Well #095WP3
Driller	Davenport Drilling & Pump Service
Other Data Available	Drillers Log
Well Report Tracking Number	170285
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	G0150270N
Groundwater Conservation District Well Number	
Owner Well Number	095WP3
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	9/22/2009
Last Update Date	3/20/2024

Remarks Measured yield 997 GPM with 20 ft drawdown after 36 hrs in 2004. Specific capacity 49.85 GPM/ft. Pumping level 320 feet. Pump set at 400 feet. Cemented from 0 to 425 feet. Well was sampled by driller prior to well completion.

Casing

Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
12	Blank	Steel			0	425
11	Open Hole				425	860

Well Tests

Test Date	Test Type	Yield (gallons per minute)	Drawdown (ft.)	Test Hours
2004-04-20	Pump	997	20	36

Lithology

Top Depth (ft.)	Bottom Depth (ft.)	Description
0	400	Upper Glenrose
400	700	Lower Glenrose
700	765	Bexar Shale
765	845	Cow Creek
845	860	Pine Island

Annular Seal Range - No Data

Borehole

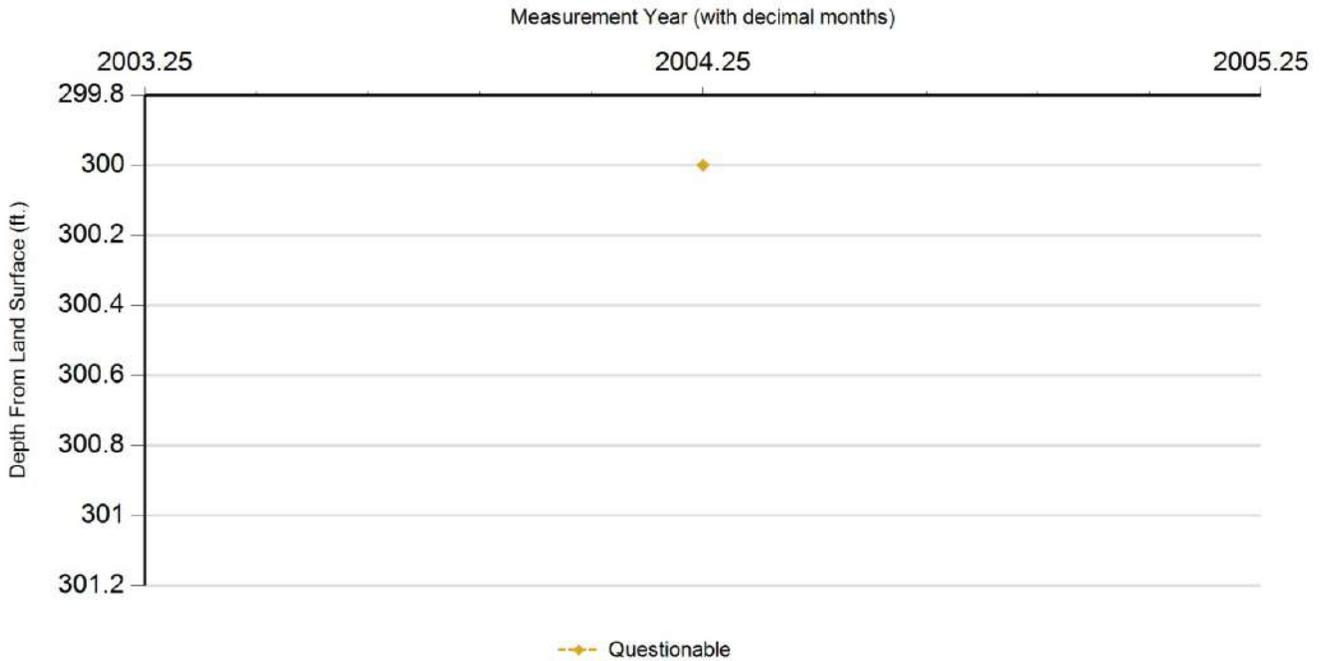
Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
18	0	425
11	425	860

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
Q	3/30/2004		300		970	1	Registered Water Well Driller	Unknown	17	

Code Descriptions

Status Code	Status Description
Q	Questionable

Remark ID	Remark Description
17	Measurement before well completion

Water Quality Analysis

Sample Date: 3/31/2004 **Sample Time:** 0920 **Sample Number:** 1 **Collection Entity:** Registered Water Well Driller

Sampled Aquifer: Lower Glen Rose and Cow Creek Limestones

Analyzed Lab: Misc. Commerical Lab

Reliability: Collected from pumped well, but not filtered or preserved

Collection Remarks: Samp. by driller prior to comp

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00940	CHLORIDE, TOTAL (MG/L AS CL)		26	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.5	mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		1.22	mg/L as NO3	
00403	PH (STANDARD UNITS) LAB		7.1	SU	
00400	PH (STANDARD UNITS), FIELD		7.1	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
00945	SULFATE, TOTAL (MG/L AS SO4)		22	mg/L as SO4	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		388	mg/L	

Water Quality Analysis

Sample Date: 6/8/2005 **Sample Time:** **Sample Number:** 1 **Collection Entity:** Municipal Water Agency or Public Water Supply Corp

Sampled Aquifer: Lower Glen Rose and Cow Creek Limestones

Analyzed Lab: Laboratory Unknown

Reliability: Reliability unknown or not available

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)	<	2	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)	<	2	mg/L as CaCO 3	
01105	ALUMINUM, TOTAL (UG/L AS AL)		10.3	ug/L	
01097	ANTIMONY, TOTAL (UG/L AS SB)	<	1.02	ug/L	
01002	ARSENIC, TOTAL (UG/L AS AS)	<	2.04	ug/L	
01007	BARIUM, TOTAL (UG/L AS BA)		33.5	ug/L	
01012	BERYLLIUM, TOTAL (UG/L AS BE)	<	0.816	ug/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		305	mg/L	
01027	CADMIUM, TOTAL (UG/L)	<	1.02	ug/L	
00916	CALCIUM, TOTAL (MG/L AS CA)		103	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		20.3	mg/L	
01034	CHROMIUM, TOTAL (UG/L AS CR)		6.32	ug/L	
01042	COPPER, TOTAL (UG/L AS CU)	<	0.00102	ug/L	
00951	FLUORIDE, TOTAL (MG/L AS F)		0.33	mg/L	
04241	GROSS ALPHA RADIATION, TOTAL, PRODUCED WATER(pCi/L)	<	2	pCi/L	
04242	GROSS BETA RADIATION, TOTAL, PRODUCED WATER(pCi/L)	<	4	pCi/L	
46570	HARDNESS, CA MG CALCULATED (MG/L AS CaCO3)		334	mg/L as CaCO 3	
71885	IRON (UG/L AS FE)	<	51	ug/L	
01051	LEAD, TOTAL (UG/L AS PB)	<	1.02	ug/L	
00927	MAGNESIUM, TOTAL (MG/L AS MG)		18.4	mg/L	
01055	MANGANESE, TOTAL (UG/L AS MN)	<	1.02	ug/L	
71900	MERCURY, TOTAL (UG/L AS HG)	<	0.2	ug/L	
01067	NICKEL, TOTAL (UG/L AS NI)		3.26	ug/L	
00615	NITRITE NITROGEN, TOTAL (MG/L AS N)	<	0.05	mg/L as N	
00600	NITROGEN, TOTAL (MG/L AS N)		1.42	mg/L as N	
11501	RADIUM 228, TOTAL, PC/L	<	1	PC/L	
01147	SELENIUM, TOTAL (UG/L)	<	4.08	ug/L	
01077	SILVER, TOTAL (UG/L AS AG)	<	1.02	ug/L	
00929	SODIUM, TOTAL (MG/L AS NA)		12.7	mg/L	
00945	SULFATE, TOTAL (MG/L AS SO4)		20.4	mg/L as SO4	

Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-426

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
01059	THALLIUM, TOTAL (UG/L AS TL)		< 0.408	ug/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		366	mg/L	
01092	ZINC, TOTAL (UG/L AS ZN)		169	ug/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/gwdb rpt.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.



**Texas Water Development Board
Well Schedule**



State Well Number: **68-21-426** Previous Well Number: County: **Bexar** **29**

Latitude (dms): **294058** Longitude (dms): **982928** Coordinate Accuracy: **Global Positioning System - GPS**

River Basin: **San Antonio River** GMA: **9** RWPA: **L** GCD: **Trinity Glen Rose GCD**

Owner: **BMWD-Timberwood Par Well #095WP3** Driller: **Davenport Drilling & Pump Service** Aquifer ID: **Trinity**
 Aquifer Code: **218GRCCU**

Depth (ft): **860** Elevation (ft): **1200**
 Source of Depth: **Driller's Log** Source of Elevation: **Interpolated From Topo Map**

**LOWER GLEN ROSE AND
COW CREEK
LIMESTONES**

Date Drilled: **04/20/2004** Well Type: **Withdrawal of Water**
 Type of Lift: **Submersible Pump** Power: **Electric Motor** Horsepower:
 Construction: **Air Rotary** Completion: **Open Hole**
 Casing Material: **Steel** Screen Material:

CASING INTERVALS:			
	Dia.	Top	Bottom
	(in.)	(ft.)	(ft.)
C	12	0	425
O	11	425	860

WATER USE

Primary: **Public Supply** Secondary: Tertiary:

Water Levels: **Miscellaneous Measurements** Water Quality: **N**
 2 measurements
 2004 to 2004 Other Data: Logs: **D**
 MIN -320 MAX -300

REMARKS:
 Owners well #095WP3. Measured yield 997 GPM with 20 feet drawdown after pumping 36 hours in 2004. Specific capacity 49.85 GPM/ft. Pumping level 320 feet. Pump set at 400 feet. Cemented from 0 to 425 feet. Drillers log tracking #170285. TCEQ ID #0150270N.

Reporting Agency: **TWDB or Predecessor Agency**

Date Collected or Reported: **09/22/2009**

Recorded by: *DR Jones*

New ✓

TRACKING# 170285

STATE OF TEXAS WELL REPORT

N

Date Entered: 3/6/2009

OWNER: Bexar Met. Water District

OWNER 2047 W. Malone

ADDRESS: San Antonio, TX 78225

ADDRESS OF WELL'S LOCATION:

Wild Turkey - Well #3
San Antonio, TX 78225

COUNTY: Bexar

LATITUDE: 294047

LONGITUDE: 982928

Brand/Model of GPS: Map

Owner's Well Number: 3

ELEVATION: 1200'

Grid Number: 68 - 21 - 4

TYPE OF WORK:

- New Well
- Replacement Well
- Deepening
- Reconditioning

PROPOSED USE: Monitor Well Env. Soil Boring Domestic Test Well

- Industrial
- Irrigation
- Injection
- Geothermal Heat Loop
- Public Supply
- De-watering
- Rig Supply
- Stock or Livestock

If Public Supply well, were plans submitted to the TNRCC? Yes No

WELL LOG:

DIAMETER OF HOLE

DRILLING METHOD:

Date Drilling	Dia. (in)	From (ft.)	To (ft.)
Started 3/2/2004	18	Surface	425
Completed 4/20/2004	11	425	860

- Driven
- Air Rotary
- Mud Rotary
- Air Hammer
- Cable Tool
- Jetted
- Hollow Stem Auger
- Reverse Circulation
- Bored
- Other

BOREHOLE COMPLETION:

- Open Hole
- Underreamed
- Straight Wall
- Gravel Packed
- Other

ANNULAR SEAL DATA

From 0 ft. to 425 ft. #Sacks + Material 320

From ft. to ft. #Sacks + Material

From ft. to ft. #Sacks + Material

Method Used Pressure

Cemented By Schlumberger

Distance to Septic System 150

Distance to Property Line:

Method of Verification Measured

Approved by Variance No.

SURFACE COMPLETION:

- Surface Slab Installed
- Surface Sleeve Installed
- Pitless Adapter Used
- Alternative Procedure Used

WATER LEVEL:

Static Level 300 ft. below land surface
 Artesian Flow gpm. Date 3/30/2004

PLUGGING INFO:

Well Plugged within 48 hours

Casing left in well: Cement/Bentonite left in well:
 From (ft.) To (ft.) From (ft.) To (ft.) Cem/Bent Sacks Used:

TYPE OF PUMP:

- Turbine
- Jet
- Submersible
- Other
- Cylinder

Depth to pump bowls, cylinder, jet, etc. 400

WELL TESTS:

Type of test: Pump Bailer Jetted Estimated
 Yield: 997 gpm with 20 ft. drawdown after 36 hrs.

PACKERS:

Type	Depth
None	

WATER QUALITY:

Did Driller knowingly penetrate any strata which contained undesirable constituents? Yes No

Type of water: Good

Depth of Strata: 200

Chemical Analysis made? Yes No

COMPANY NAME: Davenport Drilling & Pump Service

WELL DRILLER'S LICENSE NO. 2669

ADDRESS 11844 Bandera Rd. PMB 711

Helotes TX 78023

Name as Signature Dean Davenport

Registered Driller Apprentice John McDaniel

Driller Comments

Smew

68.21-426

WELL REPORT CONFIDENTIALITY NOTICE

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 Regulation
Water Well Driller/Pump Installer Section
P.O. Box 12157 Austin, TX 78711
Toll free (800)803-9202 (512)463-7880 FAX (512)463-8616
Email address: water.well@license.state.tx.us Web address: www.license.state.tx.us

DESCRIPTION AND COLOR OF FORMATION MATERIAL		CASING, BLANK PIPE, AND WELL SCREEN DATA				
From (ft.)	To (ft.) Description	Dia.	New/Used	Type	Setting From/To	Gage
0 - 400	Upper Glenrose	12	New	Steel Casing	0 - 425	.365
400 - 700	Lower Glenrose					
700 - 765	Bexar Shale					
765 - 845	Cow Creek					
845 - 860	Pine Island					

68-21-426

RECEIVED
TDLR MAIL ROOM SH

Send original copy by certified mail to: TNRCC, P.O. Box 13087, Austin, TX 78711-3087

Please use black ink.

ATTENTION OWNER: Confidentiality Privilege Notice on Reverse Side
 State of Texas WELL REPORT
 Texas Water Well Drillers Advisory Council
 P.O. Box 13087
 Austin, TX 78711-3087
 512-239-0530

OCT 25 2004

1) OWNER **BEXAR MET WATER DISTRICT** ADDRESS **2047 W. MALONE** **SAT** TX **78225**
 (Name) (Street or RFD) (City) (State) (Zip)
 2) ADDRESS OF WELL: **BEXAR WILD TURKEY- WELL #3** **SAT TX 78225** GRID# **68-21-4**
 County (Street, RFD or other) (City) (State) (Zip)

3) TYPE OF WORK (Check):
 New Well Deepening Reconditioning Plugging
 4) PROPOSED USE (Check): Monitor Environmental Soil Boding Domestic Industrial Irrigation Injection Public Supply De-watering Testwell
 If Public Supply well, were plans submitted to the TNRCC? Yes No

6) WELL LOG:
 Date Drilling:
 Started **3-02** 20 **04**
 Completed **4-20** 20 **04**
 DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
18	Surface	425
11	425	860

 7) DRILLING METHOD (Check): Driven Air Rotary Mud Rotary Bored Air Hammer Cable Tool Jetted Other
 5) **X**

From (ft.)	To (ft.)	Description and color of formation material
0	400	Upper Glenrose
400	700	Lower Glenrose
700	765	Bexar Shale
765	845	Cow Creek
845	860	Pine Island

8) Borehole Completion (Check): Open Hole Straight Wall
 Underreamed Gravel Packed Other _____
 If Gravel Packed give interval ... from _____ ft. to _____ ft.

CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New Or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.)		Gage Casting Screen
			From	To	
12	N	STEEL CASING	0	425	365

9) CEMENTING DATA [Rule 338.44(1)]
 Cemented from **0** ft. to **425** ft. No. of sacks used **320**
 ft. to _____ ft. No. of sacks used _____
 Method used **PRESSURE**
 Cemented by **SCHLUMBERGER**
 Distance to septic system field lines or other concentrated contamination **150** ft.
 Method of verification of above distance **Measured**

13) TYPE PUMP:
 Turbine Jet Submersible Cylinder
 Other _____
 Depth to pump bows, cylinder, jet, etc., **400** ft.

14) WELL TESTS:
 Type Test: Pump Bailer Jetted Estimated
 Yield: **997** gpm with **20** ft. drawdown after **36** hrs.

15) WATER QUALITY:
 Did you knowingly penetrate any strata which contained undesirable constituents?
 Yes No If yes, submit "REPORT OF UNDESIRABLE WATER"
 Type of water? **GOOD** Depth of strata **200'**
 Was a chemical analysis made? Yes No

10) SURFACE COMPLETION
 Specified Surface Slab Installed [Rule 338.44(2)(A)]
 Specified Steel Sleeve Installed [Rule 338.44(3)(A)]
 Pitless Adapter Used [Rule 338.44(3)(b)]
 Approved Alternative Procedure Used [Rule 338.71]

11) WATER LEVEL:
 Static Level **300** ft. below land surface Date **03-30-04**
 Artesian flow _____ gpm Date _____

12) PACKERS: Type _____ Depth _____
NONE

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME **DAVENPORT DRILLING & PUMP SERVICE** WELL DRILLER'S LICENSE NO. **2669-WPKT**
 (Type or print)
 ADDRESS **1184 BANDERA RD. PMB 711** HELOTES TEXAS **78023**
 (Street or RFD) (City) (State) (Zip)
 (Signed) *[Signature]* (Signed) *John McDaniel*
 (Licensed Well Driller) (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

68-21-426



5400 New Highway 90 West
 P.O. Box 27337
 San Antonio, TX 78227-0337
 PH: (210) 434-7867

RECORD OF WELL TEST

Date: 03-30-04
 Owner: Bexar Met Water System
 Well I.D.:
 Well Driller: Davenport Drilling
 Well Casing: 12"
 Water Source:
 Well Depth: 850'
 Static Water Level Before Test: 302'
 Static Water Level After Test: 300'

Wild Turkey Well #3

DATE	TIME	PUMPING LEVEL	PUMPING GPM	ENGINE RPM	PUMP RPM	REMARKS	PUMP SETTING
3-30-04	1:30	302	500	1450	1318	Clean Water	400
	2:30	302	1001	1800	1636	Clean Water	Plus
	3:00	307	989	1800	1636	Clean Water	Bowl
	3:30	307	989	1800	1636	Clean Water	Assy.
	4:00	307	989	1800	1636	Clean Water	
	4:30	307	989	1800	1636	Clean Water	
	5:00	307	989	1800	1636	Clean Water	
	5:30	307	989	1800	1636	Clean Water	
	6:00	307	989	1800	1636	Clean Water	
	6:30	307	989	1800	1636	Clean Water	
	7:00	307	989	1800	1636	Clean Water	
	8:00	307	989	1800	1636	Clean Water	
	9:00	307	989	1800	1636	Clean Water	
	10:00	307	989	1800	1636	Clean Water	
	11:00	307	989	1800	1636	Clean Water	
	12:00	307	989	1800	1636	Clean Water	
3-31-04	1:00	307	989	1800	1636	Clean Water	
	2:00	307	989	1800	1636	Clean Water	

68-21-426

	3:00	307	989	1800	1636	Clean Water	
	4:00	307	989	1800	1636	Clean Water	
	5:00	312	989	1800	1636	Clean Water	
	6:00	312	989	1800	1636	Clean Water	
	7:00	312	989	1800	1636	Clean Water	
	8:00	312	989	1800	1636	Clean Water	
	9:00	316	977	1800	1636	Clean Water	
	10:00	321	977	1800	1636	Clean Water	
	11:00	321	977	1800	1636	Clean Water	
	12:00	321	977	1800	1636	Clean Water	
	1:00	321	977	1800	1636	Clean Water	
	2:00	321	977	1800	1636	Clean Water	
	3:00	321	977	1800	1636	Clean Water	
	4:00	321	977	1800	1636	Clean Water	
	5:00	321	977	1800	1636	Clean Water	
	6:00	321	977	1800	1636	Clean Water	
	7:00	321	977	1800	1636	Clean Water	
	8:00	321	977	1800	1636	Clean Water	
	9:00	321	977	1800	1636	Clean Water	
	10:00	321	977	1800	1636	Clean Water	
	11:00	321	977	1800	1636	Clean Water	
	12:00	321	977	1800	1636	Clean Water	
4-1-04	1:00	321	977	1800	1636	Clean Water	
	1:30	321	977	1800	1636	Clean Water	
		Shut	Down				

68-21-426

POLLUTION CONTROL SERVICES

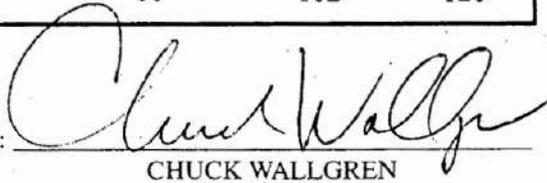
REPORT OF SAMPLE ANALYSIS

To: Dean Davenport
 Davenport Drilling and Pumping Service
 11844 Bandera Rd, PMB 711
 Helotes, TX 78023

SAMPLE INFORMATION	LABORATORY INFORMATION
Project Name: Wild Turkey -095- Timberwood	PCS Sample #: 125955
Sample ID: TCEQ Well Water Sample	Date Received: 03/31/2004
Date Taken: 03/31/2004	Time Received: 09:45
Time Taken: 0920	Report Date: 04/09/2004

TEST DESCRIPTION	SAMPLE		ANALYZED		ANALYST'S	METHOD
	RESULT	UNITS	DATE	TIME	INITIALS	USED
pH	✓7.14	S.U.	03/31/2004	10:30	JT	SM 4500-H+ B
Total Dissolved Solids	388✓	mg/L	04/02/2004	09:30	JT	EPA 160.1
Sulfate	22✓	mg/L	03/31/2004	19:00	BVG	SM 4500-SO4 E
Chloride	26✓	mg/L	04/05/2004	19:15	BVG	SM 4500-Cl B
Nitrate-N	1.22✓	mg/L	03/31/2004	20:45	BVG	EPA 352.1
Nitrite-N	<0.005	mg/L	04/01/2004	21:05	BVG	SM 4500-NO2 B
Fluoride	0.50✓	mg/L	03/31/2004	21:30	BVG	EPA 340.1
Barium/ICP (Total)	0.03	mg/L	03/31/2004	12:53	DL	EPA 200.7
Chromium/ICP (Total)	<0.01	mg/L	03/31/2004	12:53	DL	EPA 200.7
Copper/ICP (Total)	<0.01	mg/L	03/31/2004	12:53	DL	EPA 200.7
Manganese/ICP (Total)	<0.01	mg/L	03/31/2004	12:53	DL	EPA 200.7
Nickel/ICP (Total)	<0.02	mg/L	03/31/2004	12:53	DL	EPA 200.7
Silver/ICP (Total)	<0.01	mg/L	04/05/2004	14:18	DL	EPA 200.7

QUALITY ASSURANCE DATA						
TEST DESCRIPTION	M.D.L.	PRECISION	LIMIT	LCL	RECOVERY	UCL
pH	N/A	N/A	N/A	N/A	N/A	N/A
Total Dissolved Solids	1	1	10	N/A	N/A	N/A
Sulfate	1	1	10	85	95	112
Chloride	1	3	10	98	100	107
Nitrate-N	0.01	<1	15	68	102	146
Nitrite-N	0.005	<1	10	80	97	109
Fluoride	0.01	4	10	73	93	125
Barium/ICP (Total)	0.01	<1	10	80	91	120
Chromium/ICP (Total)	0.01	<1	10	80	95	120
Copper/ICP (Total)	0.01	<1	10	80	97	120
Manganese/ICP (Total)	0.01	<1	10	80	91	120
Nickel/ICP (Total)	0.02	<1	10	80	93	120
Silver/ICP (Total)	0.01	<1	10	80	102	120

APPROVED BY: 
 CHUCK WALLGREN

POLLUTION CONTROL SERVICES

REPORT OF SAMPLE ANALYSIS

To: Dean Davenport
 Davenport Drilling and Pumping Service
 11844 Bandera Rd, PMB 711
 Helotes, TX 78023

SAMPLE INFORMATION	LABORATORY INFORMATION
Project Name: Wild Turkey -095- Timberwood	PCS Sample #: 125955
Sample ID: TCEQ Well Water Sample	Date Received: 03/31/2004
Date Taken: 03/31/2004	Time Received: 09:45
Time Taken: 0920	Report Date: 04/09/2004

TEST DESCRIPTION	SAMPLE		ANALYZED		ANALYST'S	METHOD
	RESULT	UNITS	DATE	TIME	INITIALS	USED
Zinc/ICP (Total)	<0.01	mg/L	03/31/2004	12:53	DL	EPA 200.7
Iron/ICP (Total)	0.04	mg/L	03/31/2004	15:13	DL	EPA 200.7
Aluminum/ICP (Total)	0.05	mg/L	03/31/2004	15:13	DL	EPA 200.7
Beryllium/ICP (Total)	<0.003	mg/L	04/08/2004	12:32	DL	EPA 200.7
Arsenic/GFAA (Total)	0.004	mg/L	04/01/2004	13:05	DL	EPA 206.2
Selenium/GFAA (Total)	<0.003	mg/L	04/01/2004	15:59	DL	EPA 270.2

QUALITY ASSURANCE DATA						
TEST DESCRIPTION	M.D.L.	PRECISION	LIMIT	LCL	RECOVERY	UCL
Zinc/ICP (Total)	0.01	<1	10	80	97	120
Iron/ICP (Total)	0.03	1	10	80	100	120
Aluminum/ICP (Total)	0.04	1	10	80	103	120
Beryllium/ICP (Total)	0.003	<1	10	80	100	120
Arsenic/GFAA (Total)	0.002	5	10	70	92	113
Selenium/GFAA (Total)	0.003	<1	12	56	71	109

APPROVED BY:

Chuck Wallgren
 CHUCK WALLGREN

Cementer: Fill in shaded areas.
Operator: Fill in other items

RAILROAD COMMISSION OF TEXAS
Oil and Gas Division

1. Operator's Name (As shown on Form P-5, Organization Report) DAVENPORT DRLG. & PUMP SERVICE	2. RRC Operator No.	3. RRC District No.	4. County of Well Site BEXAR
5. Field Name (Wildcat or exactly as shown on RRC records)	6. API No. 42-		7. Drilling Permit No.
8. Lease Name WID TURKEY	9. Rule 37 Case No.	10. Oil Lease/Gas ID No.	11. Well No. 3

CASING CEMENTING DATA:		SURFACE CASING	INTER-MEDIATE CASING	PRODUCTION CASING		MULTI-STAGE CEMENTING PROCESS	
				Single String	Multiple Parallel Strings	Tool	Shoe
12. Cementing Date				3-17-04			
13. ●Drilling hole size							
●Est. % wash or hole enlargement							
14. Size of casing (in. O.D.)							
15. Top of liner (ft.)							
16. Setting depth (ft.)							
17. Number of centralizers used							
18. Hrs. waiting on cement before drill-out							
1st Slurry	19. API cement used: No. of sacks ▶			320			
	Class ▶			H			
	Additives ▶			REMARKS			
2nd Slurry	No. of sacks ▶						
	Class ▶						
	Additives ▶						
3rd Slurry	No. of sacks ▶						
	Class ▶						
	Additives ▶						
1st	20. Slurry pumped: Volume (cu. ft.) ▶			614			
	Height (ft.) ▶			783			
2nd	Volume (cu. ft.) ▶						
	Height (ft.) ▶						
3rd	Volume (cu. ft.) ▶						
	Height (ft.) ▶						
Total	Volume (cu. ft.) ▶			614			
	Height (ft.) ▶			783			
21. Was cement circulated to ground surface (or bottom of cellar) outside casing?				YES			
22. Remarks							
1. 8% D20 + 2% S1							

68.21426

OWNER: BMWD-Timberwood Park
Well #095WP3

SWN: 6821426

COUNTY: Bexar

DATE: 3/ 31 / 2004

AQUIFER: LOWER GLEN ROSE AND COW CREEK LIMESTONES

Asterisk (*) next to value indicates that the constituent exceeds TCEQ standards (MCL) for drinking water.

Calcium	mg/L	Carbonate	mg/L	Dissolved Solids	388 mg/L
Magnesium	mg/L	Bicarbonate	mg/L	Hardness as CaCO3	mg/L
Sodium	mg/L	Sulfate	22 mg/L	SAR	
Potassium	mg/L	Chloride	26 mg/L	Conductivity	uS
Strontium	mg/L	Fluoride	0.5 mg/L	pH	7.1
Silica	mg/L	Nitrate as NO ₃	1.22 mg/L	Temperature	°C

[GWDB Reports and Downloads](#)

Well Basic Details

[Scanned Documents](#)

State Well Number	6821427
County	Bexar
River Basin	San Antonio
Groundwater Management Area	9
Regional Water Planning Area	L - South Central Texas
Groundwater Conservation District	Trinity Glen Rose GCD
Latitude (decimal degrees)	29.6830556
Latitude (degrees minutes seconds)	29° 40' 59" N
Longitude (decimal degrees)	-98.4902778
Longitude (degrees minutes seconds)	098° 29' 25" W
Coordinate Source	Global Positioning System - GPS
Aquifer Code	218GRCCU - Lower Glen Rose and Cow Creek Limestones
Aquifer	Trinity
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	1203
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	860
Well Depth Source	Driller's Log
Drilling Start Date	4/17/2006
Drilling End Date	6/9/2006
Drilling Method	Air Rotary
Borehole Completion	Perforated or Slotted

Well Type	Withdrawal of Water
Well Use	Public Supply
Water Level Observation	Miscellaneous Measurements
Water Quality Available	No
Pump	Submersible
Pump Depth (feet below land surface)	
Power Type	Electric Motor
Annular Seal Method	Internal & External Pressure Tremmie
Surface Completion	Surface Slab Installed
Owner	BMWD-Timberwood Park Wild Turkey #4
Driller	Alsay, Inc.
Other Data Available	Drillers Log
Well Report Tracking Number	88326
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	G01502700
Groundwater Conservation District Well Number	
Owner Well Number	Wild Turkey #4 well (095WP4)
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	9/22/2009
Last Update Date	3/20/2024

Remarks Measured yield 507 GPM with 178 ft drawdown after 36 hrs in 2006. Specific capacity 2.85 GPM/ft. Pumping level 578 feet. Cemented from 0 to 420 feet.

Casing

Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
24	Blank	Steel			0	43
16	Blank	Steel			0	420
13	Screen	Steel			408	860

Well Tests

Test Date	Test Type	Yield (gallons per minute)	Drawdown (ft.)	Test Hours
2006-06-09	Pump	507	178	36

Lithology

Top Depth (ft.)	Bottom Depth (ft.)	Description
0	54	Yellow L/S
54	252	Dense Gray LS
252	420	Lt. Gray LS
420	510	Lt. Brown & White L/S
510	560	Lt. Brown LS
560	610	Lt. Brown Dense LS
610	768	Gray LS w/ Clay Streaks
768	840	Dark Brown LS
840	870	Gray Shale

Annular Seal Range - No Data

Borehole

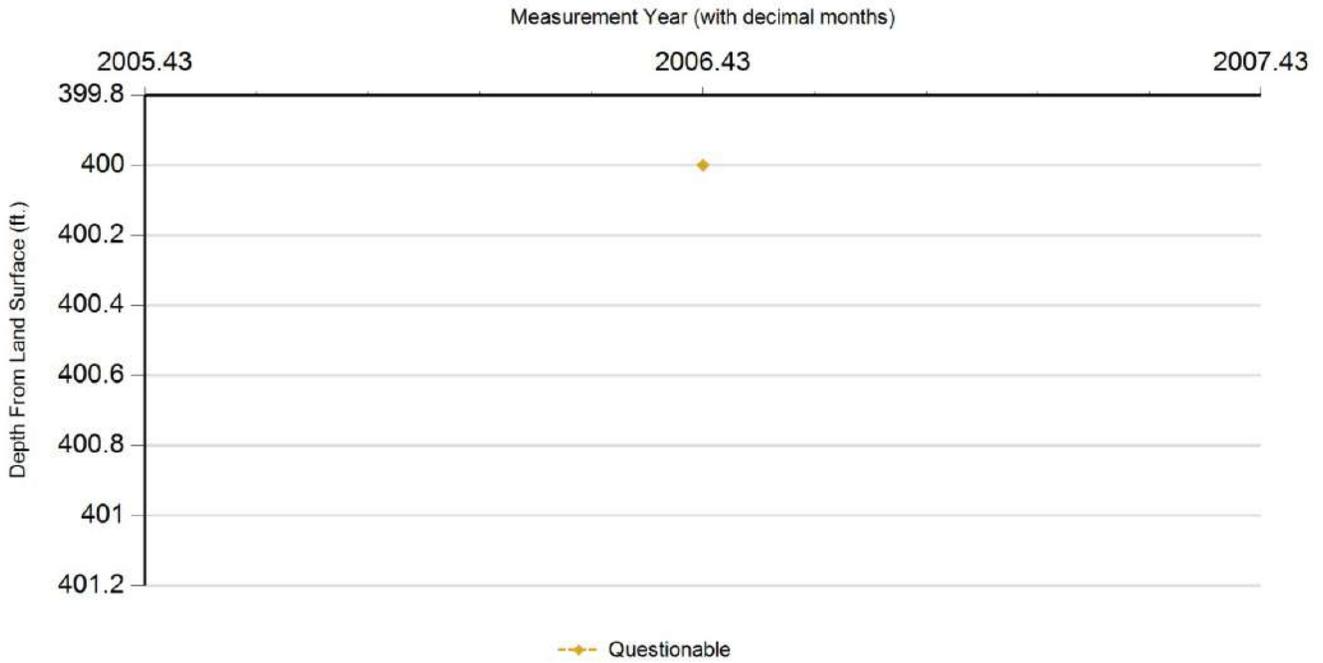
Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
30	0	43
20	43	420
15	420	860

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
Q	6/7/2006		400		803	1	Registered Water Well Driller	Unknown	17	

Code Descriptions

Status Code	Status Description
Q	Questionable

Remark ID	Remark Description
17	Measurement before well completion

Water Quality Analysis - No Data Available

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/gwdb rpt.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.



Texas Water Development Board
Well Schedule



State Well Number: **68-21-427** Previous Well Number: County: **Bexar** **29**

Latitude (dms): **294059** Longitude (dms): **982925** Coordinate Accuracy: **Global Positioning System - GPS**

River Basin: **San Antonio River** GMA: **9** RWPA: **L** GCD: **Trinity Glen Rose GCD**

Owner: **BMWD-Timberwood Par Wild Turkey #4** Driller: **Alsay, Inc.** Aquifer ID: **Trinity**

Aquifer Code: **218GRCCU**

Depth (ft): **860** Elevation (ft): **1203**

LOWER GLEN ROSE AND COW CREEK LIMESTONES

Source of Depth: **Driller's Log** Source of Elevation: **Interpolated From Topo Map**

Date Drilled: **06/09/2006** Well Type: **Withdrawal of Water**

Type of Lift: **Submersible Pump** Power: **Electric Motor** Horsepower:

Construction: **Air Rotary** Completion: **Perforated or Slotted**

Casing Material: **Steel** Screen Material: **Steel**

CASING INTERVALS:			
	Dia. (in.)	Top (ft.)	Bottom (ft.)
C	24	0	43
C	16	0	420
S	13	408	860

WATER USE

Primary: **Public Supply** Secondary: Tertiary:

Water Levels: **Miscellaneous Measurements** Water Quality: **N**

2 measurements
2006 to 2006
MIN -578 MAX -400

Other Data: Logs: **D**

REMARKS:

Owners Wild Turkey #4 well (095WP4)
Measured yield 507 GPM with 178 feet drawdown after pumping 36 hours in 2006. Specific capacity 2.85 GPM/ft. Pumping level 578 feet Cemented from 0 to 420 feet. Drillers log tracking #88326. TCEQ ID #01502700.

Reporting Agency: **TWDB or Predecessor Agency**

Date Collected or Reported: **09/22/2009**

Recorded by: *DR Jones*

New ✓

TRACKING# 88326

STATE OF TEXAS WELL REPORT

Date Entered: 7/24/2006

OWNER: BexarMet Water District

OWNER 2047 W. Malone

ADDRESS: San Antonio, TX 78225

ADDRESS OF WELL'S LOCATION:

25734 Wild Turkey
San Antonio, TX

COUNTY: Bexar LATITUDE: 294059 LONGITUDE: 982925

Brand/Model of GPS: Megellan 315

Owner's Well Number: 5

ELEVATION: 1203

Grid Number: 68 - 21 - 4

TYPE OF WORK:

- New Well
- Replacement Well
- Deepening
- Reconditioning

PROPOSED USE: Monitor Well Env. Soil Boring Domestic Test Well

- Industrial
- Irrigation
- Injection
- Geothermal Heat Loop
- Public Supply
- De-watering
- Rig Supply
- Stock or Livestock

If Public Supply well, were plans submitted to the TNRCC? Yes No

WELL LOG:

DIAMETER OF HOLE

DRILLING METHOD:

Date Drilling	Started	Completed	Dia. (in)	From (ft.)	To (ft.)
4/17/2006			30	Surface	43
6/9/2006			20	43	420
			15	420	860

- Driven
- Air Rotary
- Mud Rotary
- Air Hammer
- Cable Tool
- Jetted
- Hollow Stem Auger
- Reverse Circulation
- Bored
- Other

ANNULAR SEAL DATA

From	ft. to	ft.	#Sacks + Material
43	0		6 yds. cement
420	0		474 Sks cement

Method Used Internal & External Pressure Tremmie

Cemented By Superior Well Services

Distance to Septic System Sanitary Eas

Distance to Property Line: 150

Method of Verification Plat

Approved by Variance No.

BOREHOLE COMPLETION:

- Open Hole
- Underreamed
- Other
- Straight Wall
- Gravel Packed

Gravel Packed Interval from _____ ft. to _____ ft.
Size _____

SURFACE COMPLETION:

- Surface Slab Installed
- Surface Sleeve Installed
- Pitless Adapter Used
- Alternative Procedure Used

WATER LEVEL:

Static Level 400 ft. below land surface
Artesian Flow _____ gpm. Date 6/7/2006

PLUGGING INFO:

- Well Plugged within 48 hours

TYPE OF PUMP:

- Turbine
- Jet
- Submersible
- Cylinder
- Other

Depth to pump bowls, cylinder, jet, etc.

Casing left in well: _____ Cement/Bentonite left in well: _____
From (ft.) To (ft.) From (ft.) To (ft.) Cem/Bent Sacks Used: N/A

WELL TESTS:

Type of test: Pump Bailer Jetted Estimated
Yield: 507 gpm with 178 ft. drawdown after 36 hrs.

PACKERS:

Type _____ Depth _____
N/A

WATER QUALITY:

Did Driller knowingly penetrate any strata which contained undesirable constituents? Yes No

Type of water: Good-Trinity

Depth of Strata: 420

Chemical Analysis made? Yes No

COMPANY NAME: Alsay, Inc

WELL DRILLER'S LICENSE NO. 54636

ADDRESS 3359 S.E. Loop 410

San Antonio TX 78222

Name as Signature Douglas B. Hill

Registered Driller Apprentice Tye Newman

3029

Driller Comments

Micheal B. Powell---56017

68-21-427

WELL REPORT CONFIDENTIALITY NOTICE

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 Regulation
Water Well Driller/Pump Installer Section
P.O. Box 12157 Austin, TX 78711
Toll free (800)803-9202 (512)463-7880 FAX (512)463-8616
Email address: water.well@license.state.tx.us Web address: www.license.state.tx.us

DESCRIPTION AND COLOR OF FORMATION MATERIAL		CASING, BLANK PIPE, AND WELL SCREEN DATA					
From (ft.)	To (ft.)	Description	Dia.	New/Used	Type	Setting From/To	Gage
0-54		Yellow L/S	12 3/4	new	Steel- 1/2" Perf Liner	860-408	.375
54-252		Dense Gray LS	16	new	Steel A53-Gr.B	420-+2	.375
252-420		Lt. Gray LS	24	new	Steel	43-0	.250
420-510		Lt. Brown & White L/S					
510-560		Lt. Brown LS					
560-610		Lt. Brown Dense LS					
610-768		Gray LS w/ Clay Streaks					
768-840		Dark Brown LS					
840-870		Gray Shale					

68-21-427

WQ 0014670001 TLAP PERMIT RENEWAL
TECHNICAL ATTACHMENT #6
GROUNDWATER QUALITY TECHNICAL REPORT

WQ 0014670001 TLAP PERMIT RENEWAL
TECHNICAL ATTACHMENT #6
GROUNDWATER QUALITY TECHNICAL REPORT

In accordance with 30 TAC§ 309.20(a)(4)(A and B), this report provides a brief assessment of the impact of the wastewater disposal operation at on the uses of local groundwater resources. The Bureau of Economic Geology's Geological Atlas of Texas, San Antonio Sheet, indicates that Villas at Timberwood Park WWTP, including the two septic tanks, dosing tank and irrigation disposal field overlie the Upper Glen Rose Formation (Kgru) of the Trinity Group. The entire thickness of this formation is 900 feet. The upper part of this formation has a thickness of about 400 feet. See Figure 1.

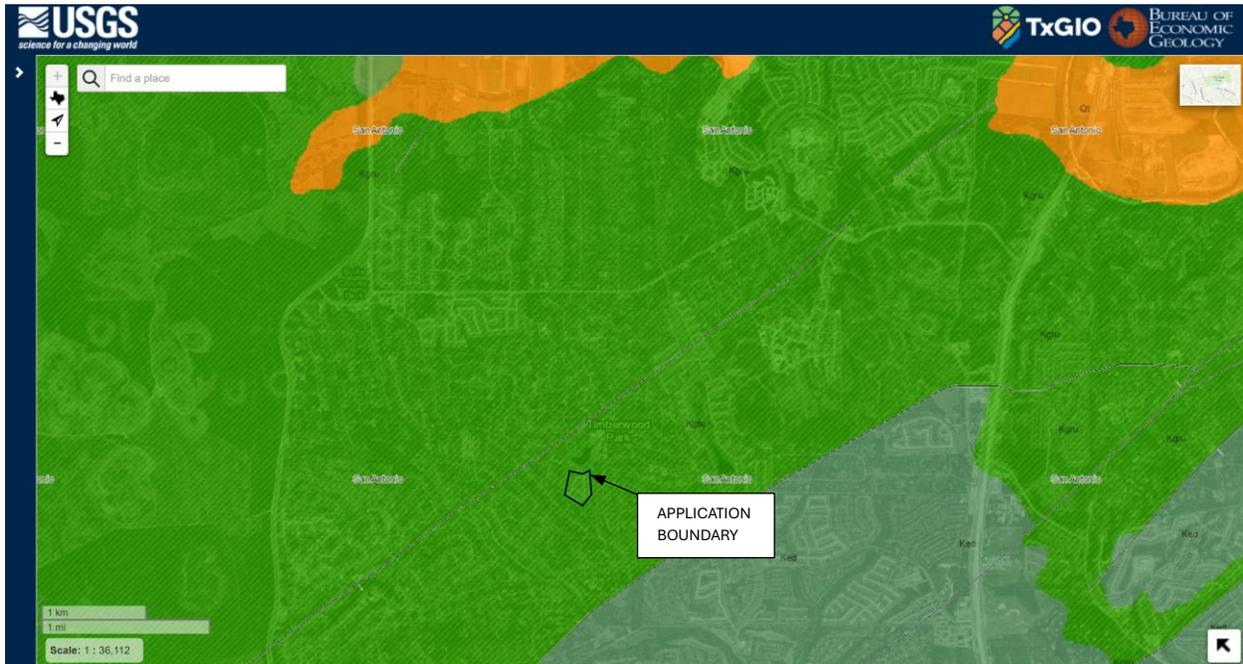


Figure 1 – Geological Formation (Texas Bureau of Economic Geology)

Table 3.0(3) - Water Well Data in Domestic Worksheet 3.0 lists 11 water wells within a ½-mile radius of the WWTP disposal field boundary. All listed water wells were drilled for public water supply and were constructed with casings, except well 6821424. Well 6821424 was plugged. All listed wells are not within a 150-foot radius of the WWTP disposal field boundary.

There are no known recharge features such as wells, springs, or sinkholes within the 150-foot buffer zone surrounding the WWTP disposal field boundary. The current WWTP disposal field is a sub-surface area disposal system consisting of approximately 90,000 linear feet of 17 mm diameter drip irrigation tubing buried in trenches not exceeding 10 inches.

Per the TWDB Ground Water database, no wells are documented to exist within a 150-foot radius of the irrigation site. No wastewater effluent has been or will be freely discharged by the wastewater treatment plant at this time. If generated, the wastewater will be used to irrigate the adjacent disposal field. The effluent applied to the land has a maximum application rate, as a permit limit, to ensure that the effluent would be absorbed by the vegetated root systems. The agronomic application rate ensures that potential contaminants do not migrate below the root zone. The best management practices for each of the active and inactive wells include meeting the buffer zone distances per 30 TAC § 309.13. Applicable buffer zone distances will continue to be maintained.

The USDA-NRCS soil report and map (see Technical Attachment #8) indicate that the topsoil within the WWTP disposal field boundary area are gravelly clay, clay loam, and very cobbly clay. Since these soils are classified as well-drained, all wastewater storage tanks are constructed with reinforced concrete to adequately protect groundwater under and near the wastewater treatment facility. In summary, the wastewater treatment plant and the effluent irrigation system are not anticipated to negatively impact the uses of groundwater resources.

WQ 0014670001 TLAP PERMIT RENEWAL

TECHNICAL ATTACHMENT #7

USDA - NRCS SOIL SURVEY MAP

Custom Soil Resource Report for **Bexar County, Texas**

Villas at Timberwood WWTP



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

Preface	2
How Soil Surveys Are Made	5
Soil Map	8
Soil Map.....	9
Legend.....	10
Map Unit Legend.....	11
Map Unit Descriptions.....	11
Bexar County, Texas.....	13
BtE—Brackett-Eckrant association, 20 to 60 percent slopes.....	13
Kr—Krum clay, 1 to 5 percent slopes.....	15
References	17

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

Custom Soil Resource Report

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

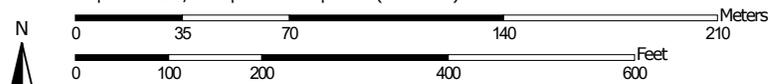
The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Soil Map may not be valid at this scale.

Map Scale: 1:2,460 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Bexar County, Texas
 Survey Area Data: Version 28, Aug 30, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 17, 2020—Jan 15, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BtE	Brackett-Eckrant association, 20 to 60 percent slopes	0.3	1.6%
Kr	Krum clay, 1 to 5 percent slopes	18.7	98.4%
Totals for Area of Interest		19.0	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

Custom Soil Resource Report

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Bexar County, Texas

BtE—Brackett-Eckrant association, 20 to 60 percent slopes

Map Unit Setting

National map unit symbol: 2yly3
Elevation: 1,000 to 2,400 feet
Mean annual precipitation: 30 to 37 inches
Mean annual air temperature: 65 to 70 degrees F
Frost-free period: 220 to 270 days
Farmland classification: Not prime farmland

Map Unit Composition

Brackett and similar soils: 60 percent
Eckrant and similar soils: 36 percent
Minor components: 4 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Brackett

Setting

Landform: Ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from limestone

Typical profile

A - 0 to 4 inches: gravelly clay loam
Bw - 4 to 12 inches: clay loam
Cr - 12 to 60 inches: bedrock

Properties and qualities

Slope: 20 to 60 percent
Depth to restrictive feature: 6 to 20 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.06 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 90 percent
Gypsum, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 1.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R081CY362TX - Steep Adobe 29-35 PZ
Hydric soil rating: No

Description of Eckrant

Setting

Landform: Ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Residuum weathered from limestone

Typical profile

A1 - 0 to 4 inches: very cobbly clay
A2 - 4 to 12 inches: very cobbly clay
R - 12 to 30 inches: bedrock

Properties and qualities

Slope: 20 to 60 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
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 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Very low (about 0.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R081CY363TX - Steep Rocky 29-35 PZ
Hydric soil rating: No

Minor Components

Krum

Percent of map unit: 2 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R081CY357TX - Clay Loam 29-35 PZ
Hydric soil rating: No

Patrick

Percent of map unit: 1 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R081CY574TX - Shallow 29-35 PZ
Hydric soil rating: No

Crawford

Percent of map unit: 1 percent
Landform: Ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R081CY358TX - Deep Redland 29-35 PZ
Hydric soil rating: No

Kr—Krum clay, 1 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2ylv9
Elevation: 600 to 1,600 feet
Mean annual precipitation: 30 to 37 inches
Mean annual air temperature: 65 to 70 degrees F
Frost-free period: 220 to 270 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Krum and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Krum

Setting

Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Alluvium derived from limestone

Typical profile

A - 0 to 26 inches: clay
Bw1 - 26 to 36 inches: clay
Bw2 - 36 to 50 inches: clay
BCK - 50 to 79 inches: clay

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

Custom Soil Resource Report

Frequency of ponding: None
Calcium carbonate, maximum content: 50 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 3.0
Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: R081CY357TX - Clay Loam 29-35 PZ
Hydric soil rating: No

Minor Components

Eckrant

Percent of map unit: 4 percent
Landform: Ridges
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R081CY360TX - Low Stony Hill 29-35 PZ
Hydric soil rating: No

Brackett

Percent of map unit: 4 percent
Landform: Ridges
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R081CY355TX - Adobe 29-35 PZ
Hydric soil rating: No

Frio

Percent of map unit: 2 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R081CY561TX - Loamy Bottomland 29-35 PZ
Hydric soil rating: No

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Custom Soil Resource Report

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Established Series
Rev. GLL-CLN-WJG-JAM
07/2010

BRACKETT SERIES

The Brackett series consists of shallow to paralithic bedrock, well drained soils formed in residuum weathered from limestone of Cretaceous age, mainly from the Glen Rose formation. These nearly level to very steep soils are located on backslopes of ridges on dissected plateaus of the Edwards Plateau. Slopes are 1 to 60 percent. Mean annual air temperature is about 19 degrees C (67 degrees F), and mean annual precipitation is about 737 mm (29 in).

TAXONOMIC CLASS: Loamy, carbonatic, thermic, shallow Typic Haplustepts

TYPICAL PEDON: Brackett paragravelly clay loam on rangeland. (Colors are for dry soil unless otherwise stated.)

A--0 to 15 cm (0 to 6 in); grayish brown (10YR 5/2) paragravelly clay loam, dark grayish brown (10YR 4/2) moist; moderate fine subangular blocky and granular structure; hard, friable; common fine roots; few masses and nodules of calcium carbonate; 15 percent weakly cemented limestone gravel; violently effervescent; moderately alkaline; clear smooth boundary. (Thickness of the A horizon is 8 to 30 cm [3 to 12 in])

Bk--15 to 36 cm (6 to 14 in); light gray (10YR 7/2) paragravelly clay loam, light brownish gray (10YR 6/2) moist; moderate fine subangular blocky and granular structure; hard, friable; common fine roots; few masses and nodules of calcium carbonate; 20 percent weakly cemented limestone gravel; violently effervescent; moderately alkaline; clear wavy boundary. (Thickness of the Bk horizon is 8 to 41 cm [3 to 16 in])

Cr--36 to 152 cm (14 to 60 in); weakly cemented, fractured and weathered limestone bedrock with vertical fractures that roots can enter, 10 to 25 cm (4 to 10 in) apart, interbedded with thin strata of pale yellow (2.5Y 7/3) and very pale brown (10YR 7/4) weathered chalk bedrock; moderately alkaline.

TYPE LOCATION: Hays County, Texas; from the intersection of Ranch Road 32 and Ranch Road 12 about 10 miles west of San Marcos, 6 miles west on Ranch Road 32 and 1,000 feet north of the road in rangeland. (Devils Backbone USGS topographic quadrangle; Latitude: 30 degrees, 3 minutes, 57.8 seconds N; Longitude: 98 degrees 11 minutes 18.4 seconds W; NAD83)

RANGE IN CHARACTERISTICS:

Depth to paralithic contact: 13 to 50 cm (5 to 20 in)

Pararock and rock fragments above the paralithic contact: Amount-0 to 34 percent, size-2 to 250 mm, kind-limestone

Effervescence: Strongly to violently

Calcium Carbonate Equivalent: 40 to 85 percent by weight

Reaction: Slightly alkaline or moderately alkaline

Particle-size control section (weighted average):

Silicate clay content: 18 to 30 percent

Carbonate clay content: 2 to 10 percent

A horizon

Hue: 10YR or 2.5Y

Value: 5 to 8

Chroma: 2 to 4

Texture: Loam or clay loam; and paragravelly and gravelly modifiers

Pararock and rock fragments: Amount-0 to 34 percent by volume, size-2 to 250 mm, kind-limestone

Other features: Where dry value is 5 or more, the organic carbon content is less than 2.5 percent

Bk horizon

Hue: 7.5YR to 2.5Y

Value: 5 to 8

Chroma: 2 to 4

Texture: Silt loam, loam, silty clay loam, or clay loam; and paragravelly and gravelly modifiers

Pararock and rock fragments: Amount-0 to 34 percent by volume, size-2 to 250 mm, kind-limestone

Identifiable secondary carbonate: Amount-1 to 4 percent by volume; kind-masses, concretions or nodules, location-around rock fragments, in the matrix, and throughout

Mottle features: brownish or grayish mottles in the matrix and along faces of peds and within porous limestone fragments in some pedons.

Cr layer

Hue: 10YR or 2.5Y

Value: 7 or 8

Chroma: 2 to 4

Other features: Secondary carbonate cementation where present, does not meet the thickness or continuity or fracture requirements of a petrocalcic horizon.

Cementation: Weakly cemented to moderately cemented

Bedrock features: Fracture interval-10 to 25 cm (4 to 10 in) apart horizontally, kind-limestone, chalk or marl.

COMPETING SERIES: [Whitewright](#) (TX) is a competing series in the same family. Similar soils are the [Doss](#) (TX), [Keese](#) (TX), [Quinlan](#) (OK+KS), and [Spikebox](#) (OK+TX).

Doss soils: Have a mollic epipedon.

Keese soils: Have a paralithic contact with weathered granite, granite grus, or gneiss of Precambrian [Era](#).

Quinlan soils: Has a shallow contact with densic sandstone bedrock.

Spikebox soils: Has a paralithic contact with sandstone bedrock

Whitewright soils: Are moist in the control section for longer periods.

GEOGRAPHIC SETTING:

Parent material: Residuum weathered from limestone bedrock of Cretaceous period, mainly from the Glen Rose and Comanche Peak formations. Also, interbedded marls and chinks occur on such formations as the Walnut and Keys Valley marls.

Landscape: Dissected Plateaus

Landform: Backslopes of ridges

Landform notes: Occurs on benched or stair-stepped topography consisting of risers and treads, also. The Brackett soils are mainly on the treads.

Slope: 1 to 60 percent, but is mostly 1 to 20 percent

Climate: Dry subhumid

Soil moisture: Typic ustic moisture regime

Precipitation Pattern: The majority of the yearly amount occurs during the fall and spring months. The winter and summer months are normally drier.

Mean annual air temperature: 18 to 21 degrees C (64 to 69 degrees F)

Mean annual precipitation: 610 to 864 mm (24 to 34 in)

Frost free days: 210 to 270 days

Elevation: 107 to 746 m (600 to 2,450 ft)

Thornthwaite annual P-E indices: 32 to 52

GEOGRAPHICALLY ASSOCIATED SOILS: These are [Cranfill](#) (TX), [Denton](#) (TX), [Doss](#) (TX), [Eckrant](#) (TX), [Karnes](#) (TX), [Kerrville](#) (TX), [Maloterre](#) (TX), [Real](#) (TX), [Tarrant](#) (TX), [Topsey](#) (TX) and [Valera](#) (TX) series.

Cranfill, Denton, Doss, Karnes, Topsey, and Valera soils: [Occur](#) lower on the landscape in footslope positions. Eckrant, Maloterre, and Tarrant soils: Occur higher on the landscape in summit, shoulder, and backslope positions.

Kerrville and Real soils: Occur on similar position in the landscape.

DRAINAGE AND PERMEABILITY: Well drained. Permeability is moderate. Permeability in the petrocalcic horizon is slow to very slow. Runoff is very low on 1 to 3 percent slopes, low on 3 to 5 percent slopes, and medium on 5 to 20 percent slopes and high on 20 to 60 percent slopes.

USE AND VEGETATION: Mainly used as rangeland. The climax plant community is a tall grass savannah with motts of live oak and Texas oak scattered throughout the landscape. The dominant grass is little bluestem. Other grasses include yellow Indiangrass, sideoats grama, tall grama, seep muhly, slim tridens, hairy grama, silver bluestem, slim tridens, tall dropseed, and perennial threeawns. Woody plants include live oak, Texas oak, kidneywood and shin oak. Forbs, such as bundleflower, sensitive briar, Maximilian sunflower, Engelmann daisy, and gayfeather, are found throughout the site. With over grazing, the site could potentially deteriorate to a plant population of Ashe juniper, Texas persimmon, agarito, live oak, threeawns, Texas grama, hairy tridens, red grama, prairie coneflower, broomweed, and ragweed.

DISTRIBUTION AND EXTENT: West-Central Texas; Southwest Plateaus and Plains Range and Cotton Region, LLR I: MLRA 81B and 81C-Edwards Plateau, Central and Eastern parts; and. Southwestern Prairies Cotton and Forage Region, LRR J: MLRA 85-Grand Prairie;. The series is extensive.

MLRA SOIL SURVEY REGIONAL OFFICE (MO) RESPONSIBLE: Temple, Texas

SERIES ESTABLISHED: Kinney County, Texas (Reconnaissance Soil Survey of Southwest Texas); 1911.

REMARKS: Classification was changed 11/89 from Typic Ustochrepts to Udic Ustochrepts. On 10/2001 the type location was moved to Hays County, and the depth was changed from very deep to shallow and the subgroup changed back to Typic which was the original series concept.

Diagnostic horizons and features recognized in this pedon are:

Ochric epipedon: 0 to 15 cm (0 to 6 in) (A horizon)

Cambic horizon: 15 to 36 cm (6 to 14 in) (Bk horizon)

Paralithic contact: 36 cm (14 in) (top of Cr layer)

ADDITIONAL DATA: None

TAXONOMIC VERSION: Keys to Soil Taxonomy, 11th Edition, 2010.

Established Series
Rev. ALN-JWS-CLG-RM
08/2018

ECKRANT SERIES

The Eckrant series consists of well drained, moderately slowly permeable soils that are very shallow to shallow over indurated limestone bedrock. These nearly level to very steep soils formed in residuum derived from limestone and occur on summits, shoulders, and backslopes of ridges on dissected plateaus. Slope ranges from 1 to 60 percent. Mean annual air temperature is about 18.9 degrees C (66 degrees F), and the mean annual precipitation is about 660 mm (26 in).

TAXONOMIC CLASS: Clayey-skeletal, smectitic, thermic Lithic Haplustolls

TYPICAL PEDON: Eckrant very cobbly clay--in rangeland. Colors are for dry soil unless otherwise stated.)

A1--0 to 10 cm (0 to 4 in); very dark gray (10YR 3/1) very cobbly clay, black (10YR 2/1) moist; moderate fine subangular blocky structure and moderate fine granular; very hard, firm; common fine roots; common fine pores; 20 percent limestone gravel; 15 percent limestone cobbles; very slightly effervescent; moderately alkaline; clear irregular boundary.

A2--10 to 30 cm (4 to 12 in); very dark gray (10YR 3/1) very cobbly clay, black (10YR 2/1) moist; moderate fine subangular blocky and fine granular structure; very hard, firm; common fine roots; common fine pores; 20 percent limestone gravels; 35 percent limestone cobbles; very slightly effervescent; moderately alkaline; abrupt wavy boundary. (Combined thickness of the A horizon is 10 to 50 cm [4 to 20 in])

R--30 to 76 cm (12 to 30 in); coarsely fractured indurated limestone bedrock.

TYPE LOCATION: Uvalde County, Texas; 7.5 miles northwest of Sabinal on Texas Highway 127, 5.0 miles north on county road to a cattle guard, 0.1 mile north across small creek to gate on right, 0.5 mile east on small ranch road, 150 ft south in rangeland.

USGS topographic quadrangle: Trio, Texas;
Latitude: 29 degrees, 27 minutes, 45 seconds N;
Longitude: 99 degrees, 31 minutes, 58 seconds W;
Datum: WGS84

RANGE IN CHARACTERISTICS:

Soil moisture: Typic ustic moisture regime

Depth to lithic bedrock: 10 to 51 cm (4 to 20 in)

Surface fragments: 3 to 50 percent; 5 to 45 percent gravels, 5 to 50 percent cobbles, 0 to 2 percent stones and boulders which are mostly spaced 20 m (65.6 ft) or more apart but can be 2 m (7 ft) apart; limestone with few cryptocrystalline quartz and/or chert

Particle-size control section (weighted average):

Clay content: 35 to 60 percent

Rock fragments: Total -35 to 80 percent by volume, 2 to 600 mm; with 15 to 60 percent by volume, 75 to 600 mm, limestone with few cryptocrystalline quartz and/or chert

A horizon

Hue: 7.5YR or 10YR

Value: 2 to 4

Chroma: 1 to 3

Texture: Clay loam, silty clay, or clay; and their very or extremely, and gravelly to stony phases

Clay content: 35 to 60 percent

Rock fragments: 0 to 20 percent by volume, 2 to 75 mm; and 15 to 60 percent by volume, 75 to 600 mm, limestone with a few cryptocrystalline quartz and/or chert

Identifiable secondary carbonate: 0 to 4 percent, very fine to fine, nodules and/or nodular and concretionary pendants on rock fragments

Effervescence: Very slight to strong

Reaction (pH): Neutral to moderately alkaline (6.6 - 8.4)

R layer

Kind: Limestone bedrock with interbedded cryptocrystalline quartz, chert, marl, and/or chalk.

Cementation: Strongly cemented to indurated

COMPETING SERIES: There are no series in the same family. Similar soils are [Comfort](#), [Eckert](#), [Harper](#), [Oglesby](#), [Palopinto](#), [Prade](#), [Roughcreek](#), and Tarrant.

[Comfort](#) and [Roughcreek](#) soils: have argillic horizons.

[Eckert](#) and [Palopinto](#) soils: have less than 35 percent clay in the particle-size control section; in addition, Palopinto soils formed from Pennsylvanian age limestone bedrock

[Harper](#) and [Oglesby](#) soils: have less than 35 percent coarse fragments in the particle-size control section

[Prade](#) and [Tarrant](#) soils: have calcic horizons. In addition, Prade soils have a petrocalcic horizon.

GEOGRAPHIC SETTING:

Parent material: Residuum weathered from limestone of the Lower Cretaceous and other geologic periods and includes interbedded limestone, cryptocrystalline quartz, chert, marl, and chalk.

Landscape: Dissected plateaus

Landform: Summits, shoulders, and backslopes of ridges

Slope: 1 to 60 percent, but is commonly 1 to 8 percent

Precipitation Pattern: The majority of the yearly amount occurs during the spring and fall months. The winter and summer months are normally drier.

Mean annual precipitation: 559 to 940 mm (22 to 37 in)

Thornthwaite annual P-E indices: 31 to 54

Mean annual air temperature: 17.8 to 20.6 degrees C (64 to 69 degrees F)

Frost free period: 210 to 250 days

Elevation: 182.9 to 739.1 m (600 to 2,425 ft)

GEOGRAPHICALLY ASSOCIATED SOILS: These are the [Brackett](#), [Campwood](#), [Comfort](#), [Eckert](#), [Kavett](#), [Real](#), and [Tarrant](#) series.

[Brackett](#) and [Real](#) soils: occur on backslope positions.

[Campwood](#) soils: are very deep alluvial soils on stream terraces.

[Comfort](#), [Eckert](#), [Kavett](#), [Real](#) and [Tarrant](#) soils: occur on similar landform positions.

DRAINAGE AND PERMEABILITY:

Drainage class: Well.

Permeability class: moderately slow.

Runoff: medium on 1 to 5 percent slopes, high on 5 to 20 percent slopes, and very high on 20 to 60 percent slopes.

USE AND VEGETATION: Mainly rangeland and wildlife habitat. The climax plant community is a tall grass savannah with motts of live oak throughout the landscape. The dominant grasses are little bluestem and sideoats

grama. Other grasses include yellow Indiangrass, fall witchgrass, wildrye, green sprangletop, meadow dropseed, cane and pinhole bluestem, hairy grama, Texas wintergrass, curly mesquite and buffalograss. Woody plants include live oak, shin oak, evergreen sumac, hackberry, elbowbush, redbud, and white honeysuckle. Forbs, such as orange zexmenia, Engelmann daisy, bundleflower, snout bean, and bushsunflower, are present. The site could potentially deteriorate to a plant population sideoats grama, buffalograss, hairy grama, dropseeds, and the woody plants. If this destructive grazing practice continues, the site will deteriorate to a plant population of Ashe juniper, Texas persimmon, live oak, Texas grama, hairy tridens, curly mesquite, threeawns, prairie coneflower, and broomweed.

DISTRIBUTION AND EXTENT: West-Central Texas; Southwest Plateaus and Plains Range and Cotton Region, LLR I: MLRA 81B-Edwards Plateau, Central Part, and MLRA 81C-Edwards Plateau, Eastern Part; and MLRA 82A-Texas Central Basin. Southwestern Prairies Cotton and Forage Region, LLR J: MLRA 85-Grand Prairie. This series is extensive.

SOIL SURVEY REGIONAL OFFICE (SSRO) RESPONSIBLE: Temple, Texas.

SERIES ESTABLISHED: Uvalde County, Texas; 1970.

REMARKS: These soils were formerly included in the Tarrant series. The series was separated due to the absence of a calcic horizon.

Edited 10/2016 (RFG-THW): Updated competing series, geographic setting, and associated soils sections.

Diagnostic horizons and features recognized in this pedon are:

Particle-size control section: 0 to 30 cm (0 to 12 in)

Mollic epipedon: 0 to 30 cm (0 to 12 in) (A horizon)

Lithic contact: at 30 cm (12 in) (top of the R layer)

ADDITIONAL DATA: None

TAXONOMIC VERSION: Keys to Soil Taxonomy, Twelfth Edition, 2014.

Established Series
Rev. CLN-RMR-RM
02/2018

KRUM SERIES

The Krum series consists of very deep to clayey alluvium, well drained soils that formed in calcareous clayey alluvium derived from interbedded chalk and marl. These nearly level to moderately sloping soils are on risers and treads of stream terraces on river valleys and dissected plains. Slopes range from 0 to 8 percent. Mean annual precipitation is about 873.8 mm (34.4 in) and the mean annual air temperature is about 20.4 degrees C (68.7 degrees F).

TAXONOMIC CLASS: Fine, smectitic, thermic Udertic Haplustolls

TYPICAL PEDON: Krum silty clay--in a cultivated field. (Colors are for dry soil unless otherwise stated.)

Ap--0 to 15 cm (0 to 6 in); dark grayish brown (10YR 4/2) silty clay, very dark brown (7.5YR 2/2) moist; moderate fine subangular blocky and moderate medium granular structure; hard, firm, sticky, plastic; common roots; few fine pores; few strongly cemented calcium carbonate concretions up to 5 mm in diameter; few white flakes of calcium carbonate, some of which are fragments of snail shells; calcareous; moderately alkaline; clear smooth boundary. (0 to 20 cm [0 to 8 in] thick)

A--15 to 66 cm (6 to 26 in); very dark grayish brown (10YR 3/2) silty clay, very dark brown (10YR 2/2) moist; moderate very fine subangular blocky and very fine angular blocky structure; hard, firm, sticky, plastic; few very fine weakly cemented calcium carbonate concretions; few very fine whitish soft masses of calcium carbonate in the lower part; common roots; many fine pores; calcareous; moderately alkaline; gradual wavy boundary. (30 to 91 cm [12 to 36 in] thick)

Bw--66 to 112 cm (26 to 44 in); brown (7.5YR 5/4) silty clay, brown (7.5YR 4/4) moist; moderate medium angular blocky structure; peds have shiny pressure faces; hard, very firm, sticky, plastic; darker soil from horizon above extends to bottom of this layer along partially sealed cracks; few fine roots; common fine pores; less than 1 percent weakly to strongly cemented calcium carbonate concretions and fine powdery masses of calcium carbonate; calcareous; moderately alkaline; gradual wavy boundary. (46 to 127 cm [18 to 50 in] thick)

Bk1--112 to 157 cm (44 to 62 in); reddish yellow (7.5YR 6/6) silty clay, strong brown (7.5YR 5/6) moist; weak coarse angular blocky structure; hard, firm, sticky, plastic; few fine roots; 5 percent calcium carbonate weakly to strongly cemented concretions and a few powdery masses; calcareous; moderately alkaline; diffuse wavy boundary. (36 to 81 cm [14 to 32 in] thick)

Bk2--157 to 183 cm (62 to 72 in); reddish yellow (7.5YR 6/6) silty clay, strong brown (7.5YR 5/6) moist; weak coarse subangular blocky structure; hard, firm, sticky, plastic; 2 percent weakly and strongly cemented concretions and powdery masses; calcareous; moderately alkaline.

TYPE LOCATION: Williamson County, Texas; From the intersection of State Highway 79 and Farm To Market Road 1660 in Hutto, Texas; 2.7 miles south on Farm To Market Road 1660; 200 ft south in a cultivated field.

USGS topographic quadrangle: Hutto, TX;
Latitude: 30 degrees, 30 minutes, 45.68 seconds North;

Longitude: 97 degrees, 31 minutes, 53.29 seconds West.

Datum: WGS84

RANGE IN CHARACTERISTICS:

Solum depth: 102 to greater than 203 cm (40 to greater than 80 in)

Soil Moisture: An ustic soil moisture regime that borders on udic. The soil moisture control section is dry in some or all parts for 90 or more cumulative days and moist, in some part, either for more than 180 cumulative days per year, or for 90 or more consecutive days in normal years.

Soil temperature: 15 to 22 degrees C (59 to 72 degrees F)

Thickness of mollic epipedon: 36 to 91 cm (14 to 36 in)

Thickness of cambic horizon: 112 to 167 cm (44 to 65 in)

Other features: These soils, when dry, have cracks 1.2 to 3.6 cm (0.4 to 1.2 in) wide that extend from the surface to depths of about 61 to 122 cm (24 to 48 in)

Particle-size control section:

Clay content: 40 to 60 percent

Rock fragments: amount-0 to 10 percent; kind-limestone; shape-nonflat; size-gravels

Calcium carbonate equivalent: 15 to 30 percent

Identifiable secondary carbonates: amount-0 to 5 percent; kind-carbonate masses and concretions; size-fine or medium

A horizons

Hue: 7.5YR or 10YR

Value: 3 to 5 dry, 2 to 3 moist

Chroma: 1 to 3 dry, 2 to 3 moist

Texture: clay, silty clay, clay loam, or silty clay loam, with the loamy textures occurring at depths of less than 30 cm (12 in) or in an Ap horizon.

Reaction: moderately alkaline or mildly alkaline, and the upper 25 cm (10 in) is noncalcareous in some pedons.

Bw horizon

Hue: 5YR to 10YR

Value: 4 to 6, dry or moist

Chroma: 2 to 4, dry or moist

Free carbonates: amount-0 to 10 percent, size-fine, kind-carbonate concretions and carbonate masses

Bk horizons

Hue: 5YR to 10YR

Value: 6 dry, 5 moist

Chroma: 3 to 6, dry or moist

Texture: silty clay loam, silty clay, or clay

Identifiable secondary carbonates: amount- 2 to 20 percent, size-fine or medium, kind-carbonate concretions or masses

Calcium carbonate equivalent: 20 to 50 percent

COMPETING SERIES: [Garvin](#) and [Matoy](#) soils are in the same family. Similar soils include [Bippus](#), [Denton](#), [Knippa](#), [Lewisville](#), [Miller](#), [Moreland](#), [Pledger](#), [Raymondville](#), [Rioconcho](#), [Rowena](#), and [Volente](#) series.

[Garvin](#) soils: have a subsoil with hues of 5YR to 7.5YR and occur on floodplains.

[Matoy](#) soils: have limestone bedrock at a depth less than 100 cm (40 in).

[Bippus](#), [Lewisville](#), and [Volente](#) soils: when dry, do not have cracks as wide as 1.2 cm (0.4 in). In addition, Lewisville soils have mollic epipedons less than 51 cm (20 in) thick.

[Denton](#) soils: are less than 152 cm (60 in) deep over limestone.

[Knippa](#) and [Rowena](#) soils: have calcic horizons at depth of less than 102 cm (40 in)

[Matoy](#) soils: have limestone bedrock at depths of 51 to 102 cm (20 to 40 in).

[Miller](#), [Moreland](#), [Pledger](#), and [Rioconcho](#) soils: have an irregular decrease in organic matter as depth increases.
[Raymondville](#) soils: have average annual temperatures of more than 22.2 degrees C (72 degrees F).

GEOGRAPHIC SETTING:

Parent material: calcareous clayey alluvium derived from interbedded chalk and marl
Landscape: river valleys and dissected plains
Landform: nearly level risers and treads of stream terraces
Slope: 0 to 8 percent
Mean annual air temperature: 17.2 to 21.1 degrees C (63 to 70 degrees F)
Mean annual precipitation: 610 to 948 mm (24 to 37.3 in)
Frost-free period: 210 to 266 days
Elevation: 105 to 442 m (344.5 to 1450 ft)

GEOGRAPHICALLY ASSOCIATED SOILS: These are the [Denton](#), [Lewisville](#), and [Volente](#) series and [Branyon](#), [Crawford](#), [Frio](#), and [Tarrant](#) series.

[Denton](#), [Lewisville](#), and [Volente](#) soils: occur on similar surfaces.

[Branyon](#), [Crawford](#), and [Tarrant](#) soils: occur at higher elevations. In addition, Branyon and Crawford soils have intersecting slickensides. Tarrant soils have sola less than 51 cm (20 in) thick over limestone and they contain more than 35 percent coarse fragments.

[Frio](#) soils: occur at lower elevations in flood plains and lack vertic properties.

DRAINAGE AND PERMEABILITY:

Drainage class: Well.

Permeability class: Moderately slow.

Runoff: low on slopes less than 1 percent; medium on 1 to 5 percent slopes and high on slopes 5 to 8 percent.

USE AND VEGETATION: About two-thirds is cropped to corn, cotton, grain sorghum, and small grains. The remainder is used for rangeland. The vegetation is tall and mid-grasses, and a few clumps of live oak and other hardwood trees.

DISTRIBUTION AND EXTENT: Texas and possibly Oklahoma. This soil occurs primarily in the Northern Texas Blackland Prairies (MLRA 86A), Grand Prairies (MLRA 85), and the Edwards Plateau, Eastern Part (MLRA 81C). The series is of large extent.

SOIL SURVEY REGIONAL OFFICE (SSRO) RESPONSIBLE: Temple, Texas

SERIES ESTABLISHED: McLennan County, Texas; 1943.

REMARKS: This series now includes some soils formerly included in the Lewisville series.

Diagnostic horizons and features recognized in this pedon are:

Mollic epipedon: 0 to 66 (0 to 26 in) (Ap and A horizons)

Cambic horizon: 66 to 112 cm (26 to 44 in) (Bw horizon)

Calcic horizon: 112 to 157 cm (44 to 62 in) (Bk1 horizon)

ADDITIONAL DATA: Lincoln Lab Data Sample Nos. 72L438 and 72L439; SSIR-30-S57TX-18-90.

Taxonomic Version: Keys to Soil Taxonomy, Twelfth Edition, 2014

National Cooperative Soil Survey
U.S.A.

Table 9-5 Runoff curve numbers for urban areas ^{1/}

Cover description cover type and hydrologic condition	Average percent impervious area ^{2/}	-- CN for hydrologic soil group --			
		A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.) ^{3/}					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only) ^{4/}		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82
Developing urban areas					
Newly graded areas (pervious areas only, no vegetation)		77	86	91	94

1/ Average runoff condition, and $I_a = 0.2S$.

2/ The average percent impervious area shown was used to develop the composite CNs. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition.

3/ CNs shown are equivalent to those of pasture. Composite CNs may be computed for other combinations of open space type.

4/ Composite CNs for natural desert landscaping should be computed using figures 9-3 or 9-4 based on the impervious area percentage (CN=98) and the pervious area CN. The pervious area CNs are assumed equivalent to desert shrub in poor hydrologic condition.

WQ 0014670001 TLAP PERMIT RENEWAL
TECHNICAL ATTACHMENT #8
SOIL ANALYSIS



Texas Commission on Environmental Quality

P.O. Box 13087 • Austin, TX 78711-3087

MONTHLY EFFLUENT REPORT

WQ0014670001
PERMIT NUMBER

SET

2024	Jan
YEAR	MO

EID

This report to be used for SOIL MON 101 ANN 0-6

Please retain a photocopy for your records.

Parameter Code/ Parameter	Effluent Condition			No.	Frequency of Analysis	Sample Type
	Reported	Value	Units	Ex		
pH	Reported	8.1			1/year	Soil
Conductivity	Reported	438	umho/cm		1/year	Soil
Nitrate-N	Reported	4	ppm		1/year	Soil
Phosphorus	Reported	11	ppm		1/year	Soil
Potassium	Reported	479	ppm		1/year	Soil
Calcium	Reported	13611	ppm		1/year	Soil
Magnesium	Reported	603	ppm		1/year	Soil
Sulfur	Reported	99	ppm		1/year	Soil
Solium	Reported	1127	ppm		1/year	Soil
TKN	Reported	1465	ppm		1/year	Soil
TN	Reported	1759	ppm		1/year	Soil
Ammonium-N	Reported	4.6	ppm		1/year	Soil

COMMENTS AND EXPLANATIONS (Reference all attachments here.)

I CERTIFY THAT I AM FAMILIAR WITH THE INFORMATION CONTAINED IN THIS REPORT AND THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF SUCH INFORMATION IS TRUE AND COMPLETE AND ACCURATE.

PLANT OPERATOR NAME	PLANT OPERATOR SIGNATURE	MONTH	DAY	YEAR
Randy Weyrick	<i>Randy Weyrick</i>	2	1	2024
EXECUTIVE OFFICER NAME	EXECUTIVE OFFICER SIGNATURE	MONTH	DAY	YEAR
Gregory Gullett	<i>Gregory Gullett</i>	2	1	2024
Telephone Number		512-707-7027		
		Area code	Number	



Soil Analysis Report

Soil, Water and Forage Testing Laboratory
 Department of Soil and Crop Sciences
 2478 TAMU
 College Station, TX 77843-2478

Report generated for:
 Waste Water Solutions
 Villas at Timberwood
 9217 Hwy 290 West - Ste 100
 AUSTIN, TX 78736

Visit our website: <http://soiltesting.tamu.edu>

Sample received on: 1/11/2024
 Printed on: 1/26/2024
 Area Represented: not provided

Bexar County
 Laboratory Number: 646819
 Customer Sample ID: 0-6

Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)

Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess.	
pH	8.1	(5.8)	-	Mod. Alkaline							
Conductivity	438	(-)	umho/cm	None							Fertilizer Recommended
Nitrate-N	4	(-)	ppm**								90 lbs N/acre
Phosphorus	11	(50)	ppm								95 lbs P2O5/acre
Potassium	479	(150)	ppm								0 lbs K2O/acre
Calcium	13,611	(180)	ppm								0 lbs Ca/acre
Magnesium	603	(50)	ppm								0 lbs Mg/acre
Sulfur	99	(13)	ppm								0 lbs S/acre
Sodium	1,127	(-)	ppm								
Iron											
Zinc											
Manganese											
Copper											
Boron											
Limestone Requirement											0.00 tons 100ECCE/acre
Detailed Salinity Test (Saturated Paste Extract)											
				pH							7.1
				Conductivity							1.50 mmhos/cm
				Sodium							218 ppm 9.474 meq/L
				Potassium							9 ppm 0.228 meq/L
				Calcium							48 ppm 2.419 meq/L
				Magnesium							5 ppm 0.432 meq/L
TKN	1465		ppm	SAR							7.93
TN	1759		ppm	SSP							75.47
Ammonium-N	4.6		ppm								

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Nitrogen: Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

Online fertilizer calculators to determine appropriate fertilizers and application rates.
<http://soiltesting.tamu.edu>



Texas Commission on Environmental Quality

P.O. Box 13087 • Austin, TX 78711-3087

MONTHLY EFFLUENT REPORT

WQ0014670001
PERMIT NUMBER

SET

2024	Jan
YEAR	MO

EID

This report to be used for SOIL MON 101 ANN 12-18

Please retain a photocopy for your records.

Parameter Code/ Parameter	Effluent Condition			No.	Frequency of	Sample Type
		Value	Units	Ex	Analysis	
pH	Reported	7.8			1/year	Soil
Conductivity	Reported	439	umho/cm		1/year	Soil
Nitrate-N	Reported	5	ppm		1/year	Soil
Phosphorus	Reported	0	ppm		1/year	Soil
Potassium	Reported	431	ppm		1/year	Soil
Calcium	Reported	17256	ppm		1/year	Soil
Magnesium	Reported	611	ppm		1/year	Soil
Sulfur	Reported	115	ppm		1/year	Soil
Solium	Reported	1260	ppm		1/year	Soil
TKN	Reported	1282	ppm		1/year	Soil
TN	Reported	1456	ppm		1/year	Soil
Ammonium-N	Reported	6.8	ppm		1/year	Soil

COMMENTS AND EXPLANATIONS (Reference all attachments here.)

I CERTIFY THAT I AM FAMILIAR WITH THE INFORMATION CONTAINED IN THIS REPORT AND THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF SUCH INFORMATION IS TRUE AND COMPLETE AND ACCURATE.

PLANT OPERATOR NAME	PLANT OPERATOR SIGNATURE	MONTH	DAY	YEAR
Randy Weyrick	<i>Randy Weyrick</i>	2	1	2024
EXECUTIVE OFFICER NAME	EXECUTIVE OFFICER SIGNATURE	MONTH	DAY	YEAR
Gregory Gullett	<i>Gregory Gullett</i>	2	1	2024
Telephone Number		512-707-7027		
		Area code	Number	



Soil Analysis Report

Soil, Water and Forage Testing Laboratory
 Department of Soil and Crop Sciences
 2478 TAMU
 College Station, TX 77843-2478

Report generated for:
 Waste Water Solutions
 Villas at Timberwood
 9217 Hwy 290 West - Ste 100
 AUSTIN, TX 78736

Visit our website: <http://soiltesting.tamu.edu>

Sample received on: 1/11/2024
 Printed on: 1/26/2024
 Area Represented: not provided

Bexar County
 Laboratory Number: 646821
 Customer Sample ID: 12-18

Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)

Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess.		
pH	7.8	(5.8)	-	Mod. Alkaline								
Conductivity	439	(-)	umho/cm	None							CL*	Fertilizer Recommended
Nitrate-N	5	(-)	ppm**									90 lbs N/acre
Phosphorus	0	(50)	ppm									120 lbs P2O5/acre
Potassium	431	(150)	ppm									0 lbs K2O/acre
Calcium	17,256	(180)	ppm									0 lbs Ca/acre
Magnesium	611	(50)	ppm									0 lbs Mg/acre
Sulfur	115	(13)	ppm									0 lbs S/acre
Sodium	1,260	(-)	ppm									
Iron												
Zinc												
Manganese												
Copper												
Boron												
Limestone Requirement												0.00 tons 100ECCE/acre
Detailed Salinity Test (Saturated Paste Extract)												
				pH		7.2						
				Conductivity		1.29 mmhos/cm						
				Sodium		198 ppm		8.630 meq/L				
				Potassium		7 ppm		0.169 meq/L				
				Calcium		36 ppm		1.779 meq/L				
				Magnesium		3 ppm		0.215 meq/L				
TKN	1282		ppm	SAR		8.64						
TN	1456		ppm	SSP		79.96						
Ammonium-N	6.8		ppm									

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Nitrogen: Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

Online fertilizer calculators to determine appropriate fertilizers and application rates.
<http://soiltesting.tamu.edu>



Texas Commission on Environmental Quality

P.O. Box 13087 • Austin, TX 78711-3087

MONTHLY EFFLUENT REPORT

WQ0014670001
PERMIT NUMBER

SET

2024	Jan
YEAR	MO

EID

This report to be used for SOIL MON 101 ANN 18-30
 Please retain a photocopy for your records.

Parameter Code/ Parameter	Effluent Condition			No.	Frequency of Analysis	Sample Type
	Reported	Value	Units	Ex		
pH	Reported	7.7			1/year	Soil
Conductivity	Reported	658	umho/cm		1/year	Soil
Nitrate-N	Reported	7	ppm		1/year	Soil
Phosphorus	Reported	4	ppm		1/year	Soil
Potassium	Reported	345	ppm		1/year	Soil
Calcium	Reported	15145	ppm		1/year	Soil
Magnesium	Reported	602	ppm		1/year	Soil
Sulfur	Reported	131	ppm		1/year	Soil
Solium	Reported	1016	ppm		1/year	Soil
TKN	Reported	1246	ppm		1/year	Soil
TN	Reported	1606	ppm		1/year	Soil
Ammonium-N	Reported	5.7	ppm		1/year	Soil

COMMENTS AND EXPLANATIONS (Reference all attachments here.)

I CERTIFY THAT I AM FAMILIAR WITH THE INFORMATION CONTAINED IN THIS REPORT AND THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF SUCH INFORMATION IS TRUE AND COMPLETE AND ACCURATE.

PLANT OPERATOR NAME	PLANT OPERATOR SIGNATURE	MONTH	DAY	YEAR
Randy Weyrick	<i>Randy Weyrick</i>	2	1	2024
EXECUTIVE OFFICER NAME	EXECUTIVE OFFICER SIGNATURE	MONTH	DAY	YEAR
Gregory Gullett	<i>Gregory Gullett</i>	2	1	2024
Telephone Number		512-707-7027		
		Area code	Number	



Soil Analysis Report

Soil, Water and Forage Testing Laboratory
 Department of Soil and Crop Sciences
 2478 TAMU
 College Station, TX 77843-2478

Report generated for:
 Waste Water Solutions
 Villas at Timberwood
 9217 Hwy 290 West - Ste 100
 AUSTIN, TX 78736

Visit our website: <http://soiltesting.tamu.edu>

Sample received on: 1/11/2024
 Printed on: 1/26/2024
 Area Represented: not provided

Bexar County
 Laboratory Number: 646822
 Customer Sample ID: 18-30

Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)

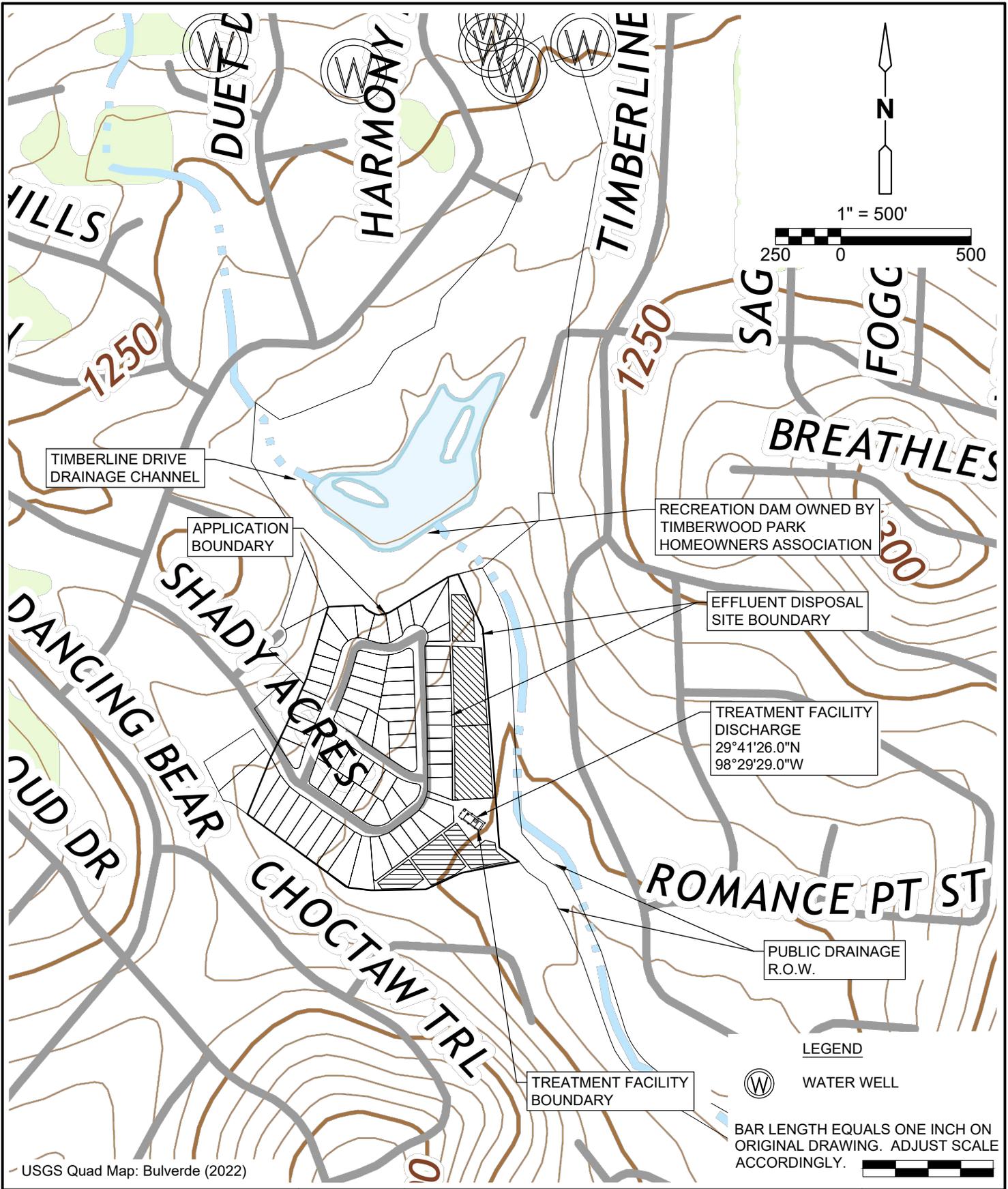
Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess.		
pH	7.7	(5.8)	-	Mod. Alkaline								
Conductivity	658	(-)	umho/cm	Slight							CL*	Fertilizer Recommended
Nitrate-N	7	(-)	ppm**									85 lbs N/acre
Phosphorus	4	(50)	ppm									110 lbs P2O5/acre
Potassium	345	(150)	ppm									0 lbs K2O/acre
Calcium	15,145	(180)	ppm									0 lbs Ca/acre
Magnesium	602	(50)	ppm									0 lbs Mg/acre
Sulfur	131	(13)	ppm									0 lbs S/acre
Sodium	1,016	(-)	ppm									
Iron												
Zinc												
Manganese												
Copper												
Boron												
Limestone Requirement												0.00 tons 100ECCE/acre
Detailed Salinity Test (Saturated Paste Extract)												
				pH		7.0						
				Conductivity		2.07 mmhos/cm						
				Sodium		288 ppm		12.541 meq/L				
				Potassium		7 ppm		0.171 meq/L				
				Calcium		81 ppm		4.029 meq/L				
				Magnesium		7 ppm		0.584 meq/L				
TKN	1246		ppm	SAR		8.26						
TN	1606		ppm	SSP		72.39						
Ammonium-N	5.7		ppm									

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Nitrogen: Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

Online fertilizer calculators to determine appropriate fertilizers and application rates.
<http://soiltesting.tamu.edu>

**WQ 0014670001 TLAP PERMIT RENEWAL
WORKSHEET 7.0 TECHNICAL ATTACHMENT
USGS TOPO MAP & SITE MAP**



USGS Quad Map: Bulverde (2022)

BAR LENGTH EQUALS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALE ACCORDINGLY.

 13423 Blanco Rd, Suite 118 San Antonio TX 78216 Texas Firm Registration Number F-16949	PROJECT NO.	VILLAS OF TIMERWOOD PARK WWTP	EXHIBIT No.
	DATE	WASTEWATER TREATMENT PLANT PERMIT RENEWAL WQ0014670001 USGS TOPO MAP	Worksheet 7.0 Attachment - A

WORKSHEET 7.0 ATTACHMENT B - SITE MAP

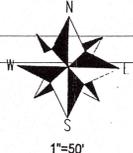
Timberwood Units 47-49 (GZ)

DESIGN SPECIFICATIONS:

Estimated average daily wastewater flow: 75 Residential Homes @ 240 Gal/house = 18,000 GPD

Pump tank capacity: 50,000 Gal.
 Design application rate: Class IV soil over sandy clay loam caliche material. Ra = 0.2
 Design field area required: 180,000 sq. ft.
 Dosing cycle quantity: 4 min per zone/approximately 103.2 gal/dose
 Number of dosing cycles per day: 8 per zone
 Dosing pump capacity: 25.8 gpm @ 46.2 psi for dripping plus 6 gpm for flushing
 Dosing pump: 35 gallon per minute 1HP pump
 Design pressure head: 20 psi
 Means of relieving vacuum/air in lines: ARI Guardian
 Controller: Custom BDMC Controller
 Zone Control Valve: 18 zone BDMC Controller
 Pressure adjusting valves to be installed: Pressure relief valve adjusted for 50 psi
 Total linear feet of dripper lines: 90,000 feet
 Diameter of dosing pipe: All new 17 mm, 24 inch spacing 0.62 gph
 O8WRAM.6-24V
 Minimum spacing between dosing lines: 24 inches
 Depth of drip emitter lines: 10 inches
 Backfill material: Class II or III soil
 Maximum dosing line length: 800 feet

I-10 CONTRACTING LTD
25840 IH-10 WEST #2
210-698-8630 FAX 698-8633



CALCULATIONS

Given:
 $A = Q/Ra = 18,000/0.1 = 180,000$ sq. ft.
 $L = A/2 = 180,000/2 = 90,000$ LF

Total design equals 90,000 LF
 No. of emitters = $90,000/2 = 45,000$ emitters
 Each emitter produces 0.62 gph
 Application rate: $0.62 \times 45,000 = 27,900$ gph or $27,900/60 = 465$ gpm
 Design to divide total by 18 zones or 25.8 gpm to dose each zone (avg)

Total dosing time required to dispense 18,000 gpd at this rate is $18,000/25 = 720$ minutes
 72 cycles on 10 minute intervals are proposed—this leaves 6 hours each day for rest and time to recover from occasional overload.

There are three distal ends per zone. A minimum of two gallons per minute is required for proper backwash. The pump capacity must provide for 8 gallons per minute for backwash in addition to normal drip volume of 25.8 gpm; therefore, a pump capacity of $8 + 25.8 = 31.8$ gpm at a minimum of 20 psi or 46.2 feet of head.



This drawing is an exhibit for an Application for a septic system design. It is not a Land Survey. Property lines and/or other lines of occupation shown hereon are not represented by the undersigned to meet accuracy standards of Land Surveys.

GENERAL NOTES:

- THE CONTRACTOR IS REQUIRED TO COMPLY WITH THE RULES AND REGULATIONS AND ALL OTHER APPLICABLE REGULATIONS AT ALL TIMES.
- TCEQ REPRESENTATIVE WILL INSPECT AND APPROVE THE CONSTRUCTION OF THESE UTILITY SERVICE CONNECTIONS BEFORE THE CONTRACTOR IS ALLOWED TO BACKFILL AND COVER UP THE CONNECTION. FINAL INSPECTION AND APPROVAL BY THE TCEQ IS REQUIRED.
- THE CONTRACTOR IS SOLELY AND COMPLETELY RESPONSIBLE FOR JOB SITE CONDITIONS, INCLUDING BUT NOT LIMITED TO THE SAFETY OF ALL PERSONS AND PROPERTY, DURING THE CONSTRUCTION OF THESE IMPROVEMENTS.
- THE CONTRACTOR WILL NOTIFY ALL GOVERNMENT OR UTILITY AGENCIES THAT MAY BE AFFECTED BY THE PROPOSED CONSTRUCTION PRIOR TO STARTING WORK.
- ALL FILL MATERIAL SHALL BE SUBJECT TO THE ENGINEER'S AND THE TCEQ APPROVAL. SPACIAL BACKFILL MATERIAL MAY BE REQUIRED BY THE TCEQ.
- SANITARY SEWER PIPE SHALL BE PVC POLYVINYL CHLORIDE PIPE AND SHALL CONFORM TO ASTM D-3034 FOR SDR 26. JOINTS SHALL BE ELASTOMETRIC GASKET MATERIALS CONFORMING TO ASTM D-3212. INSTALLATION SHALL CONFORM TO ASTM D-2321.
- FOR SEWER LINES LESS THAN TWENTY-FOUR INCHES (24") IN DIAMETER, SELECT INITIAL BACKFILL MATERIAL SHALL BE PLACED IN TWO (2) LIFTS. THE FIRST LIFT SHALL BE SPREAD UNIFORMLY AND SIMULTANEOUSLY ON EACH SIDE AND UNDER THE SHOULDERS OF THE PIPE TO THE MID-POINT OR SPRING LINE OF THE PIPE.
- SECONDARY BACKFILL SHALL GENERALLY CONSIST OF MATERIALS REMOVED FROM THE TRENCH AND SHALL BE FREE OF BRUSH, DEBRIS AND JUNK. NO ROCK OR STONES HAVING ANY DIMENSION LARGER THAN ONE HALF TRENCH WIDTH OR 24 INCHES AT THE LARGEST DIMENSION, WHATEVER IS LESS SHALL BE USED IN THE SECONDARY BACKFILLING ZONE. WATER JETTING IS NOT PERMITTED.

THE PUMP STATION SYSTEM INCLUDE A DUAL ALTERNATING PUMP CONTROLLER WITH INTERVAL TIMER, DUPLEX SUBMERSIBLE PUMPS, DISC FILTRATION WITH AUTOMATIC BACK FLUSHING, FLOW METER AND SOLENOID VALVING NECESSARY TO MANAGE ALL PUMPING OPERATIONS.

AUTOMATIC BACK FLUSH IS TRIGGERED BY EITHER A PRE-SET TIME INTERVAL AND/OR PRESSURE DROP ACROSS THE FILTERS (SAY, > 6 PSI). BACK FLUSHED LIQUIDS AND SOLIDS ARE RETURNED UP STREAM TO THE PRIMARY TREATMENT TANK.

FIELD SOLENOID VALVING—THE DRAIN FIELD TO BE USED FOR EFFLUENT DISPOSAL IS DIVIDED INTO 18 ZONES WHICH ARE DOSED ONE AT A TIME AND SEQUENTIALLY.

THE SYSTEM IS CONTROLLED VIA THE BIOLINE SING MAN. VENT CONTROLLER. THIS PARTICULAR CONTROLLER MONITORS TANK LEVELS, REGULATES THE DOSING SCHEDULE, CONTROLS THE PUMPS AND PRODUCES AN AUDIBLE AND VISIBLE ALARM.

FUTURE LAND USE RESTRICTIONS: THE DRIP FIELD CAN BE INSTALLED UNDER A PERMANENT LAWN, AMONG TREES, OR OTHER LANDSCAPE FEATURES, PROVIDED SET BACKS ARE FOLLOWED. ANY FUTURE PERMANENT STRUCTURES THAT WILL AFFECT SOIL TEXTURE AND WATER FLOW THROUGH THE SOIL PARKING AREAS, SWIMMING POOLS, TENNIS COURTS, DECKS, ETC.

DRIP SYSTEM SHOULD INCLUDE A MINIMUM OF TWO AIR/VACUUM RELIEF VALVES PER ZONE. THEIR PURPOSE IS TO RELIEVE THE VACUUM CREATED ON THE SYSTEM AT THE END OF A DOSE CYCLE. THIS WILL MINIMIZE SOIL PARTICLES FROM BEING ASPIRATED INTO THE EMITTERS AND TO RELEASE AIR AT THE BEGINNING OF THE DOSE CYCLE TO ELIMINATE AIR-BINDING IN THE LINE.

DRIP TUBING MUST BE INSTALLED ALONG THE CONTOUR OF THE SLOPE NOT UP AND DOWN THE SLOPE

FIELD FLUSH: THE VELOCITY OF WATER MOVING THROUGH THE TUBING SHOULD BE AT LEAST 2 FEET SECOND AT THE DISTAL END OF THE FLUSH MANIFOLD.

THE DRIP TUBING SHOULD BE INSTALLED 8 TO 12 INCHES BELOW THE SOIL SURFACE WITH AN ABSOLUTE MINIMUM OF 6 INCHES. (FLOWING, TRENCHING OR FILL)

EXISTING NATIVE SOIL FOR THE INSTALLATION OF THE DRIP TUBING.

DRIPPERLINES SHALL BE OF EXTRUDED LINEAR LOW DENSITY POLYETHYLENE WITH AN INSIDE DIAMETER (I.D.) OF 17 MM. THE ENTIRE POLYETHYLENE PIPE IS TO BE PURPLE THROUGHOUT TO DESIGNATE ITS USE FOR WASTEWATER. THE TUBING IS TO HAVE FULLY PRESSURE COMPENSATING DRIPPERS INTEGRAL WITH THE INNER WALL OF THE TUBING. THESE DRIPPERS SHALL BE CONSTRUCTED OF PLASTIC WITH A HARD PLASTIC DIAPHRAGM RETAINER AND A SELF FLUSHING/CLEANING ELASTOMERIC DIAPHRAGM EXTENDING THE FULL LENGTH OF THE DRIPPER.

CONSTRUCTION PLANS
FOR
TIMBERWOOD SEC. 47-49
NEW SANITARY SEWER LINE & DISPOSAL SYSTEM
SAN ANTONIO, TEXAS

B. L. Carille & Assoc., Inc.
 Soil and Engineering Consultants
 P O Box 63624
 Pipe Creek, Tx.

Leah Whallon

From: Damien J. Herrera <herreradj@corrient-pllc.com>
Sent: Thursday, April 17, 2025 9:53 AM
To: Leah Whallon
Cc: Mr paul colliander
Subject: Re: Application for Proposed Permit No. WQ0014670002; The Villas at Timberwood Homeowners Association

Attachments: Municipal TPDES and TLAP PLS Form (Spanish).docx; Municipal Disposal New Spanish NORI.docx; Villas WWTP - Avery 5160 Mailing Labels.docx

Follow Up Flag: Follow up
Flag Status: Flagged

Leah,

The attached documents are being submitted in response to your April 3, 2025 email.

1. Spanish NORI
2. Spanish TLAP Plain Language Summary
3. Word Document of Avery mailing labels

Based on our call this morning, it is my understanding that item 1 from your April 3, 2025 email regarding the SOS entity status has been resolved and no further action is required from the HOA. Please let us know if you need any additional information to deem this permit administratively complete.

Sincerely,



Damien J. Herrera, PE | Principal | CORRIENT INFRASTRUCTURE CONSULTING | 13423 Blanco Road #118 | San Antonio, TX 78216 | 210-595-9565 | State of Texas HUB | Certified SBE, HABE, MBE, ESBE | TBPE Firm No. 16949 | www.corrient-pllc.com

On Thu, Apr 3, 2025 at 2:06 PM Leah Whallon <Leah.Whallon@tceq.texas.gov> wrote:

Hi Damien,

I've reviewed the response and have a few items to address.

1. The application for reinstatement was included in the response, but both the entity status is still inactive. I am waiting for confirmation of when we can proceed with the application. Generally, the applicant must be in an active status for the application to be administratively complete.

2. The PIP form indicates more than 5% of the population is Spanish speaking, which indicates public notice in Spanish will be required for this application. Please use the attached templates to provide the NORI and PLS in Spanish.

3. Please provide the affected landowner mailing labels in a Microsoft Word document.

Please let me know if you have any questions.

Thank you,

Leah Whallon



Texas Commission on Environmental Quality

Water Quality Division

512-239-0084

leah.whallon@tceq.texas.gov

How is our customer service? Fill out our online customer satisfaction survey at www.tceq.texas.gov/customersurvey

From: Leah Whallon

Sent: Tuesday, April 1, 2025 10:25 AM

To: Damien J. Herrera <herreradj@corrient-pllc.com>

Cc: Mr paul colliander <pgc6@yahoo.com>

Subject: RE: Application for Proposed Permit No. WQ0014670002; The Villas at Timberwood Homeowners Association

Good Morning Damien,

Thank you for sending me the response as requested. I will review and follow up shortly to let you know if we need anything else.

Thank you,

Leah Whallon



Texas Commission on Environmental Quality

Water Quality Division

512-239-0084

leah.whallon@tceq.texas.gov

How is our customer service? Fill out our online customer satisfaction survey at www.tceq.texas.gov/customersurvey

From: Damien J. Herrera <herreradj@corrient-pllc.com>

Sent: Monday, March 31, 2025 5:04 PM

To: Leah Whallon <Leah.Whallon@Tceq.Texas.Gov>

Cc: Mr paul colliander <pgc6@yahoo.com>

Subject: Re: Application for Proposed Permit No. WQ0014670002; The Villas at Timberwood Homeowners Association

Leah,

The updated application was resubmitted by Express Mail on 3/26 for delivery to TCEQ on 3/27. The application was also digitally uploaded to the TCEQ sharefile ftp site. The reponse letter was included in the revised application. A digital copy is attached to this email for your information.



Damien J. Herrera, PE | Principal | CORRIENT INFRASTRUCTURE CONSULTING | 13423 Blanco Road #118 | San Antonio, TX 78216 | 210-595-9565 | *State of Texas HUB* | *Certified SBE, HABE, MBE, ESBE* | *TBPE Firm No. 16949* | www.corrient-pllc.com

On Mon, Mar 31, 2025 at 8:53 AM Leah Whallon <Leah.Whallon@tceq.texas.gov> wrote:

Good Morning,

I'm following up on this application as I have not received a response yet. Please let me know if you have any questions or need additional time to complete the response.

Thank you,

Leah Whallon



Texas Commission on Environmental Quality

Water Quality Division

512-239-0084

leah.whallon@tceq.texas.gov

How is our customer service? Fill out our online customer satisfaction survey at www.tceq.texas.gov/customersurvey

From: Leah Whallon

Sent: Thursday, March 13, 2025 11:41 AM

To: pgc6@yahoo.com; herreradj@corrient-pllc.com

Subject: Application for Proposed Permit No. WQ0014670002; The Villas at Timberwood Homeowners Association

Good morning,

Please see the attached Notice of Deficiency letter dated March 13, 2025 requesting additional information needed to declare the application administratively complete. Please send the complete response by March 27, 2025.

Please let me know if you have any questions.

Thank you,

Leah Whallon



Texas Commission on Environmental Quality

Water Quality Division

512-239-0084

leah.whallon@tceq.texas.gov

How is our customer service? Fill out our online customer satisfaction survey at www.tceq.texas.gov/customersurvey

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

AGUAS RESIDUALES DOMÉSTICAS

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

THE VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION (CN604095778) propone operar TIMBERWOOD DEVELOPMENT WWTP (RN104814959), una instalación de tratamiento de aguas residuales domésticas. La instalación está ubicada aproximadamente a 820 pies al sureste de la intersección de Harmony Hills y Shady Acres y el área de eliminación está ubicada a 1,600 pies al sureste de la intersección de Harmony Hills y Shady Acres, en San Antonio, Condado de Bexar, Texas 78260. Esta solicitud de renovación de permiso es para la eliminación de aguas residuales domésticas tratadas a un flujo promedio diario que no exceda los 18,000 galones por día (0.018 MGD) a través de un sistema de riego por goteo subterráneo de acceso no público. Este permiso no autorizará una descarga de contaminantes en el agua en el estado.

Se espera que las descargas de la instalación contengan una demanda química biológica carbonosa (CBOD5) de cinco días, sólidos suspendidos totales (TSS), nitrógeno amoniacal (NH3-N), fósforo total (P) y Escherichia coli (E.coli). Las aguas residuales domésticas serán tratado por un sistema de riego por goteo subterráneo de acceso no público aplicado a un área mínima de 4.13 acres (179,903 pies cuadrados).

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. WQ00

SOLICITUD. *The Villas at Timberwood Homeowners Association, 405 Main Street, Blanco, Texas 78606*, ha solicitado a la Comisión de Calidad Ambiental del Estado de Texas (TCEQ) para el propuesto Permiso No. WQ0014670002 de disposición de aguas residuales para autorizar la disposición de aguas residuales tratadas en un volumen que no sobrepasa un flujo promedio diario de *18,000* galones por día mediante *a través de un sistema de riego por goteo subterráneo*. La planta y el área de disposición estarán ubicados *aproximadamente 1,600 pies al sureste de la intersección de Harmony Hills y Shady Acres, cerca de la ciudad de San Antonio*, en el Condado de *Bexar*, Texas *78260*. La TCEQ recibió esta solicitud el *4 Marzo 2025*. La solicitud para el permiso estará disponible para leerla y copiarla en *Biblioteca Parman en Stone Oak, 20735 Wilderness Oak, San Antonio, en el condado de Bexar, 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=-98.49138,29.690555&level=18>

[Include the following non-italicized sentence if the facility is located in the Coastal Management Program boundary. The Coastal Management Program boundary is the area along the Texas Coast of the Gulf of México as depicted on the map in 31 TAC §503.1 and includes part or all of the following counties: Cameron, Willacy, Kenedy, Kleberg, Nueces, San Patricio, Aransas, Refugio, Calhoun, Victoria, Jackson, Matagorda, Brazoria, Galveston, Harris, Chambers, Jefferson y Orange.] El Director Ejecutivo de la TCEQ ha revisado esta medida para ver si está de acuerdo con los objetivos y las regulaciones del Programa de Administración Costero de Texas (CMP) de acuerdo con las regulaciones del Consejo Coordinador de la Costa (CCC) y ha determinado que la acción es conforme con las metas y regulaciones pertinentes del CMP.

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 específico. Si desea que se agregue 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 *The Villas at Timberwood Homeowners Association* a la dirección indicada arriba o llamando a *Mr. Paul G. Colliander, Secretary/Treasurer* al 210-844-5664.

Fecha de emisión: *[Date notice issued]*

SHERYL DUNN
26219 MIDNIGHT WATCH
SAN ANTONIO, TX 78260

JEANNE D SALGADO
26221 MIDNIGHT WATCH
SAN ANTONIO, TX 78260

CURRENT RESIDENT
26225 MIDNIGHT WATCH
SAN ANTONIO, TX 78260

NICK AND LESLIE ALINO
26229 MIDNIGHT WATCH
SAN ANTONIO, TX 78260

RICHARD LEVI MCFADDEN JR
AND ESMERALDA VILLANUEVA
26231 MIDNIGHT WATCH
SAN ANTONIO, TX 78260

SIMA AND STEVEN
INCORPORATED
4833 SARATOGA BLVD # 161
CORPUS CHRISTI, TX 78413

CARL BENJAMIN PITTS AND
TRISHIA BREA ANNE
26118 CHOCTAW TRL
SAN ANTONIO, TX 78260

CARYL KUPCHO
26210 CHOCTAW TRL
SAN ANTONIO, TX 78260

SARAH KENDRICK
26214 CHOCTAW TRL
SAN ANTONIO, TX 78260

UW LAND LLC
13606 HIGH CHAPEL
SAN ANTONIO, TX 78231

DANIEL E HAMILTON
26314 SHADY ACRES
SAN ANTONIO, TX 78260

MARION N AND INEZ B STRINGER
806 HAPPY VW
SAN ANTONIO, TX 78260

JUDD AND LEEANNA MARONEY
802 HAPPY VW
SAN ANTONIO, TX 78260

TIMBERWOOD PARK OWNERS
ASSC INC
26631 TIMBERLINE DR
SAN ANTONIO, TX 78260

FLOYD R AND ELAINE M
RESPONDEK
26433 TIMBERLINE DR
SAN ANTONIO, TX 78260

MARIA L MARTINEZ
226 GLADSTONE
SAN ANTONIO, TX 78214

CHAD H GULBRANSEN
26417 TIMBERLINE DR
SAN ANTONIO, TX 78260

SHANNON PATRICK AND DIANA
VERONICA WALSH
26409 TIMBERLINE DR
SAN ANTONIO, TX 78260

JUSTIN M LOZANO AND MARIA M
VILLARREAL
26401 TIMBERLINE DR
SAN ANTONIO, TX 78260

ROBERT W PHELAN AND
KATHERINE R BEL
26327 TIMBERLINE DR
SAN ANTONIO, TX 78260

CONNIE JEAN PHILLIPS
26319 TIMBERLINE DR
SAN ANTONIO, TX 78260

JEANA LACKEY
2301 FLUSHING MDWS
WESLACO, TX 78596

RICHARD ROBERT BARTOSH JR
26239 TIMBERLINE DR
SAN ANTONIO, TX 78260

TROY G TERRY
26231 TIMBERLINE DR
SAN ANTONIO, TX 78260

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March 26, 2025

Leah Whallon
Applications Review and Processing Team (MC148)
Water Quality Division
12100 Park 35 Circle
Austin, TX 78753

**RE: Villas at Timberwood WWTP TLAP Permit Application – Response to Notice of Deficiency
WQ0014670002
CN604095778
RN104814959**

Dear Leah,

The following responses are being provided to your notice of deficiency letter dated March 13, 2025, to Mr. Paul Colliander Secretary/Treasurer of the Villas at Timberwood Homeowners Association.

Comment #1:

A renewal application for permit WQ0014670001 was received on March 4, 2025, but the permit expired on October 1, 2024, and cannot be renewed. The application must be revised and resubmitted as a new permit application to replace the previously expired permit. Permit number WQ0014670002 has been assigned for the pending application.

Response #1: A new permit package under WQ0014670002 is being submitted and accompanied by this letter response.

Comment #2:

Core Data Form, Section II, Item 6 The applicant, The Villas at Timberwood Homeowners Association, is not an active entity registered with the Secretary of State. Only an entity in active standing can apply for the permit. Please revise the application to list an active entity as the applicant or provide confirmation the applicant's status has been reinstated.

Response #2: The applicant reinstated its status as of March 18, 2025. Confirmation of the applicant's reinstated status is attached to this letter.

Comment # 3:

Administrative Report 1.0, Section 1 The application fee for a new permit is \$350.00. Payment was received for \$315.00. Please provide payment of the remaining application fee of \$35.00 to the TCEQ cashier's office and include the check or voucher number in the response.

Response #3: The applicant has included a separate check for the remaining application fee of \$35.00. The check and check number are included on page 2 of the Administrative Report 1.0.

Comment # 4:

Administrative Report 1.0, Section 2.d Please check the box to indicate the new application type in the revised application.

Response #4: Concur.

Comment # 5:

Administrative Report 1.0, Section 8.G Please provide the completed public involvement plan (PIP) form (TCEQ-20960).

Response #5: Concur. PIP form TCEQ-20960 has been added as Attachment 3 to the Administrative Report 1.0.

Leah Whallon
TCEQ - WQ0014670002
3/25/2025

Comment #6:

Administrative Report 1.1 Please provide the completed application pages for administrative report 1.1, and all attachments, including the affected landowner map, cross-reference list, and landowner map formatted for mailing labels (Avery 5160) in a Microsoft Word document.

Response #6: Concur. All attachments related to Section 1, A-D are included as Attachments A, B, & C to the Administrative Report 1.1.

Comment #7:

Technical Report, Worksheet 3.2/3.3 Please provide the appropriate technical worksheet for the disposal method.

Response #7: Concur. Worksheet 3.2 is included in the permit application under Technical Report 1.0.

Comment #8:

The following is a portion of the NORI which contains information relevant to your application. Please read it carefully and indicate if it contains any errors or omissions. The complete notice will be sent to you once the application is declared administratively complete.

APPLICATION. The Villas at Timberwood Homeowners Association, 405 Main Street, Blanco, Texas 78606, has applied to the Texas Commission on Environmental Quality (TCEQ) for proposed Texas Land Application Permit (TLAP) No. WQ0014670002 to authorize the disposal of treated wastewater at a volume not to exceed a daily average flow of 18,000 gallons per day via subsurface drip irrigation system with a minimum area of 4.13 acres. The domestic wastewater treatment facility and disposal area are located approximately 1,600 feet southeast of the intersection of Harmony Hills and Shady Acres, near the city of San Antonio, in Bexar County, Texas 78620. Authorization for disposal was previously permitted by expired Permit No. WQ0014670001. TCEQ received this application on March 4, 2025. The permit application will be available for viewing and copying at Parman Library at Stone Oak, 20735 Wilderness Oak, San Antonio, in Bexar 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=-98.49138,29.690555&level=18>

Further information may also be obtained from The Villas at Timberwood Homeowners Association at the address stated above or by calling Mr. Paul G. Colliander, Secretary/Treasurer, at 210-844-5664.

Response #8: The applicant takes no exception to the above NORI, except the date the new application was received.

Comment #9

If the revised application indicates that public notices in Spanish are required, after confirming the portion of the NORI above does not contain any errors or omissions, please use the attached template to translate the NORI into Spanish. Only the first and last paragraphs are unique to this application and require translation. Please provide the translated Spanish NORI in a Microsoft Word document.

Response #9: The revised application does not indicate that public notices in Spanish are required.

Sincerely,



Damen J. Herrera, PE
Principal Engineer
CORRIENT INFRASTRUCTURE CONSULTING, PLLC
TBPE F-16949

Form 801
(Revised 12/23)

This space reserved for office use



Submit in duplicate to:
Secretary of State
P.O. Box 13697
Austin, TX 78711-3697
512 463-5555
FAX: 512 463-5709
Filing Fee: See instructions

**Application for Reinstatement
And Request to Set Aside
Tax Forfeiture**

1. The name of the entity is: The Villas at Timberwood Homeowners Association

The entity is a foreign entity that was required to obtain its registration under a name that differs from the legal name stated above. The fictitious name under which the entity is registered is:

2. The file number issued to the filing entity by the secretary of state is: 0801532387

3. The entity was forfeited or revoked under the provisions of the Texas Tax Code on: 08/2024
mm/dd/yyyy

4. The undersigned requests that the forfeiture or revocation of the entity be set aside, and certifies that:
- The entity has filed each delinquent report that is required by chapter 171 of the Tax Code and has made payment for the tax, penalty, and interest imposed and that is due at the time of this application as evidenced by the attached tax clearance letter; and
 - On the date of forfeiture or revocation, the undersigned person was:
 - an officer, director, or shareholder of the above-named for-profit or professional corporation; or
 - an officer, director, or member of the above-named professional association; or
 - an officer, director, or member of the above-named nonprofit corporation; or
 - a member or manager of the above-named limited liability company; or
 - a partner of the above-named limited partnership; or
 - a trustee or beneficial owner of the above-named statutory or business trust.

Additional Required Documentation or Filings

- Comptroller of Public Accounts Tax Clearance Letter
 Letter of Consent or Amendment to Certificate of Formation or Application for Registration
(Required when entity name is no longer available.)

Execution

The undersigned declares under penalty of perjury, and the penalties imposed by law for the submission of a materially false or fraudulent instrument, that the undersigned is authorized to make this request; that the statements contained herein are true and correct; and that tax clearance was not obtained by providing false or fraudulent information.

Date: 03/18/2025

By: The Villas at Timberwood Homeowners Association

Name of entity (see instructions)

Denese Harris
Signature of authorized person (see instructions)

Denese Harris

PMI Bluebonnet
Printed or typed name of authorized person

TEXAS COMPTROLLER *of* PUBLIC ACCOUNTS

P.O. Box 13526 • AUSTIN, TX 78711-3526



January 22, 2025

THE VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION
405 MAIN ST
BLANCO, TX 78606-5348

TAX CLEARANCE LETTER FOR REINSTATEMENT*

To: Texas Secretary of State
Corporations Section

Re: THE VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION
Taxpayer number: 32046458421
File number: 0801532387

The referenced entity has met all franchise tax requirements and is eligible for reinstatement through May 15, 2025.

GARRETT FORD
Enforcement - Austin North
Enforcement - Austin North
(512) 463-1770

**The reinstatement must be filed with the Texas Secretary of State on or before the expiration date of this letter. After this date, additional franchise tax filing requirements must be met, and a new request for tax clearance must be submitted.*

You can file for reinstatement online at www.sos.state.tx.us/corp/sosda/index.shtml. Forms and instructions for reinstatement are available at www.sos.state.tx.us/corp/forms_option.shtml or by calling (512) 463-5555. This tax clearance letter must be attached to the reinstatement forms.



Comptroller of Public Accounts

January 22, 2025

TAX PAYMENT RECEIPT

Office ID: 2H17 Device: 999

Taxpayer ID: 32046458421

Name: THE VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION

Address: 20540 STATE HIGHWAY 46 W STE 115 C/O 497
SPRING BRANCH, TX 78070 6825

Affiliate TP ID:

Affiliate Name:

Date: 01/22/2025

Time: 09:31

Receipt #: 1702225000003

Postmark Date: 01/22/2025

Payment(s) Applied To

FRANCHISE TAX period ending 12/31/2023

50.00

Payment(s)

Cash

50.00

Total Payment:

50.00

March 26, 2025

Texas Commission on Environmental Quality
Executive Director
Application Review and Processing Team (MC148)
12100 Park 35 Circle
Austin, TX 78753

**RE: Timberwood Development WWTP
TLAP Permit Application WQ0014670002
Customer Number: CN604095778
Regulated Entity Number: RN104814959**

Dear TCEQ Review Team:

Enclosed is the TCEQ Wastewater Permit Application (WQ0014670002) for the TIMBERWOOD DEVELOPMENT WWTP submitted on behalf of the Villas at Timberwood Homeowner's Association (CN604095778) (RN104814959). In this package are the original permit renewal application and three additional copies.

I appreciate your time in reviewing this renewal application. If you have any questions, please contact me at (210) 595-9565 or via email at herreradj@corrient-pllc.com.

Sincerely,



Damer J. Herrera, PE
Principal Engineer
CORRIENT INFRASTRUCTURE CONSULTING, PLLC
TBPELS F-16949

Attachments

Cc: Paul Colliander – VT HOA



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

DOMESTIC WASTEWATER PERMIT APPLICATION CHECKLIST

Complete and submit this checklist with the application.

APPLICANT NAME: THE VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION

PERMIT NUMBER (If new, leave blank): WQ0014670002

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

	Y	N		Y	N
Administrative Report 1.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Original USGS Map	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Administrative Report 1.1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Affected Landowners Map	<input checked="" type="checkbox"/>	<input type="checkbox"/>
SPIF	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Landowner Disk or Labels	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Core Data Form	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Buffer Zone Map	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Summary of Application (PLS)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Flow Diagram	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Public Involvement Plan Form	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Site Drawing	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Technical Report 1.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Original Photographs	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Technical Report 1.1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Design Calculations	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Worksheet 2.0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Solids Management Plan	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Worksheet 2.1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Water Balance	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Worksheet 3.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
Worksheet 3.1	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Worksheet 3.2	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
Worksheet 3.3	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
Worksheet 4.0	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Worksheet 5.0	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Worksheet 6.0	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Worksheet 7.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>			

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 <input checked="" type="checkbox"/>	\$315.00 <input type="checkbox"/>
≥0.05 but <0.10 MGD	\$550.00 <input type="checkbox"/>	\$515.00 <input type="checkbox"/>
≥0.10 but <0.25 MGD	\$850.00 <input type="checkbox"/>	\$815.00 <input type="checkbox"/>
≥0.25 but <0.50 MGD	\$1,250.00 <input type="checkbox"/>	\$1,215.00 <input type="checkbox"/>
≥0.50 but <1.0 MGD	\$1,650.00 <input type="checkbox"/>	\$1,615.00 <input type="checkbox"/>
≥1.0 MGD	\$2,050.00 <input type="checkbox"/>	\$2,015.00 <input type="checkbox"/>

Minor Amendment (for any flow) \$150.00

Payment Information:

Mailed Check/Money Order Number: 48 & 49
 Check/Money Order Amount: \$315 & \$35
 Name Printed on Check: The Villas at Timberwood HOA (VLT)

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-Applciant 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?

THE VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION

(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: 604095778

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: Colliander, Paul G

Title: Secretary/Treasurer

Credential: [Click to enter text.](#)

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

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

N/A

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

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

CN: Click to enter text.

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

Prefix: Click to enter text.

Last Name, First Name: Click to enter text.

Title: Click to enter text.

Credential: Click to enter text.

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

C. Core Data Form

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

Section 4. Application Contact Information (Instructions Page 27)

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

- A. Prefix: Mr. Last Name, First Name: Herrera, Damien
Title: Principal Engineer Credential: Professional Engineer
Organization Name: Corrient Infrastructure Consulting, PLLC
Mailing Address: 13423 Blanco Road #118 City, State, Zip Code: San Antonio, TX 78216
Phone No.: 210-595-9565 E-mail Address: Herreradj@corrient-llc.com
Check one or both: Administrative Contact Technical Contact
- B. Prefix: Mr. Last Name, First Name: Colliander, Paul G
Title: Secretary/Treasurer Credential: Click to enter text.
Organization Name: THE VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION
Mailing Address: 405 Main Street City, State, Zip Code: Blanco, TX 78606
Phone No.: (830) 302-4738 E-mail Address: pgc6@yahoo.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: Block, Roy
Title: President Credential: Click to enter text.
Organization Name: THE VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION
Mailing Address: 405 Main Street City, State, Zip Code: Blanco, TX 78606
Phone No.: 210-394-7933 E-mail Address: roywalterblock@aol.com

B. Prefix: Mr. Last Name, First Name: Colliander, Paul G
Title: Secretary/Treasurer Credential: Click to enter text.
Organization Name: THE VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION
Mailing Address: 405 Main Street City, State, Zip Code: Blanco, TX 78606
Phone No.: 210-844-5664 E-mail Address: pgc6@yahoo.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: Colliander, Paul G
Title: Secretary/Treasurer Credential: Click to enter text.
Organization Name: THE VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION
Mailing Address: 405 Main Street City, State, Zip Code: Blanco, TX 78606
Phone No.: 210-844-5664 E-mail Address: pgc6@yahoo.com

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: Colliander, Paul G
Title: Secretary/Treasurer Credential: Click to enter text.
Organization Name: THE VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION
Mailing Address: 405 Main Street City, State, Zip Code: Blanco, TX 78606
Phone No.: 210-844-5664 E-mail Address: pgc6@yahoo.com

Section 8. Public Notice Information (Instructions Page 27)

A. Individual Publishing the Notices

Prefix: Mr. Last Name, First Name: Colliander, Paul G
Title: Secretary/Treasurer Credential: Click to enter text.
Organization Name: THE VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION
Mailing Address: 405 Main Street City, State, Zip Code: Blanco, TX 78606
Phone No.: 210-844-5664 E-mail Address: pgc6@yahoo.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: Mr.

Last Name, First Name: Colliander, Paul G

Title: Secretary/Treasurer

Credential: Click to enter text.

Organization Name: THE VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION

Mailing Address: 405 Main Street

City, State, Zip Code: Blanco, TX 78606

Phone No.: 210-844-5664

E-mail Address: pgc6@yahoo.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: Parman Library at Stone Oak

Location within the building: Circulation Desk

Physical Address of Building: 20735 Wilderness Oak

City: San Antonio

County: Bexar

Contact (Last Name, First Name): Kwiatkowski, Barbara

Phone No.: 210-207-2703 Ext.: Click to enter text.

E. Bilingual Notice Requirements

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

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

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

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

Yes No

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

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

Yes No

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

Yes No

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

Yes No

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

F. 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: [Attachment 2 – Plain Language Summary](#)

G. Public Involvement Plan Form (N/A)

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

Attachment: [Attachment 3 – Public Involvement Plan Form](#)

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 104814959

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):

Villas at Timberwood Homeowners Association Wastewater Treatment Plant (WWTP)

C. Owner of treatment facility: THE VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION

Ownership of Facility: Public Private Both Federal

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

Prefix: Mr. Last Name, First Name: Colliander, Paul G

Title: Secretary/Treasurer Credential: [Click to enter text.](#)

Organization Name: THE VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION

Mailing Address: 405 Main Street City, State, Zip Code: Blanco, TX 78606

Phone No.: 210-844-5664 E-mail Address: pgc6@yahoo.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

E. Owner of effluent disposal site:

Prefix: Mr.

Last Name, First Name: Colliander, Paul G

Title: Secretary/Treasurer

Credential: Click to enter text.

Organization Name: THE VILLAS AT TIMERWOOD HOMEOWNERS ASSOCIATION

Mailing Address: 405 Main Street

City, State, Zip Code: Blanco, TX 78606

Phone No.: 210-844-5664

E-mail Address: pgc6@yahoo.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: Click to enter text.

Last Name, First Name: Click to enter text.

Title: Click to enter text.

Credential: Click to enter text.

Organization Name: Click to enter text.

Mailing Address: Click to enter text.

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

Phone No.: Click to enter text.

E-mail Address: Click to enter text.

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

Attachment: N/A

Section 10. TPDES Discharge Information (Instructions Page 31) N/A

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): N/A

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

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: N/A

- 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: N/A

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:

The effluent disposal area is location 1,600 feet southeast of the intersection of Harmony Hills and Shady Acres, in San Antonio, Bexar County, Texas 78260

- B. City nearest the disposal site: San Antonio, TX

- C. County in which the disposal site is located: Bexar

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

The effluent areas are contiguous with the treatment facility.

- E. For TLAPs, please identify the nearest watercourse to the disposal site to which rainfall runoff might flow if not contained: Mustang Creek (Segment 1910 of the San Antonio 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: [Click to enter text.](#)

Section 14. Signature Page (Instructions Page 34)

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

Permit Number: WQ0014670002

Applicant: The Villas at Timberwood Homeowners Association

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.

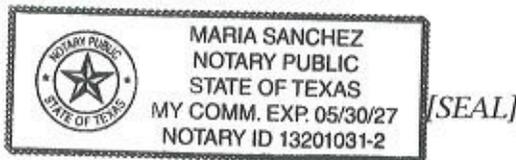
Signatory name (typed or printed): Paul G Colliander

Signatory title: Secretary/Treasurer

Signature: *Paul G Colliander* Date: 3/26/2025
(Use blue ink)

Subscribed and Sworn to before me by the said Paul G. Colliander
on this 26th day of March, 20 25.
My commission expires on the 30th day of May, 20 27.

[Signature]
Notary Public



Wexar.
County, Texas

DOMESTIC WASTEWATER PERMIT APPLICATION ADMINISTRATIVE REPORT 1.1

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 (Attachment A)
 - The facility site boundaries within the applicant's property boundaries (Attachment A)
 - The distance the buffer zone falls into adjacent properties and the property boundaries of the landowners located within the buffer zone (Attachment A)
 - 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).) (Attachment A)
 - 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 (Attachment A)
 - The property boundaries of all landowners surrounding the effluent disposal site (Attachment A)
 - 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. (Attachment B)
- C. Indicate by a check mark that the landowners list has also been provided as mailing labels in electronic format (Avery 5160). (Attachment B)
- D. Provide the source of the landowners' names and mailing addresses: Bexar County Appraisal District
- 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. (Attachment C)

- 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. (Attachment A)

- 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

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: WQ0014670002

1. Check or Money Order Number: 49
2. Check or Money Order Amount: \$35
3. Date of Check or Money Order: 3/19/2025
4. Name on Check or Money Order: Villas of Timberwood HOA (VLT)
5. APPLICATION INFORMATION

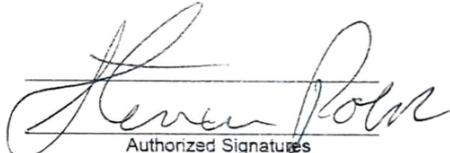
Name of Project or Site: Villas of Timberwood WWTP

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

SouthState Bank Winter Haven, FL

<p>The Villas at Timberwood HOA (VLT) 405 Main Street Blanco, TX 78606</p>	<p>Check Number: 49</p>				
<p>PAY Thirty-Five And 00/100 Dollars</p>					
	<table border="0"><tr><td style="text-align: left;"><small>DATE</small></td><td style="text-align: left;"><small>AMOUNT</small></td></tr><tr><td>03/19/2025</td><td>***\$35.00</td></tr></table>	<small>DATE</small>	<small>AMOUNT</small>	03/19/2025	***\$35.00
<small>DATE</small>	<small>AMOUNT</small>				
03/19/2025	***\$35.00				
<p>TO THE ORDER OF Texas Commission on Environmental Quality P.O. Box 13089 Austin, TX 78711-3089</p>	 Authorized Signatures				
<p>Memo: Renewal Fee - TCEQ (remaining application fee)</p>					

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

WQ 0014670002 TLAP PERMIT APPLICATION

ADMINISTRATIVE ATTACHMENT #1

CORE DATA FORM



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.)		
<input type="checkbox"/> New Permit, Registration or Authorization (Core Data Form should be submitted with the program application.)		
<input checked="" type="checkbox"/> Renewal (Core Data Form should be submitted with the renewal form)	<input type="checkbox"/> Other	
2. Customer Reference Number (if issued)	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number (if issued)
CN 604095778		RN 104814959

SECTION II: Customer Information

4. General Customer Information		5. Effective Date for Customer Information Updates (mm/dd/yyyy)		3/18/2025	
<input type="checkbox"/> New Customer		<input checked="" type="checkbox"/> Update to Customer Information		<input type="checkbox"/> Change in Regulated Entity Ownership	
<input type="checkbox"/> Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)					
<i>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).</i>					
6. Customer Legal Name (If an individual, print last name first: eg: Doe, John)				<i>If new Customer, enter previous Customer below:</i>	
THE VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION					
7. TX SOS/CPA Filing Number		8. TX State Tax ID (11 digits)		9. Federal Tax ID	10. DUNS Number (if applicable)
801532387		3204645821		(9 digits) 800812989	
11. Type of Customer:		<input type="checkbox"/> Corporation		<input type="checkbox"/> Individual	
Government: <input type="checkbox"/> City <input type="checkbox"/> County <input type="checkbox"/> Federal <input type="checkbox"/> Local <input type="checkbox"/> State <input type="checkbox"/> Other		<input type="checkbox"/> Sole Proprietorship		Partnership: <input type="checkbox"/> General <input type="checkbox"/> Limited	
<input checked="" type="checkbox"/> Other: Homeowner Association					
12. Number of Employees				13. Independently Owned and Operated?	
<input checked="" type="checkbox"/> 0-20 <input type="checkbox"/> 21-100 <input type="checkbox"/> 101-250 <input type="checkbox"/> 251-500 <input type="checkbox"/> 501 and higher				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
14. Customer Role (Proposed or Actual) – as it relates to the Regulated Entity listed on this form. Please check one of the following					
<input type="checkbox"/> Owner		<input type="checkbox"/> Operator		<input checked="" type="checkbox"/> Owner & Operator	
<input type="checkbox"/> Occupational Licensee		<input type="checkbox"/> Responsible Party		<input type="checkbox"/> VCP/BSA Applicant	
<input type="checkbox"/> Other:					
15. Mailing Address:		405 Main Street			
City		Blanco		State TX	
ZIP		78606		ZIP + 4 5348	
16. Country Mailing Information (if outside USA)				17. E-Mail Address (if applicable)	
N/A				pgc6@yahoo.com	

18. Telephone Number	19. Extension or Code	20. Fax Number (if applicable)
(210) 844-5664		() -

SECTION III: Regulated Entity Information

21. General Regulated Entity Information (If 'New Regulated Entity' is selected, a new permit application is also required.)								
<input type="checkbox"/> New Regulated Entity <input type="checkbox"/> Update to Regulated Entity Name <input checked="" type="checkbox"/> Update to Regulated Entity Information								
<i>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).</i>								
22. Regulated Entity Name (Enter name of the site where the regulated action is taking place.)								
THE VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION								
23. Street Address of the Regulated Entity: (No PO Boxes)	405 Main Street							
	City	Blanco	State	TX	ZIP	78606	ZIP + 4	5348
24. County	Blanco							

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

25. Description to Physical Location:	LOCATED 820 FT SE OF THE INTERX OF HARMONY HILLS AND SHADY ACRES THE DISPOSAL AREA IS LOCATED 1,600 FEET SOUTHWEST OF THE INTERSECTION OF HARMONY HILLS AND SHADY ACRES, BEXAR COUNTY, TEXAS							
26. Nearest City					State	Nearest ZIP Code		
SAN ANTONIO					TX	78620		
<i>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).</i>								
27. Latitude (N) In Decimal:		29.690555			28. Longitude (W) In Decimal:		-98.491388	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds			
29	41	25.9980	-98	29	28.9968			
29. Primary SIC Code	30. Secondary SIC Code		31. Primary NAICS Code		32. Secondary NAICS Code			
(4 digits)	(4 digits)		(5 or 6 digits)		(5 or 6 digits)			
4952			22132					
33. What is the Primary Business of this entity? (Do not repeat the SIC or NAICS description.)								
Residential Subdivision								
34. Mailing Address:	405 Main Street							
	City	Blanco	State	TX	ZIP	78606	ZIP + 4	5348
35. E-Mail Address:	pgc6@yahoo.com							
36. Telephone Number	37. Extension or Code			38. Fax Number (if applicable)				

<input type="checkbox"/> Dam Safety	<input type="checkbox"/> Districts	<input type="checkbox"/> Edwards Aquifer	<input type="checkbox"/> Emissions Inventory Air	<input type="checkbox"/> Industrial Hazardous Waste
<input type="checkbox"/> Municipal Solid Waste	<input type="checkbox"/> New Source Review Air	<input type="checkbox"/> OSSF	<input type="checkbox"/> Petroleum Storage Tank	<input type="checkbox"/> PWS
<input type="checkbox"/> Sludge	<input type="checkbox"/> Storm Water	<input type="checkbox"/> Title V Air	<input type="checkbox"/> Tires	<input type="checkbox"/> Used Oil
<input type="checkbox"/> Voluntary Cleanup	<input checked="" type="checkbox"/> Wastewater	<input type="checkbox"/> Wastewater Agriculture	<input type="checkbox"/> Water Rights	<input type="checkbox"/> Other:
	WQ001467000 2			

SECTION IV: Preparer Information

40. Name:	Damien J. Herrera, PE	41. Title:	Principal Engineer
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(210) 595-9565		() -	herreraadj@corrient-pllc.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:	The Villas at Timberwood Homewoners Association	Job Title:	Secretary/Treasurer
Name (In Print):	Paul G. Colliander	Phone:	(210) 844- 5664
Signature:		Date:	3/26/2025

March 25, 2025

Texas Commission on Environmental Quality
Executive Director
Application Review and Processing Team (MC148)
12100 Park 35 Circle
Austin, TX 78753

RE: Villas at Timberwood WWTP TLAP Permit Application – Plain Language Summary
WQ0014670002
CN604095778
RN104814959

Dear TCEQ Review Team:

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.

THE VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION (CN604095778) operates TIMBERWOOD DEVELOPMENT WWTP (RN104814959), a domestic wastewater treatment facility. The facility is located at approximately 820 feet southeast of the intersection of Harmony Hills and Shady acers and the disposal area is location 1,600 feet southeast of the intersection of Harmony Hills and Shady Acres, in San Antonio, Bexar County, Texas 78260. This permit renewal application is for the disposal of treated domestic wastewater at a daily average flow not to exceed 18,000 gallons per day (0.018 MGD) via non-public access subsurface drip irrigation system. This permit will not authorize the discharge of pollutants into water in the state. Discharges from the facility are expected to contain five-day carbonaceous biological chemical demand (CBOD5), total suspended solids (TSS), ammonia nitrogen (NH3-N), total phosphorous (P), and Escherichia coli (E.coli). Domestic wastewater is treated by a non-public access subsurface drip irrigation system applied to a minimum area of 4.13 acres (179,903 square feet).

Sincerely,



Damién J. Herrera, PE
Principal Engineer
CORRIENT INFRASTRUCTURE CONSULTING, PLLC
TBPE F-16949



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 5. Community and Demographic Information

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

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

(City)

(County)

(Census Tract)

Please indicate which of these three is the level used for gathering the following information.

City

County

Census Tract

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

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

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

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

- (e) Languages commonly spoken in area by percentage

- (f) Community and/or Stakeholder Groups

- (g) Historic public interest or involvement

Section 6. Planned Public Outreach Activities

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

Yes No

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

Yes No

If Yes, please describe.

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

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

Yes No

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

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

- Publish in alternative language newspaper
- Posted on Commissioner’s Integrated Database Website
- Mailed by TCEQ’s Office of the Chief Clerk
- Other (specify)

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

Yes No

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

Yes No

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

- TCEQ Regional Office TCEQ Central Office
- Public Place (specify)

Section 7. Voluntary Submittal

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

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

Yes No

What types of notice will be provided?

- Publish in alternative language newspaper
- Posted on Commissioner’s Integrated Database Website
- Mailed by TCEQ’s Office of the Chief Clerk
- Other (specify)

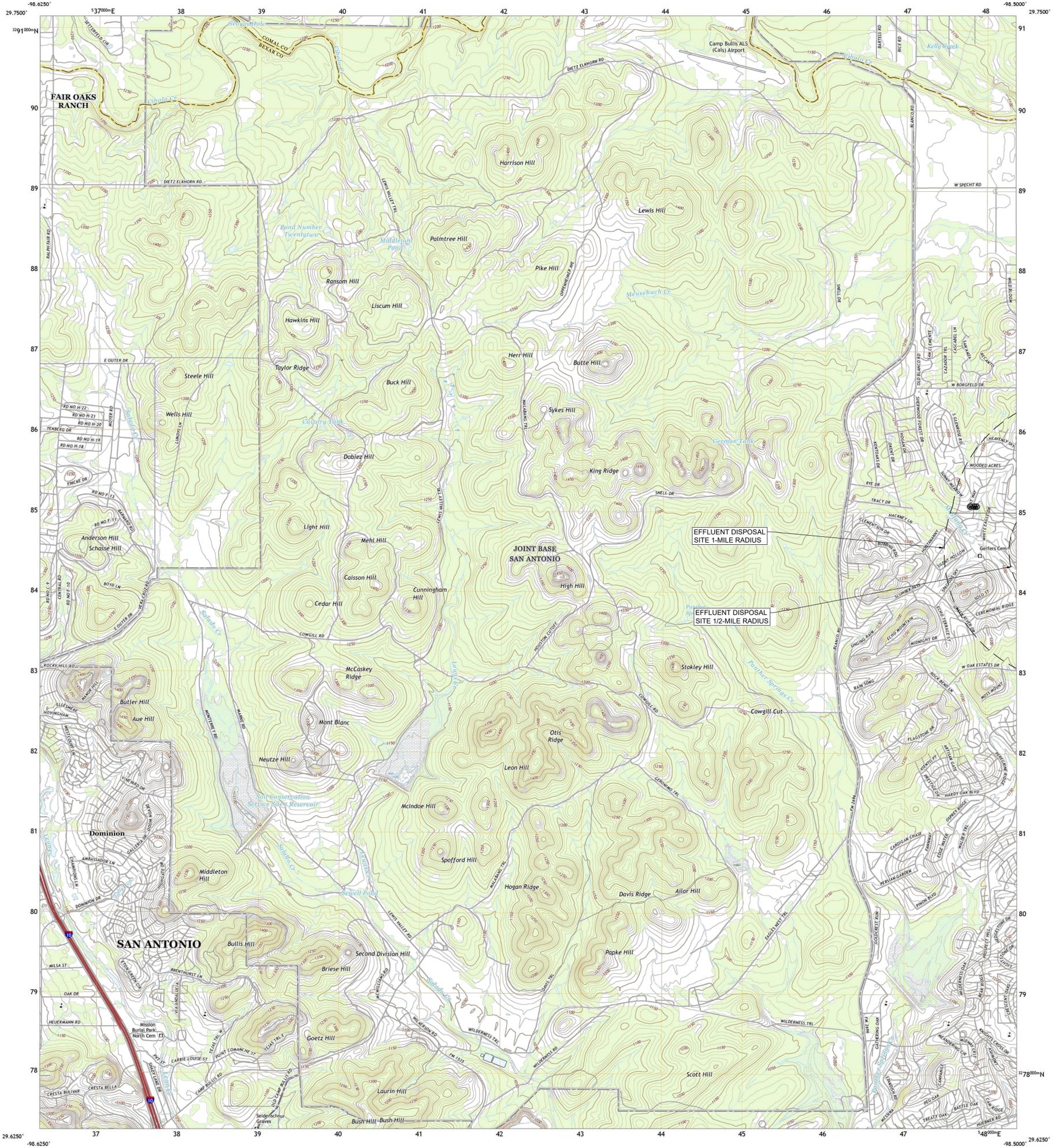
Administrative Report 1.1 - Attachment A



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



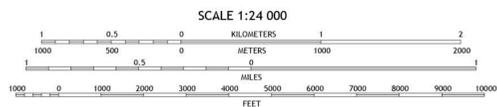
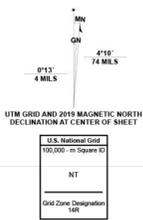
CAMP BULLIS QUADRANGLE
TEXAS
7.5-MINUTE SERIES



Produced by the United States Geological Survey

North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84) Projection and
1 000-meter grid/Universal Transverse Mercator, Zone 14R
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
Hydrology.....GHRS, 1979 - 2022
Hydrography.....National Hydrography Dataset, 2000 - 2018
Contours.....National Elevation Dataset, 2021
Boundaries.....Multiple sources; see metadata file 2019 - 2021
Wetlands.....FWS National Wetlands Inventory Not Available



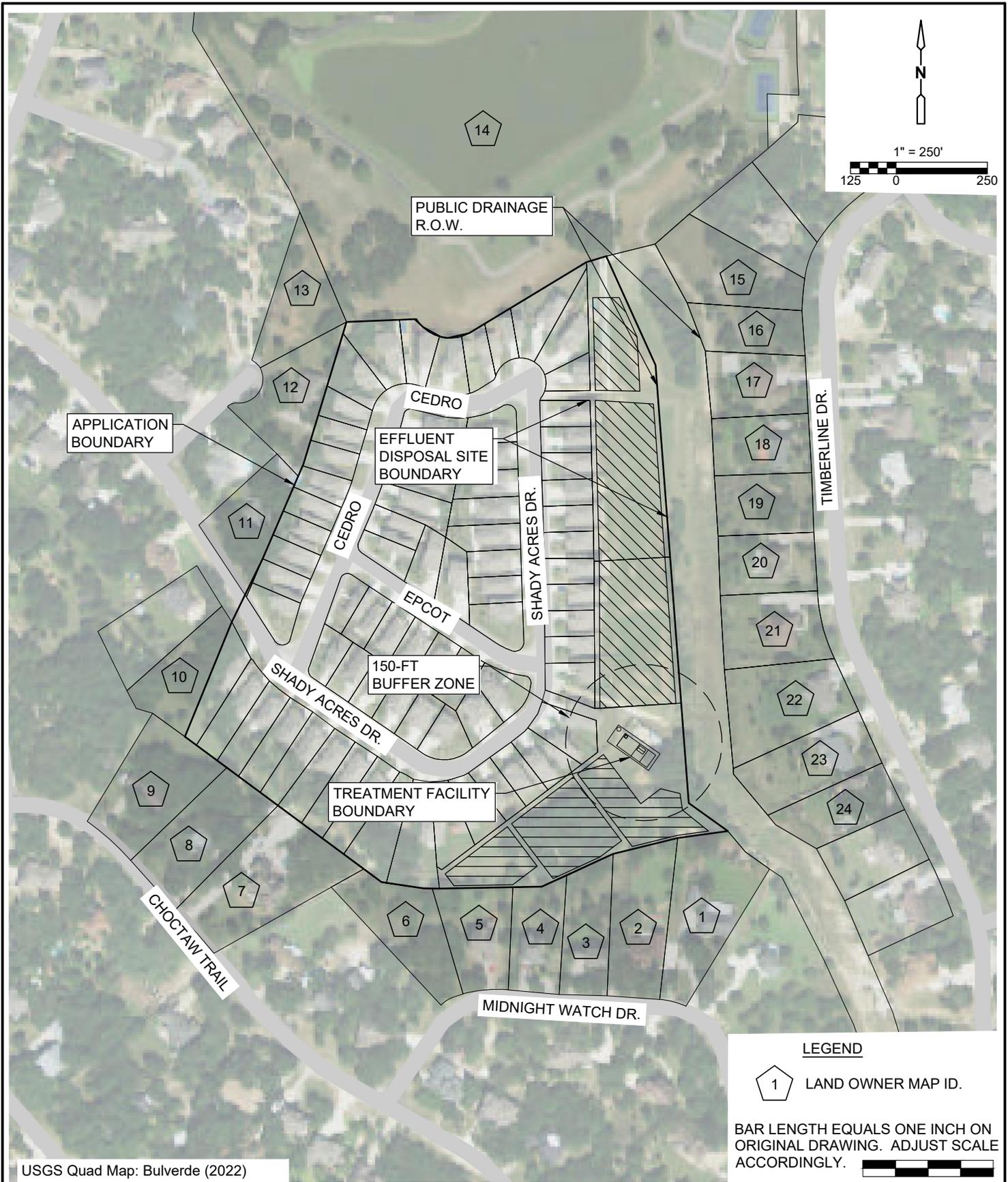
CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988
This map was produced to conform with the
National Geospatial Program US Topo Product Standard.



1	2	3	1 Boerne
4	5	6	2 Bergheim
7	8	8	3 Anhalt
			4 Van Road
			5 Bulverde
			6 Helotes
			7 Castle Hills
			8 Longhorn

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

CAMP BULLIS, TX
2022



USGS Quad Map: Bulverde (2022)

LEGEND

 LAND OWNER MAP ID.

BAR LENGTH EQUALS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALE ACCORDINGLY.



 13423 Blanco Rd, Suite 118 San Antonio TX 78216 Texas Firm Registration Number F-16949	PROJECT NO.	VILLAS OF TIMERWOOD PARK WWTP WASTEWATER TREATMENT PLANT PERMIT APPLICATION WQ0014670002 AFFECTED LANDOWNERS MAP	EXHIBIT No.
	DATE		Administrative Report 1.1 Attachment - A

ADMINISTRATIVE REPORT 1.1 - ATTACHMENT B
VILLAS AT TIMBERWOOD WWTP
AFFECTED LANDOWNERS MAILING LIST

Map No.	Parcel ID	Owner	Mailing Address	City	State	Zip Code
1	264772	SHERYL DUNN	26219 MIDNIGHT WATCH	SAN ANTONIO	TX	78260
2	264773	RUDY SALGADO	26221 MIDNIGHT WATCH	SAN ANTONIO	TX	78260
3	264774	CURRENT RESIDENT	26225 MIDNIGHT WATCH	SAN ANTONIO	TX	78260
4	264775	NICK AND LESLIE ALINO	26229 MIDNIGHT WATCH	SAN ANTONIO	TX	78260
5	264776	RICHARD LEVI MCFADDEN JR AND ESMERALDA VILLANUEVA	26231 MIDNIGHT WATCH	SAN ANTONIO	TX	78260
6	264777	SIMA AND STEVEN INCORPORATED	4833 SARATOGA BLVD # 161	CORPUS CHRISTI	TX	78413
7	264781	CARL BENJAMIN PITTS AND TRISHIA BREA ANNE	26118 CHOCTAW TRL	SAN ANTONIO	TX	78260
8	264782	CARYL KUPCHO	26210 CHOCTAW TRL	SAN ANTONIO	TX	78260
9	264783	SARAH KENDRICK	26214 CHOCTAW TRL	SAN ANTONIO	TX	78260
10	263071	UW LAND LLC	13606 HIGH CHAPEL	SAN ANTONIO	TX	78231
11	263070	DANIEL E HAMILTON	26314 SHADY ACRES	SAN ANTONIO	TX	78260
12	263068	MARION N AND INEZ B STRINGER	806 HAPPY VW	SAN ANTONIO	TX	78260
13	263067	JUDD AND LEEANNA MARONEY	802 HAPPY VW	SAN ANTONIO	TX	78260
14	263714	TIMBERWOOD PARK OWNERS ASSC INC	26631 TIMBERLINE DR	SAN ANTONIO	TX	78260
15	264129	FLOYD R AND ELAINE M RESPONDEK	26433 TIMBERLINE DR	SAN ANTONIO	TX	78260
16	264130	MARIA L MARTINEZ	226 GLADSTONE	SAN ANTONIO	TX	78214
17	264131	CHAD H GULBRANSEN	26417 TIMBERLINE DR	SAN ANTONIO	TX	78260
18	264132	SHANNON PATRICK AND DIANA VERONICA WALSH	26409 TIMBERLINE DR	SAN ANTONIO	TX	78260
19	264133	JUSTIN M LOZANO AND MARIA M VILLARREAL	26401 TIMBERLINE DR	SAN ANTONIO	TX	78260
20	264134	ROBERT W PHELAN AND KATHERINE R BEL	26327 TIMBERLINE DR	SAN ANTONIO	TX	78260
21	264135	CONNIE JEAN PHILLIPS	26319 TIMBERLINE DR	SAN ANTONIO	TX	78260
22	264136	JEANA LACKEY	2301 FLUSHING MDWS	WESLACO	TX	78596
23	264137	RICHARD ROBERT BARTOSH JR	26239 TIMBERLINE DR	SAN ANTONIO	TX	78260
24	264138	TROY G TERRY	26231 TIMBERLINE DR	SAN ANTONIO	TX	78260

SHERYL DUNN
26219 MIDNIGHT WATCH
SAN ANTONIO, TX 78260

JEANNE D SALGADO
26221 MIDNIGHT WATCH
SAN ANTONIO, TX 78260

CURRENT RESIDENT
26225 MIDNIGHT WATCH
SAN ANTONIO, TX 78260

NICK AND LESLIE ALINO
26229 MIDNIGHT WATCH
SAN ANTONIO, TX 78260

RICHARD LEVI MCFADDEN JR
AND ESMERALDA VILLANUEVA
26231 MIDNIGHT WATCH
SAN ANTONIO, TX 78260

SIMA AND STEVEN
INCORPORATED
4833 SARATOGA BLVD # 161
CORPUS CHRISTI, TX 78413

CARL BENJAMIN PITTS AND
TRISHIA BREA ANNE
26118 CHOCTAW TRL
SAN ANTONIO, TX 78260

CARYL KUPCHO
26210 CHOCTAW TRL
SAN ANTONIO, TX 78260

SARAH KENDRICK
26214 CHOCTAW TRL
SAN ANTONIO, TX 78260

UW LAND LLC
13606 HIGH CHAPEL
SAN ANTONIO, TX 78231

DANIEL E HAMILTON
26314 SHADY ACRES
SAN ANTONIO, TX 78260

MARION N AND INEZ B STRINGER
806 HAPPY VW
SAN ANTONIO, TX 78260

JUDD AND LEEANNA MARONEY
802 HAPPY VW
SAN ANTONIO, TX 78260

TIMBERWOOD PARK OWNERS
ASSC INC
26631 TIMBERLINE DR
SAN ANTONIO, TX 78260

FLOYD R AND ELAINE M
RESPONDEK
26433 TIMBERLINE DR
SAN ANTONIO, TX 78260

MARIA L MARTINEZ
226 GLADSTONE
SAN ANTONIO, TX 78214

CHAD H GULBRANSEN
26417 TIMBERLINE DR
SAN ANTONIO, TX 78260

SHANNON PATRICK AND DIANA
VERONICA WALSH
26409 TIMBERLINE DR
SAN ANTONIO, TX 78260

JUSTIN M LOZANO AND MARIA M
VILLARREAL
26401 TIMBERLINE DR
SAN ANTONIO, TX 78260

ROBERT W PHELAN AND
KATHERINE R BEL
26327 TIMBERLINE DR
SAN ANTONIO, TX 78260

CONNIE JEAN PHILLIPS
26319 TIMBERLINE DR
SAN ANTONIO, TX 78260

JEANA LACKEY
2301 FLUSHING MDWS
WESLACO, TX 78596

RICHARD ROBERT BARTOSH JR
26239 TIMBERLINE DR
SAN ANTONIO, TX 78260

TROY G TERRY
26231 TIMBERLINE DR
SAN ANTONIO, TX 78260

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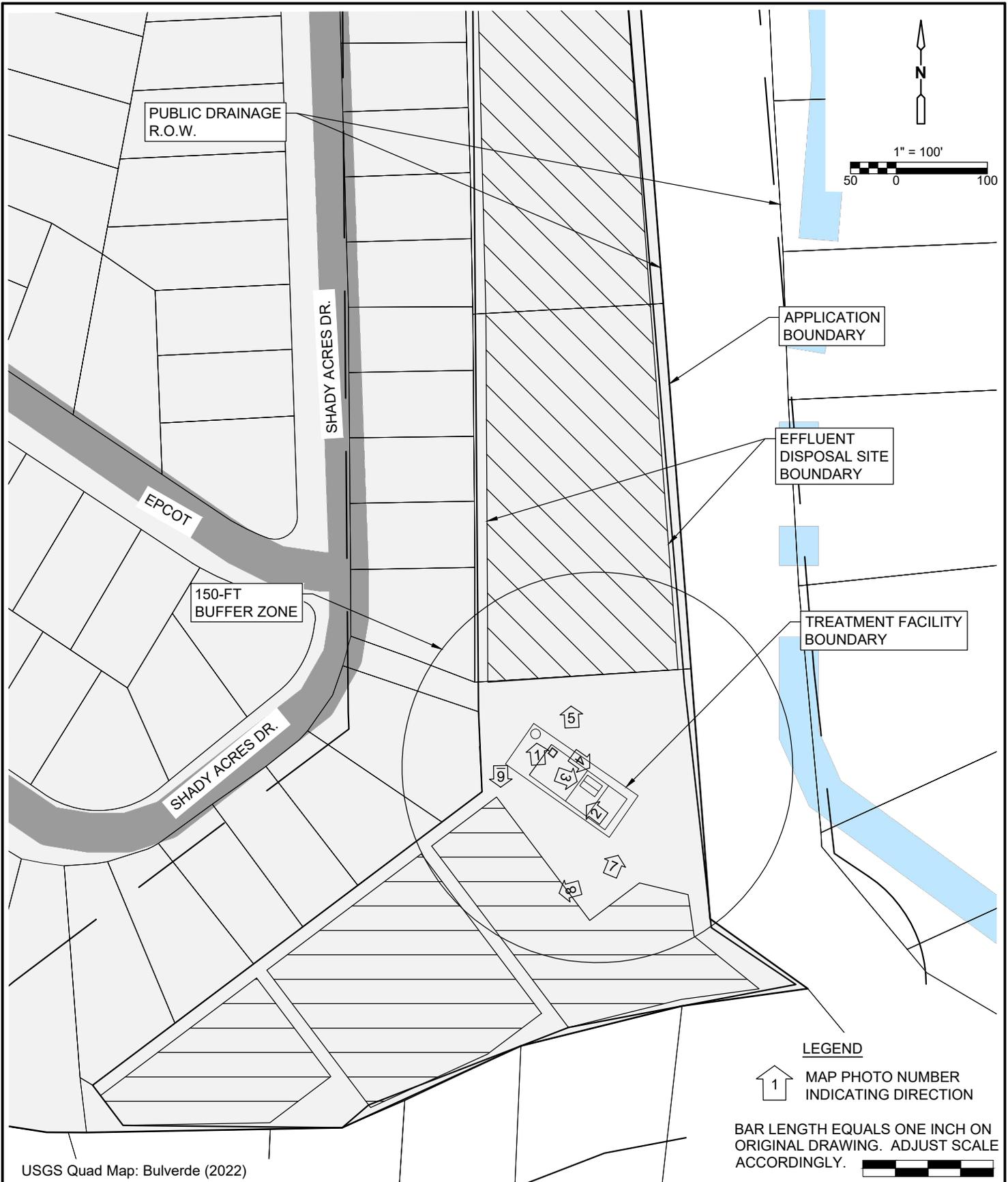
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USGS Quad Map: Bulverde (2022)

LEGEND

 MAP PHOTO NUMBER INDICATING DIRECTION

BAR LENGTH EQUALS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALE ACCORDINGLY.



 13423 Blanco Rd, Suite 118 San Antonio TX 78216 Texas Firm Registration Number F-16949	PROJECT NO.	VILLAS OF TIMERWOOD PARK WWTP WASTEWATER TREATMENT PLANT PERMIT APPLICATION WQ0014670002 PHOTO MAP	EXHIBIT No.
	DATE		Administrative Report 1.1 Attachment - C

**WQ 0014670002 TLAP PERMIT APPLICATION
ORIGINAL PHOTOS**



PHOTO 1 – INLFUENT PUMP STATION



**PHOTO 2 – BURIED CONCRETE STORAGE DOSING
TANKS (VIEWING UPSTREAM)**

**WQ 0014670002 TLAP PERMIT APPLICATION
ORIGINAL PHOTOS**



PHOTO 3 – EFFLUENT PUMP STATION



PHOTO 4 - EFFLUENT POINT OF DISCHARGE

**WQ 0014670002 TLAP PERMIT APPLICATION
ORIGINAL PHOTOS**



PHOTO 5 – EFFLUENT DISPOSAL FIELD
(VIEWING NORTH)



PHOTO 6 – EFFLUENT DISPOSAL FIELD
(VIEWING SOUTH)

**WQ 0014670002 TLAP PERMIT APPLICATION
ORIGINAL PHOTOS**



PHOTO 7 – EFFLUENT DISPOSAL FIELD
(VIEWING NORTH)



PHOTO 8 – EFFLUENT DISPOSAL FIELD
(VIEWING SOUTHEAST)



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): N/A

2-Hr Peak Flow (MGD): N/A

Estimated construction start date: N/A

Estimated waste disposal start date: N/A

B. Interim II Phase

Design Flow (MGD): N/A

2-Hr Peak Flow (MGD): N/A

Estimated construction start date: N/A

Estimated waste disposal start date: N/A

C. Final Phase

Design Flow (MGD): 0.018

2-Hr Peak Flow (MGD): 0.054

Estimated construction start date: October 2005

Estimated waste disposal start date: October 2009

D. Current Operating Phase

Provide the startup date of the facility: 7/12/2006

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.**

Technical Attachment #1 – Treatment System Description

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)
Septic Tank 1	1- Cast in Place Concrete	20' x 12' x 8'
Septic Tank 2	1- Cast in Place Concrete	20' x 12' x 8'
Dosing Tank	1- Cast in Place Concrete	40' x 24' x 8'
Irrigation Field	1	4.13 Acres

C. Process Flow Diagram

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

Attachment: [Technical Attachment 2 – 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: 29.690555
- Longitude: -98.491388

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: [Technical Attachment #3 – Facility Site Plan](#)

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

The WWTP serves the Villas of Timberwood Park subdivision consisting of 75 single-family residential homes.

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
N/A		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.**

N/A

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.

N/A

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: 7/12/2006

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.**

N/A

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.

N/A

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*.

N/A

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.

N/A

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.

N/A

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.

N/A

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:

N/A

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.

N/A

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.

N/A

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.

N/A

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 BOD₅ concentration of the sludge, and the design BOD₅ concentration of the influent from the collection system. Also note if this information has or has not changed since the last permit action.

N/A

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 BOD₅ concentration of the septic waste, and the design BOD₅ concentration of the influent from the collection system. Also note if this information has or has not changed since the last permit action.

N/A

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.

N/A

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

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

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

Pollutant	Average Conc.	Max Conc.	No. of Samples	Sample Type	Sample Date/Time
CBOD ₅ , mg/l	86		1	Grab	2-4-2025/ 0830
Total Suspended Solids, mg/l	35		1	Grab	2-4-2025/ 0830
Ammonia Nitrogen, mg/l					
Nitrate Nitrogen, mg/l	<0.5		1	Grab	2-4-2025/ 0830
Total Kjeldahl Nitrogen, mg/l					
Sulfate, mg/l	41		1	Grab	2-4-2025/ 0830
Chloride, mg/l	362		1	Grab	2-4-2025/ 0830
Total Phosphorus, mg/l					
pH, standard units	6.9		1	Grab	2-4-2025/ 0830
Dissolved Oxygen*, mg/l	N/A	N/A	N/A	N/A	N/A
Chlorine Residual, mg/l	0.04		1	Grab	2-4-2025/ 0830
<i>E.coli</i> (CFU/100ml) freshwater	>2,419		1	Grab	2-4-2025/ 0830
Enterococci (CFU/100ml) saltwater	N/A	N/A	N/A	N/A	N/A
Total Dissolved Solids, mg/l	1,052		1	Grab	2-4-2025/ 0830
Electrical Conductivity, µmohs/cm, †	2,080		1	Grab	2-4-2025/ 0830
Oil & Grease, mg/l					
Alkalinity (CaCO ₃)*, mg/l	N/A	N/A	N/A	N/A	N/A

*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: Randy Weyrick

Facility Operator's License Classification and Level: Wastewater Level C

Facility Operator's License Number: WW0053890

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 \geq 1 MGD
- Serves \geq 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 (\geq 2 years)
- Methane or Biogas Recovery

Other Treatment Process: *Transported to another facility for further processing*

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
Other	Off-site Third-Party Handler or Preparer	Not Applicable	61.41 tons (2024)	N/A: Transported to another facility for further processing	N/A: Transported to another facility for further processing
Choose an item.	Choose an item.	Choose an item.		Choose an item.	Choose an item.
Choose an item.	Choose an item.	Choose an item.		Choose an item.	Choose an item.

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

D. Disposal site

Disposal site name: Walnut Creek WWTP

TCEQ permit or registration number: WQ0010543011

County where disposal site is located: Travis

E. Transportation method

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

Name of the hauler: Wastewater Operations, LLC

Hauler registration number: 24188

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: N/A
- USDA Natural Resources Conservation Service Soil Map:
Attachment: N/A
- Federal Emergency Management Map:
Attachment: N/A
- Site map:
Attachment: N/A

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: N/A

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:

N/A

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: N/A

Total Kjeldahl Nitrogen, mg/kg: N/A

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

Phosphorus, mg/kg: N/A

Potassium, mg/kg: N/A

pH, standard units: N/A

Ammonia Nitrogen mg/kg: N/A

Arsenic: N/A

Cadmium: N/A

Chromium: N/A

Copper: N/A

Lead: N/A

Mercury: N/A

Molybdenum: N/A

Nickel: N/A

Selenium: N/A

Zinc: N/A

Total PCBs: N/A

Provide the following information:

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

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

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

C. Liner information

Does the active/proposed sludge lagoon(s) have a liner with a maximum hydraulic conductivity of 1×10^{-7} cm/sec?

- Yes No

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

N/A

D. Site development plan

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

N/A

Attach the following documents to the application.

- Plan view and cross-section of the sludge lagoon(s)
Attachment: N/A
- Copy of the closure plan
Attachment: N/A
- Copy of deed recordation for the site
Attachment: N/A
- Size of the sludge lagoon(s) in surface acres and capacity in cubic feet and gallons
Attachment: N/A
- Description of the method of controlling infiltration of groundwater and surface water from entering the site
Attachment: N/A
- Procedures to prevent the occurrence of nuisance conditions
Attachment: N/A

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: N/A

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:

N/A

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: N/A

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.

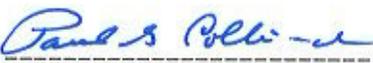
The following certification statement shall be signed and submitted with every application. See the Signature Page section in the Instructions, for a list of designated representatives who may sign the certification.

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: Paul G. Colliander

Title: Secretary

Signature: 

Date: 3/26/2025

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.

The existing wastewater treatment plant (WWTP) was originally permitted under TCEQ permit number WQ0014670001. The permit expired on 10/1/2024 and is being resubmitted under permit number WQ0014670002. The existing WWTP is currently in operation and has continued to function and operate in the way it was originally designed. No future phases are planned to be constructed and there have been no changes in flow rates or treatment processes. All previously submitted design calculations and operational parameters under permit WQ0014670001 are still valid.

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: San Antonio

If yes, attach correspondence from the city.

Attachment: N/A

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: N/A

2. Utility CCN areas

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

Yes No

¹ <https://www.tceq.texas.gov/permitting/wastewater/tceq-regionalization-for-wastewater>

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

Attachment: N/A

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: Click to enter text.

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: Click to enter text.

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): 0.018 MGD

Average Influent Organic Strength or BOD₅ Concentration in mg/l: 65

Average Influent Loading (lbs/day = total average flow X average BOD₅ conc. X 8.34): 9.75

Provide the source of the average organic strength or BOD₅ concentration.

Click to enter text.

B. Proposed organic loading

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

Table 1.1(1) – Design Organic Loading

Source	Total Average Flow (MGD)	Influent BOD5 Concentration (mg/l)
Municipality		
Subdivision		
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		
AVERAGE BOD ₅ from all sources		

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: [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.](#)

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: [Click to enter text.](#) 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: [Click to enter text.](#)

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.

Berms will be provided to prevent rainwater from entering the drip irrigation site.

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

FEMA – 48029Co130G

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: [Click to enter text.](#)

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: [Sludge is currently transported to another permitted WWTP.](#)

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 [N/A]

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 to 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.

- | | |
|---|--|
| <input type="checkbox"/> Oil field activities | <input type="checkbox"/> Urban runoff |
| <input type="checkbox"/> Upstream discharges | <input type="checkbox"/> Agricultural runoff |
| <input type="checkbox"/> Septic tanks | <input type="checkbox"/> Other(s), specify: Click to enter text. |

B. Waterbody uses

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

- | | |
|--|--|
| <input type="checkbox"/> Livestock watering | <input type="checkbox"/> Contact recreation |
| <input type="checkbox"/> Irrigation withdrawal | <input type="checkbox"/> Non-contact recreation |
| <input type="checkbox"/> Fishing | <input type="checkbox"/> Navigation |
| <input type="checkbox"/> Domestic water supply | <input type="checkbox"/> Industrial water supply |
| <input type="checkbox"/> Park activities | <input type="checkbox"/> 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[N/A]

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.			

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:

- | | |
|---|---|
| <input type="checkbox"/> Surface application | <input type="checkbox"/> Subsurface application |
| <input type="checkbox"/> Irrigation | <input checked="" type="checkbox"/> Subsurface soils absorption |
| <input type="checkbox"/> Drip irrigation system | <input type="checkbox"/> Subsurface area drip dispersal system |
| <input type="checkbox"/> Evaporation | <input type="checkbox"/> Evapotranspiration beds |
| <input type="checkbox"/> 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: [Click to enter text.](#)

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
Managed crops to consist of Bermuda & Rye grass	4.13	18,000	N

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
1 - Dosing Tank	0.022038	0.176307	40'Lx24'Wx8'D	Concrete

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

Attachment: N/A

Section 4. Flood and Runoff Protection (Instructions Page 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:

FEMA – 48029C0130G

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

Berms will be provided to prevent rainwater from entering the drip irrigation site.

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:** [Technical Attachment #4](#)

- 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:** [Technical Attachment #5](#)

- 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
6821405	Public Supply	Y	Cased.	Greater than 150 ft. buffer zone.

Well ID	Well Use	Producing? Y/N	Open, cased, capped, or plugged?	Proposed Best Management Practice
6821408	Public Supply	Y	Cased.	Greater than 150 ft. buffer zone.
6821409	Public Supply	Y	Cased.	Greater than 150 ft. buffer zone.
6821410	Public Supply	Y	Cased.	Greater than 150 ft. buffer zone.
6821411	Public Supply	Y	Cased.	Greater than 150 ft. buffer zone.
6821412	Public Supply	Y	Cased.	Pressure cemented; Greater than 150 ft. buffer zone.
6821413	Public Supply	Y	Cased.	Pressure cemented; Greater than 150 ft. buffer zone.
6821414	Public Supply	Y	Cased.	Pressure cemented; Greater than 150 ft. buffer zone.
6821424	Public Supply	N	Plugged.	Greater than 150 ft. buffer zone.
6821426	Public Supply	Y	Cased.	Pressure cemented; Greater than 150 ft. buffer zone.
6821427	Public Supply	Y	Cased.	Pressure cemented; Greater than 150 ft. buffer zone.

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

Attachment: [Technical Attachment #5A](#)

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: [Technical Attachment #6](#)

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: [Technical Attachment #7](#)

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: [Technical Attachment #8](#)

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
BtE—Brackett-Eckrant	0-20 in.	0.06 - 1.98 in/hr		80
Kr—Krum clay	0-80 in.	0.06 - 0.20 in/hr		74

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
12/2024	12,246	67	n/a	7.4	n/a	4.13
11/2024	7,015	49	n/a	7.3	n/a	4.13
10/2024	8,606	45	n/a	7.2	n/a	4.13
9/2024	10,133	66	n/a	7.2	n/a	4.13
8/2024	11,390	73	n/a	7.2	n/a	4.13
7/2024	12,719	67	n/a	7.0	n/a	4.13
6/2024	13,904	63	n/a	7.0	n/a	4.13
5/2024	13,476	87	n/a	7.2	n/a	4.13
4/2024	14,657	70	n/a	7.0	n/a	4.13

Date	30 Day Avg Flow MGD	BOD5 mg/l	TSS mg/l	pH	Chlorine Residual mg/l	Acres irrigated
3/2024	15,358	67	n/a	7.2	n/a	4.13
2/2024	14,665	76	n/a	7.1	n/a	4.13
1/2024	17,189	78	n/a	7.2	n/a	4.13
12/2023	14,152	100	n/a	7.3	n/a	4.13
11/2023	12,957	74	n/a	7.5	n/a	4.13
10/2023	11,564	58	n/a	7.2	n/a	4.13
9/2023	11,267	56	n/a	7.6	n/a	4.13
8/2023	13,174	40	n/a	7.0	n/a	4.13
7/2023	13,039	40	n/a	6.9	n/a	4.13
6/2023	13,030	46	n/a	7.1	n/a	4.13
5/2023	14,345	42	n/a	7.0	n/a	4.13
4/2023	11,761	78	n/a	7.2	n/a	4.13
3/2023	12,199	77	n/a	7.3	n/a	4.13
2/2023	15,558	129	n/a	7.2	n/a	4.13
1/2023	13,798	99	n/a	7.3	n/a	4.13

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

N/A

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 3.1: SURFACE LAND DISPOSAL OF EFFLUENT **[N/A]**

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 BOD₅ loading rate, in lbs BOD₅/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

[N/A]

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: 4.13

Area of drainfield, in square feet: 180,000

Application rate, in gal/square foot/day: 0.10

Depth to groundwater, in feet: > 3.0

Area of trench, in square feet: 90,000

Dosing duration per area, in hours: 0.30

Number of beds: 8

Dosing amount per area, in inches/day: 0.16

Infiltration rate, in inches/hour: 0.80

Storage volume, in gallons: 50,000

Area of bed(s), in square feet: 22,324

Soil Classification: Krum soil complex, clay – clay loam – loam caliche

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. VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION 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: VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION

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: VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION

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: 4.13

Infiltration Rate, in inches/hour: 0.80

Average slope of the application area, percent (%): < 2.0

Maximum slope of the application area, percent (%): 2.0

Storage volume, in gallons: 50,000

Major soil series: Krum soil complex, clay – clay loam – loam caliche

Depth to groundwater, in feet: > 3.0

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: 0.2

Nitrogen application rate, in lbs/gal/day: N/A

D. Dosing information

Number of doses per day: 8 per zone

Dosing duration per area, in hours: 0.3

Rest period between doses, in hours: 6

Dosing amount per area, in inches/day: 0.16

Number of zones: 8

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: N/A; Existing system is not new nor is it expanding.

B. Soil evaluation

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

Attachment: N/A; Existing system is not new nor is it expanding.

C. Site preparation plan

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

Attachment: N/A; Existing system is not new nor is it expanding.

D. Soil sampling/testing

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

Attachment: N/A; Existing system is not new nor is it expanding.

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: [Technical Attachment #9](#)

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: [Technical Attachment #5](#)

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

[N/A]

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

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Chlorodibromomethane				10
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

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Endosulfan I (alpha)				0.01
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

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Nonylphenol				333
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
Pentachlorophenol				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 [N/A]

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 for 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.](#)

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 6.0: INDUSTRIAL WASTE CONTRIBUTION [N/A]

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 instructions?

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.): TLAP, Region 13

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: Damien J. Herrera, PE

Address: 13423 Blanco Road #118

City, State, and Zip Code: San Antonio, TX 78216

Phone Number: 210-595-9565

3. Owner/Operator Contact Information

Owner Operator

Owner/Operator Name: THE VILLAS AT TIMBERWOOD HOMEOWNERS ASSOCIATION

Contact Name: Paul Colliander

Address: 405 Main Street

City, State, and Zip Code: Boerne, TX 78006

Phone Number: 210-844-5664

4. Facility Contact Information

Facility Name: TIMBERWOOD DEVELOPMENT WWTP

Address: Click to enter text.

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

Location description (if no address is available): The wastewater treatment facility is located 820 feet southeast of the intersection of Harmony Hills and Shady acres and the disposal area is located 1,600 feet southeast of the intersection of Harmony Hills and Shady Acres.

Facility Contact Person: Paul Colliander

Phone Number: 210-844-5664

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

Latitude: 29°41'26.0"N

Longitude: 98°29'29.0"W

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

Attach topographic quadrangle map as attachment A.

6. Well Information

Type of Well Construction, select one:

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

Number of Injection Wells: Click to enter text.

7. Purpose

Detailed Description regarding purpose of Injection System:

18 pressure-dosed absorption beds with a total field surface area of 180,000 square feet of non-public land. The purpose of the injection system is to reuse treated effluent to irrigate a green belt not accessible to the public. See site map as Attachment B.

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

8. Water Well Driller/Installer

Water Well Driller/Installer Name: Click to enter text.

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					

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

Section 3. Proposed Trench System, Subsurface Fluid Distribution System, or Infiltration Gallery [N/A]

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

System(s) Dimensions: [Click to enter text.](#)

System(s) Construction: [Click to enter text.](#)

Section 4. Site Hydrogeological and Injection Zone Data [N/A]

1. Name of Contaminated Aquifer: [Click to enter text.](#)
2. Receiving Formation Name of Injection Zone: [Click to enter text.](#)
3. Well/Trench Total Depth: [Click to enter text.](#)
4. Surface Elevation: [Click to enter text.](#)
5. Depth to Ground Water: [Click to enter text.](#)
6. Injection Zone Depth: [Click to enter text.](#)
7. Injection Zone vertically isolated geologically? Yes No
 Impervious Strata between Injection Zone and nearest Underground Source of Drinking Water:
 Name: [Click to enter text.](#)
 Thickness: [Click to enter text.](#)
8. Provide a list of contaminants and the levels (ppm) in contaminated aquifer
 Attach as Attachment E.
9. Horizontal and Vertical extent of contamination and injection plume
 Attach as Attachment F.
10. Formation (Injection Zone) Water Chemistry (Background levels) TDS, etc.
 Attach as Attachment G.
11. Injection Fluid Chemistry in PPM at point of injection
 Attach as Attachment H.
12. Lowest Known Depth of Ground Water with < 10,000 PPM TDS: [Click to enter text.](#)
13. Maximum injection Rate/Volume/Pressure: [Click to enter text.](#)
14. Water wells within 1/4 mile radius (attach map as Attachment I): [Click to enter text.](#)
15. Injection wells within 1/4 mile radius (attach map as Attachment J): [Click to enter text.](#)

16. Monitor wells within 1/4 mile radius (attach drillers logs and map as Attachment K): [Click to enter text.](#)
17. Sampling frequency: [Click to enter text.](#)
18. Known hazardous components in injection fluid: [Click to enter text.](#)

Section 5. Site History [N/A]

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

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

Class V Injection Well Designations

- 5A07 Heat Pump/AC return (IW used for groundwater to heat and/or cool buildings)
- 5A19 Industrial Cooling Water Return Flow (IW used to cool industrial process equipment)
- 5B22 Salt Water Intrusion Barrier (IW used to inject fluids to prevent the intrusion of salt water into an aquifer)
- 5D02 Storm Water Drainage (IW designed for the disposal of rain water)
- 5D04 Industrial Stormwater Drainage Wells (IW designed for the disposal of rain water associated with industrial facilities)
- 5F01 Agricultural Drainage (IW that receive agricultural runoff)
- 5R21 Aquifer Recharge (IW used to inject fluids to recharge an aquifer)
- 5S23 Subsidence Control Wells (IW used to control land subsidence caused by ground water withdrawal)
- 5W09 Untreated Sewage
- 5W10 Large Capacity Cesspools (Cesspools that are designed for 5,000 gpd or greater)
- 5W11 Large Capacity Septic systems (Septic systems designed for 5,000 gpd or greater)
- 5W12 WTPTP 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)

WQ 0014670002 TLAP PERMIT APPLICATION
TECHNICAL ATTACHMENT #1
TREATMENT PROCESS DESCRIPTION

WQ 0014670002 TLAP PERMIT APPLICATION
TECHNICAL ATTACHMENT #1
TREATMENT PROCESS DESCRIPTION

The effluent flows from the subdivision to the septic tanks by a pressurized force main from a lift station. In the septic tanks, the wastewater will receive anaerobic treatment. This treatment will bring the wastewater strength down from a design influent strength of 250 mg/l of BOD₅ to a strength less than 100 mg/l of BOD₅ leaving the septic tanks.

The primary tank is a 14,360-gallon reinforced cast-in-place concrete tank. The length of the tank is 20 feet, and the width is 12 feet. The liquid depth is 7 feet 7 inches. The invert flowline is at 7 feet 6 inches. The influent pipe is 3 inches in diameter.

The large size of the primary septic tank will decrease the velocity of the wastewater through the system. By decreasing the velocity of the wastewater, the design hydraulic residence time will be maintained to eliminate short-circuiting of the tank. This feature will ensure adequate treatment regardless of surges. Operating at peak surge capacity, the septic tank will receive 4,000 gallons of raw wastewater in a two-hour period from 6:00 AM to 8:00 AM. The lift station pumps are designed to operate at a rate of 50 gallons per minute which is calculated as follows:

Assume peak inflow: $Q_{\text{inflow}} = 4,000$ gallons
 $T = 2$ hours = 120 minutes
 $Q_{\text{pumps}} = 50$ gallons per minute

Wastewater is transferred from Tank 1 to Tank 2 through four 6-inch diameter pipes located 4 feet from the floor of the tank. The velocity into Tank 2 through the four pipes is:

$$V_{T2} = 50 \text{ gal/min} * \frac{1 \text{ ft}^3}{7.48 \text{ gal}} * \frac{1 \text{ min}}{60 \text{ s}} * \frac{1}{\text{Pipe Area}}$$

$$V_{T2} = 50 \text{ gal/min} * \frac{1 \text{ ft}^3}{7.48 \text{ gal}} * \frac{1 \text{ min}}{60 \text{ s}} * \frac{1}{0.785 \text{ ft}^2}$$

$$V_{T2} = 0.142 \text{ ft/s into Tank 2}$$

All effluent entering the tank will take 1.5 days to pass through the septic tank portion of the treatment ensuring effluent of the design quality less than 100 mg/l of BOD₅. This will eliminate “short-circuiting” of the septic tanks due to surge flows. All the solids will settle out in the first two chambers and a solids-free liquid will pour into the dosing tank. The dosing tank will be a 57,000-gallon reinforced cast-in-place concrete tank. The dosing tank dimensions are 40 feet long and 24 feet wide. The liquid depth is 8 feet, and the flow line of the pipe is 7.5 feet deep.

Design features of the tanks include a sanitary tee at the influent and effluent. The influent tee has a 16-inch-long pipe glued to the bottom of the tee. This pipe introduces the effluent directly into the clear liquid zone and reduces turbulence in the tank. This same feature is used on the effluent pipe which is designed to stop the transfer of solids from tank to tank and to ensure that all effluent is drawn down from the clear liquid zone of the tank. The tank is also outfitted with manways to aid in maintenance and cleaning of the tanks. The influent and effluent pipes have 1 inch fall across the length of the tank. The tanks are constructed of concrete and can withstand interior hydrostatic pressures and exterior soil pressures.

Once wastewater enters the dosing tank, it is then pumped through drip tubing and disposed through a subsurface pipe network. The wastewater leaves the drip irrigation management system and enters the supply main. The piping transmits water to the field control valves. When a zone is initiated, an electric impulse will start the pumps and simultaneously open the corresponding zone valves. Opening the valves enables a measured quantity of wastewater to enter the appropriate subfield. Upon entering the tubing, the water is dispersed through Netafim pressure compensating emitters. The emitters are spaced 2 feet on-center over the entire length of the dripper line. The emitters deliver a constant flow of 0.61 gallons per hour for flows that range from 7 psi to 60 psi. The water then enters the return manifold and passes through a check valve into the return line. The check valve does not allow water from the dosing zones to enter zones that have not been called upon to dose. The water in the return main pressurizes against the field flush return valve. The purpose of this valve is to scour the piping free of any biological build-up. This flushing is accomplished by opening the return valve after a certain number of zone doses. When the valve is open, a single zone is scoured, and the remaining effluent is returned to the head of the septic tank to receive further treatment for settling.

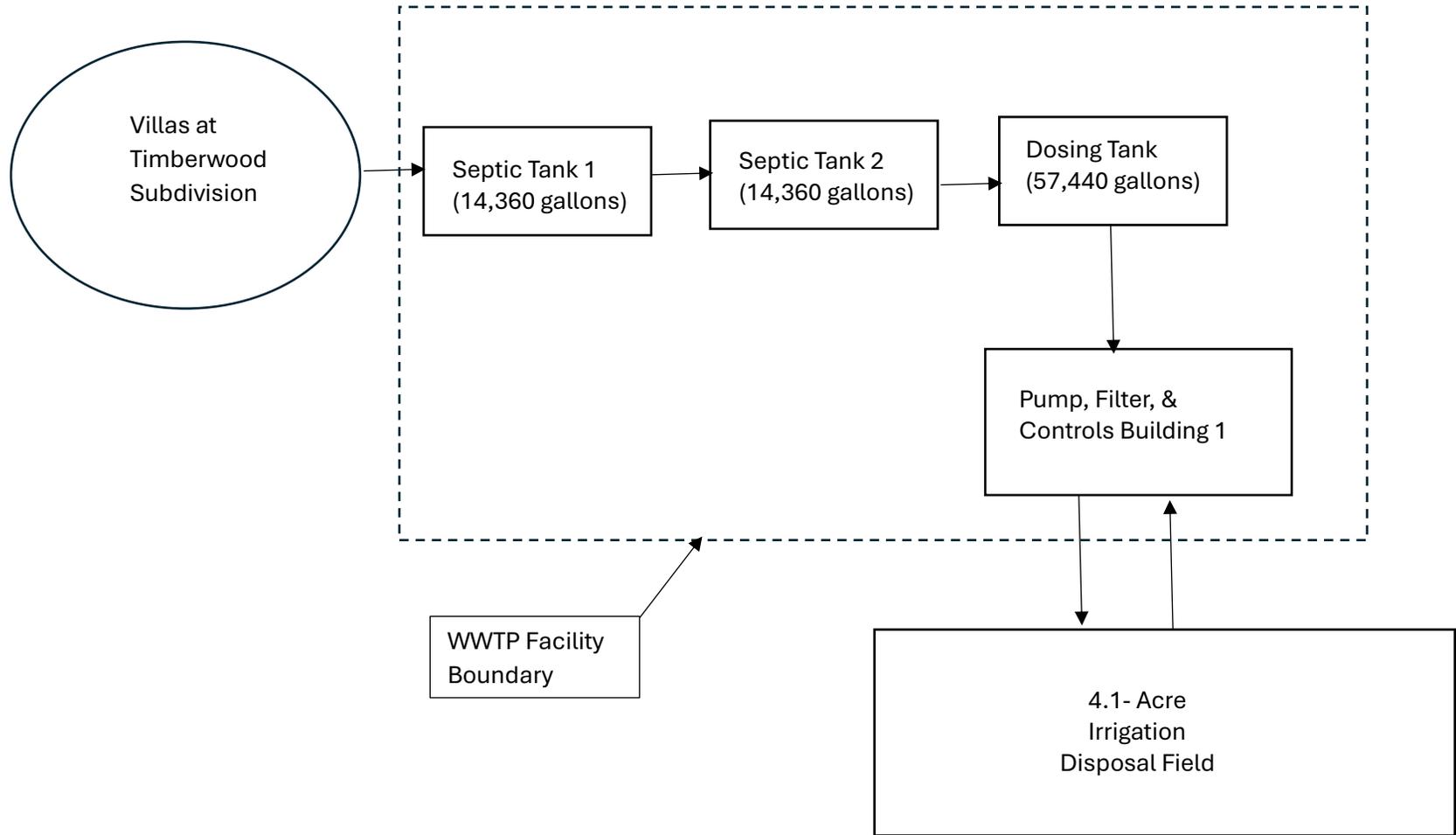
Upon leaving the drip tubing and entering the soil, the wastewater enters its final phase of treatment in the soil. Wastewater is treated by naturally occurring microorganisms and is emitted in the root zone of the grass that covers the field. Most of the wastewater and the nutrients are taken up by the roots and transformed into plant matter. Therefore, very little water is leftover in the soil to be treated.

WQ 0014670002 TLAP PERMIT APPLICATION
TECHNICAL ATTACHMENT #2
PROCESS FLOW SCHEMATIC

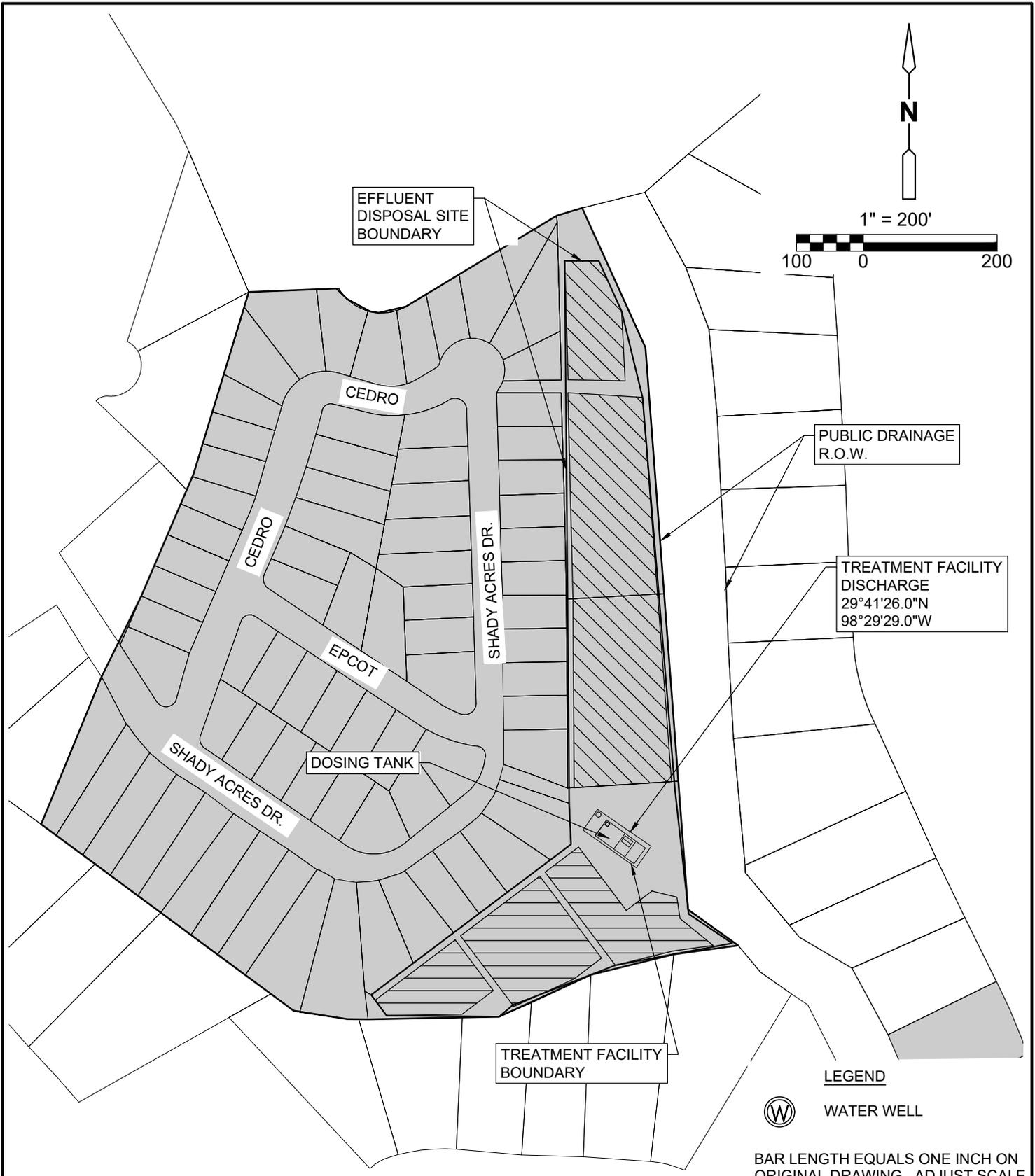
WQ 0014670002 TLAP PERMIT APPLICATION

TECHNICAL ATTACHMENT #2

PROCESS FLOW SCHEMATIC



WQ 0014670002 TLAP PERMIT APPLICATION
TECHNICAL ATTACHMENT #3
FACILITY SITE PLAN



USGS Quad Map: Bulverde (2022)

BAR LENGTH EQUALS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALE ACCORDINGLY.

 13423 Blanco Rd, Suite 118 San Antonio TX 78216 Texas Firm Registration Number F-16949	PROJECT NO.	VILLAS OF TIMERWOOD PARK WWTP WASTEWATER TREATMENT PLANT PERMIT APPLICATION WQ0014670002 FACILITY SITE PLAN	EXHIBIT No.
	DATE		Technical Attachment - 3

WQ 0014670002 TLAP PERMIT APPLICATION
TECHNICAL ATTACHMENT #4
CROPPING PLAN

WQ 0014670002 TLAP PERMIT APPLICATION

TECHNICAL ATTACHMENT #4

CROPPING PLAN

The effluent disposal fields where the drip irrigation lines are installed were initially seeded with Bermuda and winter rye grass to ensure year-round uptake of water and nutrients. The Bermuda grass will grow from March to October. The winter rye grass will grow from November to February. The fields are mowed regularly to maintain a height of 3 to 6 inches to always ensure active growth. Supplemental irrigation is not necessary.

Fertilizer was applied at initial germination of the grass seed and future fertilization is not expected. Should additional fertilization be necessary, the application rates will not exceed 100-150 lbs/acre of N.

Custom Soil Resource Report for **Bexar County, Texas**

Villas at Timberwood WWTP



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

Preface	2
How Soil Surveys Are Made	5
Soil Map	8
Soil Map.....	9
Legend.....	10
Map Unit Legend.....	11
Map Unit Descriptions.....	11
Bexar County, Texas.....	13
BtE—Brackett-Eckrant association, 20 to 60 percent slopes.....	13
Kr—Krum clay, 1 to 5 percent slopes.....	15
References	17

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

Custom Soil Resource Report

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

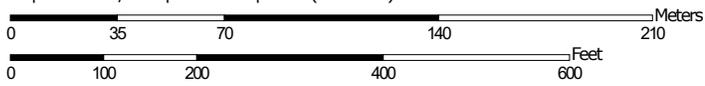
Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:2,460 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Bexar County, Texas
 Survey Area Data: Version 28, Aug 30, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 17, 2020—Jan 15, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BtE	Brackett-Eckrant association, 20 to 60 percent slopes	0.3	1.6%
Kr	Krum clay, 1 to 5 percent slopes	18.7	98.4%
Totals for Area of Interest		19.0	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

Custom Soil Resource Report

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Bexar County, Texas

BtE—Brackett-Eckrant association, 20 to 60 percent slopes

Map Unit Setting

National map unit symbol: 2yly3
Elevation: 1,000 to 2,400 feet
Mean annual precipitation: 30 to 37 inches
Mean annual air temperature: 65 to 70 degrees F
Frost-free period: 220 to 270 days
Farmland classification: Not prime farmland

Map Unit Composition

Brackett and similar soils: 60 percent
Eckrant and similar soils: 36 percent
Minor components: 4 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Brackett

Setting

Landform: Ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from limestone

Typical profile

A - 0 to 4 inches: gravelly clay loam
Bw - 4 to 12 inches: clay loam
Cr - 12 to 60 inches: bedrock

Properties and qualities

Slope: 20 to 60 percent
Depth to restrictive feature: 6 to 20 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.06 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 90 percent
Gypsum, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 1.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R081CY362TX - Steep Adobe 29-35 PZ
Hydric soil rating: No

Description of Eckrant

Setting

Landform: Ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Residuum weathered from limestone

Typical profile

A1 - 0 to 4 inches: very cobbly clay
A2 - 4 to 12 inches: very cobbly clay
R - 12 to 30 inches: bedrock

Properties and qualities

Slope: 20 to 60 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
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 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Very low (about 0.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R081CY363TX - Steep Rocky 29-35 PZ
Hydric soil rating: No

Minor Components

Krum

Percent of map unit: 2 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R081CY357TX - Clay Loam 29-35 PZ
Hydric soil rating: No

Patrick

Percent of map unit: 1 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R081CY574TX - Shallow 29-35 PZ
Hydric soil rating: No

Crawford

Percent of map unit: 1 percent
Landform: Ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R081CY358TX - Deep Redland 29-35 PZ
Hydric soil rating: No

Kr—Krum clay, 1 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2ylv9
Elevation: 600 to 1,600 feet
Mean annual precipitation: 30 to 37 inches
Mean annual air temperature: 65 to 70 degrees F
Frost-free period: 220 to 270 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Krum and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Krum

Setting

Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Alluvium derived from limestone

Typical profile

A - 0 to 26 inches: clay
Bw1 - 26 to 36 inches: clay
Bw2 - 36 to 50 inches: clay
BCK - 50 to 79 inches: clay

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

Custom Soil Resource Report

Frequency of ponding: None
Calcium carbonate, maximum content: 50 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 3.0
Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: R081CY357TX - Clay Loam 29-35 PZ
Hydric soil rating: No

Minor Components

Eckrant

Percent of map unit: 4 percent
Landform: Ridges
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R081CY360TX - Low Stony Hill 29-35 PZ
Hydric soil rating: No

Brackett

Percent of map unit: 4 percent
Landform: Ridges
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R081CY355TX - Adobe 29-35 PZ
Hydric soil rating: No

Frio

Percent of map unit: 2 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R081CY561TX - Loamy Bottomland 29-35 PZ
Hydric soil rating: No

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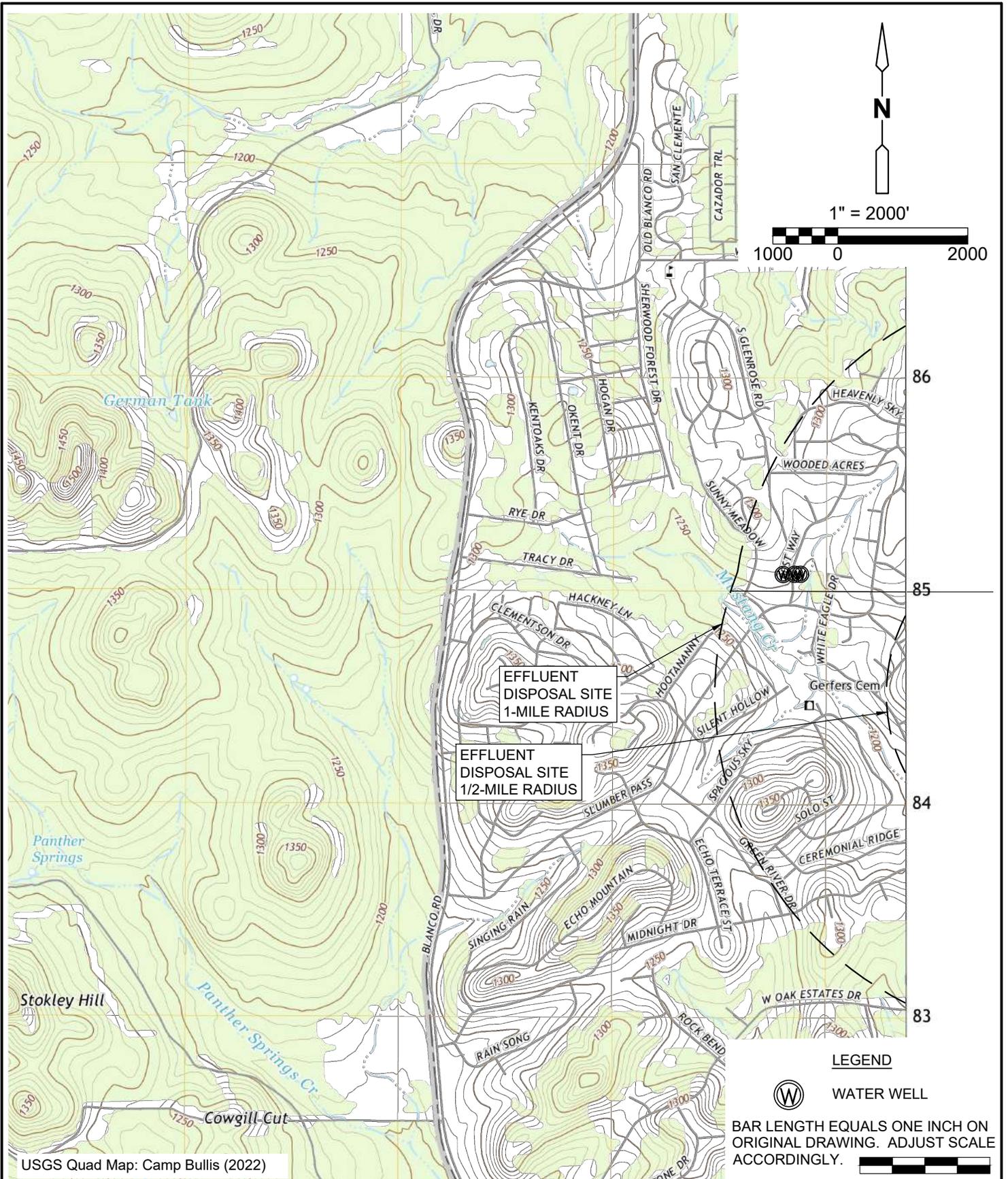
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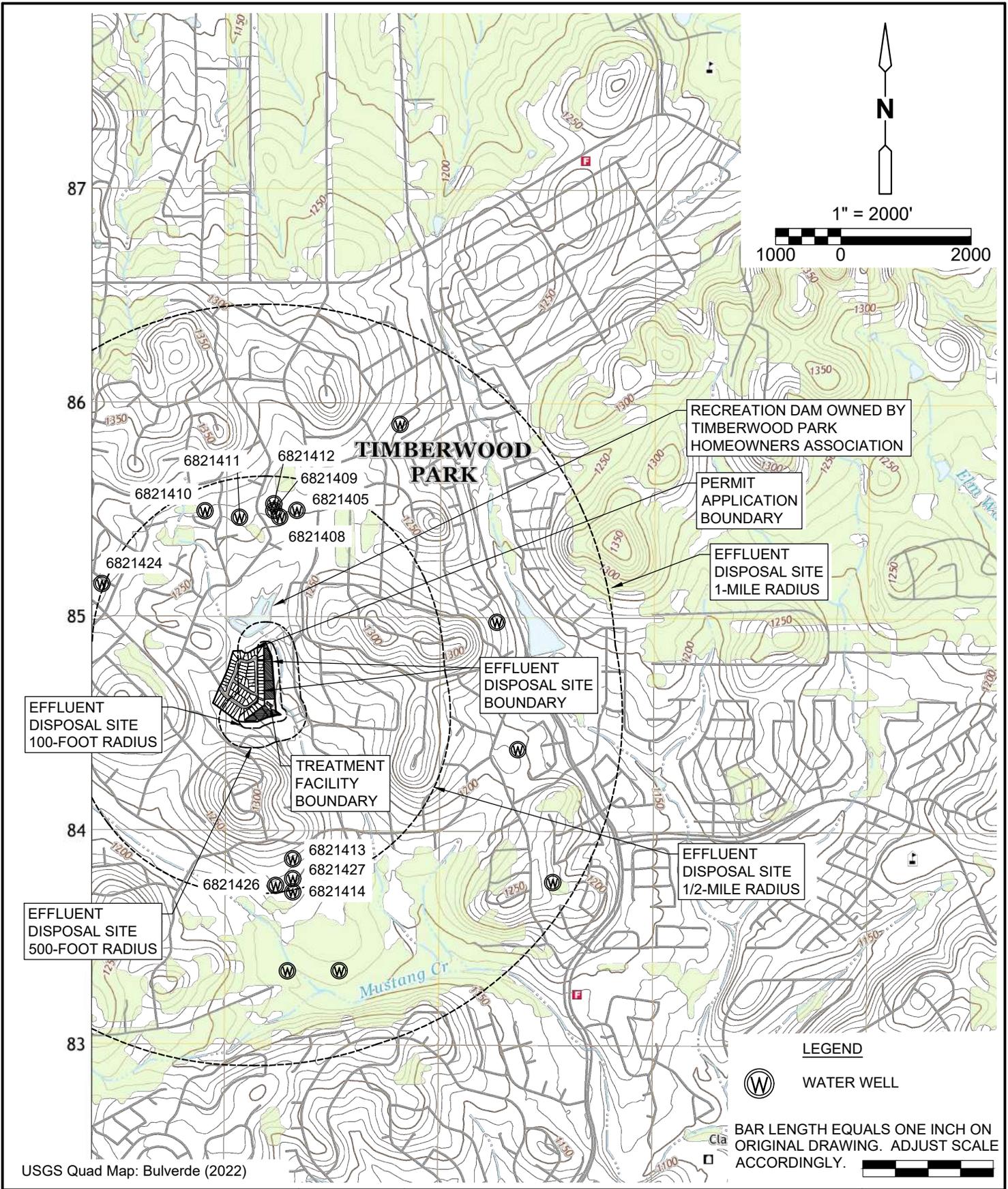
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WQ 0014670002 TLAP PERMIT APPLICATION
TECHNICAL ATTACHMENT #5
USGS WELL AND MAP INFORMATION



 13423 Blanco Rd, Suite 118 San Antonio TX 78216 Texas Firm Registration Number F-16949	PROJECT NO.	VILLAGES OF TIMERWOOD PARK WWTP WASTEWATER TREATMENT PLANT PERMIT APPLICATION WQ0014670002 USGS / WELL LOCATION MAP #1	EXHIBIT No.
	DATE		Technical Attachment - 5



USGS Quad Map: Bulverde (2022)

 <p>13423 Blanco Rd, Suite 118 San Antonio TX 78216 Texas Firm Registration Number F-16949</p>	PROJECT NO.	VILLAS OF TOWERWOOD PARK WWTP WASTEWATER TREATMENT PLANT PERMIT APPLICATION WQ0014670002 USGS / WELL LOCATION MAP #2	EXHIBIT No.
	DATE		Technical Attachment - 5

WQ 0014670002 TLAP PERMIT APPLICATION
TECHNICAL ATTACHMENT #5A
WELL LOGS AND WATER QUALITY DATA

**WQ 0014670001 TLAP PERMIT RENEWAL
TECHNICAL ATTACHMENT #5A
WELL LOGS AND WATER QUALITY DATA**

Villas at Timberwood WWTP - USGS Well ID Attachment					
Well ID	Well Use	Producing? Y/N	Open, cased, capped, or plugged?	Proposed Best Management Practice	Well Log Included? Y/N
6821405	Public Supply	Y	Cased.	Greater than 150 ft. buffer zone.	Y
6821408	Public Supply	Y	Cased.	Greater than 150 ft. buffer zone.	Y
6821409	Public Supply	Y	Cased.	Greater than 150 ft. buffer zone.	Y
6821410	Public Supply	Y	Cased.	Greater than 150 ft. buffer zone.	Y
6821411	Public Supply	Y	Cased.	Greater than 150 ft. buffer zone.	Y
6821412	Public Supply	Y	Cased.	Pressure cemented; Greater than 150 ft. buffer zone.	Y
6821413	Public Supply	Y	Cased.	Pressure cemented; Greater than 150 ft. buffer zone.	Y
6821414	Public Supply	Y	Cased.	Pressure cemented; Greater than 150 ft. buffer zone.	Y
6821424	Public Supply	N	Plugged.	Greater than 150 ft. buffer zone.	Y
6821426	Public Supply	Y	Cased.	Pressure cemented; Greater than 150 ft. buffer zone.	Y
6821427	Public Supply	Y	Cased.	Pressure cemented; Greater than 150 ft. buffer zone.	Y

[GWDB Reports and Downloads](#)

Well Basic Details

[Scanned Documents](#)

State Well Number	6821405
County	Bexar
River Basin	San Antonio
Groundwater Management Area	9
Regional Water Planning Area	L - South Central Texas
Groundwater Conservation District	Trinity Glen Rose GCD
Latitude (decimal degrees)	29.698611
Latitude (degrees minutes seconds)	29° 41' 55" N
Longitude (decimal degrees)	-98.49
Longitude (degrees minutes seconds)	098° 29' 24" W
Coordinate Source	Global Positioning System - GPS
Aquifer Code	218GRCCU - Lower Glen Rose and Cow Creek Limestones
Aquifer	Trinity
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	1250
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	647
Well Depth Source	Driller's Log
Drilling Start Date	
Drilling End Date	2/16/1977
Drilling Method	Cable Tool
Borehole Completion	Open Hole

Well Type	Withdrawal of Water
Well Use	Public Supply
Water Level Observation	Miscellaneous Measurements
Water Quality Available	Yes
Pump	Submersible
Pump Depth (feet below land surface)	399
Power Type	Electric Motor
Annular Seal Method	
Surface Completion	
Owner	BMWV-Timberwood Park Well #1
Driller	Hill Country Water, Inc.
Other Data Available	Drillers Log
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	G0150270A
Groundwater Conservation District Well Number	
Owner Well Number	1
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	6/6/2002
Last Update Date	7/25/2016

Remarks Cemented from 0 to 322 feet.

Casing						
Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
7	Blank	Steel			0	310
6	Open Hole				310	647

Well Tests - No Data

Lithology - No Data

Annular Seal Range - No Data

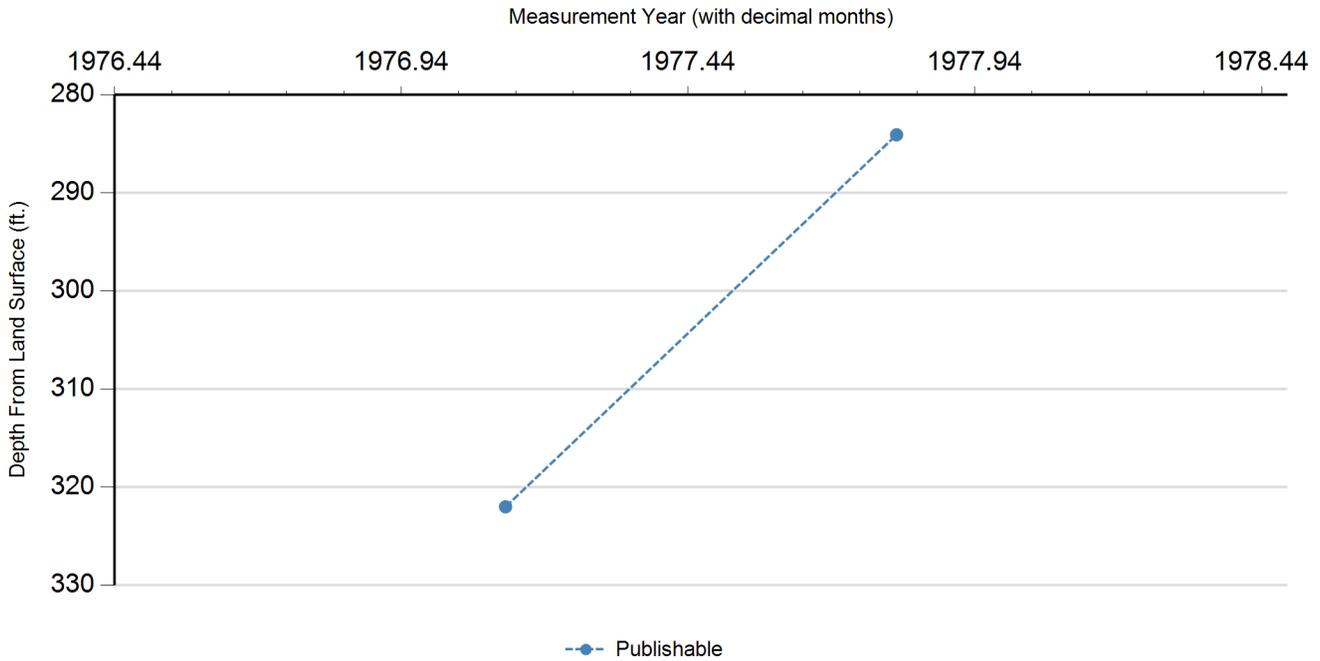
Borehole - No Data

Plugged Back - No Data

Filter Pack - No Data

Packers - No Data

Water Level Measurements



Status Code	Date	Time	Water Level (ft. below land surface)	Change value in () indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	2/16/1977		322		928	1	Other or Source of Measurement Unknown	Unknown		
P	10/25/1977		284.1	(37.90)	965.9	1	Other or Source of Measurement Unknown	Unknown		

Code Descriptions

Status Code	Status Description
P	Publishable

Water Quality Analysis

Sample Date: 10/26/1977 **Sample Time:** 0000 **Sample Number:** 1 **Collection Entity:** Texas Department of Health

Sampled Aquifer: Lower Glen Rose and Cow Creek Limestones

Analyzed Lab: Texas Department of Health

Reliability: From well not sufficiently pumped; not filtered or preserved

Collection Remarks: plant discharge - chlorinated

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		279	mg/L as CaCO 3	
01503	ALPHA, DISSOLVED (PC/L)	<	2	PC/L	
03503	BETA, DISSOLVED (PC/L)	<	4	PC/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		340.48	mg/L	
00910	CALCIUM (MG/L)		90	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		14	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.3	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		311	mg/L as CaCO 3	
01045	IRON, TOTAL (UG/L AS FE)		60	ug/L	
00920	MAGNESIUM (MG/L)		21	mg/L	
01055	MANGANESE, TOTAL (UG/L AS MN)	<	20	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		9.43	mg/L as NO3	
00620	NITRATE NITROGEN, TOTAL (MG/L AS N)		2.13	mg/L as N	
00400	PH (STANDARD UNITS), FIELD		7.9	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		0.2		
00932	SODIUM, CALCULATED, PERCENT		5	PCT	
00929	SODIUM, TOTAL (MG/L AS NA)		8	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		625	MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)		17	mg/L as SO4	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		327	mg/L	

Water Quality Analysis

Sample Date: 4/6/1999 **Sample Time:** 1050 **Sample Number:** 1 **Collection Entity:** Bexar Metropolitan Water District

Sampled Aquifer: Lower Glen Rose and Cow Creek Limestones

Analyzed Lab: LCRA - Lower Colorado River Authority

Reliability: Sampled using TWDB protocols

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
39086	ALKALINITY FIELD DISSOLVED AS CaCO3		270	mg/L as CaCO3	
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		267	mg/L as CaCO3	
01106	ALUMINUM, DISSOLVED (UG/L AS AL)	<	4	ug/L	
01095	ANTIMONY, DISSOLVED (UG/L AS SB)	<	1	ug/L	
01000	ARSENIC, DISSOLVED (UG/L AS AS)	<	2	ug/L	
01005	BARIUM, DISSOLVED (UG/L AS BA)		30.9	ug/L	
01010	BERYLLIUM, DISSOLVED (UG/L AS BE)	<	1	ug/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		325.83	mg/L	
01020	BORON, DISSOLVED (UG/L AS B)		82	ug/L	
71870	BROMIDE, DISSOLVED, (MG/L AS BR)		0.1	mg/L	
01025	CADMIUM, DISSOLVED (UG/L AS CD)	<	1	ug/L	
00915	CALCIUM, DISSOLVED (MG/L AS CA)		76	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00941	CHLORIDE, DISSOLVED (MG/L AS CL)		13.4	mg/L	
01030	CHROMIUM, DISSOLVED (UG/L AS CR)		11.9	ug/L	
01035	COBALT, DISSOLVED (UG/L AS CO)	<	1	ug/L	
01040	COPPER, DISSOLVED (UG/L AS CU)		3.4	ug/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.62	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		316	mg/L as CaCO3	
01046	IRON, DISSOLVED (UG/L AS FE)		58	ug/L	
01049	LEAD, DISSOLVED (UG/L AS PB)	<	1	ug/L	
01130	LITHIUM, DISSOLVED (UG/L AS LI)		5.9	ug/L	
00925	MAGNESIUM, DISSOLVED (MG/L AS MG)		30.4	mg/L	
01056	MANGANESE, DISSOLVED (UG/L AS MN)	<	1	ug/L	
01060	MOLYBDENUM, DISSOLVED (UG/L AS MO)		2.3	ug/L	
01065	NICKEL, DISSOLVED (UG/L AS NI)		10.8	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		3.03	mg/L as NO3	
00631	NITRITE PLUS NITRATE, DISSOLVED (MG/L AS N)		0.685	mg/L as N	

Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-405

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00608	NITROGEN, AMMONIA, DISSOLVED (MG/L AS N)		< 0.05	mg/L as N	
00623	NITROGEN, KJELDAHL, DISSOLVED (MG/L AS N)		0.302	mg/L as N	
00090	OXIDATION REDUCTION POTENTIAL (ORP), MILLIVOLTS		264.4	MV	
00400	PH (STANDARD UNITS), FIELD		7.14	SU	
00666	PHOSPHORUS, DISSOLVED (MG/L AS P)		< 0.04	mg/L as P	
00935	POTASSIUM, DISSOLVED (MG/L AS K)		1.98	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
01145	SELENIUM, DISSOLVED (UG/L AS SE)		< 4	ug/L	
00955	SILICA, DISSOLVED (MG/L AS SI02)		11.8	mg/L as SIO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		0.22		
00932	SODIUM, CALCULATED, PERCENT		5	PCT	
00930	SODIUM, DISSOLVED (MG/L AS NA)		8.9	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		592	MICR	
01080	STRONTIUM, DISSOLVED (UG/L AS SR)		1600	ug/L	
00946	SULFATE, DISSOLVED (MG/L AS SO4)		26.2	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		23.4	C	
01057	THALLIUM, DISSOLVED (UG/L AS TL)		< 1	ug/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		334	mg/L	
01085	VANADIUM, DISSOLVED (UG/L AS V)		4.6	ug/L	
01090	ZINC, DISSOLVED (UG/L AS ZN)		132	ug/L	

Water Quality Analysis

Sample Date: 6/7/2000 **Sample Time:** 1145 **Sample Number:** 1 **Collection Entity:** Bexar Metropolitan Water District

Sampled Aquifer: Lower Glen Rose and Cow Creek Limestones

Analyzed Lab: LCRA - Lower Colorado River Authority

Reliability: Sampled using TWDB protocols

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
39086	ALKALINITY FIELD DISSOLVED AS CaCO3		268	mg/L as CaCO3	
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		282	mg/L as CaCO3	
01106	ALUMINUM, DISSOLVED (UG/L AS AL)	<	4	ug/L	
01095	ANTIMONY, DISSOLVED (UG/L AS SB)	<	1	ug/L	
01000	ARSENIC, DISSOLVED (UG/L AS AS)	<	2	ug/L	
01005	BARIUM, DISSOLVED (UG/L AS BA)		29.5	ug/L	
01010	BERYLLIUM, DISSOLVED (UG/L AS BE)	<	1	ug/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		344.14	mg/L	
01020	BORON, DISSOLVED (UG/L AS B)		82.9	ug/L	
71870	BROMIDE, DISSOLVED, (MG/L AS BR)		0.08	mg/L	
01025	CADMIUM, DISSOLVED (UG/L AS CD)	<	1	ug/L	
00915	CALCIUM, DISSOLVED (MG/L AS CA)		82	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00941	CHLORIDE, DISSOLVED (MG/L AS CL)		14.4	mg/L	
01030	CHROMIUM, DISSOLVED (UG/L AS CR)		5.12	ug/L	
01035	COBALT, DISSOLVED (UG/L AS CO)	<	1	ug/L	
01040	COPPER, DISSOLVED (UG/L AS CU)		6.42	ug/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.59	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		319	mg/L as CaCO3	
01046	IRON, DISSOLVED (UG/L AS FE)	<	50	ug/L	
01049	LEAD, DISSOLVED (UG/L AS PB)	<	1	ug/L	
01130	LITHIUM, DISSOLVED (UG/L AS LI)		6.22	ug/L	
00925	MAGNESIUM, DISSOLVED (MG/L AS MG)		27.4	mg/L	
01056	MANGANESE, DISSOLVED (UG/L AS MN)		1.29	ug/L	
01060	MOLYBDENUM, DISSOLVED (UG/L AS MO)		1.79	ug/L	
01065	NICKEL, DISSOLVED (UG/L AS NI)		2.7	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		5.76	mg/L as NO3	
00631	NITRITE PLUS NITRATE, DISSOLVED (MG/L AS N)		1.3	mg/L as N	

Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-405

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00400	PH (STANDARD UNITS), FIELD		6.87	SU	
00935	POTASSIUM, DISSOLVED (MG/L AS K)		2.01	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
01145	SELENIUM, DISSOLVED (UG/L AS SE)	<	4	ug/L	
00955	SILICA, DISSOLVED (MG/L AS SI02)		12	mg/L as SIO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		0.23		
00932	SODIUM, CALCULATED, PERCENT		6	PCT	
00930	SODIUM, DISSOLVED (MG/L AS NA)		9.48	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		616	MICR	
01080	STRONTIUM, DISSOLVED (UG/L AS SR)		1550	ug/L	
00946	SULFATE, DISSOLVED (MG/L AS SO4)		25.4	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		23.2	C	
01057	THALLIUM, DISSOLVED (UG/L AS TL)	<	1	ug/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		349	mg/L	
01085	VANADIUM, DISSOLVED (UG/L AS V)		2.51	ug/L	
01090	ZINC, DISSOLVED (UG/L AS ZN)		119	ug/L	

Water Quality Analysis

Sample Date: 6/6/2002 **Sample Time:** 1035 **Sample Number:** 1 **Collection Entity:** Bexar Metropolitan Water District

Sampled Aquifer: Lower Glen Rose and Cow Creek Limestones

Analyzed Lab: LCRA - Lower Colorado River Authority

Reliability: Sampled using TWDB protocols

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
39086	ALKALINITY FIELD DISSOLVED AS CaCO3		288	mg/L as CaCO3	
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		276	mg/L as CaCO3	
01106	ALUMINUM, DISSOLVED (UG/L AS AL)	<	4	ug/L	
01095	ANTIMONY, DISSOLVED (UG/L AS SB)	<	1	ug/L	
01000	ARSENIC, DISSOLVED (UG/L AS AS)	<	2	ug/L	
01005	BARIUM, DISSOLVED (UG/L AS BA)		31.2	ug/L	
01010	BERYLLIUM, DISSOLVED (UG/L AS BE)	<	1	ug/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		336.82	mg/L	
01020	BORON, DISSOLVED (UG/L AS B)	<	50	ug/L	
71870	BROMIDE, DISSOLVED, (MG/L AS BR)		0.0628	mg/L	
01025	CADMIUM, DISSOLVED (UG/L AS CD)	<	1	ug/L	
00915	CALCIUM, DISSOLVED (MG/L AS CA)		88.1	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00941	CHLORIDE, DISSOLVED (MG/L AS CL)		25.2	mg/L	
01030	CHROMIUM, DISSOLVED (UG/L AS CR)		2.22	ug/L	
01035	COBALT, DISSOLVED (UG/L AS CO)	<	1	ug/L	
01040	COPPER, DISSOLVED (UG/L AS CU)		3.25	ug/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.28	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		307	mg/L as CaCO3	
01046	IRON, DISSOLVED (UG/L AS FE)	<	50	ug/L	
01049	LEAD, DISSOLVED (UG/L AS PB)	<	1	ug/L	
01130	LITHIUM, DISSOLVED (UG/L AS LI)		2.94	ug/L	
00925	MAGNESIUM, DISSOLVED (MG/L AS MG)		21.2	mg/L	
01056	MANGANESE, DISSOLVED (UG/L AS MN)		2.28	ug/L	
01060	MOLYBDENUM, DISSOLVED (UG/L AS MO)	<	1	ug/L	
01065	NICKEL, DISSOLVED (UG/L AS NI)		3.78	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		8.63	mg/L as NO3	
00631	NITRITE PLUS NITRATE, DISSOLVED (MG/L AS N)		1.95	mg/L as N	

Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-405

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00400	PH (STANDARD UNITS), FIELD		7.01	SU	
00935	POTASSIUM, DISSOLVED (MG/L AS K)		1.1	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
01145	SELENIUM, DISSOLVED (UG/L AS SE)	<	4	ug/L	
00955	SILICA, DISSOLVED (MG/L AS SI02)		12.5	mg/L as SIO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		0.31		
00932	SODIUM, CALCULATED, PERCENT		8	PCT	
00930	SODIUM, DISSOLVED (MG/L AS NA)		12.3	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		642	MICR	
01080	STRONTIUM, DISSOLVED (UG/L AS SR)		554	ug/L	
00946	SULFATE, DISSOLVED (MG/L AS SO4)		16.8	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		25	C	
01057	THALLIUM, DISSOLVED (UG/L AS TL)	<	1	ug/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		352	mg/L	
01085	VANADIUM, DISSOLVED (UG/L AS V)		1.55	ug/L	
01090	ZINC, DISSOLVED (UG/L AS ZN)		89.3	ug/L	

Water Quality Analysis

Sample Date: 5/13/2003 **Sample Time:** 1400 **Sample Number:** 1 **Collection Entity:** Bexar Metropolitan Water District

Sampled Aquifer: Lower Glen Rose and Cow Creek Limestones

Analyzed Lab: LCRA - Lower Colorado River Authority

Reliability: Sampled using TWDB protocols

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
39086	ALKALINITY FIELD DISSOLVED AS CaCO3		250	mg/L as CaCO3	
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		284	mg/L as CaCO3	
01106	ALUMINUM, DISSOLVED (UG/L AS AL)	<	4	ug/L	
01095	ANTIMONY, DISSOLVED (UG/L AS SB)	<	1	ug/L	
01000	ARSENIC, DISSOLVED (UG/L AS AS)	<	2	ug/L	
01005	BARIUM, DISSOLVED (UG/L AS BA)		32.4	ug/L	
01010	BERYLLIUM, DISSOLVED (UG/L AS BE)	<	1	ug/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		346.58	mg/L	
01020	BORON, DISSOLVED (UG/L AS B)		60.8	ug/L	
71870	BROMIDE, DISSOLVED, (MG/L AS BR)		0.0953	mg/L	
01025	CADMIUM, DISSOLVED (UG/L AS CD)	<	1	ug/L	
00915	CALCIUM, DISSOLVED (MG/L AS Ca)		87.5	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00941	CHLORIDE, DISSOLVED (MG/L AS CL)		21.8	mg/L	
01030	CHROMIUM, DISSOLVED (UG/L AS CR)		4.36	ug/L	
01035	COBALT, DISSOLVED (UG/L AS CO)	<	1	ug/L	
01040	COPPER, DISSOLVED (UG/L AS CU)		5.02	ug/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.37	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		316	mg/L as CaCO3	
01046	IRON, DISSOLVED (UG/L AS FE)	<	50	ug/L	
01049	LEAD, DISSOLVED (UG/L AS PB)		1.17	ug/L	
01130	LITHIUM, DISSOLVED (UG/L AS LI)		4.18	ug/L	
00925	MAGNESIUM, DISSOLVED (MG/L AS MG)		23.6	mg/L	
01056	MANGANESE, DISSOLVED (UG/L AS MN)	<	1	ug/L	
01060	MOLYBDENUM, DISSOLVED (UG/L AS MO)		1.29	ug/L	
01065	NICKEL, DISSOLVED (UG/L AS NI)		2.93	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		7.08	mg/L as NO3	
00631	NITRITE PLUS NITRATE, DISSOLVED (MG/L AS N)		1.6	mg/L as N	

**Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-405**

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00400	PH (STANDARD UNITS), FIELD		6.73	SU	
00935	POTASSIUM, DISSOLVED (MG/L AS K)		1.46	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
01145	SELENIUM, DISSOLVED (UG/L AS SE)	<	4	ug/L	
00955	SILICA, DISSOLVED (MG/L AS SI02)		13	mg/L as SIO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		0.3		
00932	SODIUM, CALCULATED, PERCENT		7	PCT	
00930	SODIUM, DISSOLVED (MG/L AS NA)		12.2	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		658	MICR	
01080	STRONTIUM, DISSOLVED (UG/L AS SR)		956	ug/L	
00946	SULFATE, DISSOLVED (MG/L AS SO4)		20.5	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		22.6	C	
01057	THALLIUM, DISSOLVED (UG/L AS TL)	<	1	ug/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		358	mg/L	
01085	VANADIUM, DISSOLVED (UG/L AS V)		2.46	ug/L	
01090	ZINC, DISSOLVED (UG/L AS ZN)		52.5	ug/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/gwdbprt.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.

TEXAS WATER DEVELOPMENT BOARD

WELL SCHEDULE

Aquifer Lower Glen Rose Hensell
Cow Creek? Field No. _____
 Owner's Well No. _____

State Well No. 68-21-405
 County Bexar

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

2. Owner: HASKIN WATER UTILITY INC Address: 15403 Capitol Port San Antonio, Tex 78222
 Present: Timberwood Park Address: _____
 * Driller: Hill Country Water Works Address: _____

3. Elevation of _____ is 1250 ft. above msl, determined by Topo

4. Drilled: Feb 16 19 77; Dug Cable Tool Rotary,

5. Depth: Rept. 647 ft. Meas. _____ ft.

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

7. Pump: Mfr. _____ Type Sub
 No. Stages _____, Bore Dia. _____ in., Setting 399 ft.
 Column Dia. _____ in., Length Tailpipe _____ ft.

8. Motor: Fuel elec Make & Model _____ HP. 10

9. Yield: Flow _____ gpm, Pump _____ gpm, Meas., Rept., Est. _____

10. Performance Test: Date _____ Length of Test _____ Made by _____
 Static Level _____ ft. Pumping Level _____ ft. Drawdown _____ ft.
 Production _____ gpm Specific Capacity _____ gpm/ft.

CASING & BLANK PIPE			
Cemented From _____ ft. to _____ ft.		Setting, ft.	
Diam. (in.)	Type	from	to
7	Steel	0	322

11. Water Level: 285.16 ft. rept. 10-25 1977 above Top cement block measuring pipe which is 41.0 ft. above surface.
322 ft. rept. 2-16 1977 below Driller which is _____ ft. below surface.
 _____ ft. rept. _____ 19 _____ above _____ ft. above surface.
 _____ ft. rept. _____ 19 _____ above _____ ft. above surface.

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

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

Temp. _____ °F, Date sampled for analysis _____ Laboratory _____
 Temp. _____ °F, Date sampled for analysis _____ Laboratory _____
 Temp. _____ °F, Date sampled for analysis _____ Laboratory _____

14. Other data available as circled: Driller's Log, Radioactivity Log, Electric Log,
 Formation Samples, Pumping Test,

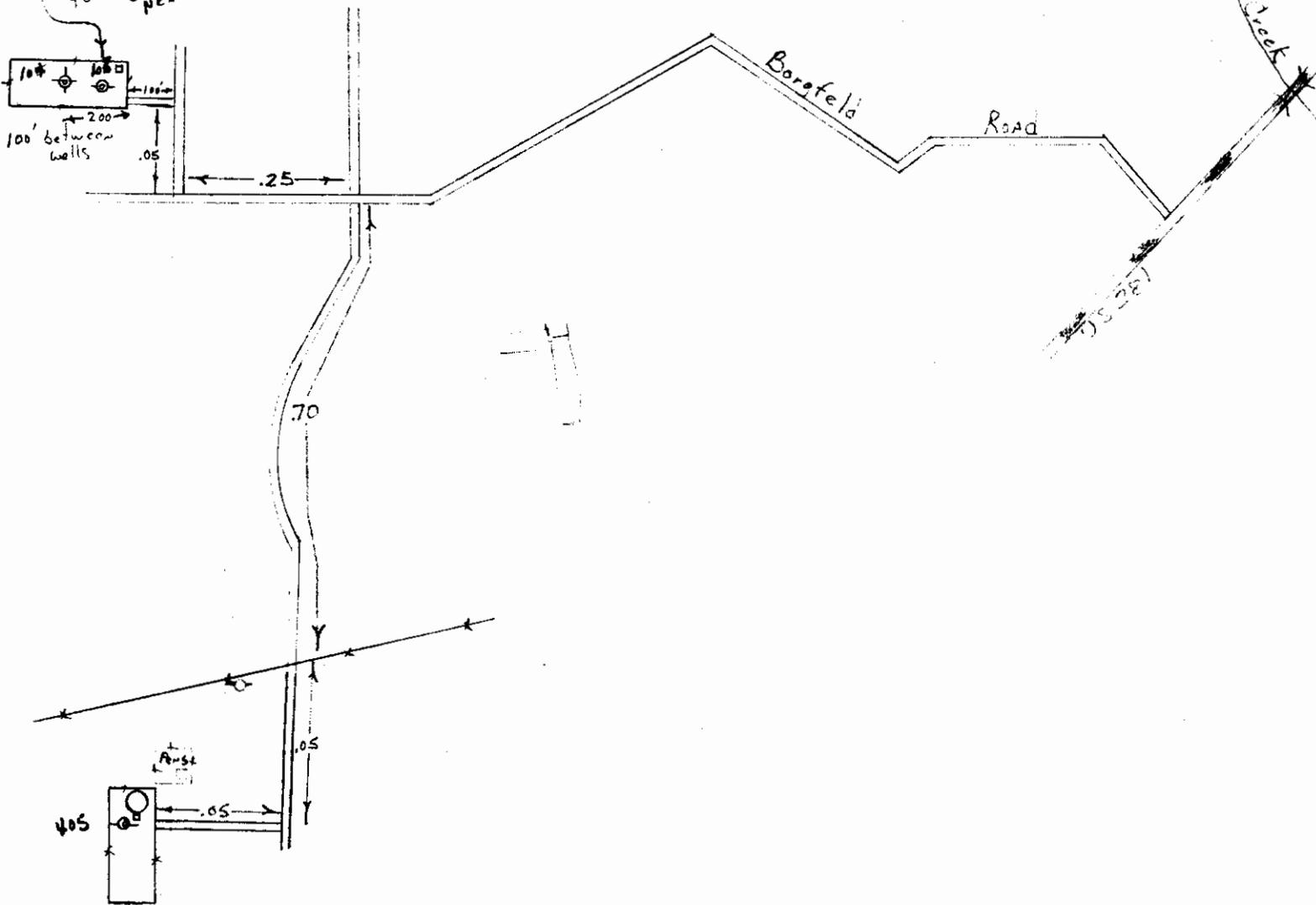
15. Record by: G. Marguardt Date 10-25 1977
 Source of Data OPS & Driller

16. Remarks: * Completed by HASKIN

WELL SCREEN			
Screen Openings			
Diam. (in.)	Type	Setting, ft.	
		from	to
	<u>open hole</u>	<u>322</u>	<u>647</u>

From (ft.)	To (ft.)	Description and color of formation material	9) Casing Type: <u>Old</u>
0	8	Caliche & Top Soil	Cemented from Yellow clay
8	38	Firm Brown limestone	Diameter (inches)
38	70	Firm Gray limestone	7"
70	103	Firm Brown limestone	
103	280	Firm Brown & Gray limestone	
280	340	Firm Brown & White limestone	Perfora Type
340	370	Firm Gray limestone	
370	440	Firm Brown limestone	Diameter (inches)
440	500	Firm Gray limestone	
500	550	Firm Brown limestone	
550	640	Firm Gray limestone	
640	647	Brown shale	

Tall water tower & two ground storage tanks next to well



Send original copy by certified mail to the Texas Water Development Board, P. O. Box 13087, Austin, Texas 78711

State of Texas

For TWDB use only
Well No. 68-21-1A
Located on map 4-10
Received 77
dk

WATER WELL REPORT

1) OWNER:
Person having well drilled G. G. GALE (Name) Address 15315 San Pedro Ave (Street or RFD) (City) (State)
Landowner (DEVELOPMENT COMPANY) (Name) Address San Antonio, La 78216 (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County BOYAR 2 1/2 miles in NORTH direction from _____ (Town)
(N.E., S.W., etc.)

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

North
↑
(Use reverse side if necessary)

Give legal location with distances and directions from adjacent sections or survey lines.
Labor _____ League _____
Block _____ Survey _____
Abstract No. _____
(NW 1/4 NE 1/4 SW 1/4 SE 1/4) of Section _____

3) TYPE OF WORK (Check):
 New Well Deepening Reconditioning Plugging
4) PROPOSED USE (Check):
 Domestic Industrial Municipal Irrigation Test Well Other
5) TYPE OF WELL (Check):
 Rotary Driven Dug Cable Jetted Bored

6) WELL LOG:
Diameter of hole 8" in. Depth drilled 647' ft. Depth of completed well 647' ft. Date drilled 2-16-77
All measurements made from _____ ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material	9) Casing Type	From (ft.)	To (ft.)
0	8	Caliche & Top Soil	Old	322	0
8	38	Firm Brown limestone	New Steel	0	322
38	70	Firm Gray limestone			
70	103	Firm Brown limestone			
103	280	Firm Brown & Gray limestone			
280	340	Firm Brown & white limestone			
340	370	Firm Gray limestone			
370	440	Firm Brown limestone			
440	500	Firm Gray limestone			
500	550	Firm Brown limestone			
550	640	Firm Gray limestone			
640	647	reverse Brown shale			

7) COMPLETION (Check):
 Straight wall Gravel packed Other
 Under reamed Open Bore
WATER LEVEL:
Static level 322' ft. below land surface Date 2-16-77
Artesian pressure _____ lbs. per square inch Date _____
Depth to pump bowls, cylinder, jet, etc., _____ ft. below land surface.
10 HP Submersible installed 6-10-77

11) WELL TESTS:
Was a pump test made? Yes If yes, by whom? _____
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.
Bailer test _____ gpm with _____ ft. drawdown after _____ hrs.
Artesian flow _____ gpm
Temperature of water _____

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

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

NAME GLEN H. HASKIN (Type or Print) Water Well Driller's Registration No. 935
ADDRESS 15403 CAPITAL PORT (Street or RFD) (City) (State) TX 78249
Signed Glen H. Haskin (Water Well Driller)

Please attach electric log, chemical analysis, and other pertinent data to this report.
Additional instructions on reverse side.

Date 3/7/77**HASKIN PUMP SERVICE, INC.**

15403 Capital Port

San Antonio Texas

492-2141

78249

Name Timberwood Park - Unit 1 #1Location Timberline DriveTotal Depth 647' Well Capacity _____Total Pipe 310' of 7" O.D. Date Started _____Drilling Time _____ Date Completed 2/16/77Kind of Formation Glenrose Water Level 322'

0	--	8	Caliche & Topsoil
8	--	38	Firm Brown Limestone & Yellow Clay
38	--	70	Firm Gray Limestone
70	--	103	Firm Brown Limestone
103	--	280	Firm Brown & Gray Limestone
280	--	340	Firm Brown & White Limestone
340	--	370	Firm Gray Limestone
370	--	440	Firm Brown Limestone
440	--	500	Firm Gray Limestone
500	--	550	Firm Brown Limestone
550	--	640	Firm Gray Limestone
640	--	647	Brown Shale

Pressure Cemented --
89 sacks #1 Mort

Cemented by use of tremie pipe
by HASKIN PUMP SERVICE INC.

Glen H. Haskin
Glen H. Haskin, President

Driller W.W. JonesRig No. 5-246

6821405

**Texas Water Development Board
Well Schedule**

State Well No. 68 21 405 Previous Well No. County BEXAR 029
 River Basin SAN ANTONIO 19 Zone 1 Lat. 29 41 53 Long. 98 29 27 Accuracy of Coord. 2
 Owner's Well No. WELL A-1 Location 1/4, -1.4, Section , Block , Survey

Owner BMW-D-TIMBERWOOD PARK Driller HASKIN PUMP SERVICE

Address _____ Tenant/Oper. _____
 Date Drilled 02 16 1977 Depth 647 Source of Depth Datum D Altitude 1250 Source of Alt. Datum M
 Aquifer LOWER GLEN ROSE + COW CREEK 2186RCCU Well Type W User 374810
 Aquifer ID 28

Well Const. Method AIR ROTARY A Casing Material _____
 Completion _____ Screen Material _____

Lift Data Pump Mfr. _____ Type SUBM S Setting _____

Motor Mfr. _____ Power ELECT E Horsepower _____

Yield Flow _____ GPM Pump _____ GPM Meas., Rept., Est. _____ Date _____

Performance Test Date _____ Length of Test _____ Production _____ GPM

Static Level _____ ft. Pumping Level _____ ft. Drawdown _____ ft. Sp. Cap. _____ GPM/ft.

Water Use Primary PUBLIC P Secondary _____ Tertiary _____

Quality (Remarks) _____

Other Data Available Water Level M Water Quality N Logs _____ Other Data _____

Date _____ Meas. _____
 Water Levels Date _____ Meas. _____
 Date _____ Meas. _____

Recorded By BIRI Date Record Collected or Updated 011 22 1999 (20 max) Reporting Agency 01

Remarks

1	
2	
3	
4	
5	
6	

	Casing or Blank Pipe (C)			Well Screen or Slotted Zone (S)			Open Hole (O)		
	Diam. (in.)	From	To	Diam. (in.)	From	To	Diam. (in.)	From	To
1	C	7	0			310			
2	O	6	310			647			
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									

Aquifer 2186RCCU
 Well No. 68-21-405

#1 WELL

26975 Timberline Dr.

Please use black ink.
Send original copy by
certified mail to the
Texas Water Commission
P.O. Box 13067
Austin, Texas 78711

State of Texas
WATER WELL REPORT

Texas Water Well Drillers Board
P. O. Box 13067
Austin, Texas 78711

ATTENTION OWNER: Confidentiality Privilege Notice on Reverse Side

1) OWNER Haskin Water Utility, Inc. Address 15403 Capital Port San Antonio, TX 78249
(Name) (Street or RFD) (City) (State) (Zip)

2) LOCATION OF WELL:
County Bexar 19 1/2 miles in North direction from San Antonio
(N.E., S.W., etc.) (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

Legal description: Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

 See attached map.

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

4) PROPOSED USE (Check):
 Domestic Industrial Monitor Public Supply
 Irrigation Test Well Injection Other _____

5) DRILLING METHOD (Check): Driven
 Mud Rotary Air Hammer Jetted Bored
 Air Rotary Cable Tool Other _____

6) WELL LOG:

Date Drilling:
Started _____ 19 ____
Completed 2/16 19 77

DIAMETER OF HOLE

Dis. (in.)	From (ft.)	To (ft.)
10 3/4	Surface	310
6		647

7) BOREHOLE COMPLETION:

Open Hole Straight Wall Underreamed
 Gravel Packed Other _____
If Gravel Packed give interval ... from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	8	Caliche & Top Soil
8	38	Firm Brown Limestone
38	70	Firm Gray Limestone
70	103	Firm Brown Limestone
103	280	Firm Brown & Gray Limest
280	340	Firm Brown & White Lmst
340	370	Firm Gray Limestone
370	440	Firm Brown Limestone
440	500	Firm Gray Limestone
500	550	Firm Brown Limestone
550	640	Firm Gray Limestone
640	647	Brown Shale

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.)		Gage Casing Screen
			From	To	
70	N	Steel	0	310	

9) CEMENTING DATA [Rule 319.44(b)]

Cemented from 310 ft. to 0 ft. No. of Sacks Used 89
_____ ft. to _____ ft. No. of Sacks Used _____
Method used pressure cementing
Cemented by Haskin Pump Service, Inc.
pressure cemented with 1" tremmi pipe

10) SURFACE COMPLETION

Specified Surface Slab Installed [Rule 319.44(c)]
 Pitless Adapter Used [Rule 319.44(d)]
 Approved Alternative Procedure Used [Rule 319.71]

11) WATER LEVEL:

Static level 322 ft. below land surface Date 2/16/77
Artesian flow 125 gpm. Date 2/16/77

12) PACKERS: Type Depth

13) TYPE PUMP:

Turbine Jet Submersible Cylinder
 Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

15) WATER QUALITY:

Did you knowingly penetrate any strata which contained undesirable water? Yes No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? Yes No

14) WELL TESTS:

Type Test: Pump Bailer Jetted Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

I here by certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 12 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME Haskin Pump Service Water Well Driller's License No. 935
(Type or Print)

ADDRESS 15403 Capital Port San Antonio, Texas 78249
(Street or RFD) (City) (State) (Zip)

(Signed) Glen H. Haskin (Registered Driller Trainee)
Glen H. Haskin (Type or Print)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TWC use only
Well No. _____
Located on map _____

REQUEST FOR CHEMICAL ANALYSIS OF WATER
 TEXAS DEPARTMENT OF HEALTH
 110 WEST 106 STREET, AUSTIN, TEXAS 78701

NAME OF WATER SYSTEM
 MR. GLEN HARKIN
 15405 CAPITAL PARK
 SAN ANTONIO, TX 78247

NAME OF WATER SYSTEM
 [REDACTED]
 Area Served: 5050V.
 County: [REDACTED]
 Date Collected: [REDACTED]

PART OF COLLECTION: IS THIS WELL? _____ OF SOURCE SUPPLY _____
 Raw Supply: _____ Name of Source _____
 Distribution: chlor. _____
 Other: _____

REMARKS: REVISIONS TO COMPOSITE SAMPLES

Signature of Public Official: Raymond B. [Signature] REL 9
 Title: PG. DR. 630, VALLE, TX 78701
 Name of Official: _____

FOR LABORATORY USE ONLY

CHEMICAL ANALYSIS RESULTS		PHYSICAL ANALYSIS	
Concentration	Unit	Concentration	Unit
Calcium	90	Temperature	_____
Magnesium	2.1	Specific Gravity	_____
Sodium	8	Residual Chlorine	_____
Carbonate	0	Chlorine Demand	_____
Bicarbonate	346	Iron	_____
Sulfate	17	Cadmium	_____
Chloride	14	Manganese	_____
Fluoride	2.3	Mercury	_____
Nitrate	2.15	Selenium	_____
		Silver	_____
Total Solids	326		
Total Hardness	326		
Total Alkalinity	326		
Total Hardness	310		

Water Quality Field Data

SWN: 68-21-405 Sample No B.M.-1999-3101
 County: BEXAR Name: B.M.W.D
 Aquifer(s): GLEN ROSE Address: 26975 TIMBERLINE DR. Date: APRIL 6, 1999
 By: ROGER P.

owner's well # W/P #1
S.A. TX. 78258

Bottle 1		Bottle 2		Bottle 3		Bottle 4		Bottle 5		Bottle 6		Bottle 7		Total		
500 ml	1 liter	250 ml	1 liter	250 ml	1 liter	250 ml	1 liter	250 ml	1 liter	250 ml	1 liter	250 ml	1 liter	250 ml	SUB-Samples	
Anions	Cations	Nitrate	Radioactivity	Nitrate	Radioactivity	Nitrate	Radioactivity	Nitrate	Radioactivity	Nitrate	Radioactivity	Nitrate	Radioactivity	Nitrate	Radioactivity	
		0.5 ml	2 ml	0.5 ml	2 ml	0.5 ml	2 ml	0.5 ml	2 ml	0.5 ml	2 ml	0.5 ml	2 ml	0.5 ml	2 ml	
		HNO ₃	HNO ₃	H ₂ SO ₄	HNO	(Nitric)	(Nitric)	(Sulfuric)	(Nitric)	(Nitric)	(Nitric)	(Sulfuric)	(Nitric)	(Nitric)	(Nitric)	
All filtered unless otherwise stipulated																
Water Level	LSD	Remark	NOT PUMPING	Time in	0930	Time out	1125	Sample time	1050	Starting pH	7.40 @ 22.6					
Temperature (00010)		23.4	c	Weather	SUNNY/COOL	well use	PUBLIC	50	ml. of Sample	13.5	ml.	11	5.78			
Specific Conductance (00094)		592	umhos/cm	Outside Temp	78°	Ending pH	4.50 @ 21.7									
pH (00400)		7.14		Sampling point	FAUCET											
Eh (00090)		* 264.4	mv.	Time:	1030	1035	1040	ml.	1	pH	7.15	ml.	11	5.78		
Phenol ALK (82244)		-	mg/l	pH:	6.97	7.11	7.14	2	6.95	12	5.56	3	6.80	13	5.20	
Total ALK (39086)		270.0	mg/l	Temp:	21.0	23.4	23.4	3	6.66	13.5	4.50	4	6.55			
Carbonate (00452)		-	meq/l	Eh:		264.4		4	6.43			5	6.32			
Bicarbonate (00453)		5.4	meq/l	Cond.	580	592	592	5	6.21			6	6.08			
Total Cations(+)		Balanced		other notes:	STARTED											
Total Anions (-)				Pumping since	AT 1025	Lift	SUBMERSIBLE	6	6.21			7	6.08			
Total Hardness (00900)		320		Latitude	29-41-53	Power	ELECTRIC	7	6.21			8	6.08			
Dissolved Solids		335		Longitude	98-29-27	Gpm	150	8	6.21			9	6.08			
								10	5.95							



FINAL ANALYSIS REPORT

LAB ID: 9906306 SAMPLE DESCRIPTION: Groundwater
COMPANY: TX Water Dev. Board SAMPLE DATE: 04/06/99
ACCT NO: SAMPLE TIME: 1130
REQUISITION No.: R10584 DATE RECEIVED: 04/09/99
LOCATION ID: 68-21-405 REPORT DATE: 05/05/99

PARAMETER	RESULTS	UNITS	STORET #	PQL in WATER	DATE ANALYZED
Bromide	0.10	mg/L	71870	0.02	04/14/99
Chloride	13.4	mg/L	00941	1.5	04/14/99
Fluoride	0.62	mg/L	00950	0.01	04/14/99
Nit., nitri/nitra-AFA	0.685	mg/L	00630	0.010	04/28/99
Nitrogen, Kjeldahl	0.302	mg/L	00623	0.040	04/14/99
Nitrogen, ammonia	<0.050	mg/L	00608	0.050	04/15/99
Phosphorus, Total	<0.040	mg/L	00665	0.040	04/14/99
Silica	11.80	mg/L	00955	0.50	04/13/99
Sulfate	26.20	mg/L	00946	1.50	04/14/99
Alkalinity, Total	267	mg/L	00410	1	04/12/99
Alkalinity, Phenol.	0	mg/L	00415	0	04/12/99
Boron, Dissolved	82.00	ug/L	01020	50.00	04/13/99
Cobalt, Diss. ICPMS	<1.0	ug/L	01035	1.0	04/12/99
Iron, Dissolved	58.00	ug/L	01046	50.00	04/13/99
Lithium, Diss. ICPMS	5.9	ug/L	01130	2.0	04/13/99
Molybdenum Dis ICPMS	2.3	ug/L	01060	1.0	04/12/99
Potassium, Dissolved	1.98	mg/L	00935	0.20	04/13/99
Strontium, Dissolved	1600.00	ug/L	01080	20.00	04/13/99
Vanadium, Diss ICPMS	4.6	ug/L	01085	1.0	04/12/99
Aluminum, Dis. ICPMS	<4.0	ug/L	01106	4.0	04/12/99
Arsenic, Diss. ICPMS	<2.0	ug/L	01000	2.0	04/12/99
Barium, Diss. ICPMS	30.9	ug/L	01005	1.0	04/12/99
Cadmium, Diss. ICPMS	<1.0	ug/L	01025	1.0	04/12/99
Calcium, Dissolved	76.00	mg/L	00915	0.20	04/13/99
Chromium, Diss ICPMS	11.9	ug/L	01030	1.0	04/12/99
Copper, Diss. ICPMS	3.4	ug/L	01040	2.0	04/12/99
Lead, Diss. ICPMS	<1.0	ug/L	01049	1.0	04/12/99
Magnesium, Dissolved	30.40	mg/L	00925	0.20	04/13/99
Manganese, Dis ICPMS	<1.0	ug/L	01056	1.0	04/12/99
Nickel, Diss. ICPMS	10.8	ug/L	01065	1.0	04/12/99
Selenium, Dis. ICPMS	<4.0	ug/L	01145	4.0	04/12/99
Sodium, Dissolved	8.90	mg/L	00930	0.20	04/13/99
Antimony, Dis. ICPMS	<1.0	ug/L	01095	1.0	04/12/99
Beryllium, Dis ICPMS	<1.0	ug/L	01010	1.0	04/12/99
Thallium, Diss ICPMS	<1.0	ug/L	01057	1.0	04/12/99
Zinc, Diss. ICPMS	132.0	ug/L	01090	2.0	04/12/99

LCRA Environmental Laboratory Services

Date: 03-Jul-00

CLIENT: Texas Water Development Board
Lab Order: 0006145 **COC ID:** 13701
Project: TWDB 9/99 thru 8/00
Lab ID: 0006145-05

Client Sample ID: 68-21-405
 BM-3118-2000
Collection Date: 06/07/2000 11:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	QC Batch	Date Analyzed
ICP METALS, DISSOLVED		E200.7					Analyst: BL
Calcium	82.0	0.200		mg/L	1	R4757	06/29/2000
Magnesium	27.4	0.200		mg/L	1	R4757	06/29/2000
Potassium	2.01	0.200		mg/L	1	R4757	06/29/2000
Sodium	9.48	0.700		mg/L	1	R4757	06/29/2000
ICP METALS, DISSOLVED		E200.7					Analyst: BL
Boron	82.9	50.0		µg/L	1	R4758	06/29/2000
Iron	ND	50.0		µg/L	1	R4758	06/29/2000
Strontium	1550	20.0		µg/L	1	R4758	06/29/2000
ICPMS METALS, DISSOLVED		E200.8					Analyst: PJM
Aluminum	ND	4.00		µg/L	1	R4784	06/30/2000
Antimony	ND	1.00		µg/L	1	R4784	06/30/2000
Arsenic	ND	2.00		µg/L	1	R4784	06/30/2000
Barium	29.5	1.00		µg/L	1	R4784	06/30/2000
Beryllium	ND	1.00		µg/L	1	R4784	06/30/2000
Cadmium	ND	1.00		µg/L	1	R4784	06/30/2000
Chromium	5.12	1.00		µg/L	1	R4784	06/30/2000
Cobalt	ND	1.00		µg/L	1	R4784	06/30/2000
Copper	6.42	2.00		µg/L	1	R4784	06/30/2000
Lead	ND	1.00		µg/L	1	R4784	06/30/2000
Lithium	6.22	2.00	B	µg/L	1	R4784	06/30/2000
Manganese	1.29	1.00		µg/L	1	R4784	06/30/2000
Molybdenum	1.79	1.00		µg/L	1	R4784	06/30/2000
Nickel	2.70	1.00		µg/L	1	R4784	06/30/2000
Selenium	ND	4.00		µg/L	1	R4784	06/30/2000
Thallium	ND	1.00		µg/L	1	R4784	06/30/2000
Vanadium	2.51	1.00		µg/L	1	R4784	06/30/2000
Zinc	119	4.00		µg/L	1	R4784	06/30/2000
ANIONS BY ION CHROMATOGRAPHY		E300					Analyst: AMJ
Bromide	0.0800	0.0200		mg/L	1	R4715A	06/26/2000
Chloride	14.4	1.50		mg/L	1	R4715A	06/26/2000
Fluoride	0.590	0.0100		mg/L	1	R4715A	06/26/2000
Sulfate	25.4	1.50		mg/L	1	R4715A	06/26/2000
ALKALINITY		M2320 B					Analyst: WR
Alkalinity, Phenolphthalein	ND	0		mg/L CaCO ₃	1	R4636	06/20/2000
Alkalinity, Total (As CaCO ₃)	282	2.00		mg/L CaCO ₃	1	R4636	06/20/2000
CATION/ANION BALANCE		CALCULATION					Analyst: AMJ

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

LCRA Environmental Laboratory Services

Date: 03-Jul-00

CLIENT: Texas Water Development Board
Lab Order: 0006145 **COC ID:** 13701
Project: TWDB 9/99 thru 8/00
Lab ID: 0006145-05

Client Sample ID: 68-21-405
BM-3118-2000
Collection Date: 06/07/2000 11:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	QC Batch	Date Analyzed
Cation/Anion Balance	Balanced	0		Date	1	R4796	06/30/2000
NITRATE AND NITRITE			E353.2				Analyst: CL
Nitrogen, Nitrate & Nitrite	1.30	0.0200		mg/L	1	R4727H	06/27/2000
SILICA			E370.1				Analyst: CL
Silica, Dissolved (as SiO ₂)	12.0	0.500		mg/L	1	R4676E	06/23/2000

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

TWDB Water Quality Field Data Sheet

New Well:

State Well Number: 68-21-405
 County: BEXAR
 Aquifer Code: _____
 Aquifer Id: EDWARDS

Send Results To:

Owner's Name: B.M.W.D.
 Lessee's Name: _____
 Attention: MICHAEL J. ALBACH
 Mailing Address: 2047 W. MALONE
S.A. TX. 78225

Type of Sample:

Sample Number: BM-3118-2000
 Date: JUNE 7, 2000
 Sampler(s): ROGER P.

 Well Number: W/P #1

1 (on ice) 500ml (filtered) Anions n/a	2 500ml (filtered) Cations 1ml Nitric (HNO3)	3 (on ice) 250ml (filtered) Nitrate 0.5ml Sulfuric (H2SO4)	
---	---	---	--

Water Level from LSD: _____ ft

 Time In: 11:00

Remark code: _____

 Time Out: 12:00

 Temperature (00010): 23.2 C

 Pumping Since: 11:20

 Specific Conductance: 616 umhos/cm

 Weather: SUNNY/COOL

 pH: 6.87

 Outside Temperature: 82

 Phenol Alkalinity (82244): 0.0 mg/L

 Sampling Point: F@W

 Total Alkalinity (39086): 268.0 mg/L

 Sample Time: 11:45

 Carbonate: 0.00 meq/L

 Well Use: PUBLIC

 Bicarbonate: 5.36 meq/L

 Lift: S

 Carbonate: 0.0 mg/L

 Power: ELECTRIC

 Bicarbonate: 327.1 mg/L

 Latitude: 29-40-35

 Total Hardness: 370

 Longitude: 98-37-04

 TDS: 350

Elevation: _____

 Balanced: 121

(mark)

Time:	<u>11:25</u>	<u>11:30</u>	<u>11:35</u>
pH:	<u>6.81</u>	<u>6.84</u>	<u>6.87</u>
Temperature:	<u>22.8</u>	<u>23.0</u>	<u>23.2</u>
Conductivity:	<u>602</u>	<u>610</u>	<u>616</u>
Conductivity Temp.	<u>22.7</u>	<u>22.9</u>	<u>23.1</u>

Hand-pump filtered

Line-pressure filtered

Other notes:

PRESSURE LINE FILTERED
Titration

6.95 Start pH
 4.5 End pH

50 ml. Sample
 13.4 ml. Acid added for Total
 ml. Acid added for Phenol

Daily Meter Calibration

Reeding	
pH	
7	<u>7</u>
4 or 10	<u>10.04</u>
Conductivity (uS/cm, umhos/cm)	
500	<u>501</u>
1000	<u>1000</u>
2000	<u> </u>
5000	<u> </u>

Entered Screen

1 2 3 4

2002FY

TWDB Water Quality Field Data Sheet

State Well Number: 68-21-405

Name: BEXAR METRO WATER

Sample ID Number: BM 1418-02

County: BEXAR

Address: 2055 W. MALONE

Date: 6-6-02

County Code: 029

SAN ANTONIO TX, 78225

Sampler(s): M. APAREZ

Aquifer Code: TRINITY 218 GRU U

Phone Number: (210) 357-5706

Aquifer Id: 28

Attention: ROGER PIACENCIA

Well Name or #: 075W.P#1

Timberwood Park

CIRCLE EACH SAMPLE FRACTION COLLECTED:				
1	2	3	4	5
500ml (filtered)	500ml (filtered)	250ml (filtered)		
Anions / Total Alk.	Cations	Nitrate		
Ice	Nitric (HNO3)	Ice + H2SO4		

Proper preservation requires adding enough of the correct acid to each sample fraction to bring the pH below 2.0.

Calibration Verification Readings	
pH	7.00 7.00
	4 or 10 10.01
SLP =	56.8
Conductivity	500 500
	1000 1000
	2000 2000
	5000 5000

Time In: 1010

Time Out: 1050

W. L. depth from LSD (ft.): 647

W.L. remark:

M.P. =

Pumping Since: 1010

Sampling Point: F.A.W

Well Use: PUBLIC

FIELD G.P.S. readings

Lift: SUBMERSIBLE

Latitude:

Power: ELECTRIC

Longitude:

Sample Time: 1035

Filter pressure: hand pump / (line)

Field Alkalinity Titration:	
7.15 Start pH	4.5 End pH
50.0 mL Sample Size	
mL Acid added for Phenol (> 8.3)	
14.4 mL Acid added for Total (8.3 - 4.5)	
Items below calculated from: mL acid added x 20 = Alkalinity	
Phenol Alkalinity (83244):	mg/L
Total Alkalinity (390989):	288 mg/L

Items Below Calculated Later From Results:	
Dissolved Solids (mg/L):	352
Hardness (as CaCO3):	307
Balanced:	✓

Water Quality Stabilization Parameters Table

(at least 3 readings at five minute intervals)

Time:	1015	1020	1025	1030				
pH:	6.79	6.98	7.01	7.01				
Celsius Temp. (000010)	25.0	25.0	25.0	25.0				
Conductivity (µS/cm):	641	641	642	642				

Notes:

Data Entered By Sampler into Database

Yes / no

LCRA Environmental Laboratory Services

Date: 27-Jun-02

CLIENT: Texas Water Development Board
Lab Order: 0206103 **File No:** 20140
Project: TWDB FY02
Lab ID: 0206103-05

Client Sample ID: 68-21-405
Collection Date: 6/6/02 10:35:00 AM
Matrix: GROUNDWATER

Analyses	Storet	Result	PQL	Qual	Units	DF	BatchID	Date Analyzed
ICP METALS DISSOLVED			E200.7					Analyst: MLP
Calcium		88.1	0.20		mg/L	1	R14721A	6/18/02 7:25:26 PM
Magnesium		21.2	0.20		mg/L	1	R14721A	6/18/02 7:25:26 PM
Potassium		1.10	0.20		mg/L	1	R14721A	6/18/02 7:25:26 PM
Sodium		12.3	0.70		mg/L	1	R14721A	6/18/02 7:25:26 PM
ICP METALS DISSOLVED			E200.7					Analyst: MLP
Boron		ND	50		µg/L	1	R14665A	6/18/02 7:25:26 PM
Iron		ND	50		µg/L	1	R14665A	6/18/02 7:25:26 PM
Strontium		554	20		µg/L	1	R14665A	6/18/02 7:25:26 PM
ICPMS DISSOLVED METALS			E200.8					Analyst: SW
Aluminum		ND	4.00		µg/L	1	R14656A	6/18/02
Antimony		ND	1.00		µg/L	1	R14656A	6/18/02
Arsenic		ND	2.00		µg/L	1	R14656A	6/18/02
Barium		31.2	1.00		µg/L	1	R14656A	6/18/02
Beryllium		ND	1.00		µg/L	1	R14656A	6/18/02
Cadmium		ND	1.00		µg/L	1	R14656A	6/18/02
Chromium		2.22	1.00		µg/L	1	R14656A	6/18/02
Cobalt		ND	1.00		µg/L	1	R14656A	6/18/02
Copper		3.25	1.00		µg/L	1	R14656A	6/18/02
Lead		ND	1.00		µg/L	1	R14656A	6/18/02
Lithium		2.94	2.00		µg/L	1	R14656A	6/18/02
Manganese		2.28	1.00		µg/L	1	R14656A	6/18/02
Molybdenum		ND	1.00		µg/L	1	R14656A	6/18/02
Nickel		3.78	1.00		µg/L	1	R14656A	6/18/02
Selenium		ND	4.00		µg/L	1	R14656A	6/18/02
Thallium		ND	1.00		µg/L	1	R14656A	6/18/02
Vanadium		1.55	1.00		µg/L	1	R14656A	6/18/02
Zinc		89.3	4.00		µg/L	1	R14656A	6/18/02
CATION/ANION BALANCES			CALCULATION					Analyst: AMJ
Cation/Anion Balance		Balanced			Date	1	R14778	6/26/02
ANIONS BY ION CHROMATOGRAPHY, DISSOLVE E300								Analyst: WR
Bromide Dissolved		0.06	0.02		mg/L	1	R14737B	6/21/02 9:44:38 PM
Chloride Dissolved		25.2	1.00		mg/L	1	R14737B	6/21/02 9:44:38 PM

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank E - Value above quantitation range
 * - Value exceeds Maximum Contaminant Level

LCRA Environmental Laboratory Services

Date: 27-Jun-02

CLIENT: Texas Water Development Board
Lab Order: 0206103 **File No:** 20140
Project: TWDB FY02
Lab ID: 0206103-05

Client Sample ID: 68-21-405
Collection Date: 6/6/02 10:35:00 AM
Matrix: GROUNDWATER

Analyses	Storet	Result	PQL	Qual	Units	DF	BatchID	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY, DISSOLVE E300								
Fluoride Dissolved		0.28	0.01		mg/L	1	R14737B	6/21/02 9:44:38 PM
Sulfate Dissolved		16.8	1.00		mg/L	1	R14737B	6/21/02 9:44:38 PM
ALKALINITY								
			M2320 B					Analyst: CMM
Alkalinity, Phenolphthalein		ND	0		mg/L CaCO	1	R14631	6/14/02
Alkalinity, Total (As CaCO3)		276	2		mg/L CaCO	1	R14631	6/14/02
NITRATE AND NITRITE								
			E353.2					Analyst: WM
Nitrogen, Nitrate & Nitrite		1.95	0.02		mg/L	1	R14649A	6/17/02
SILICA								
			E370.1					Analyst: WM
Silica, Dissolved (as SiO2)		12.5	0.50		mg/L	1	R14587C	6/12/02

Qualifiers:
 ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

2003FY TWDB Water Quality Field Data Sheet

Newly Inventoried Well

State Well Number: 6821405 Name: Bexar Metro Water District
 County: Comanch Seban Address: 2055 W Malone
 County Code: 091 Phone Number: San Antonio TX 78225
 Aquifer Code: 2186RCCU Attention: Roger Placencia
 Aquifer Id: 28 Well Name or #: 075 W#21

Sample ID Number: 14103 Date: 5-13-03
 Sampler(s): M. Aguer & J. Santos

CIRCLE EACH SAMPLE FRACTION COLLECTED:				
1	2	3	4	5
500ml (filtered)	500ml (filtered)	250ml (filtered)		
Anions / Total Alk.	Cations	Nitrate		
Ice	Nitric (HNO3)	Ice + H2SO4		

Proper preservation requires adding enough of the correct acid to each sample fraction to bring the pH below 2.0.

Calibration Verification Readings	
pH	7 = 5.72
	4 or 10 = 8.69
SLP = 55.9	7.38
Conductivity	500 = 494
	1000 = 1002
	2000 =
	5000 =

Time In: 1330 Time Out: 1435

W. L. depth from LSD (ft.): 647 W.L. remark: _____ M.P. = _____

Pumping Since: 1335 Sampling Point: FAW

Well Use: Public **FIELD G.P.S. readings**
 Lift: Submersible Latitude: 29° 41' 55.0"
 Power: Electric Longitude: 98° 29' 24.0"

Casing Type: _____ Casing Size: _____"
 Sample Time: 1400 Filter pressure: hand pump / line

Water Quality Stabilization Parameters Table

(at least 3 readings at five minute intervals)

Time:	1340	1345	1350	1355		
pH:	6.40	6.68	6.73	6.73		
Celsius Temp. (00010)	22.2	22.5	22.5	22.6		
Conductivity (uS/cm):	678	661	657	658		

Notes:

Field Alkalinity Titration:	
7.49 Start pH	4.56 End pH
50.0 mL Sample Size	
12.5 mL Acid added for Phenol (> 8.3)	
mL Acid added for Total (8.3 - 4.5)	

Items below calculated from: mL acid added x 20 = Alkalinity

Phenol Alkalinity (82244): _____ mg/L

Total Alkalinity (39006): 250 mg/L

Items Below Calculated Later From Results:	
Dissolved Solids (mg/L):	<u>358</u>
Hardness (as CaCO3):	<u>316</u>
Balanced:	<u>✓</u>

Data Entered By Sampler Into Database: Yes / no

LCRA Environmental Laboratory Services

Date: 17-Jun-03

CLIENT: Texas Water Development Board

Client Sample ID: 68-21-405

Lab Order: 0305311 **File No:** 24761

Project: TWDB FY03

Collection Date: 5/13/2003 2:00:00 PM

Lab ID: 0305311-02

Matrix: GROUNDWATER

Analyses	Storet	Result	PQL	Qual	Units	DF	BatchID	Date Analyzed	
ICP METALS DISSOLVED		E200.7		Analyst: MLP					
Calcium		87.5	0.20		mg/L	1	R20184C	6/11/2003 6:50:44 PM	
Magnesium		23.6	0.20		mg/L	1	R20184C	6/11/2003 6:50:44 PM	
Potassium		1.46	0.20		mg/L	1	R20184C	6/11/2003 6:50:44 PM	
Sodium		12.2	0.70		mg/L	1	R20184C	6/11/2003 6:50:44 PM	
ICP METALS DISSOLVED		E200.7		Analyst: MLP					
Boron		61	50		µg/L	1	R20186C	6/11/2003 6:50:44 PM	
Iron		ND	50		µg/L	1	R20186C	6/11/2003 6:50:44 PM	
Strontium		956	20		µg/L	1	R20186C	6/11/2003 6:50:44 PM	
ICPMS DISSOLVED METALS		E200.8		Analyst: SW					
Aluminum		ND	4.00		µg/L	1	R19981B	5/30/2003	
Antimony		ND	1.00		µg/L	1	R19981B	5/30/2003	
Arsenic		ND	2.00		µg/L	1	R19981B	5/30/2003	
Barium		32.4	1.00		µg/L	1	R19981B	5/30/2003	
Beryllium		ND	1.00		µg/L	1	R19981B	5/30/2003	
Cadmium		ND	1.00		µg/L	1	R19981B	5/30/2003	
Chromium		4.36	1.00		µg/L	1	R19981B	5/30/2003	
Cobalt		ND	1.00		µg/L	1	R19981B	5/30/2003	
Copper		5.02	1.00		µg/L	1	R19981B	5/30/2003	
Lead		1.17	1.00		µg/L	1	R19981B	5/30/2003	
Lithium		4.18	2.00		µg/L	1	R19981B	5/30/2003	
Manganese		ND	1.00		µg/L	1	R19981B	5/30/2003	
Molybdenum		1.29	1.00		µg/L	1	R19981B	5/30/2003	
Nickel		2.93	1.00		µg/L	1	R19981B	5/30/2003	
Selenium		ND	4.00		µg/L	1	R19981B	5/30/2003	
Thallium		ND	1.00		µg/L	1	R19981B	5/30/2003	
Vanadium		2.46	1.00		µg/L	1	R19981B	5/30/2003	
Zinc		52.5	4.00		µg/L	1	R19981B	5/30/2003	
CATION/ANION BALANCES		CALCULATION		Analyst: AMJ					
Cation/Anion Balance		Balanced			Date	1	R20192	6/12/2003	
ANIONS BY ION CHROMATOGRAPHY, DISSOLVE E300		E300		Analyst: WR					
Bromide Dissolved		0.10	0.02		mg/L	1	R19989D	5/30/2003 10:01:10 PM	
Chloride Dissolved		21.8	1.00		mg/L	1	R19989D	5/30/2003 10:01:10 PM	

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank E - Value above quantitation range
 * - Value exceeds Maximum Contaminant Level

LCRA Environmental Laboratory Services

Date: 17-Jun-03

CLIENT: Texas Water Development Board
Lab Order: 0305311 **File No:** 24761
Project: TWDB FY03
Lab ID: 0305311-02

Client Sample ID: 68-21-405
Collection Date: 5/13/2003 2:00:00 PM
Matrix: GROUNDWATER

Analyses	Storet	Result	PQL	Qual	Units	DF	BatchID	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY, DISSOLVE E300								
Fluoride Dissolved		0.37	0.01		mg/L	1	R19989D	5/30/2003 10:01:10 PM
Sulfate Dissolved		20.5	1.00		mg/L	1	R19989D	5/30/2003 10:01:10 PM
ALKALINITY								
			M2320 B					Analyst: CMM
Alkalinity, Phenolphthalein		ND	0		mg/L CaCO	1	R19928	5/27/2003
Alkalinity, Total (As CaCO3)		284	2		mg/L CaCO	1	R19928	5/27/2003
NITRATE AND NITRITE								
			E353.2					Analyst: WM
Nitrogen, Nitrate & Nitrite		1.60	0.02		mg/L	1	R19976E	5/30/2003
SILICA								
			E370.1					Analyst: WM
Silica, Dissolved (as SiO2)		13.0	0.50		mg/L	1	R20053C	6/4/2003

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank E - Value above quantitation range
 * - Value exceeds Maximum Contaminant Level

[GWDB Reports and Downloads](#)

Well Basic Details

[Scanned Documents](#)

State Well Number	6821408
County	Bexar
River Basin	San Antonio
Groundwater Management Area	9
Regional Water Planning Area	L - South Central Texas
Groundwater Conservation District	Trinity Glen Rose GCD
Latitude (decimal degrees)	29.698334
Latitude (degrees minutes seconds)	29° 41' 54" N
Longitude (decimal degrees)	-98.490834
Longitude (degrees minutes seconds)	098° 29' 27" W
Coordinate Source	Global Positioning System - GPS
Aquifer Code	218GRCCU - Lower Glen Rose and Cow Creek Limestones
Aquifer	Trinity
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	1250
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	640
Well Depth Source	Driller's Log
Drilling Start Date	
Drilling End Date	1/18/1979
Drilling Method	Mud (Hydraulic) Rotary
Borehole Completion	Open Hole

Well Type	Withdrawal of Water
Well Use	Public Supply
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	BMWV-Timberwood Park Well #2
Driller	Haskin Pump Service
Other Data Available	Drillers Log
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	G0150054O
Groundwater Conservation District Well Number	
Owner Well Number	2
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	11/13/1995
Last Update Date	9/16/2014

Remarks Owners well #2. TCEQ ID #0150270.

Casing						
Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
6	Blank	Steel			0	303
	Open Hole				303	640

Well Tests - No Data

Lithology - No Data

Annular Seal Range - No Data

Borehole - No Data

Plugged Back - No Data

Filter Pack - No Data

Packers - No Data

Water Level Measurements



Status Code	Date	Time	Water Level (ft. below land surface)	Change value in () indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
Q	1/8/1979		316		934	1	Registered Water Well Driller	Unknown	17	

Code Descriptions

Status Code	Status Description
Q	Questionable

Remark ID	Remark Description
17	Measurement before well completion

Water Quality Analysis

Sample Date: 6/17/1980 **Sample Time:** 0000 **Sample Number:** 1 **Collection Entity:** Texas Department of Health

Sampled Aquifer: Lower Glen Rose and Cow Creek Limestones

Analyzed Lab: Texas Department of Health

Reliability: From well not sufficiently pumped; not filtered or preserved

Collection Remarks: plant discharge - chlorinated

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		283	mg/L as CaCO 3	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		345.36	mg/L	
00910	CALCIUM (MG/L)		80	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		14	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.5	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		314	mg/L as CaCO 3	
01045	IRON, TOTAL (UG/L AS FE)		30	ug/L	
00920	MAGNESIUM (MG/L)		28	mg/L	
01055	MANGANESE, TOTAL (UG/L AS MN)	<	20	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		6.82	mg/L as NO3	
00620	NITRATE NITROGEN, TOTAL (MG/L AS N)		1.54	mg/L as N	
00400	PH (STANDARD UNITS), FIELD		8.3	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		0.2		
00932	SODIUM, CALCULATED, PERCENT		5	PCT	
00929	SODIUM, TOTAL (MG/L AS Na)		8	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		652	MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)		27	mg/L as SO4	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		334	mg/L	
01092	ZINC, TOTAL (UG/L AS ZN)		280	ug/L	

Water Quality Analysis

Sample Date: 4/7/1999 **Sample Time:** 1000 **Sample Number:** 1 **Collection Entity:** Bexar Metropolitan Water District

Sampled Aquifer: Lower Glen Rose and Cow Creek Limestones

Analyzed Lab: LCRA - Lower Colorado River Authority **Reliability:** Sampled using TWDB protocols

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
39086	ALKALINITY FIELD DISSOLVED AS CaCO3		284	mg/L as CaCO3	
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		275	mg/L as CaCO3	
01106	ALUMINUM, DISSOLVED (UG/L AS AL)	<	4	ug/L	
01095	ANTIMONY, DISSOLVED (UG/L AS SB)	<	1	ug/L	
01000	ARSENIC, DISSOLVED (UG/L AS AS)	<	2	ug/L	
01005	BARIUM, DISSOLVED (UG/L AS BA)		28.2	ug/L	
01010	BERYLLIUM, DISSOLVED (UG/L AS BE)	<	1	ug/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		335.6	mg/L	
01020	BORON, DISSOLVED (UG/L AS B)		86	ug/L	
71870	BROMIDE, DISSOLVED, (MG/L AS BR)		0.11	mg/L	
01025	CADMIUM, DISSOLVED (UG/L AS CD)	<	1	ug/L	
00915	CALCIUM, DISSOLVED (MG/L AS CA)		77.4	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00941	CHLORIDE, DISSOLVED (MG/L AS CL)		13.5	mg/L	
01030	CHROMIUM, DISSOLVED (UG/L AS CR)		12	ug/L	
01035	COBALT, DISSOLVED (UG/L AS CO)	<	1	ug/L	
01040	COPPER, DISSOLVED (UG/L AS CU)		4.2	ug/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.67	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		326	mg/L as CaCO3	
01046	IRON, DISSOLVED (UG/L AS FE)	<	50	ug/L	
01049	LEAD, DISSOLVED (UG/L AS PB)	<	1	ug/L	
01130	LITHIUM, DISSOLVED (UG/L AS LI)		6.5	ug/L	
00925	MAGNESIUM, DISSOLVED (MG/L AS MG)		31.9	mg/L	
01056	MANGANESE, DISSOLVED (UG/L AS MN)	<	1	ug/L	
01060	MOLYBDENUM, DISSOLVED (UG/L AS MO)		5.8	ug/L	
01065	NICKEL, DISSOLVED (UG/L AS NI)		10.9	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		2.33	mg/L as NO3	
00631	NITRITE PLUS NITRATE, DISSOLVED (MG/L AS N)		0.527	mg/L as N	

**Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-408**

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00608	NITROGEN, AMMONIA, DISSOLVED (MG/L AS N)		< 0.05	mg/L as N	
00623	NITROGEN, KJELDAHL, DISSOLVED (MG/L AS N)		0.129	mg/L as N	
00090	OXIDATION REDUCTION POTENTIAL (ORP), MILLIVOLTS		299.9	MV	
00400	PH (STANDARD UNITS), FIELD		7.23	SU	
00666	PHOSPHORUS, DISSOLVED (MG/L AS P)		< 0.04	mg/L as P	
00935	POTASSIUM, DISSOLVED (MG/L AS K)		2.26	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
01145	SELENIUM, DISSOLVED (UG/L AS SE)		< 4	ug/L	
00955	SILICA, DISSOLVED (MG/L AS SI02)		11.85	mg/L as SIO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		0.22		
00932	SODIUM, CALCULATED, PERCENT		5	PCT	
00930	SODIUM, DISSOLVED (MG/L AS NA)		9.19	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		629	MICR	
01080	STRONTIUM, DISSOLVED (UG/L AS SR)		2100	ug/L	
00946	SULFATE, DISSOLVED (MG/L AS SO4)		28.8	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		22.4	C	
01057	THALLIUM, DISSOLVED (UG/L AS TL)		< 1	ug/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		345	mg/L	
01085	VANADIUM, DISSOLVED (UG/L AS V)		4.1	ug/L	
01090	ZINC, DISSOLVED (UG/L AS ZN)		11.7	ug/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/gwdb rpt.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.

Community Water Supply Chemical Analysis Report
 Texas Department of Health — Division of Water Hygiene
 1100 West 49th Street
 Austin, Texas 78756

City of Austin
 1100 West 49th Street
 Austin, Texas 78756

NAME OF WATER SUPPLY:
HASKIN WATER UTILITY, INC.
TIMBERWOOD PARK

Water Supply I.D. No. 0150270

County BEXAR (1-7)

IF SUPPLY IS SUPPLIED

Name of Source

Chlorination chlor 580 "

RESIDUAL CHLORINE (1.0 mg/l)

Signature

Date Collected 6/17/80

JUL 21 1980

(31-36)

pal

Concentration No.	Description	Date Received	Concentration	Date Reported	Concentration
1005	Arsenic	80	mg/l	< 0.2	mg/l
1010	Barium	28	mg/l	< 0.5	mg/l
1015	Cadmium	8	mg/l	< 0.005	mg/l
1020	Chromium	0	mg/l	< 0.2	mg/l
1022	Copper	345	mg/l	< 0.2	mg/l
1028	Iron	27	mg/l	< 0.3	mg/l
1030	Lead	14	mg/l	< 0.2	mg/l
1032	Manganese	0.5	mg/l	< 0.2	mg/l
1035	Mercury	1.54	mg/l	< 0.004	mg/l
1037	Selenium	334	mg/l	< 2.0	mg/l
1040	Silver	0	mg/l	< 0.1	mg/l
1095	Zinc	283	mg/l	< 0.3	mg/l
2005	Ethion	316	mg/l		mg/l
2010	Endosulf	8.3	mg/l		mg/l
2015	Methoxychlor	652	mg/l		mg/l
2020	Toxaphene				mg/l
2105	2,4-D				mg/l
2110	2,4,5-TP				mg/l

6821408

B2

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

State of Texas
WATER WELL REPORT

For TWDB use only
Well No. _____
Located on map _____
Received: _____

1) OWNER:
Person having well drilled Haskin Water Utility, Inc. Address 15403 Capital Port
(Name) (Street or RFD) (City) (State)
Landowner Same Address San Antonio, Texas 78249
(Name) (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County Bexar, 19-1/2 miles in North direction from San Antonio
(N.E., S.W., etc.) (Town)

Locate by sketch map showing landmarks, roads, creeks, highway number, etc.*
West of Lot #2 & #3, Block #1, Unit II
Timberwood Park
North
↑
(Use reverse side if necessary)

or
Give legal location with distances and directions from adjacent sections or survey lines.
Labor _____ League _____
Block _____ Survey _____
Abstract No. _____
(NW 1/4 NE 1/4 SW 1/4 SE 1/4) of Section _____

3) TYPE OF WORK (Check): <input checked="" type="checkbox"/> New Well <input type="checkbox"/> Deepening <input type="checkbox"/> Reconditioning <input type="checkbox"/> Plugging		4) PROPOSED USE (Check): <input type="checkbox"/> Domestic <input type="checkbox"/> Industrial <input type="checkbox"/> Municipal <input type="checkbox"/> Irrigation <input type="checkbox"/> Test Well <input type="checkbox"/> Other			5) TYPE OF WELL (Check): <input type="checkbox"/> Rotary <input type="checkbox"/> Driven <input type="checkbox"/> Dug <input type="checkbox"/> Cable <input type="checkbox"/> Jetted <input type="checkbox"/> Bored		
--	--	---	--	--	---	--	--

6) WELL LOG:
Diameter of hole 8-1/2 in. Depth drilled 640 ft. Depth of completed well 640 ft. Date drilled 1-18-79
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material	9) Casing: Type: Old <input checked="" type="checkbox"/> New <input type="checkbox"/> Steel <input type="checkbox"/> Plastic <input type="checkbox"/> Other
0	15	Top Soil	Cemented from <u>303</u> ft. to <u>0</u> Diameter <u>Halliburton Company</u> (Inches) From (ft.) To (ft.) Gage
15	25	Brown Lime	
25	75	Gray Lime	6" 0 303 18.97#
75	100	Blue Gray Lime	
100	200	Gray Lime	10) SCREEN: Type <u>NONE</u> Perforated <input type="checkbox"/> Slotted <input type="checkbox"/>
200	225	Light Brown Lime	
225	300	Light Gray Lime	Diameter (Inches) From (ft.) To (ft.) Slot Size
300	350	Light Brown Lime	
350	475	Grayish Brown Lime	Diameter (Inches) From (ft.) To (ft.) Slot Size
475	525	Light Brown Lime	
525	550	Yellowish Brown Lime	Diameter (Inches) From (ft.) To (ft.) Slot Size
550	575	Dark Gray Shale	
575	625	Dark Gray Shale	Diameter (Inches) From (ft.) To (ft.) Slot Size
625	640	Blueish Gray Shale	

(Use reverse side if necessary)

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

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

8) WATER LEVEL:
Static level 316 ft. below land surface Date 1-8-79
Artesian pressure _____ lbs. per square inch Date _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.
below land surface.
20 H.P. Sub installed 3-30-79
Pump setting- 525'
Electrical is not complete-pump is not hooked up yet.

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

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

NAME Glen H. Haskin Water Well Drillers Registration No. 935
(Type or Print)
ADDRESS 15403 Capital Port, San Antonio, Texas 78249
(Street or RFD) (City) (State)
(Signed) Glen H. Haskin Haskin Pump Service, Inc.
(Water Well Driller) (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

68-21-408

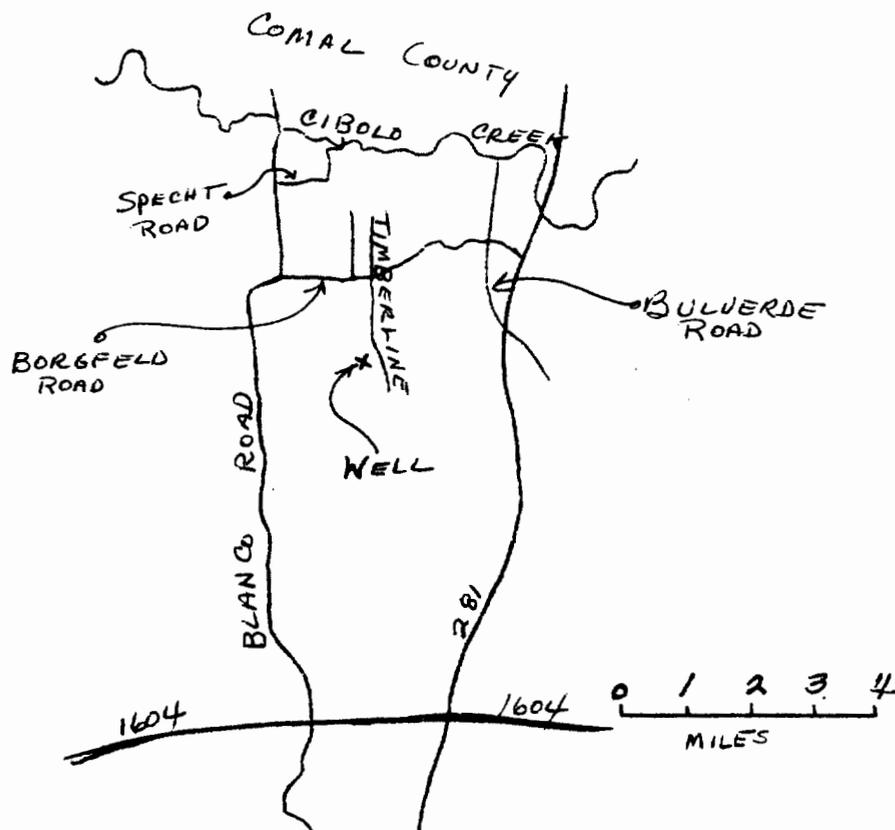
2) LOCATION OF WELL:

The sketch showing the well location must be as accurate as possible, showing landmarks, in sufficient detail so that the well may be plotted on a General Highway Map of the county in which the well is located.

Reference points from which distances are measured and directions given should be of a permanent nature (e.g. highway intersections, center of towns, river and creek bridges, railroad crossings). The distance and direction from the nearest town should always be indicated.

When giving a legal description include a sketch showing location of the well within the described area. e.g. survey abstract.

Information furnished in Section 2) of the TWDBE-GW-53 is very important. Unless the well can be accurately located on a map the value of the other data contained in the Report is greatly reduced.



TO SAN ANTONIO



RECEIVED

JUN 1 1979

CR/10WR

RECEIVED

JUN 1 1979

DEPT. OF
WATER RESOURCES

Date 1-9-79**HASKIN PUMP SERVICE, INC.**15403 Capital Port
San Antonio, Texas

492-2141

78249

Name Timberwood #2Location Pumping Station #2 (inside yard)Total Depth 640' Well Capacity 90-100 gal-a-miTotal Pipe 303'-6" Date Started 1-3-79Drilling Time _____ Date Completed 1-8-79Kind of Formation Glen-Rose Water Level 316'

0-15	Top Soil
15-25	Brown Lime
25-50	Gray Lime
50-75	Gray Lime
75-100	Blue Gray Lime
100-125	Gray Lime
125-150	Gray Lime
150-175	Gray Lime
175-200	Gray Lime
200-225	Light Brown Lime
225-250	Light Gray Lime
250-275	Light Gray Lime
275-300	Light Gray Lime (set casing)
300-325	Light Brown Lime (picked up water)
325-350	Light Brown Lime Cemented by use of
350-375	Grayish Brown Lime tremie pipe
375-400	Grayish Brown Lime by HASKIN PUMP SVC. INC.
400-425	Grayish Brown Lime <i>Glen H. Haskin</i>
425-450	Grayish Brown Lime Glen H. Haskin, Pres.
450-475	Grayish Brown Lime
475-500	Light Brown Lime (picked up more water)
500-525	Light Brown Lime
525-550	Yellowish Brown Lime
550-575	Dark Gray Shale
575-600	Dark Gray Shale
600-625	Dark Gray Shale
625-640	Blueish Gray Shale

Drilled by Glen H. Haskin
Rig No. _____ No. 9

74

Water Quality Field Data

SWN: 68-21-408

County: BEXAR

Aquifer(s): EDGLEN ROSE

Sample No BM-1999-3102

Date: APRIL 7, 1999

By: ROGER P.

Name: B.M.W.O.

Address: 26975 TIMBERLINE DR.

S.A. R. 78258

owner's well # WIP#2

		Bottle 1	Bottle 2	Bottle 3	Bottle 4	Bottle 5	Bottle 6	Bottle 7	Total	
		500 ml	1 liter	250 ml	1 liter	1 liter			SUB-Samples	
		Anions	Cations	Nitrate	Radioactivity					
		2 ml	0.5 ml	H SO	HNO					
		(Nitric)	(Sulfuric)	(Nitric)	(Nitric)					
Water Level	LSD	Remark	No. T Pump/In/6							Starting pH <u>7.35 @ 22.6</u>
Temperature (00010)		<u>22.4</u>	<u>C</u>							<u>14.8</u> ml. of 0.02N to
Specific Conductance (00094)		<u>7.23</u>	<u>umhos/cm</u>							<u>50</u> mL of Sample
pH (00400)		<u>299.9</u>	<u>mv.</u>							Ending pH <u>4.50 @ 22.6</u>
Eh (00090)										
Phenol ALK (82244)										
Total ALK (39086)		<u>284</u>	<u>mg/l</u>							
Carbonate (00452)			<u>meq/l</u>							
Bicarbonate (00453)		<u>5.68</u>	<u>meq/l</u>							
Total Cations(+)		<u>Bal.</u>								
Total Anions (-)										
Total Hardness (00900)		<u>330</u>								
Dissolved Solids		<u>345</u>								

Time in	0920	Time out	1025	Sample time	1000	Weather	Humid/Cloudy	well use	PUBLIC	Outside Temp	78°	Sampling point	FAVCEP
Time:	0940	0945	0950										
pH:	7.11	7.15	7.23										
Temp:	22.4	22.3	22.4										
Eh:			299.9										
Cond.	626	618	629										

ml.	1	2	3	4	5	6	7	8	9	10
pH	7.15	7.00	6.86	6.75	6.64	6.53	6.42	6.31	6.20	6.06
ml.	11	12	13	14	14.2					
pH	5.90	5.71	5.41	4.65	4.50					

other notes: STARTED
Pumping since AT 0930 Lift SUBMERISABLE
Latitude 29-41-53 Power ELECTRIC
Longitude 98-29-28 Gpm 150

FINAL ANALYSIS REPORT

LAB ID: 9906307

SAMPLE DESCRIPTION: Groundwater

COMPANY: TX Water Dev. Board

SAMPLE DATE: 04/07/99

ACCT NO:

SAMPLE TIME: 1000

REQUISITION No.: R10584

DATE RECEIVED: 04/09/99

LOCATION ID: 68-21-408

REPORT DATE: 05/05/99

PARAMETER	RESULTS	UNITS	STORET #	PQL in WATER	DATE ANALYZED
Bromide	0.11	mg/L	71870	0.02	04/14/99
Chloride	13.5	mg/L	00941	1.5	04/14/99
Fluoride	0.67	mg/L	00950	0.01	04/14/99
Nit., nitri/nitra-AFA	0.527	mg/L	00630	0.010	04/28/99
Nitrogen, Kjeldahl	0.129	mg/L	00623	0.040	04/14/99
Nitrogen, ammonia	<0.050	mg/L	00608	0.050	04/15/99
Phosphorus, Total	<0.040	mg/L	00665	0.040	04/14/99
Silica	11.85	mg/L	00955	0.50	04/13/99
Sulfate	28.80	mg/L	00946	1.50	04/14/99
Alkalinity, Total	275	mg/L	00410	1	04/28/99
Alkalinity, Phenol.	0	mg/L	00415	0	04/12/99
Boron, Dissolved	86.00	ug/L	01020	50.00	04/13/99
Cobalt, Diss. ICPMS	<1.0	ug/L	01035	1.0	04/12/99
Iron, Dissolved	<50.00	ug/L	01046	50.00	04/13/99
Lithium, Diss. ICPMS	6.5	ug/L	01130	2.0	04/13/99
Molybdenum Dis ICPMS	5.8	ug/L	01060	1.0	04/12/99
Potassium, Dissolved	2.26	mg/L	00935	0.20	04/13/99
Strontium, Dissolved	2100.00	ug/L	01080	20.00	04/13/99
Vanadium, Diss ICPMS	4.1	ug/L	01085	1.0	04/12/99
Aluminum, Dis. ICPMS	<4.0	ug/L	01106	4.0	04/12/99
Arsenic, Diss. ICPMS	<2.0	ug/L	01000	2.0	04/12/99
Barium, Diss. ICPMS	28.2	ug/L	01005	1.0	04/12/99
Cadmium, Diss. ICPMS	<1.0	ug/L	01025	1.0	04/12/99
Calcium, Dissolved	77.40	mg/L	00915	0.20	04/13/99
Chromium, Diss ICPMS	12.0	ug/L	01030	1.0	04/12/99
Copper, Diss. ICPMS	4.2	ug/L	01040	2.0	04/12/99
Lead, Diss. ICPMS	<1.0	ug/L	01049	1.0	04/12/99
Magnesium, Dissolved	31.90	mg/L	00925	0.20	04/13/99
Manganese, Dis ICPMS	<1.0	ug/L	01056	1.0	04/12/99
Nickel, Diss. ICPMS	10.9	ug/L	01065	1.0	04/12/99
Selenium, Dis. ICPMS	<4.0	ug/L	01145	4.0	04/12/99
Sodium, Dissolved	9.19	mg/L	00930	0.20	04/13/99
Antimony, Dis. ICPMS	<1.0	ug/L	01095	1.0	04/12/99
Beryllium, Dis ICPMS	<1.0	ug/L	01010	1.0	04/12/99
Thallium, Diss ICPMS	<1.0	ug/L	01057	1.0	04/12/99
Zinc, Diss. ICPMS	11.7	ug/L	01090	2.0	04/12/99

[GWDB Reports and Downloads](#)

Well Basic Details

[Scanned Documents](#)

State Well Number	6821409
County	Bexar
River Basin	San Antonio
Groundwater Management Area	9
Regional Water Planning Area	L - South Central Texas
Groundwater Conservation District	Trinity Glen Rose GCD
Latitude (decimal degrees)	29.698611
Latitude (degrees minutes seconds)	29° 41' 55" N
Longitude (decimal degrees)	-98.491111
Longitude (degrees minutes seconds)	098° 29' 28" W
Coordinate Source	Global Positioning System - GPS
Aquifer Code	218GRCCU - Lower Glen Rose and Cow Creek Limestones
Aquifer	Trinity
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	1258
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	650
Well Depth Source	Driller's Log
Drilling Start Date	
Drilling End Date	11/16/1983
Drilling Method	Mud (Hydraulic) Rotary
Borehole Completion	Open Hole

Well Type	Withdrawal of Water
Well Use	Public Supply
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	BMWV-Timberwood Park Well #3
Driller	Haskin Pump Service
Other Data Available	Drillers Log
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	G0150054P
Groundwater Conservation District Well Number	
Owner Well Number	1
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Commission on Environmental Quality
Created Date	6/6/2002
Last Update Date	7/25/2016

Remarks

Casing						
Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
7	Blank	Steel			0	310
	Open Hole				310	650

Well Tests - No Data

Lithology - No Data

Annular Seal Range - No Data

Borehole - No Data

Plugged Back - No Data

Filter Pack - No Data

Packers - No Data

Water Level Measurements



Status Code	Date	Time	Water Level (ft. below land surface)	Change value in () indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	11/16/1983		400		858	1	Registered Water Well Driller	Unknown		

Code Descriptions

Status Code	Status Description
P	Publishable

Water Quality Analysis

Sample Date: 4/7/1999 **Sample Time:** 1110 **Sample Number:** 1 **Collection Entity:** Bexar Metropolitan Water District

Sampled Aquifer: Lower Glen Rose and Cow Creek Limestones

Analyzed Lab: LCRA - Lower Colorado River Authority

Reliability: Sampled using TWDB protocols

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
39086	ALKALINITY FIELD DISSOLVED AS CaCO3		272	mg/L as CaCO3	
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		266	mg/L as CaCO3	
01106	ALUMINUM, DISSOLVED (UG/L AS AL)	<	4	ug/L	
01095	ANTIMONY, DISSOLVED (UG/L AS SB)	<	1	ug/L	
01000	ARSENIC, DISSOLVED (UG/L AS AS)	<	2	ug/L	
01005	BARIUM, DISSOLVED (UG/L AS BA)		31	ug/L	
01010	BERYLLIUM, DISSOLVED (UG/L AS BE)	<	1	ug/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		324.61	mg/L	
01020	BORON, DISSOLVED (UG/L AS B)		78	ug/L	
71870	BROMIDE, DISSOLVED, (MG/L AS BR)		0.12	mg/L	
01025	CADMIUM, DISSOLVED (UG/L AS CD)	<	1	ug/L	
00915	CALCIUM, DISSOLVED (MG/L AS CA)		91.9	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00941	CHLORIDE, DISSOLVED (MG/L AS CL)		18.5	mg/L	
01030	CHROMIUM, DISSOLVED (UG/L AS CR)		11.4	ug/L	
01035	COBALT, DISSOLVED (UG/L AS CO)	<	1	ug/L	
01040	COPPER, DISSOLVED (UG/L AS CU)		5	ug/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.41	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		317	mg/L as CaCO3	
01046	IRON, DISSOLVED (UG/L AS FE)	<	50	ug/L	
01049	LEAD, DISSOLVED (UG/L AS PB)		1.9	ug/L	
01130	LITHIUM, DISSOLVED (UG/L AS LI)		4.5	ug/L	
00925	MAGNESIUM, DISSOLVED (MG/L AS MG)		21.2	mg/L	
01056	MANGANESE, DISSOLVED (UG/L AS MN)	<	1	ug/L	
01060	MOLYBDENUM, DISSOLVED (UG/L AS MO)		1.1	ug/L	
01065	NICKEL, DISSOLVED (UG/L AS NI)		12.6	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		5.36	mg/L as NO3	

Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-409

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00631	NITRITE PLUS NITRATE, DISSOLVED (MG/L AS N)		1.21	mg/L as N	
00608	NITROGEN, AMMONIA, DISSOLVED (MG/L AS N)	<	0.05	mg/L as N	
00623	NITROGEN, KJELDAHL, DISSOLVED (MG/L AS N)		0.231	mg/L as N	
00090	OXIDATION REDUCTION POTENTIAL (ORP), MILLIVOLTS		261.9	MV	
00400	PH (STANDARD UNITS), FIELD		7.13	SU	
00666	PHOSPHORUS, DISSOLVED (MG/L AS P)	<	0.04	mg/L as P	
00935	POTASSIUM, DISSOLVED (MG/L AS K)		1.54	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
01145	SELENIUM, DISSOLVED (UG/L AS SE)	<	4	ug/L	
00955	SILICA, DISSOLVED (MG/L AS SI02)		11.02	mg/L as SIO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		0.26		
00932	SODIUM, CALCULATED, PERCENT		6	PCT	
00930	SODIUM, DISSOLVED (MG/L AS NA)		10.8	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		623	MICR	
01080	STRONTIUM, DISSOLVED (UG/L AS SR)		1180	ug/L	
00946	SULFATE, DISSOLVED (MG/L AS SO4)		24.7	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		22	C	
01057	THALLIUM, DISSOLVED (UG/L AS TL)	<	1	ug/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		346	mg/L	
01085	VANADIUM, DISSOLVED (UG/L AS V)		4	ug/L	
01090	ZINC, DISSOLVED (UG/L AS ZN)		60.1	ug/L	

Water Quality Analysis

Sample Date: 6/8/2000 **Sample Time:** 1130 **Sample Number:** 1 **Collection Entity:** Bexar Metropolitan Water District

Sampled Aquifer: Lower Glen Rose and Cow Creek Limestones

Analyzed Lab: LCRA - Lower Colorado River Authority

Reliability: Sampled using TWDB protocols

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
39086	ALKALINITY FIELD DISSOLVED AS CaCO3		258	mg/L as CaCO3	
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		263	mg/L as CaCO3	
01106	ALUMINUM, DISSOLVED (UG/L AS AL)	<	4	ug/L	
01095	ANTIMONY, DISSOLVED (UG/L AS SB)	<	1	ug/L	
01000	ARSENIC, DISSOLVED (UG/L AS AS)	<	2	ug/L	
01005	BARIUM, DISSOLVED (UG/L AS BA)		34.1	ug/L	
01010	BERYLLIUM, DISSOLVED (UG/L AS BE)	<	1	ug/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		320.95	mg/L	
01020	BORON, DISSOLVED (UG/L AS B)		81.5	ug/L	
71870	BROMIDE, DISSOLVED, (MG/L AS BR)		0.05	mg/L	
01025	CADMIUM, DISSOLVED (UG/L AS CD)	<	1	ug/L	
00915	CALCIUM, DISSOLVED (MG/L AS CA)		63	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00941	CHLORIDE, DISSOLVED (MG/L AS CL)		11	mg/L	
01030	CHROMIUM, DISSOLVED (UG/L AS CR)		5.32	ug/L	
01035	COBALT, DISSOLVED (UG/L AS CO)	<	1	ug/L	
01040	COPPER, DISSOLVED (UG/L AS CU)		3.69	ug/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.81	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		298	mg/L as CaCO3	
01046	IRON, DISSOLVED (UG/L AS FE)	<	50	ug/L	
01049	LEAD, DISSOLVED (UG/L AS PB)		3.95	ug/L	
01130	LITHIUM, DISSOLVED (UG/L AS LI)		7.98	ug/L	
00925	MAGNESIUM, DISSOLVED (MG/L AS MG)		33.9	mg/L	
01056	MANGANESE, DISSOLVED (UG/L AS MN)	<	1	ug/L	
01060	MOLYBDENUM, DISSOLVED (UG/L AS MO)		4.29	ug/L	
01065	NICKEL, DISSOLVED (UG/L AS NI)		1.66	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)	<	0.09	mg/L as NO3	
00631	NITRITE PLUS NITRATE, DISSOLVED (MG/L AS N)	<	0.02	mg/L as N	

Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-409

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00400	PH (STANDARD UNITS), FIELD		7.04	SU	
00935	POTASSIUM, DISSOLVED (MG/L AS K)		2.63	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
01145	SELENIUM, DISSOLVED (UG/L AS SE)	<	4	ug/L	
00955	SILICA, DISSOLVED (MG/L AS SI02)		13	mg/L as SIO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		0.2		
00932	SODIUM, CALCULATED, PERCENT		5	PCT	
00930	SODIUM, DISSOLVED (MG/L AS NA)		7.78	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		575	MICR	
01080	STRONTIUM, DISSOLVED (UG/L AS SR)		2030	ug/L	
00946	SULFATE, DISSOLVED (MG/L AS SO4)		33.3	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		24.6	C	
01057	THALLIUM, DISSOLVED (UG/L AS TL)	<	1	ug/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		325	mg/L	
01085	VANADIUM, DISSOLVED (UG/L AS V)		1.51	ug/L	
01090	ZINC, DISSOLVED (UG/L AS ZN)		527	ug/L	

Water Quality Analysis

Sample Date: 6/6/2002 **Sample Time:** 1120 **Sample Number:** 1 **Collection Entity:** Bexar Metropolitan Water District

Sampled Aquifer: Lower Glen Rose and Cow Creek Limestones

Analyzed Lab: LCRA - Lower Colorado River Authority **Reliability:** Sampled using TWDB protocols

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
39086	ALKALINITY FIELD DISSOLVED AS CaCO3		292	mg/L as CaCO3	
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		284	mg/L as CaCO3	
01106	ALUMINUM, DISSOLVED (UG/L AS AL)	<	4	ug/L	
01095	ANTIMONY, DISSOLVED (UG/L AS SB)	<	1	ug/L	
01000	ARSENIC, DISSOLVED (UG/L AS AS)	<	2	ug/L	
01005	BARIUM, DISSOLVED (UG/L AS BA)		31.7	ug/L	
01010	BERYLLIUM, DISSOLVED (UG/L AS BE)	<	1	ug/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		346.58	mg/L	
01020	BORON, DISSOLVED (UG/L AS B)	<	50	ug/L	
71870	BROMIDE, DISSOLVED, (MG/L AS BR)		0.0637	mg/L	
01025	CADMIUM, DISSOLVED (UG/L AS CD)	<	1	ug/L	
00915	CALCIUM, DISSOLVED (MG/L AS CA)		96.1	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00941	CHLORIDE, DISSOLVED (MG/L AS CL)		27.2	mg/L	
01030	CHROMIUM, DISSOLVED (UG/L AS CR)		2.18	ug/L	
01035	COBALT, DISSOLVED (UG/L AS CO)	<	1	ug/L	
01040	COPPER, DISSOLVED (UG/L AS CU)		4.43	ug/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.27	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		319	mg/L as CaCO3	
01046	IRON, DISSOLVED (UG/L AS FE)	<	50	ug/L	
01049	LEAD, DISSOLVED (UG/L AS PB)	<	1	ug/L	
01130	LITHIUM, DISSOLVED (UG/L AS LI)		3.05	ug/L	
00925	MAGNESIUM, DISSOLVED (MG/L AS MG)		19.3	mg/L	
01056	MANGANESE, DISSOLVED (UG/L AS MN)		3.84	ug/L	
01060	MOLYBDENUM, DISSOLVED (UG/L AS MO)		1.06	ug/L	
01065	NICKEL, DISSOLVED (UG/L AS NI)		4.13	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		7.75	mg/L as NO3	
00631	NITRITE PLUS NITRATE, DISSOLVED (MG/L AS N)		1.75	mg/L as N	

**Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-409**

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00400	PH (STANDARD UNITS), FIELD		7	SU	
00935	POTASSIUM, DISSOLVED (MG/L AS K)		1.19	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
01145	SELENIUM, DISSOLVED (UG/L AS SE)	<	4	ug/L	
00955	SILICA, DISSOLVED (MG/L AS SI02)		11.7	mg/L as SIO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		0.33		
00932	SODIUM, CALCULATED, PERCENT		8	PCT	
00930	SODIUM, DISSOLVED (MG/L AS NA)		13.5	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		670	MICR	
01080	STRONTIUM, DISSOLVED (UG/L AS SR)		582	ug/L	
00946	SULFATE, DISSOLVED (MG/L AS SO4)		22.7	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		25	C	
01057	THALLIUM, DISSOLVED (UG/L AS TL)	<	1	ug/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		370	mg/L	
01085	VANADIUM, DISSOLVED (UG/L AS V)		1.26	ug/L	
01090	ZINC, DISSOLVED (UG/L AS ZN)		90.9	ug/L	

* Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..

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Date 11/17/83**HASKIN PUMP SERVICE, INC.**

15403 Capital Port

San Antonio, Texas

492-2141

78249

Name Timberwood Park #3Location Next to Water Co. YardTotal Depth 650' Well Capacity 40 GPMTotal Pipe 310' of 7" Date Started 11/10/83
---broken down 3 daysDrilling Time 3 days Date Completed 11/16/83Kind of Formation Glenrose Water Level 400'

0	--	2	Top Soil
2	--	12	Red Clay & Caliche
12	--	20	Gray Clay
20	--	43	Brown Lime & Red Clay
43		75	Just Gray Lime & Shale
75	--	95	Gray Lime
95	--	120	White Lime
120	--	220	Brown & Gray Lime
220	--	318	Light Gray Lime
318	--	355	Brown Lime
355	--	623	Gray Lime
623	--	647	Brown Lime
647	--	650	Pine Island Shale

Water @ 35', 370', 530',
and 620'Cemented by use of tremie pipe
by HASKIN PUMP SERVICE INC.

Glen H. Haskin
Glen H. Haskin, President

Driller Mike McNittRig No. 9

68 21 409

Bmwd - Timber wood

#3 WELL

26802 HARMONY Hills

Please use black ink. Send original copy by certified mail to the Texas Water Commission P.O. Box 13087 Austin, Texas 78711

State of Texas WATER WELL REPORT

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

ATTENTION OWNER: Confidentiality Privilege Notice on Reverse Side

1) OWNER Haskin Water Utility, Inc. Address 15403 Capital Port San Antonio, TX 7824
2) LOCATION OF WELL: County Bexar 19 1/2 miles in North direction from San Antonio

Legal description: Section No. Block No. Township Abstract No. Survey Name Distance and direction from two intersecting section or survey lines See attached map.

3) TYPE OF WORK (Check): New Well Deepening Reconditioning Plugging
4) PROPOSED USE (Check): Domestic Industrial Monitor Public Supply Irrigation Test Well Injection Other
5) DRILLING METHOD (Check): Driven Mud Rotary Air Hammer Jetted Bored Air Rotary Cable Tool Other

6) WELL LOG: Date Drilling Started 11-10-83 Completed 11-16-83 DIAMETER OF HOLE Dia. (in.) From (ft.) To (ft.) 10 3/4 Surface 310 6 650
7) BOREHOLE COMPLETION: Open Hole Straight Wall Underreamed Gravel Packed Other If Gravel Packed give interval from ft. to ft.

Table with 8 columns: From (ft.), To (ft.), Description and color of formation material, Dia. (in.), New or Used, Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial, Setting (ft.) From To, Gage Casing Screen. Rows include Top Soil, Red Clay & Caliche, Gray Clay, Brown Lime & Red Clay, Soft Gray Lime & Shale, Gray Lime, White Lime, Brown & Gray Lime, Light Gray Lime, Brown Lime, Gray Lime, Brown Lime, Pine Island Shale.

9) CEMENTING DATA [Rule 319.44(b)] Cemented from 310 ft. to 0 ft. No. of Sacks Used 92 Method used Pressure Cemented Cemented by Haskin Pump Service pressure cemented with 1" tremmi pipe
10) SURFACE COMPLETION: Specified Surface Slab Installed [Rule 319.44(c)] Pitless Adapter Used [Rule 319.44(d)] Approved Alternative Procedure Used [Rule 319.71]

11) WATER LEVEL: Static level 400 ft. below land surface Date 11-16-83 Artesian flow 125 gpm. Date 11-16-83

12) PACKERS: Type Depth

13) TYPE PUMP: Turbine Jet Submersible Cylinder Other Depth to pump bowls, cylinder, jet, etc., ft.

14) WELL TESTS: Type Test: Pump Bailer Jetted Estimated Yield: gpm with ft. drawdown after hrs.
15) WATER QUALITY: Did you knowingly penetrate any strata which contained undesirable water? Yes No If yes, submit "REPORT OF UNDESIRABLE WATER" Type of water? Depth of strata? Was a chemical analysis made? Yes No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 12 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME Haskin Pump Service, Inc. Water Well Driller's License No. 935 ADDRESS 15403 Capital Port San Antonio, Texas 78249 (Signed) Glen H. Haskin (Registered Driller Trainee) For TWC use only Well No. Located on map

34
31

Water Quality Field Data

SWN: 68-21-409 Sample No BM 1999-3103
 County: BEXAR Date: APRIL 7, 1999
 Aquifer(s): GLENROSE By: ROGER P.
 Name: B.M.W.D.
 Address: 26802 HARMONY HILLS
S.A. TX. 78258
 owner's well # WIP #1

<u>Bottle 1</u>		<u>Bottle 2</u>	<u>Bottle 3</u>	<u>Bottle 4</u>	<u>Bottle 5</u>	<u>Bottle 6</u>	<u>Bottle 7</u>	Total
500 ml	1 liter	250 ml	1 liter	1 liter				SUB-Samples
Anions	Cations	Nitrate	Radioactivity					
2 ml	0.5 ml	2 ml	2 ml					<u>All filtered</u>
HNO ₃ (Nitric)	H ₂ SO ₄ (Sulfuric)	HNO (Nitric)						unless other-wise stipulated

Water Level	_____	LSD	_____	Time in	<u>1040</u>	Starting pH	<u>7.30</u>	<u>222</u>
Temperature (00010)	_____	Remark	<u>22.0</u>	Time out	<u>1130</u>	Sample time	<u>1110</u>	<u>13.6</u> ml. of 0.02N to
Specific Conductance (00094)	<u>7.13</u>		<u>623</u>	Weather	<u>CLOUDY/AUMP</u>	well use	<u>PUBLIC</u>	<u>50</u> mL of Sample
pH (00400)	<u>7.13</u>			Outside Temp	<u>78°</u>			Ending pH <u>4.50</u>
Eh (00090)	<u>261.9</u> mv.			Sampling point	<u>FAUCET</u>			
Phenol ALK (82244)	<u>0</u> mg/l			Time:	<u>1045</u>	<u>1050</u>	<u>1055</u>	
Total ALK (39086)	<u>272</u> mg/l			pH:	<u>6.97</u>	<u>7.10</u>	<u>7.13</u>	
Carbonate (00452)	<u>0</u> meq/l			Temp:	<u>21.9</u>	<u>21.9</u>	<u>22.0</u>	
Bicarbonate (00453)	<u>5.44</u> meq/l			Eh:			<u>261.9</u>	
Total Cations(+)	<u>Balanced</u>			Cond.	<u>612</u>	<u>618</u>	<u>623</u>	
Total Anions (-)	<u>320</u>			other notes: <u>STARTED</u> <u>LIFT SUBMERSIBLE</u>				
Total Hardness (00900)	<u>346</u>			<u>Power ELECTRIC</u>				
Dissolved Solids				<u>Latitude 29-41-54</u> <u>Longitude 98-29-27</u>				
				<u>Gpm 100</u>				



FINAL ANALYSIS REPORT

LAB ID: 9906308

SAMPLE DESCRIPTION: Groundwater

COMPANY: TX Water Dev. Board

SAMPLE DATE: 04/07/99

ACCT NO:

SAMPLE TIME: 1110

REQUISITION No.: R10584

DATE RECEIVED: 04/09/99

LOCATION ID: 68-21-409

REPORT DATE: 05/05/99

PARAMETER	RESULTS	UNITS	STORET #	PQL in WATER	DATE ANALYZED
Bromide	0.12	mg/L	71870	0.02	04/14/99
Chloride	18.5	mg/L	00941	1.5	04/14/99
Fluoride	0.41	mg/L	00950	0.01	04/14/99
Nit., nitri/nitra-AFA	1.210	mg/L	00630	0.010	04/28/99
Nitrogen, Kjeldahl	0.231	mg/L	00623	0.040	04/14/99
Nitrogen, ammonia	<0.050	mg/L	00608	0.050	04/15/99
Phosphorus, Total	<0.040	mg/L	00665	0.040	04/14/99
Silica	11.02	mg/L	00955	0.50	04/13/99
Sulfate	24.70	mg/L	00946	1.50	04/14/99
Alkalinity, Total	266	mg/L	00410	1	04/12/99
Alkalinity, Phenol.	0	mg/L	00415	0	04/12/99
Boron, Dissolved	78.00	ug/L	01020	50.00	04/13/99
Cobalt, Diss. ICPMS	<1.0	ug/L	01035	1.0	04/12/99
Iron, Dissolved	<50.00	ug/L	01046	50.00	04/13/99
Lithium, Diss. ICPMS	4.5	ug/L	01130	2.0	04/13/99
Molybdenum Dis ICPMS	1.1	ug/L	01060	1.0	04/12/99
Potassium, Dissolved	1.54	mg/L	00935	0.20	04/13/99
Strontium, Dissolved	1180.00	ug/L	01080	20.00	04/13/99
Vanadium, Diss ICPMS	4.0	ug/L	01085	1.0	04/12/99
Aluminum, Dis. ICPMS	<4.0	ug/L	01106	4.0	04/12/99
Arsenic, Diss. ICPMS	<2.0	ug/L	01000	2.0	04/12/99
Barium, Diss. ICPMS	31.0	ug/L	01005	1.0	04/12/99
Cadmium, Diss. ICPMS	<1.0	ug/L	01025	1.0	04/12/99
Calcium, Dissolved	91.90	mg/L	00915	0.20	04/13/99
Chromium, Diss ICPMS	11.4	ug/L	01030	1.0	04/12/99
Copper, Diss. ICPMS	5.0	ug/L	01040	2.0	04/12/99
Lead, Diss. ICPMS	1.9	ug/L	01049	1.0	04/12/99
Magnesium, Dissolved	21.20	mg/L	00925	0.20	04/13/99
Manganese, Dis ICPMS	<1.0	ug/L	01056	1.0	04/12/99
Nickel, Diss. ICPMS	12.6	ug/L	01065	1.0	04/12/99
Selenium, Dis. ICPMS	<4.0	ug/L	01145	4.0	04/12/99
Sodium, Dissolved	10.80	mg/L	00930	0.20	04/13/99
Antimony, Dis. ICPMS	<1.0	ug/L	01095	1.0	04/12/99
Beryllium, Dis ICPMS	<1.0	ug/L	01010	1.0	04/12/99
Thallium, Diss ICPMS	<1.0	ug/L	01057	1.0	04/12/99
Zinc, Diss. ICPMS	60.1	ug/L	01090	2.0	04/12/99

LCRA Environmental Laboratory Services

Date: 03-Jul-00

CLIENT: Texas Water Development Board
Lab Order: 0006145 **COC ID:** 13701
Project: TWDB 9/99 thru 8/00
Lab ID: 0006145-08

Client Sample ID: 68-21-409
 BM-3121-2000
Collection Date: 06/08/2000 11:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	QC Batch	Date Analyzed
ICP METALS, DISSOLVED		E200.7					Analyst: BL
Calcium	63.0	0.200		mg/L	1	R4757	06/29/2000
Magnesium	33.9	0.200		mg/L	1	R4757	06/29/2000
Potassium	2.63	0.200		mg/L	1	R4757	06/29/2000
Sodium	7.78	0.700		mg/L	1	R4757	06/29/2000
ICP METALS, DISSOLVED		E200.7					Analyst: BL
Boron	81.5	50.0		µg/L	1	R4758	06/29/2000
Iron	ND	50.0		µg/L	1	R4758	06/29/2000
Strontium	2030	20.0		µg/L	1	R4758	06/29/2000
ICPMS METALS, DISSOLVED		E200.8					Analyst: PJM
Aluminum	ND	4.00		µg/L	1	R4784	06/30/2000
Antimony	ND	1.00		µg/L	1	R4784	06/30/2000
Arsenic	ND	2.00		µg/L	1	R4784	06/30/2000
Barium	34.1	1.00		µg/L	1	R4784	06/30/2000
Beryllium	ND	1.00		µg/L	1	R4784	06/30/2000
Cadmium	ND	1.00		µg/L	1	R4784	06/30/2000
Chromium	5.32	1.00		µg/L	1	R4784	06/30/2000
Cobalt	ND	1.00		µg/L	1	R4784	06/30/2000
Copper	3.69	2.00		µg/L	1	R4784	06/30/2000
Lead	3.95	1.00		µg/L	1	R4784	06/30/2000
Lithium	7.98	2.00	B	µg/L	1	R4784	06/30/2000
Manganese	ND	1.00		µg/L	1	R4784	06/30/2000
Molybdenum	4.29	1.00		µg/L	1	R4784	06/30/2000
Nickel	1.66	1.00		µg/L	1	R4784	06/30/2000
Selenium	ND	4.00		µg/L	1	R4784	06/30/2000
Thallium	ND	1.00		µg/L	1	R4784	06/30/2000
Vanadium	1.51	1.00		µg/L	1	R4784	06/30/2000
Zinc	527	80.0		µg/L	20	R4799	06/30/2000
ANIONS BY ION CHROMATOGRAPHY		E300					Analyst: AMJ
Bromide	0.0500	0.0200		mg/L	1	R4715B	06/26/2000
Chloride	11.0	1.50		mg/L	1	R4715B	06/26/2000
Fluoride	0.810	0.0100		mg/L	1	R4715B	06/26/2000
Sulfate	33.3	1.50		mg/L	1	R4715B	06/26/2000
ALKALINITY		M2320 B					Analyst: WR
Alkalinity, Phenolphthalein	ND	0		mg/L CaCO3	1	R4636	06/20/2000
Alkalinity, Total (As CaCO3)	263	2.00		mg/L CaCO3	1	R4636	06/20/2000
CATION/ANION BALANCE		CALCULATION					Analyst: AMJ

Qualifiers:
 ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

LCRA Environmental Laboratory Services

Date: 03-Jul-00

CLIENT: Texas Water Development Board
Lab Order: 0006145 **COC ID:** 13701
Project: TWDB 9/99 thru 8/00
Lab ID: 0006145-08

Client Sample ID: 68-21-409
BM-3121-2000
Collection Date: 06/08/2000 11:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	QC Batch	Date Analyzed
Cation/Anion Balance	Balanced	0		Date	1	R4796	06/30/2000
NITRATE AND NITRITE		E353.2					Analyst: CL
Nitrogen, Nitrate & Nitrite	ND	0.0200		mg/L	1	R4727H	06/27/2000
SILICA		E370.1					Analyst: CL
Silica, Dissolved (as SiO2)	13.0	0.500		mg/L	1	R4676E	06/23/2000

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

TWDB Water Quality Field Data Sheet

New Well:
Send Results To:
Type of Sample:

 State Well Number: 68-21-409

 Owner's Name: B.M.W.D.

 Sample Number: BM-3121-2000

 County: BEXAR

Lessee's Name:

 Date: JUNE 8,2000

Aquifer Code:

 Attention: MICHAEL J. ALBACH

 Sampler(s): ROGER P.

 Aquifer Id: EDWARDS

 Mailing Address: 2047 W. MALONE
S.A. TX. 78225

 Well Number: W/P #1

1 (on ice) 500ml (filtered) Anions n/a	2 500ml (filtered) Cations 1ml Nitric (HNO3)	3 (on ice) 250ml (filtered) Nitrate 0.5ml Sulfuric (H2SO4)		

Titration
7.05 Start pH

4.5 End pH

50 ml. Sample

12.9 ml. Acid added for Total

ml. Acid added for Phenol

Water Level from LSD: _____ ft

 Time In: 10:45

Remark code:

 Time Out: 12:00

 Temperature (00010): 24.6 C

 Pumping Since: 11:05

 Specific Conductance: 575 umhos/cm

 Weather: CLOUDY/HUMID

 pH 7.04

 Outside Temperature: 84

 Phenol Alkalinity (82244): 0.0 mg/L

 Sampling Point: F@W

 Total Alkalinity (39086): 258.0 mg/L

 Sample Time: 11:30

 Carbonate: 0.00 meq/L

 Well Use: PUBLIC

 Bicarbonate: 5.16 meq/L

 Lift: S

 Carbonate: 0.0 mg/L

 Power: ELECTRIC

 Bicarbonate: 314.8 mg/L

 Latitude: 29-41-54

 Total Hardness: 380

 Longitude: 98-29-27

 TDS: 330

Elevation: _____

 Balanced: 941

(mark)

 Time: 11:10
11:15
11:20

Hand-pump filtered

 pH: 7.03
7.04
7.04

Line-pressure filtered

 Temperature: 23.9
24.3
24.6

 Conductivity: 649
627
575

 Conductivity Temp. 24.1
24.4
24.6

Entered Screen

1 2 3 4

Daily Meter Calibration

pH Reading

7 7.01
4 or 10 10.05

Conductivity (uS/cm, umhos/cm)

500 500
1000 1000
2000 _____

5000 _____

Other notes:

PRESSURE LINE FILTERED

2002FY

TWDB Water Quality Field Data Sheet

State Well Number: 68-21-409

County: BEXAR

County Code: 029

Aquifer Code: TRINITY

Aquifer Id: 28

Name: BEXAR METRO WATER
Address: 2055 W. MALONE

SAN ANTONIO, TX, 78225

Phone Number: (210) 357-5706

Attention: ROGER PLACENCIA

Well Name or #: 076 W.P.#1

C3

Back

Sample ID Number: BM-1419-02

Date: 6-6-02

Sampler(s): M. APAEZ

Calibration Verification Readings

pH	7.00	7.00
4 or 10	10.01	
SLP =	56.8	
Conductivity	500	500
	1000	1000
	2000	
	5000	

CIRCLE EACH SAMPLE FRACTION COLLECTED:				
1	2	3	5	
500ml (filtered)	500ml (filtered)	250ml (filtered)		
Anions / Total Alk.	Cations	Nitrate		
Ice	Nitric (HNO3)	Ice + H2SO4		

Proper preservation requires adding enough of the correct acid to each sample fraction to bring the pH below 2.0.

Time In: 1055

Time Out: 1150

W. L. depth from LSD (ft.): 650

W.L. remark:

M.P. =

Pumping Since: 1055

Sampling Point: F.A.W

Well Use: PUBLIC

FIELD G.P.S. readings

Lift: SUBMERSIBLE

Latitude:

Power: ELECTRIC

Longitude:

Sample Time: 1120

Filter pressure: hand pump King

Field Alkalinity Titration:

7.12 Start pH 4.5 End pH

50.0 mL Sample Size

mL Acid added for Phenol (> 8.3)

14.6 mL Acid added for Total (8.3 - 4.5)

Items below calculated from: mL acid added x 20 = Alkalinity

Phenol Alkalinity (82244): mg/L

Total Alkalinity (39088): 292 mg/L

Items Below Calculated Later From Results:

Dissolved Solids (mg/L): 370

Hardness (as CaCO3): 319

Balanced: ✓

Water Quality Stabilization Parameters Table

(at least 3 readings at five minute intervals)

Time:	1105	1110	1115		
pH:	6.93	7.00	7.00		
Celsius Temp. (00010)	25.0	25.0	25.0		
Conductivity (µS/cm):	694	670	670		

Notes:

Data Entered By Sampler Into Database: Yes / no

LCRA Environmental Laboratory Services

Date: 27-Jun-02

CLIENT: Texas Water Development Board
Lab Order: 0206103 **File No:** 20140
Project: TWDB FY02
Lab ID: 0206103-06

Client Sample ID: 68-21-409
Collection Date: 6/6/02 11:20:00 AM
Matrix: GROUNDWATER

Analyses	Storet	Result	PQL	Qual	Units	DF	BatchID	Date Analyzed
ICP METALS DISSOLVED			E200.7				Analyst: MLP	
Calcium		96.1	0.20		mg/L	1	R14721A	6/18/02 7:30:59 PM
Magnesium		19.3	0.20		mg/L	1	R14721A	6/18/02 7:30:59 PM
Potassium		1.19	0.20		mg/L	1	R14721A	6/18/02 7:30:59 PM
Sodium		13.5	0.70		mg/L	1	R14721A	6/18/02 7:30:59 PM
ICP METALS DISSOLVED			E200.7				Analyst: MLP	
Boron		ND	50		µg/L	1	R14665A	6/18/02 7:30:59 PM
Iron		ND	50		µg/L	1	R14665A	6/18/02 7:30:59 PM
Strontium		582	20		µg/L	1	R14665A	6/18/02 7:30:59 PM
ICPMS DISSOLVED METALS			E200.8				Analyst: SW	
Aluminum		ND	4.00		µg/L	1	R14656A	6/18/02
Antimony		ND	1.00		µg/L	1	R14656A	6/18/02
Arsenic		ND	2.00		µg/L	1	R14656A	6/18/02
Barium		31.7	1.00		µg/L	1	R14656A	6/18/02
Beryllium		ND	1.00		µg/L	1	R14656A	6/18/02
Cadmium		ND	1.00		µg/L	1	R14656A	6/18/02
Chromium		2.18	1.00		µg/L	1	R14656A	6/18/02
Cobalt		ND	1.00		µg/L	1	R14656A	6/18/02
Copper		4.43	1.00		µg/L	1	R14656A	6/18/02
Lead		ND	1.00		µg/L	1	R14656A	6/18/02
Lithium		3.05	2.00		µg/L	1	R14656A	6/18/02
Manganese		3.84	1.00		µg/L	1	R14656A	6/18/02
Molybdenum		1.06	1.00		µg/L	1	R14656A	6/18/02
Nickel		4.13	1.00		µg/L	1	R14656A	6/18/02
Selenium		ND	4.00		µg/L	1	R14656A	6/18/02
Thallium		ND	1.00		µg/L	1	R14656A	6/18/02
Vanadium		1.26	1.00		µg/L	1	R14656A	6/18/02
Zinc		90.9	4.00		µg/L	1	R14656A	6/18/02
CATION/ANION BALANCES			CALCULATION				Analyst: AMJ	
Cation/Anion Balance		Balanced			Date	1	R14778	6/26/02
ANIONS BY ION CHROMATOGRAPHY, DISSOLVE E300							Analyst: WR	
Bromide Dissolved		0.06	0.02		mg/L	1	R14737C	6/21/02 10:55:58 PM
Chloride Dissolved		27.2	1.00		mg/L	1	R14737C	6/21/02 10:55:58 PM

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

LCRA Environmental Laboratory Services

Date: 27-Jun-02

CLIENT: Texas Water Development Board
Lab Order: 0206103 **File No:** 20140
Project: TWDB FY02
Lab ID: 0206103-06

Client Sample ID: 68-21-409
Collection Date: 6/6/02 11:20:00 AM
Matrix: GROUNDWATER

Analyses	Storet	Result	PQL	Qual	Units	DF	BatchID	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY, DISSOLVE E300								
Fluoride Dissolved		0.27	0.01		mg/L	1	R14737C	6/21/02 10:55:58 PM
Sulfate Dissolved		22.7	1.00		mg/L	1	R14737C	6/21/02 10:55:58 PM
ALKALINITY								
			M2320 B					Analyst: CMM
Alkalinity, Phenolphthalein		ND	0		mg/L CaCO	1	R14631	6/14/02
Alkalinity, Total (As CaCO3)		284	2		mg/L CaCO	1	R14631	6/14/02
NITRATE AND NITRITE								
			E353.2					Analyst: WM
Nitrogen, Nitrate & Nitrite		1.75	0.02		mg/L	1	R14649A	6/17/02
SILICA								
			E370.1					Analyst: WM
Silica, Dissolved (as SiO2)		11.7	0.50		mg/L	1	R14587C	6/12/02

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

[GWDB Reports and Downloads](#)

Well Basic Details

[Scanned Documents](#)

State Well Number	6821410
County	Bexar
River Basin	San Antonio
Groundwater Management Area	9
Regional Water Planning Area	L - South Central Texas
Groundwater Conservation District	Trinity Glen Rose GCD
Latitude (decimal degrees)	29.698611
Latitude (degrees minutes seconds)	29° 41' 55" N
Longitude (decimal degrees)	-98.494445
Longitude (degrees minutes seconds)	098° 29' 40" W
Coordinate Source	Global Positioning System - GPS
Aquifer Code	218GRCCU - Lower Glen Rose and Cow Creek Limestones
Aquifer	Trinity
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	1261
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	650
Well Depth Source	Driller's Log
Drilling Start Date	
Drilling End Date	4/5/1985
Drilling Method	Mud (Hydraulic) Rotary
Borehole Completion	Open Hole

Well Type	Withdrawal of Water
Well Use	Public Supply
Water Level Observation	Historical
Water Quality Available	Yes
Pump	Submersible
Pump Depth (feet below land surface)	
Power Type	Electric Motor
Annular Seal Method	
Surface Completion	
Owner	BMWV-Timberwood Park Well #4
Driller	Haskin Pump Service
Other Data Available	Drillers Log
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	G0150270D
Groundwater Conservation District Well Number	
Owner Well Number	4
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Commission on Environmental Quality
Created Date	8/4/1998
Last Update Date	7/25/2016

Remarks

Casing						
Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
7	Blank	Steel			0	320
	Open Hole				320	650

Well Tests - No Data

Lithology - No Data

Annular Seal Range - No Data

Borehole - No Data

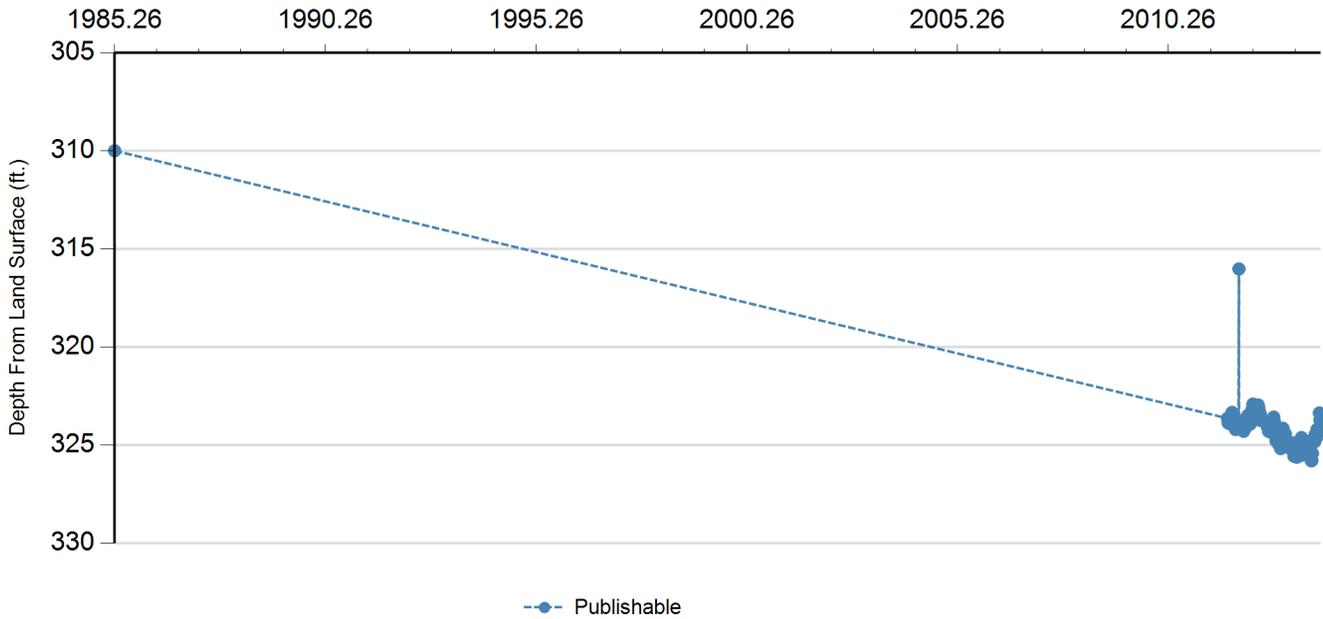
Plugged Back - No Data

Filter Pack - No Data

Packers - No Data

Water Level Measurements

Measurement Year (with decimal months)



Status Code	Date	Time	Water Level (ft. below land surface)	Change value in () indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	4/5/1985		310		951	1	Registered Water Well Driller	Unknown		
P	8/30/2011		323.63	13.63	937.37	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/5/2011		323.86	0.23	937.14	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/10/2011		323.88	0.02	937.12	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/15/2011		323.88	0.00	937.12	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/20/2011		323.89	0.01	937.11	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/25/2011		323.77	(0.12)	937.23	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/30/2011		323.93	0.16	937.07	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/5/2011		323.78	(0.15)	937.22	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/10/2011		323.33	(0.45)	937.67	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/13/2011		323.6	0.27	937.4	1	Texas Water Development Board	Electric Line		

**Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-410**

Status Code	Date	Time	Water Level (ft. below land surface)	Change value in () indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	10/15/2011		323.62	0.02	937.38	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/20/2011		323.84	0.22	937.16	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/25/2011		323.93	0.09	937.07	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/30/2011		323.99	0.06	937.01	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/5/2011		323.99	0.00	937.01	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/10/2011		324.2	0.21	936.8	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/15/2011		323.86	(0.34)	937.14	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/20/2011		323.89	0.03	937.11	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/25/2011		324.07	0.18	936.93	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/30/2011		324.13	0.06	936.87	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/5/2011		324.06	(0.07)	936.94	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/9/2011		316.02	(8.04)	944.98	1	U.S. Geological Survey	Electric Line		
P	12/10/2011		324.14	8.12	936.86	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/15/2011		323.9	(0.24)	937.1	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/20/2011		323.96	0.06	937.04	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/25/2011		324.02	0.06	936.98	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/30/2011		324.03	0.01	936.97	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/5/2012		324.08	0.05	936.92	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/10/2012		324.11	0.03	936.89	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/15/2012		324.29	0.18	936.71	1	Texas Water Development Board	Recorder (Float or Transducer)		

**Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-410**

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	1/20/2012		324.09	(0.20)	936.91	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/25/2012		324.13	0.04	936.87	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/30/2012		324.12	(0.01)	936.88	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/5/2012		323.63	(0.49)	937.37	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/10/2012		323.84	0.21	937.16	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/15/2012		323.67	(0.17)	937.33	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/20/2012		323.49	(0.18)	937.51	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/25/2012		323.65	0.16	937.35	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/28/2012		323.65	0.00	937.35	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/5/2012		323.89	0.24	937.11	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/10/2012		323.93	0.04	937.07	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/20/2012		323.42	(0.51)	937.58	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/25/2012		323.22	(0.20)	937.78	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/5/2012		322.91	(0.31)	938.09	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/10/2012		323.02	0.11	937.98	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/15/2012		323.29	0.27	937.71	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/20/2012		323.4	0.11	937.6	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/25/2012		323.53	0.13	937.47	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/30/2012		323.58	0.05	937.42	1	Texas Water Development Board	Recorder (Float or Transducer)		

**Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-410**

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	5/5/2012		323.7	0.12	937.3	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/10/2012		323.46	(0.24)	937.54	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/15/2012		323.04	(0.42)	937.96	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/20/2012		322.95	(0.09)	938.05	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/25/2012		323.1	0.15	937.9	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/30/2012		323.27	0.17	937.73	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/5/2012		323.38	0.11	937.62	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/10/2012		323.44	0.06	937.56	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/15/2012		323.74	0.30	937.26	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/20/2012		323.72	(0.02)	937.28	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/5/2012		323.96	0.24	937.04	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/10/2012		324.05	0.09	936.95	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/15/2012		324.09	0.04	936.91	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/20/2012		324.29	0.20	936.71	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/25/2012		324.22	(0.07)	936.78	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/30/2012		324.14	(0.08)	936.86	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/5/2012		324.16	0.02	936.84	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/10/2012		324.34	0.18	936.66	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/15/2012		323.96	(0.38)	937.04	1	Texas Water Development Board	Recorder (Float or Transducer)		

**Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-410**

Status Code	Date	Time	Water Level (ft. below land surface)	Change value in () indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	9/20/2012		324.08	0.12	936.92	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/25/2012		324.1	0.02	936.9	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/30/2012		323.64	(0.46)	937.36	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/5/2012		323.57	(0.07)	937.43	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/10/2012		323.8	0.23	937.2	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/15/2012		323.97	0.17	937.03	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/20/2012		324.23	0.26	936.77	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/25/2012		324.78	0.55	936.22	1	Texas Water Development Board	Electric Line		
X	10/30/2012					1	Texas Water Development Board		37	
P	11/5/2012		324.79		936.21	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/10/2012		324.81	0.02	936.19	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/15/2012		324.93	0.12	936.07	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/20/2012		324.73	(0.20)	936.27	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/25/2012		324.87	0.14	936.13	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/30/2012		324.85	(0.02)	936.15	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/5/2012		325.17	0.32	935.83	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/15/2012		324.39	(0.78)	936.61	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/25/2012		324.14	(0.25)	936.86	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/30/2012		324.57	0.43	936.43	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/10/2013		324.43	(0.14)	936.57	1	Texas Water Development Board	Recorder (Float or Transducer)		

**Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-410**

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	1/20/2013		325.08	0.65	935.92	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/25/2013		325.04	(0.04)	935.96	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/30/2013		324.98	(0.06)	936.02	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/5/2013		324.98	0.00	936.02	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/10/2013		324.9	(0.08)	936.1	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/15/2013		325.14	0.24	935.86	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/20/2013		325.04	(0.10)	935.96	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/25/2013		324.89	(0.15)	936.11	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/28/2013		324.89	0.00	936.11	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/5/2013		324.95	0.06	936.05	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/10/2013		324.88	(0.07)	936.12	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/15/2013		325.17	0.29	935.83	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/20/2013		325.14	(0.03)	935.86	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/25/2013		325.56	0.42	935.44	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/30/2013		325.36	(0.20)	935.64	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/5/2013		325.53	0.17	935.47	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/10/2013		325.33	(0.20)	935.67	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/15/2013		325.39	0.06	935.61	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/20/2013		325.61	0.22	935.39	1	Texas Water Development Board	Recorder (Float or Transducer)		

**Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-410**

Status Code	Date	Time	Water Level (ft. below land surface)	Change value in () indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	4/25/2013		325.55	(0.06)	935.45	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/30/2013		325.34	(0.21)	935.66	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/5/2013		325.5	0.16	935.5	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/10/2013		325.45	(0.05)	935.55	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/15/2013		325.38	(0.07)	935.62	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/20/2013		325.38	0.00	935.62	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/25/2013		325.52	0.14	935.48	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/30/2013		324.61	(0.91)	936.39	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/5/2013		325.04	0.43	935.96	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/10/2013		325.19	0.15	935.81	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/15/2013		325.19	0.00	935.81	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/20/2013		325.24	0.05	935.76	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/25/2013		325.25	0.01	935.75	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/30/2013		325.23	(0.02)	935.77	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/5/2013		325.33	0.10	935.67	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/10/2013		325.36	0.03	935.64	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/15/2013		325.32	(0.04)	935.68	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/20/2013		325.31	(0.01)	935.69	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/25/2013		325.38	0.07	935.62	1	Texas Water Development Board	Recorder (Float or Transducer)		

**Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-410**

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	7/30/2013		325.39	0.01	935.61	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/5/2013		325.38	(0.01)	935.62	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/10/2013		325.48	0.10	935.52	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/15/2013		325.47	(0.01)	935.53	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/20/2013		325.68	0.21	935.32	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/25/2013		325.79	0.11	935.21	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/30/2013		325.78	(0.01)	935.22	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/5/2013		325.42	(0.36)	935.58	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/10/2013		324.68	(0.74)	936.32	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/15/2013		324.78	0.10	936.22	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/20/2013		324.74	(0.04)	936.26	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/25/2013		324.82	0.08	936.18	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/30/2013		324.45	(0.37)	936.55	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/5/2013		324.51	0.06	936.49	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/10/2013		324.62	0.11	936.38	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/15/2013		324.2	(0.42)	936.8	1	Texas Water Development Board	Recorder (Float or Transducer)		
X	10/17/2013					1	Texas Water Development Board		37	
P	10/20/2013		324.23		936.77	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/25/2013		324.36	0.13	936.64	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/30/2013		324.28	(0.08)	936.72	1	Texas Water Development Board	Recorder (Float or Transducer)		

Texas Water Development Board (TWDB)
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Well Information Report for State Well Number
68-21-410

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	11/5/2013		323.36	(0.92)	937.64	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/10/2013		323.71	0.35	937.29	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/15/2013		323.72	0.01	937.28	1	Texas Water Development Board	Recorder (Float or Transducer)		

Code Descriptions

Status Code	Status Description
P	Publishable
X	No Measurement

Remark ID	Remark Description
37	No measurement due to admin decision

Water Quality Analysis

Sample Date: 5/24/1999
Sample Time: 1050
Sample Number: 1
Collection Entity: Bexar Metropolitan Water District

Sampled Aquifer: Lower Glen Rose and Cow Creek Limestones

Analyzed Lab: LCRA - Lower Colorado River Authority

Reliability: Sampled using TWDB protocols

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
39086	ALKALINITY FIELD DISSOLVED AS CaCO3		246	mg/L as CaCO3	
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		254	mg/L as CaCO3	
01106	ALUMINUM, DISSOLVED (UG/L AS AL)	<	4	ug/L	
01095	ANTIMONY, DISSOLVED (UG/L AS SB)	<	1	ug/L	
01000	ARSENIC, DISSOLVED (UG/L AS AS)	<	2	ug/L	
01005	BARIUM, DISSOLVED (UG/L AS BA)		30.3	ug/L	
01010	BERYLLIUM, DISSOLVED (UG/L AS BE)	<	1	ug/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		309.97	mg/L	
01020	BORON, DISSOLVED (UG/L AS B)		79	ug/L	
71870	BROMIDE, DISSOLVED, (MG/L AS BR)		0.1	mg/L	
01025	CADMIUM, DISSOLVED (UG/L AS CD)	<	1	ug/L	
00915	CALCIUM, DISSOLVED (MG/L AS CA)		83.5	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00941	CHLORIDE, DISSOLVED (MG/L AS CL)		13.9	mg/L	
01030	CHROMIUM, DISSOLVED (UG/L AS CR)		8.2	ug/L	
01035	COBALT, DISSOLVED (UG/L AS CO)	<	1	ug/L	
01040	COPPER, DISSOLVED (UG/L AS CU)	<	2	ug/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.22	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		265	mg/L as CaCO3	
01046	IRON, DISSOLVED (UG/L AS FE)		58	ug/L	
01049	LEAD, DISSOLVED (UG/L AS PB)		4.3	ug/L	
01130	LITHIUM, DISSOLVED (UG/L AS LI)		4	ug/L	
00925	MAGNESIUM, DISSOLVED (MG/L AS MG)		13.7	mg/L	
01056	MANGANESE, DISSOLVED (UG/L AS MN)	<	1	ug/L	
01060	MOLYBDENUM, DISSOLVED (UG/L AS MO)	<	1	ug/L	
01065	NICKEL, DISSOLVED (UG/L AS NI)		4.3	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		4.12	mg/L as NO3	

**Texas Water Development Board (TWDB)
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68-21-410**

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00631	NITRITE PLUS NITRATE, DISSOLVED (MG/L AS N)		0.931	mg/L as N	
00608	NITROGEN, AMMONIA, DISSOLVED (MG/L AS N)	<	0.04	mg/L as N	
00623	NITROGEN, KJELDAHL, DISSOLVED (MG/L AS N)		0.048	mg/L as N	
00090	OXIDATION REDUCTION POTENTIAL (ORP), MILLIVOLTS		286.1	MV	
00400	PH (STANDARD UNITS), FIELD		6.45	SU	
00666	PHOSPHORUS, DISSOLVED (MG/L AS P)	<	0.04	mg/L as P	
00935	POTASSIUM, DISSOLVED (MG/L AS K)		1.24	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
01145	SELENIUM, DISSOLVED (UG/L AS SE)	<	4	ug/L	
00955	SILICA, DISSOLVED (MG/L AS SI02)		11	mg/L as SIO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		0.22		
00932	SODIUM, CALCULATED, PERCENT		6	PCT	
00930	SODIUM, DISSOLVED (MG/L AS NA)		8.24	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		564	MICR	
01080	STRONTIUM, DISSOLVED (UG/L AS SR)		449	ug/L	
00946	SULFATE, DISSOLVED (MG/L AS SO4)		16.7	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		23.5	C	
01057	THALLIUM, DISSOLVED (UG/L AS TL)	<	1	ug/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		305	mg/L	
01085	VANADIUM, DISSOLVED (UG/L AS V)		4.1	ug/L	
01090	ZINC, DISSOLVED (UG/L AS ZN)		84.8	ug/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/gwdbbrpt.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.

Date _____

HASKIN PUMP SERVICE, INC.

15403 Capital Port

San Antonio, Texas

492-2141

78249

Name Timberwood Park #6

Location _____

Total Depth 650' Well Capacity 75 GPMTotal Pipe 7" O.D. 320' Date Started 4-3-85Drilling Time 15 hrs. Date Completed 4-5-85Kind of Formation Glenrose Water Level 310'

0 - 1	Top Soil
1 - 4	Gravel
4 - 10	Caliche
10 - 12	Hard White Lime
12 - 18	Soft Grey Lime
18 - 23	Hard White Lime
23 - 30	Clay
30 - 40	Hard White Lime
40 - 88	Hard Grey Lime
88 - 108	Soft White Lime
108 - 113	Hard Grey Lime
113 - 133	Hard White Lime
133 - 180	Hard Grey Lime
180 - 186	Clay
186 - 221	Hard Grey Lime
221 - 225	Soft Brown Lime
225 - 240	Hard Grey Lime
240 - 270	Soft White Lime
270 - 297	Hard Grey Lime
297 - 320	Hard White Lime
320 - 509	Glenrose White Lime
509 - 612	Cow Creek Cemented by use of tremie
612 - 650	Shale pipe by HASKIN PUMP SERVICE INC

DRILLER: STEVE WEST
RIG NO. # 10Glen H. Haskin
Glen H. Haskin, President

Driller _____

Rig No. _____

Water Quality Field Data Sheet

SWN: 68-21-410 Name: B.M.W.D. Sample No. BM-3110-1999
 County: BEXAR Address: 801 BEST WAY Date: MAY 24, 1999
 Aquifer: GLENROSE owners well # W/P #1 By: ROGER P.

Bottle 1 500 ml Bottle 2 1 liter Bottle 3 250 ml Bottle 4 1 liter Bottle 5 250 ml Bottle 6 1 liter Bottle 7 250 ml
 Anions 2 ml Cations 2 ml Nitrate 0.5 ml Radioactivity 2 ml

HNO3 HNO H2SO4 HNO
 (Nitric) (Sulfuric) (Nitric)

Water level LSD Remark 1020 Starting ph 7.00 @ 25.8
 Temperature(00010) 23.5 c Time out 1115 Sample time 1050 ml. of 0.02N to 50 ml. of Sample
 Specific Cond.(00094) 564 umhos/cm Weather PARTLYCLOUDY Ending ph 4.50 @ 27.4
 Outside temp 80

ph (00400) 6.45
 Eh (00090) 286.1 mv.

Phenol ALK (82244) 0 mg/l
 Total ALK (39086) 246 mg/l

Carbonate (00452) 0 meq/l
 Bicarbonate(00453) 4.92 meq/l

Total Cations(+) Balanced
 Total Anions(-) 265
 Total Hardness(00900) 265

TDS 305

Sampling point DISCHARGE(FAUCET)

Time:	1030	1035	1040	ml	ph
ph:	6.48	6.50	6.45		1 6.76
Temperature:	23.0	23.3	23.5		2 6.58
Eh			286.1		3 6.42
Conductivity:	559	563	564		4 6.28
Pumping since	1020	Lift	SUBMERSIBLE		5 6.16
Latitude	29-41-54	Power	ELECTRIC		6 6.04
Longitude	98-29-29	Gpm	40		7 5.92
					8 5.79
					9 5.55
					10 5.47
					11 5.21
					12 4.8
					12.3 4.5



FINAL ANALYSIS REPORT

LAB ID: 9907749 SAMPLE DESCRIPTION: Groundwater
COMPANY: TX Water Dev. Board SAMPLE DATE: 05/24/99
ACCT NO: SAMPLE TIME: 1050
REQUISITION No.: R10988 DATE RECEIVED: 05/28/99
LOCATION ID: 68-21-410 REPORT DATE: 06/23/99

PARAMETER	RESULTS	UNITS	STORET #	PQL in WATER	DATE ANALYZED
Bromide	0.10	mg/L	71870	0.02	06/02/99
Chloride	13.9	mg/L	00941	1.5	06/02/99
Fluoride	0.22	mg/L	00950	0.01	06/02/99
Nit., nitri/nitra-AFA	0.931	mg/L	00630	0.010	06/03/99
Nitrogen, Kjeldahl	0.048	mg/L	00623	0.040	06/08/99
Nitrogen, ammonia	<0.040	mg/L	00608	0.040	06/10/99
Phosphorus, Total	<0.040	mg/L	00665	0.040	06/08/99
Silica	11.00	mg/L	00955	0.50	06/07/99
Sulfate	16.70	mg/L	00946	1.50	06/02/99
Alkalinity, Total	254	mg/L	00410	1	06/02/99
Alkalinity, Phenol.	0	mg/L	00415	0	06/02/99
Boron, Dissolved	79.00	ug/L	01020	50.00	06/10/99
Cobalt, Diss. ICPMS	<1.0	ug/L	01035	1.0	06/08/99
Iron, Dissolved	58.00	ug/L	01046	50.00	06/10/99
Lithium, Diss. ICPMS	4.0	ug/L	01130	2.0	06/08/99
Molybdenum Dis ICPMS	<1.0	ug/L	01060	1.0	06/08/99
Potassium, Dissolved	1.24	mg/L	00935	0.20	06/10/99
Strontium, Dissolved	449.00	ug/L	01080	20.00	06/10/99
Vanadium, Diss ICPMS	4.1	ug/L	01085	1.0	06/08/99
Aluminum, Dis. ICPMS	<4.0	ug/L	01106	4.0	06/08/99
Arsenic, Diss. ICPMS	<2.0	ug/L	01000	2.0	06/08/99
Barium, Diss. ICPMS	30.3	ug/L	01005	1.0	06/08/99
Cadmium, Diss. ICPMS	<1.0	ug/L	01025	1.0	06/08/99
Calcium, Dissolved	83.50	mg/L	00915	0.20	06/22/99
Chromium, Diss ICPMS	8.2	ug/L	01030	1.0	06/08/99
Copper, Diss. ICPMS	<2.0	ug/L	01040	2.0	06/08/99
Lead, Diss. ICPMS	4.3	ug/L	01049	1.0	06/08/99
Magnesium, Dissolved	13.70	mg/L	00925	0.20	06/10/99
Manganese, Dis ICPMS	<1.0	ug/L	01056	1.0	06/08/99
Nickel, Diss. ICPMS	4.3	ug/L	01065	1.0	06/08/99
Selenium, Dis. ICPMS	<4.0	ug/L	01145	4.0	06/08/99
Sodium, Dissolved	8.24	mg/L	00930	0.20	06/10/99
Antimony, Dis. ICPMS	<1.0	ug/L	01095	1.0	06/08/99
Beryllium, Dis ICPMS	<1.0	ug/L	01010	1.0	06/08/99
Thallium, Diss ICPMS	<1.0	ug/L	01057	1.0	06/08/99
Zinc, Diss. ICPMS	84.8	ug/L	01090	2.0	06/08/99

[GWDB Reports and Downloads](#)

Well Basic Details

[Scanned Documents](#)

State Well Number	6821411
County	Bexar
River Basin	San Antonio
Groundwater Management Area	9
Regional Water Planning Area	L - South Central Texas
Groundwater Conservation District	Trinity Glen Rose GCD
Latitude (decimal degrees)	29.698334
Latitude (degrees minutes seconds)	29° 41' 54" N
Longitude (decimal degrees)	-98.492778
Longitude (degrees minutes seconds)	098° 29' 34" W
Coordinate Source	Global Positioning System - GPS
Aquifer Code	218GRCCU - Lower Glen Rose and Cow Creek Limestones
Aquifer	Trinity
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	1266
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	725
Well Depth Source	Driller's Log
Drilling Start Date	
Drilling End Date	9/5/1986
Drilling Method	Mud (Hydraulic) Rotary
Borehole Completion	Open Hole

Well Type	Withdrawal of Water
Well Use	Public Supply
Water Level Observation	None
Water Quality Available	Yes
Pump	Submersible
Pump Depth (feet below land surface)	
Power Type	Electric Motor
Annular Seal Method	
Surface Completion	
Owner	BMWV-Timberwood Park Well #5
Driller	Haskin Pump Service
Other Data Available	Drillers Log
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	G0150270E
Groundwater Conservation District Well Number	
Owner Well Number	5
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Commission on Environmental Quality
Created Date	8/4/1998
Last Update Date	7/21/2016

Remarks

Casing - No Data

Well Tests - No Data

Lithology - No Data

Annular Seal Range - No Data

Borehole - No Data

Plugged Back - No Data

Filter Pack - No Data

Packers - No Data

Water Level Measurements

No Data Available

Water Quality Analysis

Sample Date: 6/18/1999 **Sample Time:** 1005 **Sample Number:** 1 **Collection Entity:** Bexar Metropolitan Water District

Sampled Aquifer: Lower Glen Rose and Cow Creek Limestones

Analyzed Lab: LCRA - Lower Colorado River Authority

Reliability: Sampled using TWDB protocols

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
39086	ALKALINITY FIELD DISSOLVED AS CaCO3		292	mg/L as CaCO3	
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		291	mg/L as CaCO3	
01106	ALUMINUM, DISSOLVED (UG/L AS AL)	<	4	ug/L	
01095	ANTIMONY, DISSOLVED (UG/L AS SB)	<	1	ug/L	
01000	ARSENIC, DISSOLVED (UG/L AS AS)	<	2	ug/L	
01005	BARIUM, DISSOLVED (UG/L AS BA)		36.8	ug/L	
01010	BERYLLIUM, DISSOLVED (UG/L AS BE)	<	1	ug/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		355.12	mg/L	
01020	BORON, DISSOLVED (UG/L AS B)		52	ug/L	
71870	BROMIDE, DISSOLVED, (MG/L AS BR)		0.11	mg/L	
01025	CADMIUM, DISSOLVED (UG/L AS CD)	<	1	ug/L	
00915	CALCIUM, DISSOLVED (MG/L AS CA)		103	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00941	CHLORIDE, DISSOLVED (MG/L AS CL)		20.3	mg/L	
01030	CHROMIUM, DISSOLVED (UG/L AS CR)		10.8	ug/L	
01035	COBALT, DISSOLVED (UG/L AS CO)	<	1	ug/L	
01040	COPPER, DISSOLVED (UG/L AS CU)	<	2	ug/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.19	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		321	mg/L as CaCO3	
01046	IRON, DISSOLVED (UG/L AS FE)	<	50	ug/L	
01049	LEAD, DISSOLVED (UG/L AS PB)		2.7	ug/L	
01130	LITHIUM, DISSOLVED (UG/L AS LI)		3.9	ug/L	
00925	MAGNESIUM, DISSOLVED (MG/L AS MG)		15.6	mg/L	
01056	MANGANESE, DISSOLVED (UG/L AS MN)	<	1	ug/L	
01060	MOLYBDENUM, DISSOLVED (UG/L AS MO)	<	1	ug/L	
01065	NICKEL, DISSOLVED (UG/L AS NI)		12.8	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		6.6	mg/L as NO3	

**Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-411**

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00631	NITRITE PLUS NITRATE, DISSOLVED (MG/L AS N)		1.49	mg/L as N	
00608	NITROGEN, AMMONIA, DISSOLVED (MG/L AS N)	<	0.02	mg/L as N	
00623	NITROGEN, KJELDAHL, DISSOLVED (MG/L AS N)	<	0.04	mg/L as N	
00090	OXIDATION REDUCTION POTENTIAL (ORP), MILLIVOLTS		179.7	MV	
00400	PH (STANDARD UNITS), FIELD		6.84	SU	
00666	PHOSPHORUS, DISSOLVED (MG/L AS P)	<	0.04	mg/L as P	
00935	POTASSIUM, DISSOLVED (MG/L AS K)		1.32	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
01145	SELENIUM, DISSOLVED (UG/L AS SE)	<	4	ug/L	
00955	SILICA, DISSOLVED (MG/L AS SI02)		11.4	mg/L as SIO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		0.27		
00932	SODIUM, CALCULATED, PERCENT		7	PCT	
00930	SODIUM, DISSOLVED (MG/L AS NA)		11.2	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		670	MICR	
01080	STRONTIUM, DISSOLVED (UG/L AS SR)		327	ug/L	
00946	SULFATE, DISSOLVED (MG/L AS SO4)		26	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		22.4	C	
01057	THALLIUM, DISSOLVED (UG/L AS TL)	<	1	ug/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		370	mg/L	
01085	VANADIUM, DISSOLVED (UG/L AS V)		4.2	ug/L	
01090	ZINC, DISSOLVED (UG/L AS ZN)		586.6	ug/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/gwdbbrpt.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.

WELL LOG
HASKIN PUMP SERVICE, INC.

15408 Capital Port
 San Antonio, Texas

492-2141

78249

Name Timberwood Park Subdivision Well #5
 Location Timberwood Park Subdivision
 Total Depth 725 Well Capacity 100 GPM
 Total Pipe 430' 8 5/8" - 8 3/4" Date Started 8-28-86
 Drilling Time _____ Date Completed 9-5-86
 Kind of Formation Glenrose Water Level 289'

0 - 2	Top Soil
2 - 4	White Lime
4 - 13	Brown Lime & Caliche
13 - 22	Grey Lime
22 - 53	Brown Lime
53 - 91	Grey Lime & Black Streaks
91 - 125	Brown Lime
125 - 148	Grey Lime
148 - 160	Brown Lime
160 - 230	Grey Lime & Black Streaks
230 - 240	Brown Lime
240 - 281	Grey Lime (Water at 330' to 375')
281 - 300	Grey & Brown Lime
300 - 447	White Lime & Strks. Grey Lime w/ pockets of red clay 300' - 392'
447 - 498	Light Grey Lime
498 - 517	Light Brown Lime
517 - 522	Grey Lime
522 - 556	Brown Lime
556 - 591	Grey Lime
591 - 664	Brown Lime & Light Grey Lime
664 - 703	Grey Lime
703 - 720	Dark Grey Lime soft
720 - 725	Pine Island Shale More water at 605' to 620' 355' to 347' Cave

DRILLER: GLEN D. Haskin Rig #9 Speedstar
 Driller Cemented by use of tremie pipe
 by Haskin Pump Service Inc.
 Rig No. Glen D. Haskin President

6824411

#5 WELL

078

26719 shadow Pass

Please use black ink. Send original copy by certified mail to the Texas Water Commission P.O. Box 13087 Austin, Texas 78711

State of Texas WATER WELL REPORT

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

ATTENTION OWNER: Confidentiality Privilege Notice on Reverse Side

1) OWNER Haskin Water Utility, Inc. Address 15403 Capital Port San Antonio, TX 78249

2) LOCATION OF WELL: County Bexar 19 1/2 miles in North direction from San Antonio

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines...

Legal description: Section No. Block No. Township Abstract No. Survey Name Distance and direction from two intersecting section or survey lines

See attached map.

3) TYPE OF WORK (Check): New Well, Deepening, Reconditioning, Plugging. 4) PROPOSED USE (Check): Domestic, Industrial, Monitor, Public Supply, Irrigation, Test Well, Injection, Other. 5) DRILLING METHOD (Check): Driven, Mud Rotary, Air Hammer, Jetted, Bored, Air Rotary, Cable Tool, Other.

6) WELL LOG: Date Drilling: Started 8-28 19 86, Completed 9-5 19 86. DIAMETER OF HOLE: Dia. (in.) From (ft.) To (ft.)

7) BOREHOLE COMPLETION: Open Hole, Straight Wall, Underreamed, Gravel Packed, Other. If Gravel Packed give interval from ft. to ft.

Table with 3 columns: From (ft.), To (ft.), Description and color of formation material. Rows include Top Soil, White Lime, Brown Lime & Caliche, Gray Lime, Brown Lime, Gray Lime & Black Streaks, etc.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA: Table with columns for Dia. (in.), New or Used, Steel, Plastic, etc., Setting (ft.), Gage Casing Screen.

9) CEMENTING DATA [Rule 319.44(b)] Cemented from 430 ft. to 0 ft. No. of Sacks Used 132. Method used Pressure Cemented. Cemented by Haskin Pump Service.

10) SURFACE COMPLETION: Specified Surface Slab Installed, Pitless Adapter Used, Approved Alternative Procedure Used.

11) WATER LEVEL: Static level 289 ft. below land surface, Date 9-5-86. Artesian flow 125 gpm, Date 9-5-86.

12) PACKERS: Type Depth

13) TYPE PUMP: Turbine, Jet, Submersible, Cylinder, Other. Depth to pump bowls, cylinder, jet, etc., ft.

5) WATER QUALITY: Did you knowingly penetrate any strata which contained undesirable water? If yes, submit "REPORT OF UNDESIRABLE WATER".

14) WELL TESTS: Type Test: Pump, Bailer, Jetted, Estimated. Yield: gpm with ft. drawdown after hrs.

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

COMPANY NAME Haskin Pump Service, Inc - Water Well Driller's License No. 2327

ADDRESS 15403 Capital Port San Antonio, Texas 78249

Signed Glen D. Haskin (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TWC use only Well No. Located on map

Water Quality Field Data Sheet

SWN: 68-21-411
 County: BEXAR
 Aquifer: GLENROSE

Name: B.M.W.D.
 Address: 26803 HARMONY HILLS
S.A., TX. 76258
 owners well # W/P#1

Sample No. BM-3115-1999
 Date: JUNE 18, 1999
 By: ROGER P.

Bottle 1 Bottle 2 Bottle 3 Bottle 4 Bottle 5 Bottle 6 Bottle 7 Total Sub-Samples

500 ml Anions
 1 liter Cations
 250 ml Nitrate
 1 liter Radioactivity

2 ml HNO3 (Nitric)
 0.5 ml H2SO4 (Sulfuric)
 2 ml HNO (Nitric)

All filtered unless other wise stipulated

Time in 0900
 Time out 1035 Sample time 1005
 well use PUBLIC
 Weather SUNNY/HOT
 Outside temp 84
 Starting ph 6.84 @ 26.0
14.6 mi. of 0.02N to 50 ml. of Sample
 Ending ph 4.50 @ 27.5

Water level LSD Remark _____
 Temperature(00010) 22.4 c
 Specific Cond.(00094) 670 umhos/cm

ph (00400) 6.84

Eh (00090) 179.7 mv.

Phenol ALK (82244) 0 mg/l

Total ALK (39086) 292 mg/l

Carbonate (00452) 0 meq/l

Bicarbonate(00453) 5.84 meq/l

Total Cations(+) 292

Total Anions(-) 292

Total Hardness(00900) 325

Dissolved Solids 370

Sampling point DISCHARGE(FAUCET)

Time:	0950	0955	1000	mi	ph
ph:	6.7	6.83	6.84		1 6.77
Temperature:	22.3	22.1	22.4		2 6.66
Eh			179.7		3 6.56
Conductivity:	666	674	670		4 6.47
Pumping since 0925	other notes				5 6.38
Lift	SUBMERSIBLE				6 6.28
Power	ELECTRIC				7 6.2
Longitude	98-29-33 Gpm				8 6.11
	150				9 6
					10 5.89
					11 5.77
					12 5.61
					13 5.39
					14 5
					14.6 4.5



FINAL ANALYSIS REPORT

LAB ID: 9908389 SAMPLE DESCRIPTION: Groundwater
 COMPANY: TX Water Dev. Board SAMPLE DATE: 06/18/99
 ACCT NO: SAMPLE TIME: 10:05
 REQUISITION No.: R11209 DATE RECEIVED: 06/25/99
 LOCATION ID: 68-21-411 REPORT DATE: 07/30/99

PARAMETER	RESULTS	UNITS	STORET #	PQL in WATER	DATE ANALYZED
Bromide	0.11	mg/L	71870	0.02	06/29/99
Chloride	20.3	mg/L	00941	1.5	06/29/99
Fluoride	0.19	mg/L	00950	0.01	06/29/99
Nit.,nitri/nitra-AFA	1.490	mg/L	00630	0.010	06/29/99
Nitrogen, Kjeldahl	<0.040	mg/L	00623	0.040	07/12/99
Nitrogen, ammonia	<0.020	mg/L	00608	0.020	06/28/99
Phosphorus, Total	<0.040	mg/L	00665	0.040	07/12/99
Silica	11.40	mg/L	00955	0.50	06/29/99
Sulfate	26.00	mg/L	00946	1.50	06/29/99
Alkalinity, Total	291	mg/L	00410	1	06/28/99
Alkalinity, Phenol.	0	mg/L	00415	0	06/28/99
Boron, Dissolved	52.00	ug/L	01020	50.00	06/29/99
Cobalt, Diss. ICPMS	<1.0	ug/L	01035	1.0	07/13/99
Iron, Dissolved	<50.00	ug/L	01046	50.00	06/29/99
Lithium, Diss. ICPMS	3.9	ug/L	01130	2.0	07/13/99
Molybdenum Dis ICPMS	<1.0	ug/L	01060	1.0	07/13/99
Potassium, Dissolved	1.32	mg/L	00935	0.20	06/29/99
Strontium, Dissolved	327.00	ug/L	01080	20.00	06/29/99
Vanadium, Diss ICPMS	4.2	ug/L	01085	1.0	07/13/99
Aluminum, Dis. ICPMS	<4.0	ug/L	01106	4.0	07/13/99
Arsenic, Diss. ICPMS	<2.0	ug/L	01000	2.0	07/13/99
Barium, Diss. ICPMS	36.8	ug/L	01005	1.0	07/13/99
Cadmium, Diss. ICPMS	<1.0	ug/L	01025	1.0	07/13/99
Calcium, Dissolved	103.00	mg/L	00915	0.20	06/29/99
Chromium, Diss ICPMS	10.8	ug/L	01030	1.0	07/13/99
Copper, Diss. ICPMS	<2.0	ug/L	01040	2.0	07/13/99
Lead, Diss. ICPMS	2.7	ug/L	01049	1.0	07/13/99
Magnesium, Dissolved	15.60	mg/L	00925	0.20	06/29/99
Manganese, Dis ICPMS	<1.0	ug/L	01056	1.0	07/13/99
Nickel, Diss. ICPMS	12.8	ug/L	01065	1.0	07/13/99
Selenium, Dis. ICPMS	<4.0	ug/L	01145	4.0	07/13/99
Sodium, Dissolved	11.20	mg/L	00930	0.20	06/29/99
Antimony, Dis. ICPMS	<1.0	ug/L	01095	1.0	07/13/99
Beryllium, Dis ICPMS	<1.0	ug/L	01010	1.0	07/13/99
Thallium, Diss ICPMS	<1.0	ug/L	01057	1.0	07/13/99
Zinc, Diss. ICPMS	586.6	ug/L	01090	2.0	07/13/99

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Well Basic Details
[Scanned Documents](#)

State Well Number	6821412
County	Bexar
River Basin	San Antonio
Groundwater Management Area	9
Regional Water Planning Area	L - South Central Texas
Groundwater Conservation District	Trinity Glen Rose GCD
Latitude (decimal degrees)	29.698889
Latitude (degrees minutes seconds)	29° 41' 56" N
Longitude (decimal degrees)	-98.491111
Longitude (degrees minutes seconds)	098° 29' 28" W
Coordinate Source	Global Positioning System - GPS
Aquifer Code	218GRCCU - Lower Glen Rose and Cow Creek Limestones
Aquifer	Trinity
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	1297
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	620
Well Depth Source	Driller's Log
Drilling Start Date	
Drilling End Date	3/7/1986
Drilling Method	Mud (Hydraulic) Rotary
Borehole Completion	Other

Well Type	Withdrawal of Water
Well Use	Unused
Water Level Observation	Miscellaneous Measurements
Water Quality Available	Yes
Pump	None
Pump Depth (feet below land surface)	
Power Type	
Annular Seal Method	
Surface Completion	
Owner	BMWV-Timberwood Park Well #4
Driller	Haskin Pump Service, Inc.
Other Data Available	Drillers Log
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	G0150270J
Groundwater Conservation District Well Number	
Owner Well Number	26802 Harmony Hills
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	1/26/1999
Last Update Date	7/25/2016

Remarks

Casing						
Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
6	Blank	Steel			0	310
6	Open Hole				310	620

Well Tests - No Data

Lithology - No Data

Annular Seal Range - No Data

Borehole - No Data

Plugged Back - No Data

Filter Pack - No Data

Packers - No Data

Water Level Measurements



Status Code	Date	Time	Water Level (ft. below land surface)	Change value in () indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	3/7/1986		350		947	1	Registered Water Well Driller	Unknown		

Code Descriptions

Status Code	Status Description
P	Publishable

Water Quality Analysis

Sample Date: 6/7/1999 **Sample Time:** 1010 **Sample Number:** 1 **Collection Entity:** Bexar Metropolitan Water District

Sampled Aquifer: Lower Glen Rose and Cow Creek Limestones

Analyzed Lab: LCRA - Lower Colorado River Authority

Reliability: Sampled using TWDB protocols

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
39086	ALKALINITY FIELD DISSOLVED AS CaCO3		284	mg/L as CaCO3	
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		283	mg/L as CaCO3	
01106	ALUMINUM, DISSOLVED (UG/L AS AL)	<	4	ug/L	
01095	ANTIMONY, DISSOLVED (UG/L AS SB)	<	1	ug/L	
01000	ARSENIC, DISSOLVED (UG/L AS AS)	<	2	ug/L	
01005	BARIUM, DISSOLVED (UG/L AS BA)		33.8	ug/L	
01010	BERYLLIUM, DISSOLVED (UG/L AS BE)	<	1	ug/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		345.36	mg/L	
01020	BORON, DISSOLVED (UG/L AS B)		90	ug/L	
71870	BROMIDE, DISSOLVED, (MG/L AS BR)		0.11	mg/L	
01025	CADMIUM, DISSOLVED (UG/L AS CD)	<	1	ug/L	
00915	CALCIUM, DISSOLVED (MG/L AS CA)		93.7	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00941	CHLORIDE, DISSOLVED (MG/L AS CL)		16.6	mg/L	
01030	CHROMIUM, DISSOLVED (UG/L AS CR)	<	1	ug/L	
01035	COBALT, DISSOLVED (UG/L AS CO)	<	1	ug/L	
01040	COPPER, DISSOLVED (UG/L AS CU)		3	ug/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.2	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		292	mg/L as CaCO3	
01046	IRON, DISSOLVED (UG/L AS FE)		60	ug/L	
01049	LEAD, DISSOLVED (UG/L AS PB)		1.4	ug/L	
01130	LITHIUM, DISSOLVED (UG/L AS LI)		2.6	ug/L	
00925	MAGNESIUM, DISSOLVED (MG/L AS MG)		14.1	mg/L	
01056	MANGANESE, DISSOLVED (UG/L AS MN)	<	1	ug/L	
01060	MOLYBDENUM, DISSOLVED (UG/L AS MO)	<	1	ug/L	
01065	NICKEL, DISSOLVED (UG/L AS NI)		10.9	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		5.49	mg/L as NO3	

**Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-412**

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00631	NITRITE PLUS NITRATE, DISSOLVED (MG/L AS N)		1.24	mg/L as N	
00608	NITROGEN, AMMONIA, DISSOLVED (MG/L AS N)	<	0.02	mg/L as N	
00623	NITROGEN, KJELDAHL, DISSOLVED (MG/L AS N)	<	0.04	mg/L as N	
00090	OXIDATION REDUCTION POTENTIAL (ORP), MILLIVOLTS		167.1	MV	
00400	PH (STANDARD UNITS), FIELD		6.85	SU	
00666	PHOSPHORUS, DISSOLVED (MG/L AS P)	<	0.04	mg/L as P	
00935	POTASSIUM, DISSOLVED (MG/L AS K)		1.19	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
01145	SELENIUM, DISSOLVED (UG/L AS SE)	<	4	ug/L	
00955	SILICA, DISSOLVED (MG/L AS SI02)		11.7	mg/L as SIO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		0.22		
00932	SODIUM, CALCULATED, PERCENT		5	PCT	
00930	SODIUM, DISSOLVED (MG/L AS NA)		8.52	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		626	MICR	
01080	STRONTIUM, DISSOLVED (UG/L AS SR)		225	ug/L	
00946	SULFATE, DISSOLVED (MG/L AS SO4)		14.7	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		22.7	C	
01057	THALLIUM, DISSOLVED (UG/L AS TL)	<	1	ug/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		336	mg/L	
01085	VANADIUM, DISSOLVED (UG/L AS V)		1.2	ug/L	
01090	ZINC, DISSOLVED (UG/L AS ZN)		59.3	ug/L	

* Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..

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11

Bmud - Timber wood

#4 WELL 077

26802 HARMONY Hills

Please use black ink. Send original copy by certified mail to the Texas Water Commission P.O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

Texas Water Well Drillers Board
P. O. Box 13087
Austin, Texas 78711

ATTENTION OWNER: Confidentiality Privilege Notice on Reverse Side

1) OWNER Haskin Water Utility, Inc. Address 15403 Capital Port San Antonio, TX 78249
 (Name) (Street or RFD) (City) (State) (Zip)

2) LOCATION OF WELL: County Bexar 19 1/2 miles in North direction from San Antonio
 (Town)

Legal description: Section No. _____ Block No. _____ Township _____
 Abstract No. _____ Survey Name _____
 Distance and direction from two intersecting section or survey lines _____

See attached map.

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

4) PROPOSED USE (Check): Domestic Industrial Monitor Public Supply Irrigation Test Well Injection Other _____

5) DRILLING METHOD (Check): Driven Mud Rotary Air Hammer Jetted Bored Air Rotary Cable Tool Other _____

6) WELL LOG:

Date Drilling:	DIAMETER OF HOLE		
	Dia. (in.)	From (ft.)	To (ft.)
Started <u>3-3</u> 19 <u>86</u>	<u>10 3/4</u>	Surface	<u>310</u>
Completed <u>3-7</u> 19 <u>86</u>	<u>6</u>		<u>620</u>

7) BOREHOLE COMPLETION: Open Hole Straight Wall Underreamed
 Gravel Packed Other _____
 If Gravel Packed give interval ... from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	8	Top Soil & Caliche
8	28	Brown Lime & Yellow Clay
28	35	Gray Lime
35	48'	Brown Lime
48	74'	Gray Lime
74	129'	Brown & White Lime
129	150'	Gray Lime
150	174'	Brown Lime
174	219'	Gray Lime
219	225'	Soft Brown Lime (Water)
225	290'	Hard Gray Lime
290	320'	Firm Brown Lime
320	340'	Firm Gray Lime
340	415'	Brown Lime (Water)
		Broken Formation
415	530'	Fine Gray Lime
430	450'	Brown Lime
450	530'	Gray Lime
530	580'	Brown Lime
580	615'	Hard Gray Lime
615	620'	Blue Clay

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.)		Gage Casing Screen
			From	To	
6 5/8					
	N	Steel	0	310	

9) CEMENTING DATA [Rule 319.44(b)]
 Cemented from 310 ft. to 0 ft. No. of Sacks Used 110
 _____ ft. to _____ ft. No. of Sacks Used _____
 Method used Pressure Cemented
 Cemented by Haskin Pump Service
pressure cemented with 1" tremmi pipe

10) SURFACE COMPLETION
 Specified Surface Slab Installed [Rule 319.44(c)]
 Pitless Adapter Used [Rule 319.44(d)]
 Approved Alternative Procedure Used [Rule 319.71]

11) WATER LEVEL:
 Static level 350 ft. below land surface Date 3-7-86
 Artesian flow 125 gpm. Date 3-7-86

12) PACKERS: Type _____ Depth _____

13) TYPE PUMP:
 Turbine Jet Submersible Cylinder
 Other _____
 Depth to pump bowls, cylinder, jet, etc., _____ ft.

15) WATER QUALITY:
 Did you knowingly penetrate any strata which contained undesirable water? Yes No
 If yes, submit "REPORT OF UNDESIRABLE WATER"
 Type of water? _____ Depth of strata _____
 Was a chemical analysis made? Yes No

14) WELL TESTS:
 Type Test: Pump Bailer Jetted Estimated
 Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

I here by certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 12 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME Haskin Pump Service, Inc. Water Well Driller's License No. 935
 (Type or Print)

ADDRESS 15403 Capital Port San Antonio, Texas 78249
 (Street or RFD) (City) (State) (Zip)

Signed) Glen H. Haskin (Signed) _____
 (Licensed Water Well Driller) (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TWC use only
Well No. _____
Located on map _____



FINAL ANALYSIS REPORT

LAB ID: 9908117 SAMPLE DESCRIPTION: Groundwater
 COMPANY: TX Water Dev. Board SAMPLE DATE: 06/07/99
 ACCT NO: SAMPLE TIME: 1010
 REQUISITION No.: R11106 DATE RECEIVED: 06/14/99
 LOCATION ID: 68-21-412 REPORT DATE: 07/06/99

PARAMETER	RESULTS	UNITS	STORET #	PQL in WATER	DATE ANALYZED
Bromide	0.11	mg/L	71870	0.02	06/17/99
Chloride	16.6	mg/L	00941	1.5	06/17/99
Fluoride	0.20	mg/L	00950	0.01	06/17/99
Nit.,nitri/nitra-AFA	1.240	mg/L	00630	0.010	06/29/99
Nitrogen, Kjeldahl	<0.040	mg/L	00623	0.040	06/22/99
Nitrogen, ammonia	<0.020	mg/L	00608	0.020	06/21/99
Phosphorus, Total	<0.040	mg/L	00665	0.040	06/22/99
Silica	11.70	mg/L	00955	0.50	06/24/99
Sulfate	14.70	mg/L	00946	1.50	06/17/99
Alkalinity, Total	283	mg/L	00410	1	06/16/99
Alkalinity, Phenol.	0	mg/L	00415	0	06/16/99
Boron, Dissolved	90.00	ug/L	01020	50.00	06/16/99
Cobalt, Diss. ICPMS	<1.0	ug/L	01035	1.0	07/01/99
Iron, Dissolved	60.00	ug/L	01046	50.00	06/16/99
Lithium, Diss. ICPMS	2.6	ug/L	01130	2.0	07/01/99
Molybdenum Dis ICPMS	<1.0	ug/L	01060	1.0	07/01/99
Potassium, Dissolved	1.19	mg/L	00935	0.20	06/16/99
Strontium, Dissolved	225.00	ug/L	01080	20.00	06/16/99
Vanadium, Diss ICPMS	1.2	ug/L	01085	1.0	07/01/99
Aluminum, Dis. ICPMS	<4.0	ug/L	01106	4.0	07/01/99
Arsenic, Diss. ICPMS	<2.0	ug/L	01000	2.0	07/01/99
Barium, Diss. ICPMS	33.8	ug/L	01005	1.0	07/01/99
Cadmium, Diss. ICPMS	<1.0	ug/L	01025	1.0	07/01/99
Calcium, Dissolved	93.70	mg/L	00915	0.20	06/16/99
Chromium, Diss ICPMS	<1.0	ug/L	01030	1.0	07/01/99
Copper, Diss. ICPMS	3.0	ug/L	01040	2.0	07/01/99
Lead, Diss. ICPMS	1.4	ug/L	01049	1.0	07/01/99
Magnesium, Dissolved	14.10	mg/L	00925	0.20	06/16/99
Manganese, Dis ICPMS	<1.0	ug/L	01056	1.0	07/01/99
Nickel, Diss. ICPMS	10.9	ug/L	01065	1.0	07/01/99
Selenium, Dis. ICPMS	<4.0	ug/L	01145	4.0	07/01/99
Sodium, Dissolved	8.52	mg/L	00930	0.20	06/16/99
Antimony, Dis. ICPMS	<1.0	ug/L	01095	1.0	07/01/99
Beryllium, Dis ICPMS	<1.0	ug/L	01010	1.0	07/01/99
Thallium, Diss ICPMS	<1.0	ug/L	01057	1.0	07/01/99
Zinc, Diss. ICPMS	59.3	ug/L	01090	2.0	07/01/99

[GWDB Reports and Downloads](#)

Well Basic Details

[Scanned Documents](#)

State Well Number	6821413
County	Bexar
River Basin	San Antonio
Groundwater Management Area	9
Regional Water Planning Area	L - South Central Texas
Groundwater Conservation District	Trinity Glen Rose GCD
Latitude (decimal degrees)	29.683889
Latitude (degrees minutes seconds)	29° 41' 02" N
Longitude (decimal degrees)	-98.490278
Longitude (degrees minutes seconds)	098° 29' 25" W
Coordinate Source	Global Positioning System - GPS
Aquifer Code	218GRCCU - Lower Glen Rose and Cow Creek Limestones
Aquifer	Trinity
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	1212
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	850
Well Depth Source	Driller's Log
Drilling Start Date	
Drilling End Date	8/10/1998
Drilling Method	Air Rotary
Borehole Completion	Open Hole

Well Type	Withdrawal of Water
Well Use	Public Supply
Water Level Observation	Miscellaneous Measurements
Water Quality Available	No
Pump	Submersible
Pump Depth (feet below land surface)	
Power Type	Electric Motor
Annular Seal Method	
Surface Completion	
Owner	BMWWD - Wild Turkey #1 Well #095WP1
Driller	Davenport Drilling & Pump Service
Other Data Available	Drillers Log
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	G0150270M
Groundwater Conservation District Well Number	
Owner Well Number	Wild Turkey #1 (26434 Wild Turkey)
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	2/3/2003
Last Update Date	7/21/2016

Remarks Reported yield 500 GPM with 7 feet drawdown after pumping 36 hours in 1998. Pumping level 400 feet. Cemented from 0 to 400 feet. Specific Capacity 71.4 GPM/ft.

Casing						
Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
10	Blank	Steel			0	396
10	Open Hole				396	850

Well Tests - No Data

Lithology - No Data

Annular Seal Range - No Data

Borehole - No Data

Plugged Back - No Data

Filter Pack - No Data

Packers - No Data

Water Level Measurements



Status Code	Date	Time	Water Level (ft. below land surface)	Change value in () indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	9/30/1998		248		964	1	Registered Water Well Driller	Steel Tape		

Code Descriptions

Status Code	Status Description
P	Publishable

Water Quality Analysis - No Data Available

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TEXAS WATER DEVELOPMENT BOARD
WELL SCHEDULE

State Well Number - 68 21 413 Previous Well Number - County - Bexar 029
River Basin - San Antonio River - 19 Zone - 1 Latitude - 29 41 02 Longitude - 98 29 25 Source of Coords - 1

Owners Well No. _____ Location _____ 1/4, _____ 1/4, Section _____, Block _____, Survey _____

Owner - BMWD - Wild Turkey #1 Driller - Davenport Drilling &
095WP1 Pump Service

Address _____ Tenant/Oper. _____

Date Drilled - 08/10/1998 Depth - 850 ft. Source of Depth - D Altitude - 1,212 ft. Source of Alt. - M
Aquifer - 218GRCCU LOWER GLEN ROSE AND COW CREEK LIMESTONES Well Type - W User -

WELL Const. Casing
CONSTRUCTION Method - AIR ROTARY Material - STEEL | Casing or Blank Pipe (C)
Screen | Well Screen or Slotted Zone ()
Completion - OPEN HOLE Material - _____ | Open Hole (O)
Cemented from _____ to _____

LIFT DATA - Pump Mfr. _____ Type - SUBMERSIBLE PUMP No. Stages _____ | Diam. Setting(feet)
(in.) From To

Bowls Diam. - _____ in. Setting - _____ ft. Column Diam. - _____ in. |
1| C 10 0 396
2| O 10 396 850

Motor Mfr. - _____ Fuel or Power - ELECTRIC MOTOR Horsepower - 100
3|

YIELD Flow- _____ GPM Pump- _____ GPM Meas., Rept., Est- _____ Date- _____
4|
5|

PERFORMANCE TEST Date- _____ Length of Test- _____ Production- _____ GPM
6|
7|

Static Level- _____ ft. Pumping Level- _____ ft. Drawdown- _____ ft. Sp.Cap.- _____ GPM/ft
8|
9|

QUALITY (Remarks- _____
10|
11|

WATER USE Primary- PUBLIC SUPPLY Secondary- _____ Tertiary- _____
12|
13|

OTHER DATA AVAILAIBLE Water Levels- M Quality- N Logs- D Other Data-
14|
15|

WATER LEVELS Date- 09/31/1998 Measurement- -248.00
Date- / / Measurement-
16|
17|

Recorded By J. Franklin Date Record Collected or Updated- 02/03/2003
18|
19|

Reporting Agency - TEXAS WATER DEVELOPMENT BOARD

REMARKS -
26434 Wild Turkey
Reported yield 500 GPM with 7 feet
drawdown after pumping 36 hours in
1998. Pumping level 400 feet.
Cemented from 0 to 400 feet.
Specific Capacity 71.4 GPM/ft.

27434 WILD TURKEY

095WPI

Send original copy by certified mail to: TNRCC, P.O. Box 13087, Austin, TX 78711-3087

Please use black ink

ATTENTION OWNER: Confidentiality
Privilege Notice on Reverse Side

State of Texas WELL REPORT

Texas Water Well Drillers Advisory Council
P.O. Box 13087
Austin, TX 78711-3087
512-239-0530

1) OWNER **BEXAR MET WATER DISTRICT** ADDRESS **2047 W. MALONE** **SAT** **TX**
(Name) (Street or RFD) (City) (State) (Zip)

2) ADDRESS OF WELL:
County **BEXAR** **WILD TURKEY- WELL** **SAT** **TX** GRID # **68-21-413**
#1
(Street, RFD or other) (City) (State) (Zip)

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

4) PROPOSED USE (Check): Monitor Environmental Soil Boding Domestic
 Industrial Irrigation Injection Public Supply De-watering Testwell
If Public Supply well, were plans submitted to the TNRCC? Yes No

6) WELL LOG:

Date Drilling:
Started **8/10** 19 **98**
Completed **9-24** 19 **98**

DIAMETER OF HOLE		
Dia. (in.)	From (ft.)	To (ft.)
14 3/4	Surface	396
9 7/8	396	850

7) DRILLING METHOD (Check): Driven
 Air Rotary Mud Rotary Bored
 Air Hammer Cable Tool Jetted
 Other _____

From (ft.)	To (ft.)	Description and color of formation material
0	1	TOP SOIL
1	45	CALICHE & WHITE LIMESTONE
45	180	TAN LIMESTONE
180	210	GRAY LIMESTONE
210	230	BEIGE LIMESTONE
230	345	LIGHT BLUE LIMESTONE
345	460	BEIGE LIMESTONE
460	530	WHITE & RED BROKEN LIMESTONE
530	610	GRAY LIMESTONE
610	685	TAN & BEIGE LIMESTONE
685	760	BLUE SHALE
760	845	BROWN LIMESTONE
845	850	PINE-ISLAND SHALE

8) Borehole Completion (Check): Open Hole Straight Wall
 Underreamed Gravel Packed Other _____
If Gravel Packed give interval ... from _____ ft. to _____ ft.

CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New Or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.)		Gage Casting Screen
			From	To	
10	N	STEEL CASING	0	396	365

9) CEMENTING DATA [Rule 338.44(1)]
Cemented from **0** ft. to **396** ft. No. of sacks used **145**
ft. to _____ ft. No. of sacks used _____
Method used **PRESSURE**
Cemented by **DOWELL**
Distance to septic system field lines or other concentrated contamination **150** ft.
Method of verification of above distance **Measured**

13) TYPE PUMP:
 Turbine Jet Submersible Cylinder
 Other **NO PUMP AT THIS DATE**
Depth to pump bowls, cylinder, jet, etc., _____ ft.

10) SURFACE COMPLETION
 Specified Surface Slab Installed [Rule 338.44(2)(A)]
 Specified Steel Sleeve Installed [Rule 338.44(3)(A)]
 Pitless Adapter Used [Rule 338.44(3)(b)]
 Approved Alternative Procedure Used [Rule 338.71]

14) WELL TESTS:
Type Test: Pump Bailer Jetted Estimated
Yield: **500** gpm with **7** ft. drawdown after **36** hrs.

11) WATER LEVEL
Static Level **248** ft. below land surface Date **9-31-98**
Artesian flow _____ gpm Date _____

16) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable constituents?
 Yes No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? **GOOD** Depth of strata _____
Was a chemical analysis made? Yes No

12) PACKERS: Type Depth
NONE

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME **DAVENPORT DRILLING & PUMP SERVICE** WELL DRILLER'S LICENSE NO. **2669-WPKT**
(Type or print)
ADDRESS **7028 BANDERA RD. BOX 226** **SAN ANTONIO** **TEXAS** **78238**
(Street or RFD) (City) (State) (Zip)
(Signed) *[Signature]* (Signed) _____
(Licensed Well Driller) (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

68-21-413

[GWDB Reports and Downloads](#)

Well Basic Details

[Scanned Documents](#)

State Well Number	6821414
County	Bexar
River Basin	San Antonio
Groundwater Management Area	9
Regional Water Planning Area	L - South Central Texas
Groundwater Conservation District	Trinity Glen Rose GCD
Latitude (decimal degrees)	29.6825
Latitude (degrees minutes seconds)	29° 40' 57" N
Longitude (decimal degrees)	-98.490278
Longitude (degrees minutes seconds)	098° 29' 25" W
Coordinate Source	Global Positioning System - GPS
Aquifer Code	218GRCCU - Lower Glen Rose and Cow Creek Limestones
Aquifer	Trinity
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	1249
Land Surface Elevation Method	Digital Elevation Model -DEM
Well Depth (feet below land surface)	850
Well Depth Source	Driller's Log
Drilling Start Date	
Drilling End Date	10/16/1998
Drilling Method	Air Rotary
Borehole Completion	Open Hole

Well Type	Withdrawal of Water
Well Use	Public Supply
Water Level Observation	Miscellaneous Measurements
Water Quality Available	No
Pump	Submersible
Pump Depth (feet below land surface)	
Power Type	Electric Motor
Annular Seal Method	
Surface Completion	
Owner	BMWV- Wild Turkey #2 Well #095WP2
Driller	Davenport Drilling & Pump 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	G0150270L
Groundwater Conservation District Well Number	
Owner Well Number	Wild Turkey well #2
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	1/15/2002
Last Update Date	7/21/2016

Remarks Measured yield 500 GPM with 4 feet drawdown after pumping 36 hours in 1998. Cemented from 0 to 400 feet. Specific capacity 125 GPM/ft.

Casing						
Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
10	Blank	Steel			0	400
10	Open Hole				400	850

Well Tests - No Data

Lithology - No Data

Annular Seal Range - No Data

Borehole - No Data

Plugged Back - No Data

Filter Pack - No Data

Packers - No Data

Water Level Measurements



Status Code	Date	Time	Water Level (ft. below land surface)	Change value in () indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	10/16/1998		248		1001	1	Registered Water Well Driller	Unknown		

Code Descriptions

Status Code	Status Description
P	Publishable

Water Quality Analysis - No Data Available

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TEXAS WATER DEVELOPMENT BOARD
WELL SCHEDULE

State Well Number - 68 21 414 Previous Well Number - County - Bexar 029
River Basin - San Antonio River - 19 Zone - 1 Latitude - 29 40 57 Longitude - 98 29 25 Source of Coords - 1

Owners Well No. _____ Location _____ 1/4, _____ 1/4, Section _____, Block _____, Survey _____

Owner - BMWD- Wild Turkey #2 Driller - Davenport Drilling & Pump Service
095WP2

Address _____ Tenant/Oper. _____

Date Drilled - 10/16/1998 Depth - 850 ft. Source of Depth - D Altitude - 1,198 ft. Source of Alt. - M

Aquifer - 218GRCCU LOWER GLEN ROSE AND COW CREEK LIMESTONES Well Type - W User -

WELL Const. Casing
CONSTRUCTION Method - AIR ROTARY Material - STEEL
Screen
Completion - OPEN HOLE Material - _____

Casing or Blank Pipe (C)
Well Screen or Slotted Zone (S)
Open Hole (O)
Cemented from _____ to _____

LIFT DATA - Pump Mfr. _____ Type - SUBMERSIBLE PUMP No. Stages _____

	Diam. (in.)	Setting (feet) From	To
1	C 10	0	400
2	O 10	400	850

Bowls Diam. - _____ in. Setting - _____ ft. Column Diam. - _____ in.

Motor Mfr. - _____ Fuel or Power - ELECTRIC MOTOR Horsepower - 100

YIELD Flow- _____ GPM Pump- _____ GPM Meas., Rept., Est- _____ Date- _____

PERFORMANCE TEST Date- _____ Length of Test- _____ Production- _____ GPM

Static Level- _____ ft. Pumping Level- _____ ft. Drawdown- _____ ft. Sp.Cap.- _____ GPM/ft

QUALITY (Remarks- _____)

WATER USE Primary- PUBLIC SUPPLY Secondary- _____ Tertiary- _____

OTHER DATA AVAILABLE Water Levels- M Quality- N Logs- D Other Data- C

WATER LEVELS Date- 10/16/1998 Measurement- -248.00

Date- / / Measurement-

Recorded By D. Frank Date Record Collected or Updated- 01/15/2002

Reporting Agency - TEXAS WATER DEVELOPMENT BOARD

REMARKS -

Owner's Wild Turkey well #2.
Measured yield 500 GPM with 4 feet drawdown after pumping 36 hours in 1998. Cemented from 0 to 400 feet. Specific capacity 125 GPM/ft.

25734 WILD TURKEY

095WP2

Send original copy by certified mail to: TNRCC, P.O. Box 13087, Austin, TX 78711-3087

Please use black ink

ATTENTION OWNER: Confidentiality
Privilege Notice on Reverse Side

State of Texas
WELL REPORT

Texas Water Well Drillers Advisory Council
P.O. Box 13087
Austin, TX 78711-3087
512-239-0530

OWNER BEXAR MET WATER DISTRICT ADDRESS 2047 W. MALONE SAT TX
(Name) (Street or RFD) (City) (State) (Zip)

2) ADDRESS OF WELL:
County BEXAR WILD TURKEY- WELL SAT TX GRID # 68-21-414
2
(Street, RFD or other) (City) (State) (Zip)

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

4) PROPOSED USE (Check): Monitor Environmental Soil Boding Domestic
 Industrial Irrigation Injection Public Supply De-watering Testwell
 If Public Supply well, were plans submitted to the TNRCC? Yes No

5)

6) WELL LOG:
 Date Drilling:
 Started 9-25 19 98
 Completed 10-16 19 98

DIAMETER OF HOLE		
Dia. (in.)	From (ft.)	To (ft.)
<u>14 3/4</u>	Surface	<u>400</u>
<u>9 7/8</u>	<u>400</u>	<u>850</u>

7) DRILLING METHOD (Check): Driven
 Air Rotary Mud Rotary Bored
 Air Hammer Cable Tool Jetted
 Other _____

From (ft.)	To (ft.)	Description and color of formation material
0	1	TOP SOIL
1	45	CALICHE & WHITE LIMESTONE
45	180	TAN LIMESTONE
180	210	GRAY LIMESTONE
210	230	BEIGE LIMESTONE
230	345	LIGHT BLUE LIMESTONE
345	460	BEIGE LIMESTONE
460	530	WHITE & RED BROKEN LIMESTONE
530	610	GRAY LIMESTONE
610	685	TAN & BEIGE LIMESTONE
680	760	BLUE SHALE
760	845	BROWN LIMESTONE
845	850	PINE-ISLAND SHALE

8) Borehole Completion (Check): Open Hole Straight Wall
 Underreamed Gravel Packed Other _____
 If Gravel Packed give interval ... from _____ ft. to _____ ft.

CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New Or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.)		Gage Casting Screen
			From	To	
<u>10</u>	<u>N</u>	<u>STEEL CASING</u>	<u>0</u>	<u>400</u>	<u>365</u>

9) CEMENTING DATA [Rule 338.44(1)]
 Cemented from 0 ft. to 400 ft. No. of sacks used 155
 ft. to _____ ft. No. of sacks used _____
 Method used PRESSURE
 Cemented by DOWELL

Distance to septic system field lines or other concentrated contamination 150 ft.
 Method of verification of above distance Measured

13) TYPE PUMP:
 Turbine Jet Submersible Cylinder
 Other NO PUMP AT THIS DATE
 Depth to pump bowls, cylinder, jet, etc., _____ ft.

14) WELL TESTS:
 Type Test: Pump Bailor Jetted Estimated
 Yield: 500 gpm with 4 ft. drawdown after 36 hrs.

15) WATER QUALITY:
 Did you knowingly penetrate any strata which contained undesirable constituents?
 Yes No If yes, submit "REPORT OF UNDESIRABLE WATER"
 Type of water? GOOD Depth of strata _____
 Was a chemical analysis made? Yes No

10) SURFACE COMPLETION
 Specified Surface Slab installed [Rule 338.44(2)(A)]
 Specified Steel Sleeve installed [Rule 338.44(3)(A)]
 Pitless Adapter Used [Rule 338.44(3)(b)]
 Approved Alternative Procedure Used [Rule 338.71]

11) WATER LEVEL
 Static Level 248 ft. below land surface Date 10-16-98
 Artesian flow _____ gpm Date _____

12) PACKERS:
 Type _____ Depth _____
NONE

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME DAVENPORT DRILLING & PUMP SERVICE WELL DRILLER'S LICENSE NO. 2869-WPKT
 (Type or print)

ADDRESS 7028 BANDERA RD. BOX 226 SAN ANTONIO TEXAS 78238
 (Street or RFD) (City) (State) (Zip)

(Signed) [Signature] (Signed) _____
 (Licensed Well Driller) (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

68-21-414

[GWDB Reports and Downloads](#)

Well Basic Details

[Scanned Documents](#)

State Well Number	6821424
County	Bexar
River Basin	San Antonio
Groundwater Management Area	9
Regional Water Planning Area	L - South Central Texas
Groundwater Conservation District	Trinity Glen Rose GCD
Latitude (decimal degrees)	29.695556
Latitude (degrees minutes seconds)	29° 41' 44" N
Longitude (decimal degrees)	-98.499445
Longitude (degrees minutes seconds)	098° 29' 58" W
Coordinate Source	Global Positioning System - GPS
Aquifer Code	218GRCCU - Lower Glen Rose and Cow Creek Limestones
Aquifer	Trinity
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	1287
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	740
Well Depth Source	Another Government Agency
Drilling Start Date	
Drilling End Date	
Drilling Method	
Borehole Completion	

Well Type	Withdrawal of Water
Well Use	Plugged or Destroyed
Water Level Observation	None
Water Quality Available	No
Pump	None
Pump Depth (feet below land surface)	
Power Type	
Annular Seal Method	
Surface Completion	
Owner	BMWD-Timberwood Park Well-079WP1
Driller	
Other Data Available	Other
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	G0150270I
Groundwater Conservation District Well Number	
Owner Well Number	079WP1
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Commission on Environmental Quality
Created Date	9/21/2009
Last Update Date	7/25/2016

Remarks | Plugged PS well 3/17/1999.

Casing - No Data

Well Tests - No Data

Lithology - No Data

Annular Seal Range - No Data

Borehole - No Data

Plugged Back - No Data

Filter Pack - No Data

Packers - No Data

Water Level Measurements

No Data Available

Water Quality Analysis - No Data Available

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**Texas Water Development Board
Well Schedule**



State Well Number: **68-21-424** Previous Well Number: County: **Bexar** **29**

Latitude (dms): **294144** Longitude (dms): **982958** Coordinate Accuracy: **Global Positioning System - GPS**

River Basin: **San Antonio River** GMA: **9** RWPA: **L** GCD: **Trinity Glen Rose GCD**

Owner: **BMWD-Timberwood Par
Well-079WP1** Driller:

Aquifer ID: **Trinity**

Aquifer Code: **218GRCCU**

Depth (ft): **740**

Elevation (ft): **1287**

**LOWER GLEN ROSE AND
COW CREEK
LIMESTONES**

Source of Depth: **Another Government
Agency**

Source of Elevation: **Interpolated From
Topo Map**

Date Drilled: Well Type: **Withdrawal of Water**

Type of Lift: **None**

Power:

Horsepower:

Construction:

Completion:

Casing Material:

Screen Material:

CASING INTERVALS:		
Casing/Blank Pipe (C)		
Well Screen/Slotted Zone (S)		
Open Hole (O)		
Dia. (in.)	Top (ft.)	Bottom (ft.)

WATER USE

Primary: **Unused**

Secondary:

Tertiary:

Water Levels: **None**

Water Quality: **N**

Other Data:

Logs: **Z**

REMARKS:

Owners 079WP1 well. Plugged PS w
3/17/1999. TCEQ ID #01502701.

Reporting Agency: **TWC/TNRCC/TCEQ**

Date Collected or Reported: **09/21/2009**

Recorded by:

DR. Jones

[GWDB Reports and Downloads](#)

Well Basic Details

[Scanned Documents](#)

State Well Number	6821426
County	Bexar
River Basin	San Antonio
Groundwater Management Area	9
Regional Water Planning Area	L - South Central Texas
Groundwater Conservation District	Trinity Glen Rose GCD
Latitude (decimal degrees)	29.6827778
Latitude (degrees minutes seconds)	29° 40' 58" N
Longitude (decimal degrees)	-98.4911111
Longitude (degrees minutes seconds)	098° 29' 28" W
Coordinate Source	Global Positioning System - GPS
Aquifer Code	218GRCCU - Lower Glen Rose and Cow Creek Limestones
Aquifer	Trinity
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	1270
Land Surface Elevation Method	Digital Elevation Model -DEM
Well Depth (feet below land surface)	860
Well Depth Source	Driller's Log
Drilling Start Date	3/2/2004
Drilling End Date	4/20/2004
Drilling Method	Air Rotary
Borehole Completion	Open Hole

Well Type	Withdrawal of Water
Well Use	Public Supply
Water Level Observation	Miscellaneous Measurements
Water Quality Available	Yes
Pump	Submersible
Pump Depth (feet below land surface)	
Power Type	Electric Motor
Annular Seal Method	Pressure
Surface Completion	Surface Slab Installed
Owner	BMWD-Timberwood Park Well #095WP3
Driller	Davenport Drilling & Pump Service
Other Data Available	Drillers Log
Well Report Tracking Number	170285
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	G0150270N
Groundwater Conservation District Well Number	
Owner Well Number	095WP3
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	9/22/2009
Last Update Date	3/20/2024

Remarks Measured yield 997 GPM with 20 ft drawdown after 36 hrs in 2004. Specific capacity 49.85 GPM/ft. Pumping level 320 feet. Pump set at 400 feet. Cemented from 0 to 425 feet. Well was sampled by driller prior to well completion.

Casing

Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
12	Blank	Steel			0	425
11	Open Hole				425	860

Well Tests

Test Date	Test Type	Yield (gallons per minute)	Drawdown (ft.)	Test Hours
2004-04-20	Pump	997	20	36

Lithology

Top Depth (ft.)	Bottom Depth (ft.)	Description
0	400	Upper Glenrose
400	700	Lower Glenrose
700	765	Bexar Shale
765	845	Cow Creek
845	860	Pine Island

Annular Seal Range - No Data

Borehole

Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
18	0	425
11	425	860

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
Q	3/30/2004		300		970	1	Registered Water Well Driller	Unknown	17	

Code Descriptions

Status Code	Status Description
Q	Questionable

Remark ID	Remark Description
17	Measurement before well completion

Water Quality Analysis

Sample Date: 3/31/2004 **Sample Time:** 0920 **Sample Number:** 1 **Collection Entity:** Registered Water Well Driller

Sampled Aquifer: Lower Glen Rose and Cow Creek Limestones

Analyzed Lab: Misc. Commerical Lab

Reliability: Collected from pumped well, but not filtered or preserved

Collection Remarks: Samp. by driller prior to comp

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00940	CHLORIDE, TOTAL (MG/L AS CL)		26	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.5	mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		1.22	mg/L as NO3	
00403	PH (STANDARD UNITS) LAB		7.1	SU	
00400	PH (STANDARD UNITS), FIELD		7.1	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
00945	SULFATE, TOTAL (MG/L AS SO4)		22	mg/L as SO4	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		388	mg/L	

Water Quality Analysis

Sample Date: 6/8/2005 **Sample Time:** **Sample Number:** 1 **Collection Entity:** Municipal Water Agency or Public Water Supply Corp

Sampled Aquifer: Lower Glen Rose and Cow Creek Limestones

Analyzed Lab: Laboratory Unknown

Reliability: Reliability unknown or not available

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)	<	2	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)	<	2	mg/L as CaCO 3	
01105	ALUMINUM, TOTAL (UG/L AS AL)		10.3	ug/L	
01097	ANTIMONY, TOTAL (UG/L AS SB)	<	1.02	ug/L	
01002	ARSENIC, TOTAL (UG/L AS AS)	<	2.04	ug/L	
01007	BARIUM, TOTAL (UG/L AS BA)		33.5	ug/L	
01012	BERYLLIUM, TOTAL (UG/L AS BE)	<	0.816	ug/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		305	mg/L	
01027	CADMIUM, TOTAL (UG/L)	<	1.02	ug/L	
00916	CALCIUM, TOTAL (MG/L AS CA)		103	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		20.3	mg/L	
01034	CHROMIUM, TOTAL (UG/L AS CR)		6.32	ug/L	
01042	COPPER, TOTAL (UG/L AS CU)	<	0.00102	ug/L	
00951	FLUORIDE, TOTAL (MG/L AS F)		0.33	mg/L	
04241	GROSS ALPHA RADIATION, TOTAL, PRODUCED WATER (pCi/L)	<	2	pCi/L	
04242	GROSS BETA RADIATION, TOTAL, PRODUCED WATER (pCi/L)	<	4	pCi/L	
46570	HARDNESS, CA MG CALCULATED (MG/L AS CaCO3)		334	mg/L as CaCO 3	
71885	IRON (UG/L AS FE)	<	51	ug/L	
01051	LEAD, TOTAL (UG/L AS PB)	<	1.02	ug/L	
00927	MAGNESIUM, TOTAL (MG/L AS MG)		18.4	mg/L	
01055	MANGANESE, TOTAL (UG/L AS MN)	<	1.02	ug/L	
71900	MERCURY, TOTAL (UG/L AS HG)	<	0.2	ug/L	
01067	NICKEL, TOTAL (UG/L AS NI)		3.26	ug/L	
00615	NITRITE NITROGEN, TOTAL (MG/L AS N)	<	0.05	mg/L as N	
00600	NITROGEN, TOTAL (MG/L AS N)		1.42	mg/L as N	
11501	RADIUM 228, TOTAL, PC/L	<	1	PC/L	
01147	SELENIUM, TOTAL (UG/L)	<	4.08	ug/L	
01077	SILVER, TOTAL (UG/L AS AG)	<	1.02	ug/L	
00929	SODIUM, TOTAL (MG/L AS NA)		12.7	mg/L	
00945	SULFATE, TOTAL (MG/L AS SO4)		20.4	mg/L as SO4	

Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
68-21-426

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
01059	THALLIUM, TOTAL (UG/L AS TL)		< 0.408	ug/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		366	mg/L	
01092	ZINC, TOTAL (UG/L AS ZN)		169	ug/L	

* Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..

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Texas Water Development Board
Well Schedule



State Well Number: **68-21-426** Previous Well Number: County: **Bexar** **29**

Latitude (dms): **294058** Longitude (dms): **982928** Coordinate Accuracy: **Global Positioning System - GPS**

River Basin: **San Antonio River** GMA: **9** RWPA: **L** GCD: **Trinity Glen Rose GCD**

Owner: **BMWD-Timberwood Par Well #095WP3** Driller: **Davenport Drilling & Pump Service** Aquifer ID: **Trinity**
Aquifer Code: **218GRCCU**

Depth (ft): **860** Elevation (ft): **1200**
Source of Depth: **Driller's Log** Source of Elevation: **Interpolated From Topo Map**

LOWER GLEN ROSE AND COW CREEK LIMESTONES

Date Drilled: **04/20/2004** Well Type: **Withdrawal of Water**
Type of Lift: **Submersible Pump** Power: **Electric Motor** Horsepower:
Construction: **Air Rotary** Completion: **Open Hole**
Casing Material: **Steel** Screen Material:

CASING INTERVALS:			
	Dia.	Top	Bottom
	(in.)	(ft.)	(ft.)
C	12	0	425
O	11	425	860

WATER USE

Primary: **Public Supply** Secondary: Tertiary:

Water Levels: **Miscellaneous Measurements** Water Quality: **N**
2 measurements
2004 to 2004
MIN -320 MAX -300
Other Data: Logs: **D**

REMARKS:
Owners well #095WP3. Measured yield 997 GPM with 20 feet drawdown after pumping 36 hours in 2004. Specific capacity 49.85 GPM/ft. Pumping level 320 feet. Pump set at 400 feet. Cemented from 0 to 425 feet. Drillers log tracking #170285. TCEQ ID #0150270N.

Reporting Agency: **TWDB or Predecessor Agency**

Date Collected or Reported: **09/22/2009**

Recorded by: *DR Jones*

New ✓

TRACKING# 170285

STATE OF TEXAS WELL REPORT

N

Date Entered: 3/6/2009

OWNER: Bexar Met. Water District

OWNER 2047 W. Malone

ADDRESS: San Antonio, TX 78225

ADDRESS OF WELL'S LOCATION:

Wild Turkey - Well #3
San Antonio, TX 78225

COUNTY: Bexar LATITUDE: 294047 LONGITUDE: 982928 Brand/Model of GPS: Map
Owner's Well Number: 3 ELEVATION: 1200' Grid Number: 68 - 21 - 4

TYPE OF WORK: PROPOSED USE: Monitor Well Env. Soil Boring Domestic Test Well
 New Well Replacement Well Industrial Irrigation Injection Geothermal Heat Loop
 Deepening Reconditioning Public Supply De-watering Rig Supply Stock or Livestock
If Public Supply well, were plans submitted to the TNRCC? Yes No

WELL LOG: DIAMETER OF HOLE DRILLING METHOD:
Date Drilling Dia. (in) From (ft.) To (ft.) Driven Air Hammer Hollow Stem Auger Bored
Started 3/2/2004 18 Surface 425 Air Rotary Cable Tool Reverse Circulation
Completed 4/20/2004 11 425 860 Mud Rotary Jetted Other

BOREHOLE COMPLETION: ANNULAR SEAL DATA
 Open Hole Underreamed Other
 Straight Wall Gravel Packed
Gravel Packed Interval from ft. to ft. Size
From 0 ft. to 425 ft. #Sacks + Material 320
From ft. to ft. #Sacks + Material
From ft. to ft. #Sacks + Material
Method Used Pressure
Cemented By Schlumberger
Distance to Septic System 150
Distance to Property Line:
Method of Verification Measured
Approved by Variance No.

SURFACE COMPLETION:
 Surface Slab Installed Pitless Adapter Used
 Surface Sleeve Installed Alternative Procedure Used

WATER LEVEL: PLUGGING INFO:
Static Level 300 ft. below land surface Date 3/30/2004 Well Plugged within 48 hours
Artesian Flow gpm.
Casing left in well: Cement/Bentonite left in well:
From (ft.) To (ft.) From (ft.) To (ft.) Cem/Bent Sacks Used:

TYPE OF PUMP:
 Turbine Jet Submersible Cylinder
 Other
Depth to pump bowls, cylinder, jet, etc. 400

WELL TESTS: PACKERS:
Type of test: Pump Bailer Jetted Estimated
Yield: 997 gpm with 20 ft. drawdown after 36 hrs.
Type Depth
None

WATER QUALITY:
Did Driller knowingly penetrate any strata which contained undesirable constituents? Yes No
Type of water: Good
Depth of Strata: 200
Chemical Analysis made? Yes No

COMPANY NAME: Davenport Drilling & Pump Service WELL DRILLER'S LICENSE NO. 2669
ADDRESS 11844 Bandera Rd. PMB 711 Helotes TX 78023
Name as Signature Dean Davenport Registered Driller Apprentice John McDaniel

Driller Comments
Smew

68-21-426

WELL REPORT CONFIDENTIALITY NOTICE

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 Regulation
Water Well Driller/Pump Installer Section
P.O. Box 12157 Austin, TX 78711
Toll free (800)803-9202 (512)463-7880 FAX (512)463-8616
Email address: water.well@license.state.tx.us Web address: www.license.state.tx.us

DESCRIPTION AND COLOR OF FORMATION MATERIAL		CASING, BLANK PIPE, AND WELL SCREEN DATA				
From (ft.)	To (ft.) Description	Dia.	New/Used	Type	Setting From/To	Gage
0 - 400	Upper Glenrose	12	New	Steel Casing	0 - 425	.365
400 - 700	Lower Glenrose					
700 - 765	Bexar Shale					
765 - 845	Cow Creek					
845 - 860	Pine Island					

68-21-426

RECEIVED
TDLR MAIL ROOM SH

Send original copy by certified mail to: TNRCC, P.O. Box 13087, Austin, TX 78711-3087

Please use black ink.

ATTENTION OWNER: Confidentiality Privilege Notice on Reverse Side
 State of Texas WELL REPORT
 Texas Water Well Drillers Advisory Council
 P.O. Box 13087 Austin, TX 78711-3087 512-239-0530

OCT 25 2004

1) OWNER **BEXAR MET WATER DISTRICT** ADDRESS **2047 W. MALONE** TX **78225**
 (Name) (Street or RFD) (City) (State) (Zip)
 2) ADDRESS OF WELL: **WILD TURKEY- WELL # 3** SAT TX **78225** GRID# **68-21-4**
 County (Street, RFD or other) (City) (State) (Zip)

3) TYPE OF WORK (Check):
 New Well Deepening Reconditioning Plugging
 4) PROPOSED USE (Check): Monitor Environmental Soil Boding Domestic Industrial Irrigation Injection Public Supply De-watering Testwell
 If Public Supply well, were plans submitted to the TNRCC? X Yes No

6) WELL LOG:
 Date Drilling: Started **3-02** 20 **04** Completed **4-20** 20 **04**
 7) DRILLING METHOD (Check): Air Rotary Mud Rotary Bored Air Hammer Cable Tool Jetted Other
 DIAMETER OF HOLE

Dia.. (in.)	From (ft.)	To (ft.)
18	Surface	425
11	425	860

From (ft.)	To (ft.)	Description and color of formation material
0	400	Upper Glenrose
400	700	Lower Glenrose
700	765	Bexar Shale
765	845	Cow Creek
845	860	Pine Island

8) Borehole Completion (Check): Open Hole Straight Wall
 Underreamed Gravel Packed Other _____
 If Gravel Packed give interval ... from _____ ft. to _____ ft.

CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New Or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.)		Gage Casting Screen
			From	To	
12	N	STEEL CASING	0	425	.365

9) CEMENTING DATA [Rule 338.44(1)]
 Cemented from **0** ft. to **425** ft. No. of sacks used **320**
 Method used **PRESSURE**
 Cemented by **SCHLUMBERGER**
 Distance to septic system field lines or other concentrated contamination **150** ft.
 Method of verification of above distance **Measured**

13) TYPE PUMP:
 Turbine Jet Xsubmersible Cylinder
 Other _____
 Depth to pump bowls, cylinder, jet, etc., **400** ft.

14) WELL TESTS:
 Type Test: Pump Bailer Jetted Estimated
 Yield: **997** gpm with **20** ft. drawdown after **36** hrs.

15) WATER QUALITY:
 Did you knowingly penetrate any strata which contained undesirable constituents?
 Yes No If yes, submit "REPORT OF UNDESIRABLE WATER"
 Type of water? **GOOD** Depth of strata **200'**
 Was a chemical analysis made? X Yes No

10) SURFACE COMPLETION
 Specified Surface Slab Installed [Rule 338.44(2)(A)]
 Specified Steel Sleeve Installed [Rule 338.44(3)(A)]
 Pitless Adapter Used [Rule 338.44(3)(b)]
 Approved Alternative Procedure Used [Rule 338.71]

11) WATER LEVEL
 Static Level **300** ft. below land surface Date **03-30-04**
 Artesian flow _____ gpm Date _____

12) PACKERS: Type _____ Depth _____
NONE

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME **DAVENPORT DRILLING & PUMP SERVICE** WELL DRILLER'S LICENSE NO. **2669-WPKT**
 ADDRESS **1184 BANDERA RD. PMB 711** HELOTES TEXAS **78023**
 (Street or RFD) (City) (State) (Zip)
 (Signed) *[Signature]* (Signed) *John McDaniel*
 (Licensed Well Driller) (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

68-21-426



5400 New Highway 90 West
 P.O. Box 27337
 San Antonio, TX 78227-0337
 PH: (210) 434-7867

RECORD OF WELL TEST

Date: 03-30-04

Owner: Bexar Met Water System

Wild Turkey Well #3

Well I.D.:

Well Driller: Davenport Drilling

Well Casing: 12"

Water Source:

Well Depth: 850'

Static Water Level Before Test: 302'

Static Water Level After Test: 300'

DATE	TIME	PUMPING LEVEL	PUMPING GPM	ENGINE RPM	PUMP RPM	REMARKS	PUMP SETTING
3-30-04	1:30	302	500	1450	1318	Clean Water	400
	2:30	302	1001	1800	1636	Clean Water	Plus
	3:00	307	989	1800	1636	Clean Water	Bowl
	3:30	307	989	1800	1636	Clean Water	Assy.
	4:00	307	989	1800	1636	Clean Water	
	4:30	307	989	1800	1636	Clean Water	
	5:00	307	989	1800	1636	Clean Water	
	5:30	307	989	1800	1636	Clean Water	
	6:00	307	989	1800	1636	Clean Water	
	6:30	307	989	1800	1636	Clean Water	
	7:00	307	989	1800	1636	Clean Water	
	8:00	307	989	1800	1636	Clean Water	
	9:00	307	989	1800	1636	Clean Water	
	10:00	307	989	1800	1636	Clean Water	
	11:00	307	989	1800	1636	Clean Water	
	12:00	307	989	1800	1636	Clean Water	
3-31-04	1:00	307	989	1800	1636	Clean Water	
	2:00	307	989	1800	1636	Clean Water	

68-21-426

	3:00	307	989	1800	1636	Clean Water	
	4:00	307	989	1800	1636	Clean Water	
	5:00	312	989	1800	1636	Clean Water	
	6:00	312	989	1800	1636	Clean Water	
	7:00	312	989	1800	1636	Clean Water	
	8:00	312	989	1800	1636	Clean Water	
	9:00	316	977	1800	1636	Clean Water	
	10:00	321	977	1800	1636	Clean Water	
	11:00	321	977	1800	1636	Clean Water	
	12:00	321	977	1800	1636	Clean Water	
	1:00	321	977	1800	1636	Clean Water	
	2:00	321	977	1800	1636	Clean Water	
	3:00	321	977	1800	1636	Clean Water	
	4:00	321	977	1800	1636	Clean Water	
	5:00	321	977	1800	1636	Clean Water	
	6:00	321	977	1800	1636	Clean Water	
	7:00	321	977	1800	1636	Clean Water	
	8:00	321	977	1800	1636	Clean Water	
	9:00	321	977	1800	1636	Clean Water	
	10:00	321	977	1800	1636	Clean Water	
	11:00	321	977	1800	1636	Clean Water	
	12:00	321	977	1800	1636	Clean Water	
4-1-04	1:00	321	977	1800	1636	Clean Water	
	1:30	321	977	1800	1636	Clean Water	
		Shut	Down				

68-21-426²

POLLUTION CONTROL SERVICES

REPORT OF SAMPLE ANALYSIS

To: Dean Davenport
 Davenport Drilling and Pumping Service
 11844 Bandera Rd, PMB 711
 Helotes, TX 78023

SAMPLE INFORMATION	LABORATORY INFORMATION
Project Name: Wild Turkey -095- Timberwood	PCS Sample #: 125955
Sample ID: TCEQ Well Water Sample	Date Received: 03/31/2004
Date Taken: 03/31/2004	Time Received: 09:45
Time Taken: 0920	Report Date: 04/09/2004

TEST DESCRIPTION	SAMPLE		ANALYZED		ANALYST'S	METHOD
	RESULT	UNITS	DATE	TIME	INITIALS	USED
pH	7.1	S.U.	03/31/2004	10:30	JT	SM 4500-H+ B
Total Dissolved Solids	388	mg/L	04/02/2004	09:30	JT	EPA 160.1
Sulfate	22	mg/L	03/31/2004	19:00	BVG	SM 4500-SO4 E
Chloride	26	mg/L	04/05/2004	19:15	BVG	SM 4500-Cl B
Nitrate-N	1.22	mg/L	03/31/2004	20:45	BVG	EPA 352.1
Nitrite-N	<0.005	mg/L	04/01/2004	21:05	BVG	SM 4500-NO2 B
Fluoride	0.50	mg/L	03/31/2004	21:30	BVG	EPA 340.1
Barium/ICP (Total)	0.03	mg/L	03/31/2004	12:53	DL	EPA 200.7
Chromium/ICP (Total)	<0.01	mg/L	03/31/2004	12:53	DL	EPA 200.7
Copper/ICP (Total)	<0.01	mg/L	03/31/2004	12:53	DL	EPA 200.7
Manganese/ICP (Total)	<0.01	mg/L	03/31/2004	12:53	DL	EPA 200.7
Nickel/ICP (Total)	<0.02	mg/L	03/31/2004	12:53	DL	EPA 200.7
Silver/ICP (Total)	<0.01	mg/L	04/05/2004	14:18	DL	EPA 200.7

QUALITY ASSURANCE DATA							
TEST DESCRIPTION	M.D.L.	PRECISION	LIMIT	LCL	RECOVERY	UCL	
pH	N/A	N/A	N/A	N/A	N/A	N/A	
Total Dissolved Solids	1	1	10	N/A	N/A	N/A	
Sulfate	1	1	10	85	95	112	
Chloride	1	3	10	98	100	107	
Nitrate-N	0.01	<1	15	68	102	146	
Nitrite-N	0.005	<1	10	80	97	109	
Fluoride	0.01	4	10	73	93	125	
Barium/ICP (Total)	0.01	<1	10	80	91	120	
Chromium/ICP (Total)	0.01	<1	10	80	95	120	
Copper/ICP (Total)	0.01	<1	10	80	97	120	
Manganese/ICP (Total)	0.01	<1	10	80	91	120	
Nickel/ICP (Total)	0.02	<1	10	80	93	120	
Silver/ICP (Total)	0.01	<1	10	80	102	120	

APPROVED BY:

Chuck Wallgren
 CHUCK WALLGREN

68-21-426

POLLUTION CONTROL SERVICES

REPORT OF SAMPLE ANALYSIS

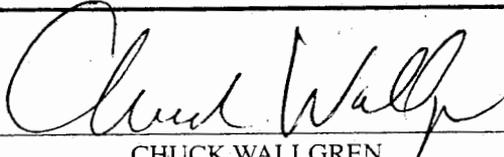
To: Dean Davenport
 Davenport Drilling and Pumping Service
 11844 Bandera Rd, PMB 711
 Helotes, TX 78023

SAMPLE INFORMATION	LABORATORY INFORMATION
Project Name: Wild Turkey -095- Timberwood	PCS Sample #: 125955
Sample ID: TCEQ Well Water Sample	Date Received: 03/31/2004
Date Taken: 03/31/2004	Time Received: 09:45
Time Taken: 0920	Report Date: 04/09/2004

TEST DESCRIPTION	SAMPLE		ANALYZED		ANALYST'S METHOD	
	RESULT	UNITS	DATE	TIME	INITIALS	USED
Zinc/ICP (Total)	<0.01	mg/L	03/31/2004	12:53	DL	EPA 200.7
Iron/ICP (Total)	0.04	mg/L	03/31/2004	15:13	DL	EPA 200.7
Aluminum/ICP (Total)	0.05	mg/L	03/31/2004	15:13	DL	EPA 200.7
Beryllium/ICP (Total)	<0.003	mg/L	04/08/2004	12:32	DL	EPA 200.7
Arsenic/GFAA (Total)	0.004	mg/L	04/01/2004	13:05	DL	EPA 206.2
Selenium/GFAA (Total)	<0.003	mg/L	04/01/2004	15:59	DL	EPA 270.2

QUALITY ASSURANCE DATA						
TEST DESCRIPTION	M.D.L.	PRECISION	LIMIT	LCL	RECOVERY	UCL
Zinc/ICP (Total)	0.01	<1	10	80	97	120
Iron/ICP (Total)	0.03	1	10	80	100	120
Aluminum/ICP (Total)	0.04	1	10	80	103	120
Beryllium/ICP (Total)	0.003	<1	10	80	100	120
Arsenic/GFAA (Total)	0.002	5	10	70	92	113
Selenium/GFAA (Total)	0.003	<1	12	56	71	109

APPROVED BY:


 CHUCK WALLGREN

Cementer: Fill in shaded areas
 Operator: Fill in other items

RAILROAD COMMISSION OF TEXAS
 Oil and Gas Division

1. Operator's Name (As shown on Form P-5, Organization Report) DAVENPORT DRLG. & PUMP SERVICE	2. RRC Operator No.	3. RRC District No.	4. County of Well Site BEXAR
5. Field Name (Wildcat or exactly as shown on RRC records)	6. API No. 42-		7. Drilling Permit No.
8. Lease Name WID TURKEY	9. Rule 37 Case No.	10. Oil Lease/Gas ID No.	11. Well No. 3

CASING CEMENTING DATA:		SURFACE CASING	INTER-MEDIATE CASING	PRODUCTION CASING		MULTI-STAGE CEMENTING PROCESS	
				Single String	Multiple Parallel Strings	Tool	Shoe
12. Cementing Date				3-17-04			
13. ●Drilling hole size							
●Est. % wash or hole enlargement							
14. Size of casing (in. O.D.)							
15. Top of liner (ft.)							
16. Setting depth (ft.)							
17. Number of centralizers used							
18. Hrs. waiting on cement before drill-out							
1st Slurry	19. API cement used: No. of sacks			320			
	Class			H			
	Additives			REMARKS			
2nd Slurry	No. of sacks						
	Class						
	Additives						
3rd Slurry	No. of sacks						
	Class						
	Additives						
1st	20. Slurry pumped: Volume (cu. ft.)			614			
	Height (ft.)			783			
2nd	Volume (cu. ft.)						
	Height (ft.)						
3rd	Volume (cu. ft.)						
	Height (ft.)						
Total	Volume (cu. ft.)			614			
	Height (ft.)			783			
21. Was cement circulated to ground surface (or bottom of cellar) outside casing?				YES			
22. Remarks							
1. 8% D20 + 2% S1							

68-21426

OWNER: BMWD-Timberwood Park
Well #095WP3

SWN: 6821426

COUNTY: Bexar

DATE: 3 / 31 / 2004

AQUIFER: LOWER GLEN ROSE AND COW CREEK LIMESTONES

Asterisk (*) next to value indicates that the constituent exceeds TCEQ standards (MCL) for drinking water.

Calcium	mg/L	Carbonate	mg/L	Dissolved Solids	388 mg/L
Magnesium	mg/L	Bicarbonate	mg/L	Hardness as CaCO3	mg/L
Sodium	mg/L	Sulfate	22 mg/L	SAR	
Potassium	mg/L	Chloride	26 mg/L	Conductivity	uS
Strontium	mg/L	Fluoride	0.5 mg/L	pH	7.1
Silica	mg/L	Nitrate as NO₃	1.22 mg/L	Temperature	°C

[GWDB Reports and Downloads](#)

Well Basic Details

[Scanned Documents](#)

State Well Number	6821427
County	Bexar
River Basin	San Antonio
Groundwater Management Area	9
Regional Water Planning Area	L - South Central Texas
Groundwater Conservation District	Trinity Glen Rose GCD
Latitude (decimal degrees)	29.6830556
Latitude (degrees minutes seconds)	29° 40' 59" N
Longitude (decimal degrees)	-98.4902778
Longitude (degrees minutes seconds)	098° 29' 25" W
Coordinate Source	Global Positioning System - GPS
Aquifer Code	218GRCCU - Lower Glen Rose and Cow Creek Limestones
Aquifer	Trinity
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	1203
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	860
Well Depth Source	Driller's Log
Drilling Start Date	4/17/2006
Drilling End Date	6/9/2006
Drilling Method	Air Rotary
Borehole Completion	Perforated or Slotted

Well Type	Withdrawal of Water
Well Use	Public Supply
Water Level Observation	Miscellaneous Measurements
Water Quality Available	No
Pump	Submersible
Pump Depth (feet below land surface)	
Power Type	Electric Motor
Annular Seal Method	Internal & External Pressure Tremmie
Surface Completion	Surface Slab Installed
Owner	BMWD-Timberwood Park Wild Turkey #4
Driller	Alsay, Inc.
Other Data Available	Drillers Log
Well Report Tracking Number	88326
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	G01502700
Groundwater Conservation District Well Number	
Owner Well Number	Wild Turkey #4 well (095WP4)
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	9/22/2009
Last Update Date	3/20/2024

Remarks Measured yield 507 GPM with 178 ft drawdown after 36 hrs in 2006. Specific capacity 2.85 GPM/ft. Pumping level 578 feet. Cemented from 0 to 420 feet.

Casing

Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
24	Blank	Steel			0	43
16	Blank	Steel			0	420
13	Screen	Steel			408	860

Well Tests

Test Date	Test Type	Yield (gallons per minute)	Drawdown (ft.)	Test Hours
2006-06-09	Pump	507	178	36

Lithology

Top Depth (ft.)	Bottom Depth (ft.)	Description
0	54	Yellow L/S
54	252	Dense Gray LS
252	420	Lt. Gray LS
420	510	Lt. Brown & White L/S
510	560	Lt. Brown LS
560	610	Lt. Brown Dense LS
610	768	Gray LS w/ Clay Streaks
768	840	Dark Brown LS
840	870	Gray Shale

Annular Seal Range - No Data

Borehole

Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
30	0	43
20	43	420
15	420	860

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
Q	6/7/2006		400		803	1	Registered Water Well Driller	Unknown	17	

Code Descriptions

Status Code	Status Description
Q	Questionable

Remark ID	Remark Description
17	Measurement before well completion

Water Quality Analysis - No Data Available

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/gwdb rpt.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.



**Texas Water Development Board
Well Schedule**



State Well Number: **68-21-427** Previous Well Number: County: **Bexar** **29**

Latitude (dms): **294059** Longitude (dms): **982925** Coordinate Accuracy: **Global Positioning System - GPS**

River Basin: **San Antonio River** GMA: **9** RWPA: **L** GCD: **Trinity Glen Rose GCD**

Owner: **BMWD-Timberwood Par Wild Turkey #4** Driller: **Alsay, Inc.** Aquifer ID: **Trinity**

Aquifer Code: **218GRCCU**

Depth (ft): **860** Elevation (ft): **1203**

**LOWER GLEN ROSE AND
COW CREEK
LIMESTONES**

Source of Depth: **Driller's Log** Source of Elevation: **Interpolated From Topo Map**

Date Drilled: **06/09/2006** Well Type: **Withdrawal of Water**

Type of Lift: **Submersible Pump** Power: **Electric Motor** Horsepower:

Construction: **Air Rotary** Completion: **Perforated or Slotted**

Casing Material: **Steel** Screen Material: **Steel**

CASING INTERVALS:			
	Dia. (in.)	Top (ft.)	Bottom (ft.)
C	24	0	43
C	16	0	420
S	13	408	860

WATER USE

Primary: **Public Supply** Secondary: Tertiary:

Water Levels: **Miscellaneous Measurements** Water Quality: **N**

2 measurements
2006 to 2006
MIN -578 MAX -400

Other Data: Logs: **D**

REMARKS:

Owners Wild Turkey #4 well (095WP4)
Measured yield 507 GPM with 178 feet drawdown after pumping 36 hours in 2006. Specific capacity 2.85 GPM/ft. Pumping level 578 feet Cemented from 0 to 420 feet. Drillers log tracking #88326. TCEQ ID #01502700.

Reporting Agency: **TWDB or Predecessor Agency**

Date Collected or Reported: **09/22/2009**

Recorded by: *DR Jones*

New ✓

TRACKING# 88326

STATE OF TEXAS WELL REPORT

Date Entered: 7/24/2006

OWNER: BexarMet Water District

OWNER 2047 W. Malone

ADDRESS: San Antonio, TX 78225

ADDRESS OF WELL'S LOCATION:

25734 Wild Turkey
San Antonio, TX

COUNTY: Bexar

LATITUDE: 294059

LONGITUDE: 982925

Brand/Model of GPS: Megellian 315

Owner's Well Number: 5

ELEVATION: 1203

Grid Number: 68 - 21 - 4

TYPE OF WORK:

- New Well
- Replacement Well
- Deepening
- Reconditioning

PROPOSED USE: Monitor Well Env. Soil Boring Domestic Test Well

- Industrial
- Irrigation
- Injection
- Geothermal Heat Loop
- Public Supply
- De-watering
- Rig Supply
- Stock or Livestock

If Public Supply well, were plans submitted to the TNRCC? Yes No

WELL LOG:

DIAMETER OF HOLE

DRILLING METHOD:

Date Drilling

Dia. (in) From (ft.) To (ft.)

Driven Air Hammer Hollow Stem Auger Bored

Started 4/17/2006

30 Surface 43

Air Rotary Cable Tool Reverse Circulation

Completed 6/9/2006

20 43 420

Mud Rotary Jetted Other

15 420 860

ANNULAR SEAL DATA

From 43 ft. to 0 ft. #Sacks + Material 6 yds. cement

From 420 ft. to 0 ft. #Sacks + Material 474 Sks cement

From ft. to ft. #Sacks + Material

Method Used Internal & External Pressure Tremmie

Cemented By Superior Well Services

Distance to Septic System Sanitary Eas

Distance to Property Line: 150

Method of Verification Plat

Approved by Variance No.

BOREHOLE COMPLETION:

- Open Hole
- Underreamed
- Other
- Straight Wall
- Gravel Packed

Gravel Packed Interval from ft. to ft. Size

SURFACE COMPLETION:

- Surface Slab Installed
- Pitless Adapter Used
- Surface Sleeve Installed
- Alternative Procedure Used

WATER LEVEL:

Static Level 400 ft. below land surface

Artesian Flow gpm.

Date 6/7/2006

PLUGGING INFO:

Well Plugged within 48 hours

Casing left in well: Cement/Bentonite left in well:

From (ft.) To (ft.) From (ft.) To (ft.) Cem/Bent Sacks Used:

N/A

TYPE OF PUMP:

- Turbine
- Jet
- Submersible
- Cylinder
- Other

Depth to pump bowls, cylinder, jet, etc.

PACKERS:

Type Depth
N/A

WELL TESTS:

Type of test: Pump Bailer Jetted Estimated

Yield: 507 gpm with 178 ft. drawdown after 36 hrs.

WATER QUALITY:

Did Driller knowingly penetrate any strata which contained undesirable constituents? Yes No

Type of water: Good-Trinity

Depth of Strata: 420

Chemical Analysis made? Yes No

COMPANY NAME: Alsay, Inc

WELL DRILLER'S LICENSE NO. 54636

ADDRESS 3359 S.E. Loop 410

San Antonio TX 78222

Name as Signature Douglas B. Hill

Registered Driller Apprentice Tye Newman

3029

Driller Comments

Micheal B. Powell-----56017

68-21-427

WELL REPORT CONFIDENTIALITY NOTICE

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 Regulation
Water Well Driller/Pump Installer Section
P.O. Box 12157 Austin, TX 78711
Toll free (800)803-9202 (512)463-7880 FAX (512)463-8616
Email address: water.well@license.state.tx.us Web address: www.license.state.tx.us

DESCRIPTION AND COLOR OF FORMATION MATERIAL		CASING, BLANK PIPE, AND WELL SCREEN DATA				
From (ft.)	To (ft.) Description	Dia.	New/Used	Type	Setting From/To	Gage
0-54	Yellow L/S	12 3/4	new	Steel- 1/2" Perf Liner	860-408	.375
54-252	Dense Gray LS	16	new	Steel A53-Gr.B	420+2	.375
252-420	Lt. Gray LS	24	new	Steel	43-0	.250
420-510	Lt. Brown & White L/S					
510-560	Lt. Brown LS					
560-610	Lt. Brown Dense LS					
610-768	Gray LS w/ Clay Streaks					
768-840	Dark Brown LS					
840-870	Gray Shale					

68-21-427

WQ 0014670002 TLAP PERMIT APPLICATION
TECHNICAL ATTACHMENT #6
GROUNDWATER QUALITY TECHNICAL REPORT

WQ 0014670002 TLAP PERMIT APPLICATION
TECHNICAL ATTACHMENT #6
GROUNDWATER QUALITY TECHNICAL REPORT

In accordance with 30 TAC§ 309.20(a)(4)(A and B), this report provides a brief assessment of the impact of the wastewater disposal operation at on the uses of local groundwater resources. The Bureau of Economic Geology's Geological Atlas of Texas, San Antonio Sheet, indicates that Villas at Timberwood Park WWTP, including the two septic tanks, dosing tank and irrigation disposal field overlie the Upper Glen Rose Formation (Kgru) of the Trinity Group. The entire thickness of this formation is 900 feet. The upper part of this formation has a thickness of about 400 feet. See Figure 1.

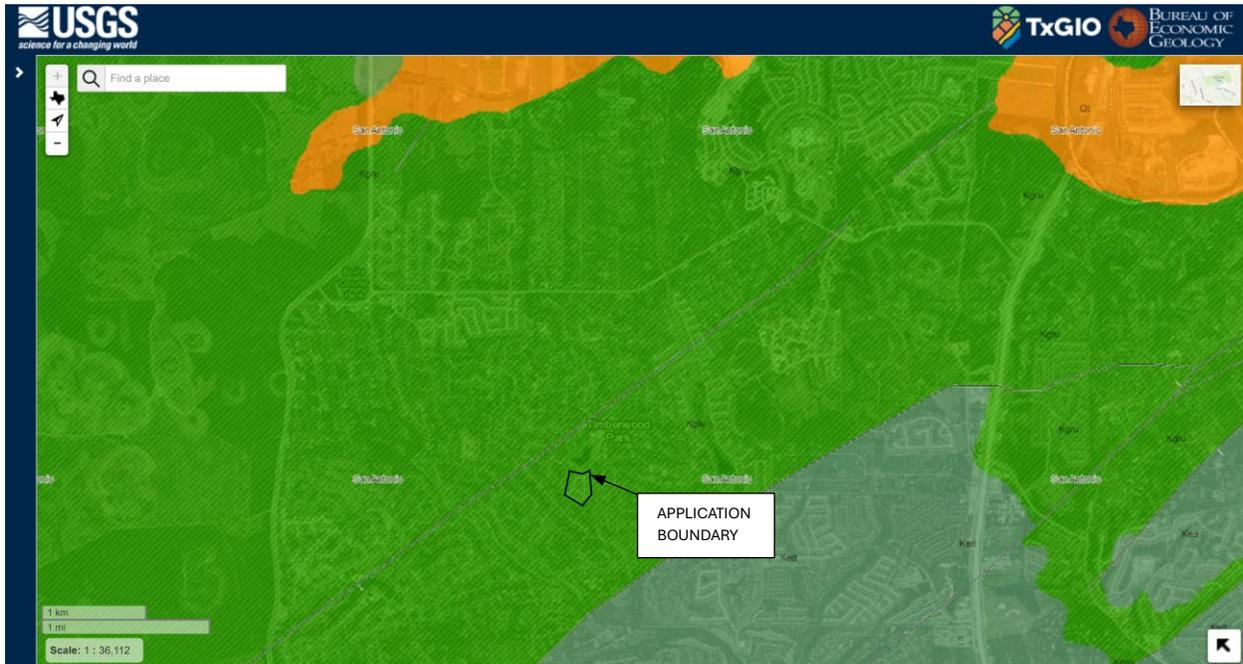


Figure 1 – Geological Formation (Texas Bureau of Economic Geology)

Table 3.0(3) - Water Well Data in Domestic Worksheet 3.0 lists 11 water wells within a ½-mile radius of the WWTP disposal field boundary. All listed water wells were drilled for public water supply and were constructed with casings, except well 6821424. Well 6821424 was plugged. All listed wells are not within a 150-foot radius of the WWTP disposal field boundary.

There are no known recharge features such as wells, springs, or sinkholes within the 150-foot buffer zone surrounding the WWTP disposal field boundary. The current WWTP disposal field is a sub-surface area disposal system consisting of approximately 90,000 linear feet of 17 mm diameter drip irrigation tubing buried in trenches not exceeding 10 inches.

Per the TWDB Ground Water database, no wells are documented to exist within a 150-foot radius of the irrigation site. No wastewater effluent has been or will be freely discharged by the wastewater treatment plant at this time. If generated, the wastewater will be used to irrigate the adjacent disposal field. The effluent applied to the land has a maximum application rate, as a permit limit, to ensure that the effluent would be absorbed by the vegetated root systems. The agronomic application rate ensures that potential contaminants do not migrate below the root zone. The best management practices for each of the active and inactive wells include meeting the buffer zone distances per 30 TAC § 309.13. Applicable buffer zone distances will continue to be maintained.

The USDA-NRCS soil report and map (see Technical Attachment #7) indicate that the topsoil within the WWTP disposal field boundary area are gravelly clay, clay loam, and very cobbly clay. Since these soils are classified as well-drained, all wastewater storage tanks are constructed with reinforced concrete to adequately protect groundwater under and near the wastewater treatment facility. In summary, the wastewater treatment plant and the effluent irrigation system are not anticipated to negatively impact the uses of groundwater resources.

WQ 0014670002 TLAP PERMIT APPLICATION

TECHNICAL ATTACHMENT #7

USDA - NRCS SOIL SURVEY MAP

Custom Soil Resource Report for **Bexar County, Texas**

Villas at Timberwood WWTP



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

Preface	2
How Soil Surveys Are Made	5
Soil Map	8
Soil Map.....	9
Legend.....	10
Map Unit Legend.....	11
Map Unit Descriptions.....	11
Bexar County, Texas.....	13
BtE—Brackett-Eckrant association, 20 to 60 percent slopes.....	13
Kr—Krum clay, 1 to 5 percent slopes.....	15
References	17

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

Custom Soil Resource Report

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Soil Map may not be valid at this scale.

Map Scale: 1:2,460 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Bexar County, Texas
 Survey Area Data: Version 28, Aug 30, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 17, 2020—Jan 15, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BtE	Brackett-Eckrant association, 20 to 60 percent slopes	0.3	1.6%
Kr	Krum clay, 1 to 5 percent slopes	18.7	98.4%
Totals for Area of Interest		19.0	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

Custom Soil Resource Report

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Bexar County, Texas

BtE—Brackett-Eckrant association, 20 to 60 percent slopes

Map Unit Setting

National map unit symbol: 2yly3
Elevation: 1,000 to 2,400 feet
Mean annual precipitation: 30 to 37 inches
Mean annual air temperature: 65 to 70 degrees F
Frost-free period: 220 to 270 days
Farmland classification: Not prime farmland

Map Unit Composition

Brackett and similar soils: 60 percent
Eckrant and similar soils: 36 percent
Minor components: 4 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Brackett

Setting

Landform: Ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from limestone

Typical profile

A - 0 to 4 inches: gravelly clay loam
Bw - 4 to 12 inches: clay loam
Cr - 12 to 60 inches: bedrock

Properties and qualities

Slope: 20 to 60 percent
Depth to restrictive feature: 6 to 20 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.06 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 90 percent
Gypsum, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 1.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R081CY362TX - Steep Adobe 29-35 PZ
Hydric soil rating: No

Description of Eckrant

Setting

Landform: Ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Residuum weathered from limestone

Typical profile

A1 - 0 to 4 inches: very cobbly clay
A2 - 4 to 12 inches: very cobbly clay
R - 12 to 30 inches: bedrock

Properties and qualities

Slope: 20 to 60 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
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 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Very low (about 0.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R081CY363TX - Steep Rocky 29-35 PZ
Hydric soil rating: No

Minor Components

Krum

Percent of map unit: 2 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R081CY357TX - Clay Loam 29-35 PZ
Hydric soil rating: No

Patrick

Percent of map unit: 1 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R081CY574TX - Shallow 29-35 PZ
Hydric soil rating: No

Crawford

Percent of map unit: 1 percent
Landform: Ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R081CY358TX - Deep Redland 29-35 PZ
Hydric soil rating: No

Kr—Krum clay, 1 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2ylv9
Elevation: 600 to 1,600 feet
Mean annual precipitation: 30 to 37 inches
Mean annual air temperature: 65 to 70 degrees F
Frost-free period: 220 to 270 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Krum and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Krum

Setting

Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Alluvium derived from limestone

Typical profile

A - 0 to 26 inches: clay
Bw1 - 26 to 36 inches: clay
Bw2 - 36 to 50 inches: clay
BCK - 50 to 79 inches: clay

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

Custom Soil Resource Report

Frequency of ponding: None
Calcium carbonate, maximum content: 50 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 3.0
Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: R081CY357TX - Clay Loam 29-35 PZ
Hydric soil rating: No

Minor Components

Eckrant

Percent of map unit: 4 percent
Landform: Ridges
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R081CY360TX - Low Stony Hill 29-35 PZ
Hydric soil rating: No

Brackett

Percent of map unit: 4 percent
Landform: Ridges
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R081CY355TX - Adobe 29-35 PZ
Hydric soil rating: No

Frio

Percent of map unit: 2 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R081CY561TX - Loamy Bottomland 29-35 PZ
Hydric soil rating: No

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Established Series
Rev. GLL-CLN-WJG-JAM
07/2010

BRACKETT SERIES

The Brackett series consists of shallow to paralithic bedrock, well drained soils formed in residuum weathered from limestone of Cretaceous age, mainly from the Glen Rose formation. These nearly level to very steep soils are located on backslopes of ridges on dissected plateaus of the Edwards Plateau. Slopes are 1 to 60 percent. Mean annual air temperature is about 19 degrees C (67 degrees F), and mean annual precipitation is about 737 mm (29 in).

TAXONOMIC CLASS: Loamy, carbonatic, thermic, shallow Typic Haplustepts

TYPICAL PEDON: Brackett paragravelly clay loam on rangeland. (Colors are for dry soil unless otherwise stated.)

A--0 to 15 cm (0 to 6 in); grayish brown (10YR 5/2) paragravelly clay loam, dark grayish brown (10YR 4/2) moist; moderate fine subangular blocky and granular structure; hard, friable; common fine roots; few masses and nodules of calcium carbonate; 15 percent weakly cemented limestone gravel; violently effervescent; moderately alkaline; clear smooth boundary. (Thickness of the A horizon is 8 to 30 cm [3 to 12 in])

Bk--15 to 36 cm (6 to 14 in); light gray (10YR 7/2) paragravelly clay loam, light brownish gray (10YR 6/2) moist; moderate fine subangular blocky and granular structure; hard, friable; common fine roots; few masses and nodules of calcium carbonate; 20 percent weakly cemented limestone gravel; violently effervescent; moderately alkaline; clear wavy boundary. (Thickness of the Bk horizon is 8 to 41 cm [3 to 16 in])

Cr--36 to 152 cm (14 to 60 in); weakly cemented, fractured and weathered limestone bedrock with vertical fractures that roots can enter, 10 to 25 cm (4 to 10 in) apart, interbedded with thin strata of pale yellow (2.5Y 7/3) and very pale brown (10YR 7/4) weathered chalk bedrock; moderately alkaline.

TYPE LOCATION: Hays County, Texas; from the intersection of Ranch Road 32 and Ranch Road 12 about 10 miles west of San Marcos, 6 miles west on Ranch Road 32 and 1,000 feet north of the road in rangeland. (Devils Backbone USGS topographic quadrangle; Latitude: 30 degrees, 3 minutes, 57.8 seconds N; Longitude: 98 degrees 11 minutes 18.4 seconds W; NAD83)

RANGE IN CHARACTERISTICS:

Depth to paralithic contact: 13 to 50 cm (5 to 20 in)

Pararock and rock fragments above the paralithic contact: Amount-0 to 34 percent, size-2 to 250 mm, kind-limestone

Effervescence: Strongly to violently

Calcium Carbonate Equivalent: 40 to 85 percent by weight

Reaction: Slightly alkaline or moderately alkaline

Particle-size control section (weighted average):

Silicate clay content: 18 to 30 percent

Carbonate clay content: 2 to 10 percent

A horizon

Hue: 10YR or 2.5Y

Value: 5 to 8

Chroma: 2 to 4

Texture: Loam or clay loam; and paragravelly and gravelly modifiers

Pararock and rock fragments: Amount-0 to 34 percent by volume, size-2 to 250 mm, kind-limestone

Other features: Where dry value is 5 or more, the organic carbon content is less than 2.5 percent

Bk horizon

Hue: 7.5YR to 2.5Y

Value: 5 to 8

Chroma: 2 to 4

Texture: Silt loam, loam, silty clay loam, or clay loam; and paragravelly and gravelly modifiers

Pararock and rock fragments: Amount-0 to 34 percent by volume, size-2 to 250 mm, kind-limestone

Identifiable secondary carbonate: Amount-1 to 4 percent by volume; kind-masses, concretions or nodules, location-around rock fragments, in the matrix, and throughout

Mottle features: brownish or grayish mottles in the matrix and along faces of peds and within porous limestone fragments in some pedons.

Cr layer

Hue: 10YR or 2.5Y

Value: 7 or 8

Chroma: 2 to 4

Other features: Secondary carbonate cementation where present, does not meet the thickness or continuity or fracture requirements of a petrocalcic horizon.

Cementation: Weakly cemented to moderately cemented

Bedrock features: Fracture interval-10 to 25 cm (4 to 10 in) apart horizontally, kind-limestone, chalk or marl.

COMPETING SERIES: [Whitewright](#) (TX) is a competing series in the same family. Similar soils are the [Doss](#) (TX), [Keese](#) (TX), [Quinlan](#) (OK+KS), and [Spikebox](#) (OK+TX).

Doss soils: Have a mollic epipedon.

Keese soils: Have a paralithic contact with weathered granite, granite grus, or gneiss of Precambrian [Era](#).

Quinlan soils: Has a shallow contact with densic sandstone bedrock.

Spikebox soils: Has a paralithic contact with sandstone bedrock

Whitewright soils: Are moist in the control section for longer periods.

GEOGRAPHIC SETTING:

Parent material: Residuum weathered from limestone bedrock of Cretaceous period, mainly from the Glen Rose and Comanche Peak formations. Also, interbedded marls and chinks occur on such formations as the Walnut and Keys Valley marls.

Landscape: Dissected Plateaus

Landform: Backslopes of ridges

Landform notes: Occurs on benched or stair-stepped topography consisting of risers and treads, also. The Brackett soils are mainly on the treads.

Slope: 1 to 60 percent, but is mostly 1 to 20 percent

Climate: Dry subhumid

Soil moisture: Typic ustic moisture regime

Precipitation Pattern: The majority of the yearly amount occurs during the fall and spring months. The winter and summer months are normally drier.

Mean annual air temperature: 18 to 21 degrees C (64 to 69 degrees F)

Mean annual precipitation: 610 to 864 mm (24 to 34 in)

Frost free days: 210 to 270 days

Elevation: 107 to 746 m (600 to 2,450 ft)

Thornthwaite annual P-E indices: 32 to 52

GEOGRAPHICALLY ASSOCIATED SOILS: These are [Cranfill](#) (TX), [Denton](#) (TX), [Doss](#) (TX), [Eckrant](#) (TX), [Karnes](#) (TX), [Kerrville](#) (TX), [Maloterre](#) (TX), [Real](#) (TX), [Tarrant](#) (TX), [Topsey](#) (TX) and [Valera](#) (TX) series.

Cranfill, Denton, Doss, Karnes, Topsey, and Valera soils: [Occur](#) lower on the landscape in footslope positions. Eckrant, Maloterre, and Tarrant soils: Occur higher on the landscape in summit, shoulder, and backslope positions.

Kerrville and Real soils: Occur on similar position in the landscape.

DRAINAGE AND PERMEABILITY: Well drained. Permeability is moderate. Permeability in the petrocalcic horizon is slow to very slow. Runoff is very low on 1 to 3 percent slopes, low on 3 to 5 percent slopes, and medium on 5 to 20 percent slopes and high on 20 to 60 percent slopes.

USE AND VEGETATION: Mainly used as rangeland. The climax plant community is a tall grass savannah with motts of live oak and Texas oak scattered throughout the landscape. The dominant grass is little bluestem. Other grasses include yellow Indiangrass, sideoats grama, tall grama, seep muhly, slim tridens, hairy grama, silver bluestem, slim tridens, tall dropseed, and perennial threeawns. Woody plants include live oak, Texas oak, kidneywood and shin oak. Forbs, such as bundleflower, sensitive briar, Maximilian sunflower, Engelmann daisy, and gayfeather, are found throughout the site. With over grazing, the site could potentially deteriorate to a plant population of Ashe juniper, Texas persimmon, agarito, live oak, threeawns, Texas grama, hairy tridens, red grama, prairie coneflower, broomweed, and ragweed.

DISTRIBUTION AND EXTENT: West-Central Texas; Southwest Plateaus and Plains Range and Cotton Region, LLR I: MLRA 81B and 81C-Edwards Plateau, Central and Eastern parts; and. Southwestern Prairies Cotton and Forage Region, LRR J: MLRA 85-Grand Prairie;. The series is extensive.

MLRA SOIL SURVEY REGIONAL OFFICE (MO) RESPONSIBLE: Temple, Texas

SERIES ESTABLISHED: Kinney County, Texas (Reconnaissance Soil Survey of Southwest Texas); 1911.

REMARKS: Classification was changed 11/89 from Typic Ustochrepts to Udic Ustochrepts. On 10/2001 the type location was moved to Hays County, and the depth was changed from very deep to shallow and the subgroup changed back to Typic which was the original series concept.

Diagnostic horizons and features recognized in this pedon are:

Ochric epipedon: 0 to 15 cm (0 to 6 in) (A horizon)

Cambic horizon: 15 to 36 cm (6 to 14 in) (Bk horizon)

Paralithic contact: 36 cm (14 in) (top of Cr layer)

ADDITIONAL DATA: None

TAXONOMIC VERSION: Keys to Soil Taxonomy, 11th Edition, 2010.

Established Series
Rev. ALN-JWS-CLG-RM
08/2018

ECKRANT SERIES

The Eckrant series consists of well drained, moderately slowly permeable soils that are very shallow to shallow over indurated limestone bedrock. These nearly level to very steep soils formed in residuum derived from limestone and occur on summits, shoulders, and backslopes of ridges on dissected plateaus. Slope ranges from 1 to 60 percent. Mean annual air temperature is about 18.9 degrees C (66 degrees F), and the mean annual precipitation is about 660 mm (26 in).

TAXONOMIC CLASS: Clayey-skeletal, smectitic, thermic Lithic Haplustolls

TYPICAL PEDON: Eckrant very cobbly clay--in rangeland. Colors are for dry soil unless otherwise stated.)

A1--0 to 10 cm (0 to 4 in); very dark gray (10YR 3/1) very cobbly clay, black (10YR 2/1) moist; moderate fine subangular blocky structure and moderate fine granular; very hard, firm; common fine roots; common fine pores; 20 percent limestone gravel; 15 percent limestone cobbles; very slightly effervescent; moderately alkaline; clear irregular boundary.

A2--10 to 30 cm (4 to 12 in); very dark gray (10YR 3/1) very cobbly clay, black (10YR 2/1) moist; moderate fine subangular blocky and fine granular structure; very hard, firm; common fine roots; common fine pores; 20 percent limestone gravels; 35 percent limestone cobbles; very slightly effervescent; moderately alkaline; abrupt wavy boundary. (Combined thickness of the A horizon is 10 to 50 cm [4 to 20 in])

R--30 to 76 cm (12 to 30 in); coarsely fractured indurated limestone bedrock.

TYPE LOCATION: Uvalde County, Texas; 7.5 miles northwest of Sabinal on Texas Highway 127, 5.0 miles north on county road to a cattle guard, 0.1 mile north across small creek to gate on right, 0.5 mile east on small ranch road, 150 ft south in rangeland.

USGS topographic quadrangle: Trio, Texas;
Latitude: 29 degrees, 27 minutes, 45 seconds N;
Longitude: 99 degrees, 31 minutes, 58 seconds W;
Datum: WGS84

RANGE IN CHARACTERISTICS:

Soil moisture: Typic ustic moisture regime

Depth to lithic bedrock: 10 to 51 cm (4 to 20 in)

Surface fragments: 3 to 50 percent; 5 to 45 percent gravels, 5 to 50 percent cobbles, 0 to 2 percent stones and boulders which are mostly spaced 20 m (65.6 ft) or more apart but can be 2 m (7 ft) apart; limestone with few cryptocrystalline quartz and/or chert

Particle-size control section (weighted average):

Clay content: 35 to 60 percent

Rock fragments: Total -35 to 80 percent by volume, 2 to 600 mm; with 15 to 60 percent by volume, 75 to 600 mm, limestone with few cryptocrystalline quartz and/or chert

A horizon

Hue: 7.5YR or 10YR

Value: 2 to 4

Chroma: 1 to 3

Texture: Clay loam, silty clay, or clay; and their very or extremely, and gravelly to stony phases

Clay content: 35 to 60 percent

Rock fragments: 0 to 20 percent by volume, 2 to 75 mm; and 15 to 60 percent by volume, 75 to 600 mm, limestone with a few cryptocrystalline quartz and/or chert

Identifiable secondary carbonate: 0 to 4 percent, very fine to fine, nodules and/or nodular and concretionary pendants on rock fragments

Effervescence: Very slight to strong

Reaction (pH): Neutral to moderately alkaline (6.6 - 8.4)

R layer

Kind: Limestone bedrock with interbedded cryptocrystalline quartz, chert, marl, and/or chalk.

Cementation: Strongly cemented to indurated

COMPETING SERIES: There are no series in the same family. Similar soils are [Comfort](#), [Eckert](#), [Harper](#), [Oglesby](#), [Palopinto](#), [Prade](#), [Roughcreek](#), and Tarrant.

[Comfort](#) and [Roughcreek](#) soils: have argillic horizons.

[Eckert](#) and [Palopinto](#) soils: have less than 35 percent clay in the particle-size control section; in addition, Palopinto soils formed from Pennsylvanian age limestone bedrock

[Harper](#) and [Oglesby](#) soils: have less than 35 percent coarse fragments in the particle-size control section

[Prade](#) and [Tarrant](#) soils: have calcic horizons. In addition, Prade soils have a petrocalcic horizon.

GEOGRAPHIC SETTING:

Parent material: Residuum weathered from limestone of the Lower Cretaceous and other geologic periods and includes interbedded limestone, cryptocrystalline quartz, chert, marl, and chalk.

Landscape: Dissected plateaus

Landform: Summits, shoulders, and backslopes of ridges

Slope: 1 to 60 percent, but is commonly 1 to 8 percent

Precipitation Pattern: The majority of the yearly amount occurs during the spring and fall months. The winter and summer months are normally drier.

Mean annual precipitation: 559 to 940 mm (22 to 37 in)

Thornthwaite annual P-E indices: 31 to 54

Mean annual air temperature: 17.8 to 20.6 degrees C (64 to 69 degrees F)

Frost free period: 210 to 250 days

Elevation: 182.9 to 739.1 m (600 to 2,425 ft)

GEOGRAPHICALLY ASSOCIATED SOILS: These are the [Brackett](#), [Campwood](#), [Comfort](#), [Eckert](#), [Kavett](#), [Real](#), and [Tarrant](#) series.

[Brackett](#) and [Real](#) soils: occur on backslope positions.

[Campwood](#) soils: are very deep alluvial soils on stream terraces.

[Comfort](#), [Eckert](#), [Kavett](#), [Real](#) and [Tarrant](#) soils: occur on similar landform positions.

DRAINAGE AND PERMEABILITY:

Drainage class: Well.

Permeability class: moderately slow.

Runoff: medium on 1 to 5 percent slopes, high on 5 to 20 percent slopes, and very high on 20 to 60 percent slopes.

USE AND VEGETATION: Mainly rangeland and wildlife habitat. The climax plant community is a tall grass savannah with motts of live oak throughout the landscape. The dominant grasses are little bluestem and sideoats

grama. Other grasses include yellow Indiangrass, fall witchgrass, wildrye, green sprangletop, meadow dropseed, cane and pinhole bluestem, hairy grama, Texas wintergrass, curly mesquite and buffalograss. Woody plants include live oak, shin oak, evergreen sumac, hackberry, elbowbush, redbud, and white honeysuckle. Forbs, such as orange zexmenia, Engelmann daisy, bundleflower, snout bean, and bushsunflower, are present. The site could potentially deteriorate to a plant population sideoats grama, buffalograss, hairy grama, dropseeds, and the woody plants. If this destructive grazing practice continues, the site will deteriorate to a plant population of Ashe juniper, Texas persimmon, live oak, Texas grama, hairy tridens, curly mesquite, threeawns, prairie coneflower, and broomweed.

DISTRIBUTION AND EXTENT: West-Central Texas; Southwest Plateaus and Plains Range and Cotton Region, LLR I: MLRA 81B-Edwards Plateau, Central Part, and MLRA 81C-Edwards Plateau, Eastern Part; and MLRA 82A-Texas Central Basin. Southwestern Prairies Cotton and Forage Region, LLR J: MLRA 85-Grand Prairie. This series is extensive.

SOIL SURVEY REGIONAL OFFICE (SSRO) RESPONSIBLE: Temple, Texas.

SERIES ESTABLISHED: Uvalde County, Texas; 1970.

REMARKS: These soils were formerly included in the Tarrant series. The series was separated due to the absence of a calcic horizon.

Edited 10/2016 (RFG-THW): Updated competing series, geographic setting, and associated soils sections.

Diagnostic horizons and features recognized in this pedon are:

Particle-size control section: 0 to 30 cm (0 to 12 in)

Mollic epipedon: 0 to 30 cm (0 to 12 in) (A horizon)

Lithic contact: at 30 cm (12 in) (top of the R layer)

ADDITIONAL DATA: None

TAXONOMIC VERSION: Keys to Soil Taxonomy, Twelfth Edition, 2014.

Established Series
Rev. CLN-RMR-RM
02/2018

KRUM SERIES

The Krum series consists of very deep to clayey alluvium, well drained soils that formed in calcareous clayey alluvium derived from interbedded chalk and marl. These nearly level to moderately sloping soils are on risers and treads of stream terraces on river valleys and dissected plains. Slopes range from 0 to 8 percent. Mean annual precipitation is about 873.8 mm (34.4 in) and the mean annual air temperature is about 20.4 degrees C (68.7 degrees F).

TAXONOMIC CLASS: Fine, smectitic, thermic Udertic Haplustolls

TYPICAL PEDON: Krum silty clay--in a cultivated field. (Colors are for dry soil unless otherwise stated.)

Ap--0 to 15 cm (0 to 6 in); dark grayish brown (10YR 4/2) silty clay, very dark brown (7.5YR 2/2) moist; moderate fine subangular blocky and moderate medium granular structure; hard, firm, sticky, plastic; common roots; few fine pores; few strongly cemented calcium carbonate concretions up to 5 mm in diameter; few white flakes of calcium carbonate, some of which are fragments of snail shells; calcareous; moderately alkaline; clear smooth boundary. (0 to 20 cm [0 to 8 in] thick)

A--15 to 66 cm (6 to 26 in); very dark grayish brown (10YR 3/2) silty clay, very dark brown (10YR 2/2) moist; moderate very fine subangular blocky and very fine angular blocky structure; hard, firm, sticky, plastic; few very fine weakly cemented calcium carbonate concretions; few very fine whitish soft masses of calcium carbonate in the lower part; common roots; many fine pores; calcareous; moderately alkaline; gradual wavy boundary. (30 to 91 cm [12 to 36 in] thick)

Bw--66 to 112 cm (26 to 44 in); brown (7.5YR 5/4) silty clay, brown (7.5YR 4/4) moist; moderate medium angular blocky structure; peds have shiny pressure faces; hard, very firm, sticky, plastic; darker soil from horizon above extends to bottom of this layer along partially sealed cracks; few fine roots; common fine pores; less than 1 percent weakly to strongly cemented calcium carbonate concretions and fine powdery masses of calcium carbonate; calcareous; moderately alkaline; gradual wavy boundary. (46 to 127 cm [18 to 50 in] thick)

Bk1--112 to 157 cm (44 to 62 in); reddish yellow (7.5YR 6/6) silty clay, strong brown (7.5YR 5/6) moist; weak coarse angular blocky structure; hard, firm, sticky, plastic; few fine roots; 5 percent calcium carbonate weakly to strongly cemented concretions and a few powdery masses; calcareous; moderately alkaline; diffuse wavy boundary. (36 to 81 cm [14 to 32 in] thick)

Bk2--157 to 183 cm (62 to 72 in); reddish yellow (7.5YR 6/6) silty clay, strong brown (7.5YR 5/6) moist; weak coarse subangular blocky structure; hard, firm, sticky, plastic; 2 percent weakly and strongly cemented concretions and powdery masses; calcareous; moderately alkaline.

TYPE LOCATION: Williamson County, Texas; From the intersection of State Highway 79 and Farm To Market Road 1660 in Hutto, Texas; 2.7 miles south on Farm To Market Road 1660; 200 ft south in a cultivated field.

USGS topographic quadrangle: Hutto, TX;
Latitude: 30 degrees, 30 minutes, 45.68 seconds North;

Longitude: 97 degrees, 31 minutes, 53.29 seconds West.

Datum: WGS84

RANGE IN CHARACTERISTICS:

Solum depth: 102 to greater than 203 cm (40 to greater than 80 in)

Soil Moisture: An ustic soil moisture regime that borders on udic. The soil moisture control section is dry in some or all parts for 90 or more cumulative days and moist, in some part, either for more than 180 cumulative days per year, or for 90 or more consecutive days in normal years.

Soil temperature: 15 to 22 degrees C (59 to 72 degrees F)

Thickness of mollic epipedon: 36 to 91 cm (14 to 36 in)

Thickness of cambic horizon: 112 to 167 cm (44 to 65 in)

Other features: These soils, when dry, have cracks 1.2 to 3.6 cm (0.4 to 1.2 in) wide that extend from the surface to depths of about 61 to 122 cm (24 to 48 in)

Particle-size control section:

Clay content: 40 to 60 percent

Rock fragments: amount-0 to 10 percent; kind-limestone; shape-nonflat; size-gravels

Calcium carbonate equivalent: 15 to 30 percent

Identifiable secondary carbonates: amount-0 to 5 percent; kind-carbonate masses and concretions; size-fine or medium

A horizons

Hue: 7.5YR or 10YR

Value: 3 to 5 dry, 2 to 3 moist

Chroma: 1 to 3 dry, 2 to 3 moist

Texture: clay, silty clay, clay loam, or silty clay loam, with the loamy textures occurring at depths of less than 30 cm (12 in) or in an Ap horizon.

Reaction: moderately alkaline or mildly alkaline, and the upper 25 cm (10 in) is noncalcareous in some pedons.

Bw horizon

Hue: 5YR to 10YR

Value: 4 to 6, dry or moist

Chroma: 2 to 4, dry or moist

Free carbonates: amount-0 to 10 percent, size-fine, kind-carbonate concretions and carbonate masses

Bk horizons

Hue: 5YR to 10YR

Value: 6 dry, 5 moist

Chroma: 3 to 6, dry or moist

Texture: silty clay loam, silty clay, or clay

Identifiable secondary carbonates: amount- 2 to 20 percent, size-fine or medium, kind-carbonate concretions or masses

Calcium carbonate equivalent: 20 to 50 percent

COMPETING SERIES: [Garvin](#) and [Matoy](#) soils are in the same family. Similar soils include [Bippus](#), [Denton](#), [Knippa](#), [Lewisville](#), [Miller](#), [Moreland](#), [Pledger](#), [Raymondville](#), [Rioconcho](#), [Rowena](#), and [Volente](#) series.

[Garvin](#) soils: have a subsoil with hues of 5YR to 7.5YR and occur on floodplains.

[Matoy](#) soils: have limestone bedrock at a depth less than 100 cm (40 in).

[Bippus](#), [Lewisville](#), and [Volente](#) soils: when dry, do not have cracks as wide as 1.2 cm (0.4 in). In addition, Lewisville soils have mollic epipedons less than 51 cm (20 in) thick.

[Denton](#) soils: are less than 152 cm (60 in) deep over limestone.

[Knippa](#) and [Rowena](#) soils: have calcic horizons at depth of less than 102 cm (40 in)

[Matoy](#) soils: have limestone bedrock at depths of 51 to 102 cm (20 to 40 in).

[Miller](#), [Moreland](#), [Pledger](#), and [Rioconcho](#) soils: have an irregular decrease in organic matter as depth increases.
[Raymondville](#) soils: have average annual temperatures of more than 22.2 degrees C (72 degrees F).

GEOGRAPHIC SETTING:

Parent material: calcareous clayey alluvium derived from interbedded chalk and marl

Landscape: river valleys and dissected plains

Landform: nearly level risers and treads of stream terraces

Slope: 0 to 8 percent

Mean annual air temperature: 17.2 to 21.1 degrees C (63 to 70 degrees F)

Mean annual precipitation: 610 to 948 mm (24 to 37.3 in)

Frost-free period: 210 to 266 days

Elevation: 105 to 442 m (344.5 to 1450 ft)

GEOGRAPHICALLY ASSOCIATED SOILS: These are the [Denton](#), [Lewisville](#), and [Volente](#) series and [Branyon](#), [Crawford](#), [Frio](#), and [Tarrant](#) series.

[Denton](#), [Lewisville](#), and [Volente](#) soils: occur on similar surfaces.

[Branyon](#), [Crawford](#), and [Tarrant](#) soils: occur at higher elevations. In addition, Branyon and Crawford soils have intersecting slickensides. Tarrant soils have sola less than 51 cm (20 in) thick over limestone and they contain more than 35 percent coarse fragments.

[Frio](#) soils: occur at lower elevations in flood plains and lack vertic properties.

DRAINAGE AND PERMEABILITY:

Drainage class: Well.

Permeability class: Moderately slow.

Runoff: low on slopes less than 1 percent; medium on 1 to 5 percent slopes and high on slopes 5 to 8 percent.

USE AND VEGETATION: About two-thirds is cropped to corn, cotton, grain sorghum, and small grains. The remainder is used for rangeland. The vegetation is tall and mid-grasses, and a few clumps of live oak and other hardwood trees.

DISTRIBUTION AND EXTENT: Texas and possibly Oklahoma. This soil occurs primarily in the Northern Texas Blackland Prairies (MLRA 86A), Grand Prairies (MLRA 85), and the Edwards Plateau, Eastern Part (MLRA 81C). The series is of large extent.

SOIL SURVEY REGIONAL OFFICE (SSRO) RESPONSIBLE: Temple, Texas

SERIES ESTABLISHED: McLennan County, Texas; 1943.

REMARKS: This series now includes some soils formerly included in the Lewisville series.

Diagnostic horizons and features recognized in this pedon are:

Mollic epipedon: 0 to 66 (0 to 26 in) (Ap and A horizons)

Cambic horizon: 66 to 112 cm (26 to 44 in) (Bw horizon)

Calcic horizon: 112 to 157 cm (44 to 62 in) (Bk1 horizon)

ADDITIONAL DATA: Lincoln Lab Data Sample Nos. 72L438 and 72L439; SSIR-30-S57TX-18-90.

Taxonomic Version: Keys to Soil Taxonomy, Twelfth Edition, 2014

National Cooperative Soil Survey
U.S.A.

Table 9-5 Runoff curve numbers for urban areas ^{1/}

Cover description cover type and hydrologic condition	Average percent impervious area ^{2/}	-- CN for hydrologic soil group --			
		A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.) ^{3/}					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only) ^{4/}		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82
Developing urban areas					
Newly graded areas (pervious areas only, no vegetation)		77	86	91	94

1/ Average runoff condition, and $I_a = 0.2S$.

2/ The average percent impervious area shown was used to develop the composite CNs. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition.

3/ CNs shown are equivalent to those of pasture. Composite CNs may be computed for other combinations of open space type.

4/ Composite CNs for natural desert landscaping should be computed using figures 9-3 or 9-4 based on the impervious area percentage (CN=98) and the pervious area CN. The pervious area CNs are assumed equivalent to desert shrub in poor hydrologic condition.

WQ 0014670002 TLAP PERMIT APPLICATION
TECHNICAL ATTACHMENT #8
SOIL ANALYSIS



Texas Commission on Environmental Quality

P.O. Box 13087 • Austin, TX 78711-3087
MONTHLY EFFLUENT REPORT

WQ0014670001
PERMIT NUMBER

SET

2025	Feb
YEAR	MO

EID

This report to be used for SOIL MON 101 ANN 0-6
Please retain a photocopy for your records.

Parameter Code/ Parameter	Effluent Condition			No. Ex	Frequency of Analysis	Sample Type
		Value	Units			
pH	Reported	8.3			1/year	Soil
Conductivity	Reported	351	umho/cm		1/year	Soil
Nitrate-N	Reported	8	ppm		1/year	Soil
Phosphorus	Reported	11	ppm		1/year	Soil
Potassium	Reported	310	ppm		1/year	Soil
Calcium	Reported	25550	ppm		1/year	Soil
Magnesium	Reported	368	ppm		1/year	Soil
Sulfur	Reported	138	ppm		1/year	Soil
Solium	Reported	142	ppm		1/year	Soil
TKN	Reported	870	ppm		1/year	Soil
TN	Reported	1284	ppm		1/year	Soil
Ammonium-N	Reported	3.8	ppm		1/year	Soil

COMMENTS AND EXPLANATIONS (Reference all attachments here.)

I CERTIFY THAT I AM FAMILIAR WITH THE INFORMATION CONTAINED IN THIS REPORT AND THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF SUCH INFORMATION IS TRUE AND COMPLETE AND ACCURATE.

PLANT OPERATOR NAME	PLANT OPERATOR SIGNATURE	MONTH	DAY	YEAR
Randy Weyrick	<i>Randy Weyrick</i>	3	25	2025
EXECUTIVE OFFICER NAME	EXECUTIVE OFFICER SIGNATURE	MONTH	DAY	YEAR
Gregory Gullett	<i>Gregory Gullett</i>	3	25	2025
Telephone Number		512-707-7027		
		Area code	Number	



Soil Analysis Report

Soil, Water and Forage Testing Laboratory
 Department of Soil and Crop Sciences
 2478 TAMU
 College Station, TX 77843-2478
 (979)321-5960

Report generated for:
 Wastewater Solutions
 Villas at Timberwood
 9217 Hwy 290 West - Ste 100
 AUSTIN, TX 78736

Visit our website: <http://soiltesting.tamu.edu>

Sample received on: 2/28/2025
 Printed on: 3/20/2025
 Area Represented: not provided

Bexar County
 Laboratory Number: 679331
 Customer Sample ID: 0-6

Crop Grown: RYEGRASS , HEAVY GRAZING

Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess.		
pH	8.3	(6)	-	Mod. Alkaline								
Conductivity	351	(-)	umho/cm	None							CL*	Nutrient Recommended
Nitrate-N	8	(-)	ppm**									180 lbs N/acre
Phosphorus	11	(50)	ppm									60 lbs P2O5/acre
Potassium	310	(125)	ppm									0 lbs K2O/acre
Calcium	25,550	(180)	ppm									0 lbs Ca/acre
Magnesium	368	(50)	ppm									0 lbs Mg/acre
Sulfur	138	(13)	ppm									0 lbs S/acre
Sodium	142	(-)	ppm									
Iron												
Zinc												
Manganese												
Copper												
Boron	2.24	(1.30)	ppm									0 lbs B/acre
Limestone Requirement										0.00 tons 100ECCE/acre		
Detailed Salinity Test (Saturated Paste Extract)												
pH 7.2												
Conductivity 0.84 mmhos/cm												
Sodium 77 ppm 3.355 meq/L												
Potassium 21 ppm 0.542 meq/L												
Calcium 129 ppm 6.437 meq/L												
Magnesium 12 ppm 0.954 meq/L												
TKN	870		ppm									
Total N	1284		ppm									
Ammonium-N	3.8		ppm									
SAR 1.75												
SSP 29.72												

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Nitrogen: Apply 1/3 of nitrogen at preplant and topdress 1/3rd of recommendation every 4-6 weeks there after or as needed.

Online fertilizer calculators to determine appropriate fertilizers and application rates.
<http://soiltesting.tamu.edu>



Texas Commission on Environmental Quality

P.O. Box 13087 • Austin, TX 78711-3087
MONTHLY EFFLUENT REPORT

WQ0014670001
PERMIT NUMBER

SET

2025	Feb
YEAR	MO

EID

This report to be used for SOIL MON 101 ANN 12-18
Please retain a photocopy for your records.

Parameter Code/ Parameter	Effluent Condition			No. Ex	Frequency of Analysis	Sample Type
	Reported	Value	Units			
pH	Reported	8.4			1/year	Soil
Conductivity	Reported	507	umho/cm		1/year	Soil
Nitrate-N	Reported	5	ppm		1/year	Soil
Phosphorus	Reported	5	ppm		1/year	Soil
Potassium	Reported	278	ppm		1/year	Soil
Calcium	Reported	20852	ppm		1/year	Soil
Magnesium	Reported	567	ppm		1/year	Soil
Sulfur	Reported	117	ppm		1/year	Soil
Solium	Reported	984	ppm		1/year	Soil
TKN	Reported	738	ppm		1/year	Soil
TN	Reported	1118	ppm		1/year	Soil
Ammonium-N	Reported	2.9	ppm		1/year	Soil

COMMENTS AND EXPLANATIONS (Reference all attachments here.)

I CERTIFY THAT I AM FAMILIAR WITH THE INFORMATION CONTAINED IN THIS REPORT AND THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF SUCH INFORMATION IS TRUE AND COMPLETE AND ACCURATE.

PLANT OPERATOR NAME	PLANT OPERATOR SIGNATURE	MONTH	DAY	YEAR
Randy Weyrick	<i>Randy Weyrick</i>	3	25	2025
EXECUTIVE OFFICER NAME	EXECUTIVE OFFICER SIGNATURE	MONTH	DAY	YEAR
Gregory Gullett	<i>G. Gullett</i>	3	25	2025
Telephone Number		512-707-7027		
		Area code	Number	



Texas Commission on Environmental Quality

P.O. Box 13087 • Austin, TX 78711-3087
MONTHLY EFFLUENT REPORT

WQ0014670001
PERMIT NUMBER

SET

2025	Feb
YEAR	MO

EID

This report to be used for SOIL MON 101 ANN 18-30
Please retain a photocopy for your records.

Parameter Code/ Parameter	Effluent Condition			No. Ex	Frequency of Analysis	Sample Type
	Reported	Value	Units			
pH	Reported	8.4			1/year	Soil
Conductivity	Reported	864	umho/cm		1/year	Soil
Nitrate-N	Reported	4	ppm		1/year	Soil
Phosphorus	Reported	3	ppm		1/year	Soil
Potassium	Reported	216	ppm		1/year	Soil
Calcium	Reported	23891	ppm		1/year	Soil
Magnesium	Reported	549	ppm		1/year	Soil
Sulfur	Reported	151	ppm		1/year	Soil
Solium	Reported	1001	ppm		1/year	Soil
TKN	Reported	412	ppm		1/year	Soil
TN	Reported	970	ppm		1/year	Soil
Ammonium-N	Reported	2.3	ppm		1/year	Soil

COMMENTS AND EXPLANATIONS (Reference all attachments here.)

I CERTIFY THAT I AM FAMILIAR WITH THE INFORMATION CONTAINED IN THIS REPORT AND THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF SUCH INFORMATION IS TRUE AND COMPLETE AND ACCURATE.

PLANT OPERATOR NAME	PLANT OPERATOR SIGNATURE	MONTH	DAY	YEAR
Randy Weyrick	<i>Randy Weyrick</i>	3	25	2025
EXECUTIVE OFFICER NAME	EXECUTIVE OFFICER SIGNATURE	MONTH	DAY	YEAR
Gregory Gullett	<i>G. Gullett</i>	3	25	2025
Telephone Number		512-707-7027		
		Area code	Number	



Soil Analysis Report

Soil, Water and Forage Testing Laboratory
 Department of Soil and Crop Sciences
 2478 TAMU
 College Station, TX 77843-2478
 (979)321-5960

Report generated for:
 Wastewater Solutions
 Villas at Timberwood
 9217 Hwy 290 West - Ste 100
 AUSTIN, TX 78736

Visit our website: <http://soiltesting.tamu.edu>

Sample received on: 2/28/2025
 Printed on: 3/20/2025
 Area Represented: not provided

Bexar County
 Laboratory Number: 679333
 Customer Sample ID: 18-30

Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS, GRAZING

Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess.	
pH	8.4	(5.8)	-	Mod. Alkaline							
Conductivity	864	(-)	umho/cm	Slight							Nutrient Recommended
Nitrate-N	4	(-)	ppm**								50 lbs N/acre
Phosphorus	3	(50)	ppm								60 lbs P2O5/acre
Potassium	216	(125)	ppm								0 lbs K2O/acre
Calcium	23,891	(180)	ppm								0 lbs Ca/acre
Magnesium	549	(50)	ppm								0 lbs Mg/acre
Sulfur	151	(13)	ppm								0 lbs S/acre
Sodium	1,001	(-)	ppm								
Iron											
Zinc											
Manganese											
Copper											
Boron	2.73	(1.30)	ppm								0 lbs B/acre
Limestone Requirement											0.00 tons 100ECCE/acre
Detailed Salinity Test (Saturated Paste Extract)											
				pH							7.3
				Conductivity							1.03 mmhos/cm
				Sodium							207 ppm 9.008 meq/L
				Potassium							0 ppm 0.003 meq/L
				Calcium							48 ppm 2.390 meq/L
				Magnesium							0 ppm 0.028 meq/L
TKN	412		ppm	SAR							8.19
Total N	970		ppm	SSP							78.82
Ammonium-N	2.3		ppm								

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Nitrogen: Apply an additional 70 lbs/A of nitrogen for each subsequent heavy graze down.

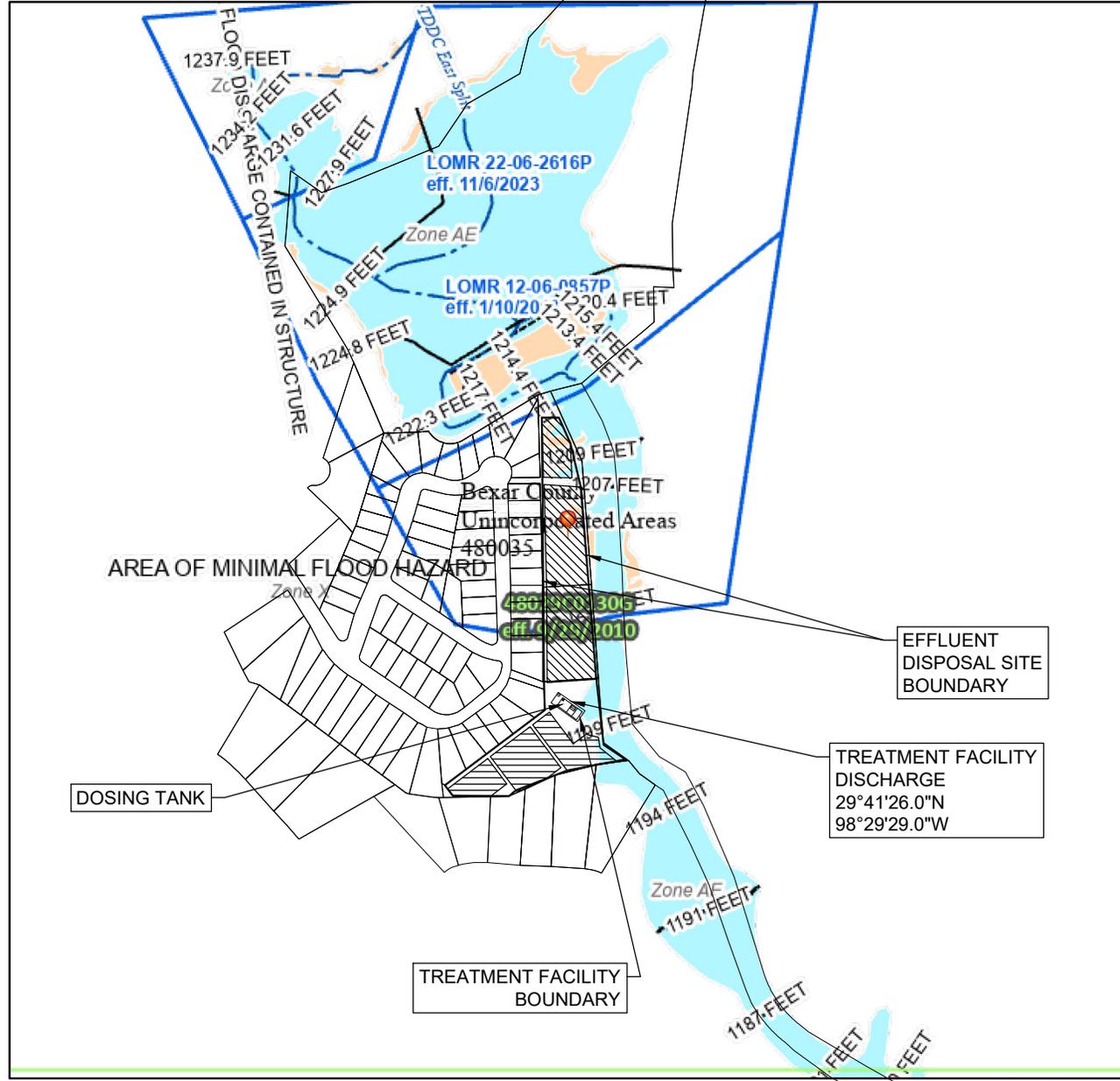
Online fertilizer calculators to determine appropriate fertilizers and application rates.
<http://soiltesting.tamu.edu>

TECHNICAL ATTACHMENT #9

National Flood Hazard Layer FIRMette



98°29'48"W 29°41'46"N



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	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

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

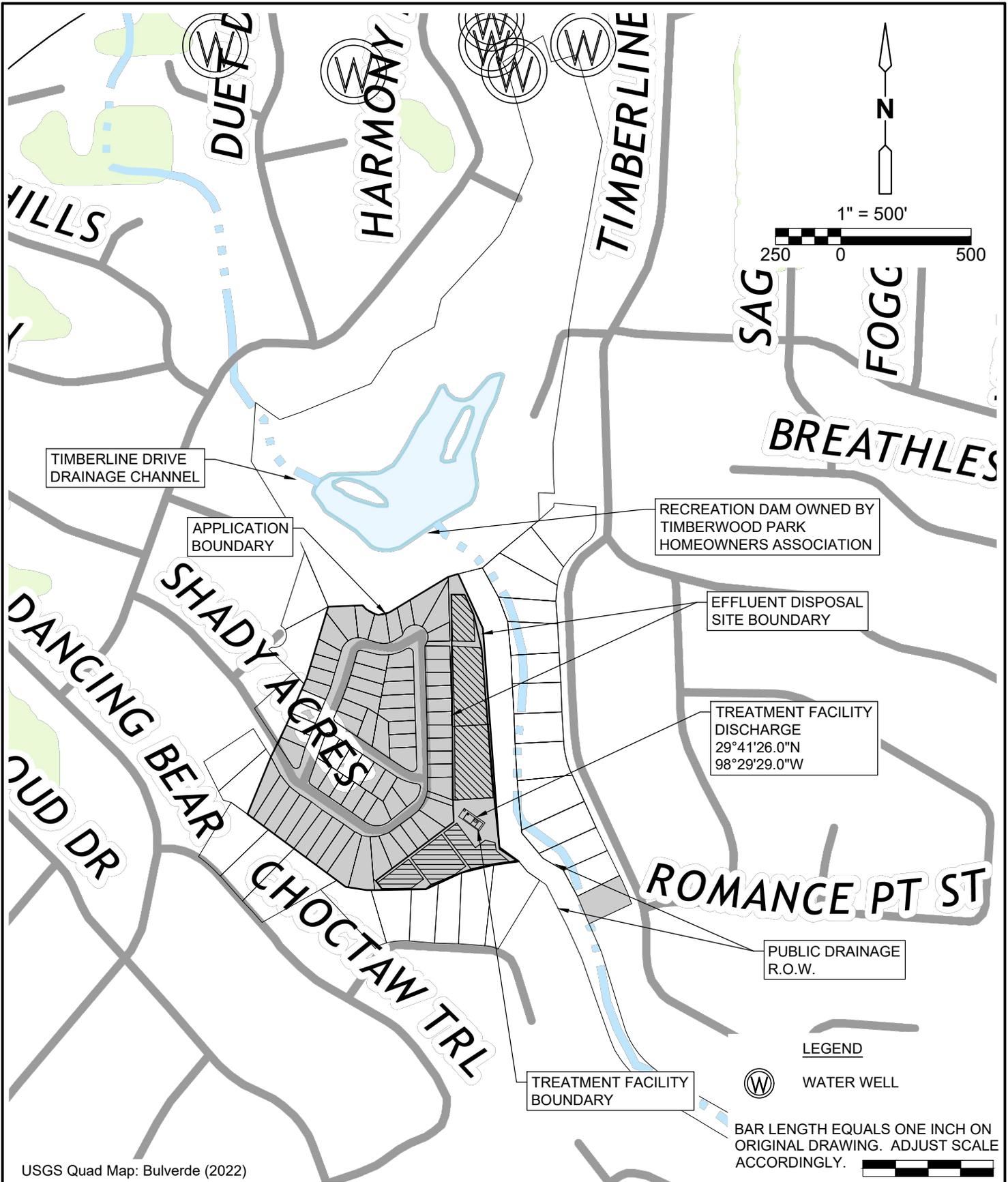
This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 7/12/2024 at 11:22 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.



Basemap Imagery Source: USGS National Map 2023



USGS Quad Map: Bulverde (2022)

BAR LENGTH EQUALS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALE ACCORDINGLY.

 13423 Blanco Rd, Suite 118 San Antonio TX 78216 Texas Firm Registration Number F-16949	PROJECT NO.	VILLAS OF TOWERWOOD PARK WWTP WASTEWATER TREATMENT PLANT PERMIT APPLICATION WQ0014670002 USGS TOPO MAP	EXHIBIT No.
	DATE		Worksheet 7.0 Attachment - A

WORKSHEET 7.0 ATTACHMENT B - SITE MAP

Timberwood Units 47-49 (GZ)

DESIGN SPECIFICATIONS:

Estimated average daily wastewater flow: 75 Residential Homes @ 240 Gal/house = 18,000 GPD

Pump tank capacity: 50,000 Gal.
 Design application rate: Class IV soil over sandy clay loam caliche material. Ra = 0.2
 Design field area required: 180,000 sq. ft.
 Dosing cycle quantity: 4 min per zone/approximately 103.2 gal/dose
 Number of dosing cycles per day: 8 per zone
 Dosing pump capacity: 25.8 gpm @ 46.2 psi for dripping plus 6 gpm for flushing
 Dosing pump: 35 gallon per minute 1HP pump
 Design pressure head: 20 psi
 Means of relieving vacuum/air in lines: ARI Guardian
 Controller: Custom BDMC Controller
 Zone Control Valve: 18 zone BDMC Controller
 Pressure adjusting valves to be installed: Pressure relief valve adjusted for 50 psi
 Total linear feet of dripper lines: 90,000 feet
 Diameter of dosing pipe: All new 17 mm, 24 inch spacing 0.62 gph
 O8WRAM.6-24V
 Minimum spacing between dosing lines: 24 inches
 Depth of drip emitter lines: 10 inches
 Backfill material: Class II or III soil
 Maximum dosing line length: 800 feet

I-10 CONTRACTING LTD

25840 IH-10 WEST #2

210-698-8630 FAX 698-8633



CALCULATIONS

Given:
 $A = Q/Ra = 18,000/0.1 = 180,000$ sq. ft.
 $L = A/2 = 180,000/2 = 90,000$ LF

Total design equals 90,000 LF
 No. of emitters = $90,000/2 = 45,000$ emitters
 Each emitter produces 0.62 gph
 Application rate: $0.62 \times 45,000 = 27,900$ gph or $27,900/60 = 465$ gpm
 Design to divide total by 18 zones or 25.8 gpm to dose each zone (avg)

Total dosing time required to dispense 18,000 gpd at this rate is $18,000/25 = 720$ minutes
 72 cycles on 10 minute intervals are proposed—this leaves 6 hours each day for rest and
 or time to recover from occasional overload.

There are three distal ends per zone. A minimum of two gallons per minute is required for proper
 backwash. The pump capacity must provide for 8 gallons per minute for backwash in addition to
 normal drip volume of 25.8 gpm; therefore, a pump capacity of $8 + 25.8 = 31.8$ gpm at a minimum
 of 20 psi or 46.2 feet of head.



This drawing is an exhibit for an Application for a septic system design. It is not a Land Survey. Property lines and/or other lines of occupation shown hereon are not represented by the undersigned to meet accuracy standards of Land Surveys.

GENERAL NOTES:

1. THE CONTRACTOR IS REQUIRED TO COMPLY WITH THE RULES AND REGULATIONS AND ALL OTHER APPLICABLE REGULATIONS AT ALL TIMES.
2. TCEQ REPRESENTATIVE WILL INSPECT AND APPROVE THE CONSTRUCTION OF THESE UTILITY SERVICE CONNECTIONS BEFORE THE CONTRACTOR IS ALLOWED TO BACKFILL AND COVER UP THE CONNECTION. FINAL INSPECTION AND APPROVAL BY THE TCEQ IS REQUIRED.
3. THE CONTRACTOR IS SOLELY AND COMPLETELY RESPONSIBLE FOR JOB SITE CONDITIONS, INCLUDING BUT NOT LIMITED TO THE SAFETY OF ALL PERSONS AND PROPERTY, DURING THE CONSTRUCTION OF THESE IMPROVEMENTS.
4. THE CONTRACTOR WILL NOTIFY ALL GOVERNMENT OR UTILITY AGENCIES THAT MAY BE AFFECTED BY THE PROPOSED CONSTRUCTION PRIOR TO STARTING WORK.
5. ALL FILL MATERIAL SHALL BE SUBJECT TO THE ENGINEER'S AND THE TCEQ APPROVAL. SPACIAL BACKFILL MATERIAL MAY BE REQUIRED BY THE TCEQ.
6. SANITARY SEWER PIPE SHALL BE PVC POLYVINYL CHLORIDE PIPE AND SHALL CONFORM TO ASTM D-3034 FOR SDR 26. JOINTS SHALL BE ELASTOMETRIC GASKET MATERIALS CONFORMING TO ASTM D-3212. INSTALLATION SHALL CONFORM TO ASTM D-2321.
7. FOR SEWER LINES LESS THAN TWENTY-FOUR INCHES (24") IN DIAMETER, SELECT INITIAL BACKFILL MATERIAL SHALL BE PLACED IN TWO (2) LIFTS. THE FIRST LIFT SHALL BE SPREAD UNIFORMLY AND SIMULTANEOUSLY ON EACH SIDE AND UNDER THE SHOULDERS OF THE PIPE TO THE MID-POINT OR SPRING LINE OF THE PIPE.
8. SECONDARY BACKFILL SHALL GENERALLY CONSIST OF MATERIALS REMOVED FROM THE TRENCH AND SHALL BE FREE OF BRUSH, DEBRIS AND JUNK. NO ROCK OR STONES HAVING ANY DIMENSION LARGER THAN ONE HALF TRENCH WIDTH OR 24 INCHES AT THE LARGEST DIMENSION, WHATEVER IS LESS SHALL BE USED IN THE SECONDARY BACKFILLING ZONE. WATER JETTING IS NOT PERMITTED.

THE PUMP STATION SYSTEM INCLUDE A DUAL ALTERNATING PUMP CONTROLLER WITH INTERVAL TIMER, DUPLEX SUBMERSIBLE PUMPS, DISC FILTRATION WITH AUTOMATIC BACK FLUSHING, FLOW METER AND SOLENOID VALVING NECESSARY TO MANAGE ALL PUMPING OPERATIONS.

AUTOMATIC BACK FLUSH IS TRIGGERED BY EITHER A PRE-SET TIME INTERVAL AND/OR PRESSURE DROP ACROSS THE FILTERS (SAY, > 6 PSI). BACK FLUSHED LIQUIDS AND SOLIDS ARE RETURNED UP STREAM TO THE PRIMARY TREATMENT TANK.

FIELD SOLENOID VALVING—THE DRAIN FIELD TO BE USED FOR EFFLUENT DISPOSAL IS DIVIDED INTO 18 ZONES WHICH ARE DOSED ONE AT A TIME AND SEQUENTIALLY.

THE SYSTEM IS CONTROLLED VIA THE BIOLINE SING MAN. VENT CONTROLLER. THIS PARTICULAR CONTROLLER MONITORS TANK LEVELS, REGULATES THE DOSING SCHEDULE, CONTROLS THE PUMPS AND PRODUCES AN AUDIBLE AND VISIBLE ALARM.

FUTURE LAND USE RESTRICTIONS: THE DRIP FIELD CAN BE INSTALLED UNDER A PERMANENT LAWN, AMONG TREES, OR OTHER LANDSCAPE FEATURES, PROVIDED SET BACKS ARE FOLLOWED. ANY FUTURE PERMANENT STRUCTURES THAT WILL AFFECT SOIL TEXTURE AND WATER FLOW THROUGH THE SOIL PARKING AREAS, SWIMMING POOLS, TENNIS COURTS, DECKS, ETC.

DRIP SYSTEM SHOULD INCLUDE A MINIMUM OF TWO AIR/VACUUM RELIEF VALVES PER ZONE. THEIR PURPOSE IS TO RELIEVE THE VACUUM CREATED ON THE SYSTEM AT THE END OF A DOSE CYCLE. THIS WILL MINIMIZE SOIL PARTICLES FROM BEING ASPIRATED INTO THE EMITTERS AND TO RELEASE AIR AT THE BEGINNING OF THE DOSE CYCLE TO ELIMINATE AIR-BINDING IN THE LINE.

DRIP TUBING MUST BE INSTALLED ALONG THE CONTOUR OF THE SLOPE NOT UP AND DOWN THE SLOPE

FIELD FLUSH: THE VELOCITY OF WATER MOVING THROUGH THE TUBING SHOULD BE AT LEAST 2 FEET SECOND AT THE DISTAL END OF THE FLUSH MANIFOLD.

THE DRIP TUBING SHOULD BE INSTALLED 8 TO 12 INCHES BELOW THE SOIL SURFACE WITH AN ABSOLUTE MINIMUM OF 6 INCHES. (FLOWING, TRENCHING OR FILL)

EXISTING NATIVE SOIL FOR THE INSTALLATION OF THE DRIP TUBING.

DRIPPERLINES SHALL BE OF EXTRUDED LINEAR LOW DENSITY POLYETHYLENE WITH AN INSIDE DIAMETER (I.D.) OF 17 MM. THE ENTIRE POLYETHYLENE PIPE IS TO BE PURPLE THROUGHOUT TO DESIGNATE ITS USE FOR WASTEWATER. THE TUBING IS TO HAVE FULLY PRESSURE COMPENSATING DRIPPERS INTEGRAL WITH THE INNER WALL OF THE TUBING. THESE DRIPPERS SHALL BE CONSTRUCTED OF PLASTIC WITH A HARD PLASTIC DIAPHRAGM RETAINER AND A SELF FLUSHING/CLEANING ELASTOMERIC DIAPHRAGM EXTENDING THE FULL LENGTH OF THE DRIPPER.

**CONSTRUCTION PLANS
 FOR
 TIMBERWOOD SEC. 47-49
 NEW SANITARY SEWER LINE & DISPOSAL SYSTEM
 SAN ANTONIO, TEXAS**

**B. L. Carlie & Assoc., Inc.
 Soil and Engineering Consultants
 P O Box 63624
 Pipe Creek, Tx.**



PERMIT NO. WQ0014670002

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

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

The Villas at Timberwood Homeowners Association

whose mailing address is

405 Main Street
Blanco, Texas 78606

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

General Description and Location of Waste Disposal System:

Description: The Villas at Timberwood HOA WWTP Wastewater Treatment Facility consists of septic tanks and subsurface area drip dispersal system. Treatment units include two tanks with a total volume of 28,723 gallons, effluent filter and a storage tank with a volume of 57,446 gallons. The permittee is required to provide at least three days of temporary storage for times when the facility is out of service due to emergency or for scheduled maintenance. The permittee is authorized to dispose of treated domestic wastewater effluent at a daily average flow not to exceed 0.018 million gallons per day (MGD) via non-public access subsurface drip irrigation system with a minimum area of 4.13 acres. Application rates shall not exceed 0.1 gallons per square foot per day. The permittee will maintain Bermuda grass with overlay of winter rye on the disposal site.

Location: The wastewater treatment facility and disposal site are located approximately 1,600 feet southeast of the intersection of Harmony Hills and Shady Acres, in Bexar County, Texas 78260. (See Attachment A.)

Drainage Area: The wastewater treatment facility and disposal site are located in the drainage basin of Mustang Creek in Segment No. 1910 of the San Antonio River Basin. No discharge of pollutants into water in the State is authorized by this permit.

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

ISSUED DATE:

For the Commission

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

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

A. Effluent Limitations

Character: Treated Domestic Sewage Effluent

Volume: Daily Average Flow – 0.018 MGD from the treatment system

Quality: The following effluent limitations shall be required:

<u>Parameter</u>	<u>Effluent Concentrations</u>	
	(Not to Exceed)	
	<u>Daily Average</u> mg/l	<u>Single Grab</u> mg/l
Biochemical Oxygen Demand (5-day)	N/A	65

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

B. Monitoring Requirements:

<u>Parameter</u>	<u>Monitoring Frequency</u>	<u>Sample Type</u>
Flow	Continuous	Totalizing Meter
Biochemical Oxygen Demand (5-day)	One/week	Grab
pH	One/month	Grab

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

STANDARD PERMIT CONDITIONS

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

DEFINITIONS

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

1. Flow Measurements

- a. Daily average flow - the arithmetic average of all determinations of the daily flow within a period of one calendar month. The daily average flow determination shall consist of determinations made on at least four separate days. If instantaneous measurements are used to determine the daily flow, the determination shall be the arithmetic average of all instantaneous measurements taken during that month. Daily average flow determination for intermittent discharges shall consist of a minimum of three flow determinations on days of discharge.
- b. Annual average flow - the arithmetic average of all daily flow determinations taken within the preceding 12 consecutive calendar months. The annual average flow determination shall consist of daily flow volume determinations made by a totalizing meter, charted on a chart recorder and limited to major domestic wastewater discharge facilities with a 1 million gallons per day or greater permitted flow.
- c. Instantaneous flow - the measured flow during the minimum time required to interpret the flow measuring device.

2. Concentration Measurements

- a. Daily average concentration - the arithmetic average of all effluent samples, composite or grab as required by this permit, within a period of one calendar month, consisting of at least four separate representative measurements.
 - i. For domestic wastewater treatment plants - When four samples are not available in a calendar month, the arithmetic average (weighted by flow) of all values in the previous four consecutive month period consisting of at least four measurements shall be utilized as the daily average concentration.
 - ii. For all other wastewater treatment plants - When four samples are not available in a calendar month, the arithmetic average (weighted by flow) of all values taken during the month shall be utilized as the daily average concentration.
- b. 7-day average concentration - the arithmetic average of all effluent samples, composite or grab as required by this permit, within a period of one calendar week, Sunday through Saturday.
- c. Daily maximum concentration - the maximum concentration measured on a single day, by the sample type specified in the permit, within a period of one calendar month.

3. Sample Type

- a. Composite sample - For domestic wastewater, a composite sample is a sample made up of a minimum of three effluent portions collected in a continuous 24-hour period or during the period of daily discharge if less than 24 hours, and combined in volumes proportional to flow, and collected at the intervals required by 30 TAC § 319.9 (a). For industrial wastewater, a composite sample is a sample made up of a minimum of three effluent portions collected in a continuous 24-hour period or during the period of daily discharge if less than 24 hours, and combined in volumes proportional to flow, and collected at the intervals required by 30 TAC § 319.9 (b).
 - b. Grab sample - an individual sample collected in less than 15 minutes.
4. Treatment Facility (facility) - wastewater facilities used in the conveyance, storage, treatment, recycling, reclamation and/or disposal of domestic sewage, industrial wastes, agricultural wastes, recreational wastes, or other wastes including sludge handling or disposal facilities under the jurisdiction of the Commission.
 5. The term “sewage sludge” is defined as solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in 30 TAC Chapter 312. This includes the solids which have not been classified as hazardous waste separated from wastewater by unit processes.
 6. The term “biosolids” is defined as sewage sludge that has been tested or processed to meet Class A, Class AB, or Class B pathogen standards in 30 TAC Chapter 312 for beneficial use.
 7. Bypass - the intentional diversion of a waste stream from any portion of a treatment facility.

MONITORING REQUIREMENTS

1. Monitoring Requirements

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

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

2. Test Procedures

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

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

3. Records of Results

- a. Monitoring samples and measurements shall be taken at times and in a manner so as to be representative of the monitored activity.
- b. Except for records of monitoring information required by this permit related to the permittee's sewage sludge or biosolids use and disposal activities, which shall be retained for a period of at least five years, monitoring and reporting records, including strip charts and records of calibration and maintenance, copies of all records required by this permit, and records of all data used to complete the application for this permit shall be retained at the facility site, or shall be readily available for review by a TCEQ representative for a period of three years from the date of the record or sample, measurement, report, or application. This period shall be extended at the request of the Executive Director.
- c. Records of monitoring activities shall include the following:
 - i. date, time and place of sample or measurement;
 - ii. identity of individual who collected the sample or made the measurement.
 - iii. date and time of analysis;
 - iv. identity of the individual and laboratory who performed the analysis;
 - v. the technique or method of analysis; and
 - vi. the results of the analysis or measurement and quality assurance/quality control records.

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

4. Additional Monitoring by Permittee

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

5. Calibration of Instruments

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

6. Compliance Schedule Reports

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

7. Noncompliance Notification

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

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

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

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

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

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

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

9. Changes in Discharges of Toxic Substances

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

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

- i. One hundred micrograms per liter (100 µg/L);
 - ii. Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
 - iii. Five (5) times the maximum concentration value reported for that pollutant in the permit application; or
 - iv. The level established by the TCEQ.
- b. That any activity has occurred or will occur which would result in any discharge, on a nonroutine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following “notification levels”:
- i. Five hundred micrograms per liter (500 µg/L);
 - ii. One milligram per liter (1 mg/L) for antimony;
 - iii. Ten (10) times the maximum concentration value reported for that pollutant in the permit application; or
 - iv. The level established by the TCEQ.

10. Signatories to Reports

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

PERMIT CONDITIONS

1. General

- a. When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in an application or in any report to the Executive Director, it shall promptly submit such facts or information.
- b. This permit is granted on the basis of the information supplied and representations made by the permittee during action on an application, and relying upon the accuracy and completeness of that information and those representations. After notice and opportunity for a hearing, this permit may be modified, suspended, or revoked, in whole or in part, in accordance with 30 TAC Chapter 305, Subchapter D, during its term for good cause including, but not limited to, the following:
 - i. Violation of any terms or conditions of this permit;
 - ii. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts; or
 - iii. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.
- c. The permittee shall furnish to the Executive Director, upon request and within a reasonable time, any information to determine whether cause exists for amending, revoking, suspending or terminating the permit. The permittee shall also furnish to the Executive Director, upon request, copies of records required to be kept by the permit.

2. Compliance

- a. Acceptance of the permit by the person to whom it is issued constitutes acknowledgment and agreement that such person will comply with all the terms and conditions embodied in the permit, and the rules and other orders of the Commission.
 - b. The permittee has a duty to comply with all conditions of the permit. Failure to comply with any permit condition constitutes a violation of the permit and the Texas Water Code or the Texas Health and Safety Code, and is grounds for enforcement action, for permit amendment, revocation or suspension, or for denial of a permit renewal application or an application for a permit for another facility.
 - c. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit.
 - d. The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal or other permit violation which has a reasonable likelihood of adversely affecting human health or the environment.
 - e. Authorization from the Commission is required before beginning any change in the permitted facility or activity that may result in noncompliance with any permit requirements.
 - f. A permit may be amended, suspended and reissued, or revoked for cause in accordance with 30 TAC §§ 305.62 and 305.66 and Texas Water Code Section 7.302. The filing of a request by the permittee for a permit amendment, suspension and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.
 - g. There shall be no unauthorized discharge of wastewater or any other waste. For the purpose of this permit, an unauthorized discharge is considered to be any discharge of wastewater into or adjacent to water in the state at any location not permitted as an outfall or otherwise defined in the Special Provisions section of this permit.
 - h. The permittee is subject to administrative, civil, and criminal penalties, as applicable, under Texas Water Code §§ 7.051 - 7.075 (relating to Administrative Penalties), 7.101 - 7.111 (relating to Civil Penalties), and 7.141 - 7.202 (relating to Criminal Offenses and Penalties).
3. Inspections and Entry
- a. Inspection and entry shall be allowed as prescribed in the Texas Water Code Chapters 26, 27, and 28, and Texas Health and Safety Code Chapter 361.
 - b. The members of the Commission and employees and agents of the Commission are entitled to enter any public or private property at any reasonable time for the purpose of inspecting and investigating conditions relating to the quality of water in the state or the compliance with any rule, regulation, permit or other order of the Commission. Members, employees, or agents of the Commission and Commission contractors are entitled to enter public or private property at any reasonable time to investigate or monitor or, if the responsible party is not responsive or there is an immediate danger to public health or the environment, to remove or remediate a condition related to the

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

4. Permit Amendment and/or Renewal

- a. The permittee shall give notice to the Executive Director as soon as possible of any planned physical alterations or additions to the permitted facility if such alterations or additions would require a permit amendment or result in a violation of permit requirements. Notice shall also be required under this paragraph when:
 - i. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements in Monitoring and Reporting Requirements No. 9;
 - ii. The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.
- b. Prior to any facility modifications, additions, or expansions that will increase the plant capacity beyond the permitted flow, the permittee must apply for and obtain proper authorization from the Commission before commencing construction.
- c. The permittee must apply for an amendment or renewal at least 180 days prior to expiration of the existing permit in order to continue a permitted activity after the expiration date of the permit. If an application is submitted prior to the expiration date of the permit, the existing permit shall remain in effect until the application is approved, denied, or returned. If the application is returned or denied, authorization to continue such activity shall terminate upon the effective date of the action. If an application is not submitted prior to the expiration date of the permit, the permit shall expire and authorization to continue such activity shall terminate.
- d. Prior to accepting or generating wastes which are not described in the permit application or which would result in a significant change in the quantity or quality of the existing discharge, the permittee must report the proposed changes to the Commission. The permittee must apply for a permit amendment reflecting any necessary changes in permit conditions, including effluent limitations for pollutants not identified and limited by this permit.

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

5. Permit Transfer

- a. Prior to any transfer of this permit, Commission approval must be obtained. The Commission shall be notified in writing of any change in control or ownership of facilities authorized by this permit. Such notification should be sent to the Applications Review and Processing Team (MC 148) of the Water Quality Division.
- b. A permit may be transferred only according to the provisions of 30 TAC § 305.64 (relating to Transfer of Permits) and 30 TAC § 50.133 (relating to Executive Director Action on Application or WQMP update).

6. Relationship to Hazardous Waste Activities

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

7. Property Rights

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

8. Permit Enforceability

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

9. Relationship to Permit Application

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

10. Notice of Bankruptcy.

- a. Each permittee shall notify the Executive Director, in writing, immediately following the filing of a voluntary or involuntary petition for bankruptcy under any chapter of Title 11 (Bankruptcy) of the United States Code (11 USC) by or against:
 - i. the permittee;
 - ii. an entity (as that term is defined in 11 USC, § 101(14)) controlling the permittee or listing the permit or permittee as property of the estate; or
 - iii. an affiliate (as that term is defined in 11 USC, § 101(2)) of the permittee.
- b. This notification must indicate:

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

OPERATIONAL REQUIREMENTS

1. The permittee shall at all times ensure that the facility and all of its systems of collection, treatment, and disposal are properly operated and maintained. This includes, but is not limited to, the regular, periodic examination of wastewater solids within the treatment plant by the operator in order to maintain an appropriate quantity and quality of solids inventory as described in the various operator training manuals and according to accepted industry standards for process control. Process control, maintenance, and operations records shall be retained at the facility site, or shall be readily available for review by a TCEQ representative, for a period of three years.
2. Upon request by the Executive Director, the permittee shall take appropriate samples and provide proper analysis in order to demonstrate compliance with Commission rules. Unless otherwise specified in this permit or otherwise ordered by the Commission, the permittee shall comply with all applicable provisions of 30 TAC Chapter 312 concerning sewage sludge or biosolids use and disposal and 30 TAC §§ 319.21 - 319.29 concerning the discharge of certain hazardous metals.
3. Domestic wastewater treatment facilities shall comply with the following provisions:
 - a. The permittee shall notify the Domestic Permits Team, Domestic Wastewater Section (MC 148) of the Water Quality Division, in writing, of any facility expansion at least 90 days prior to conducting such activity.
 - b. The permittee shall submit a closure plan for review and approval to the Domestic Permits Team, Domestic Wastewater Section (MC 148) of the Water Quality Division, for any closure activity at least 90 days prior to conducting such activity. Closure is the act of permanently taking a waste management unit or treatment facility out of service and includes the permanent removal from service of any pit, tank, pond, lagoon, surface impoundment and/or other treatment unit regulated by this permit.
4. The permittee is responsible for installing prior to plant start-up, and subsequently maintaining, adequate safeguards to prevent the discharge of untreated or inadequately treated wastes during electrical power failures by means of alternate power sources, standby generators, and/or retention of inadequately treated wastewater.
5. Unless otherwise specified, the permittee shall provide a readily accessible sampling point and, where applicable, an effluent flow measuring device or other acceptable means by which effluent flow may be determined.
6. The permittee shall remit an annual water quality fee to the Commission as required by 30 TAC Chapter 21. Failure to pay the fee may result in revocation of this permit under Texas Water Code § 7.302(b)(6).
7. Documentation

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

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

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

- b. The plans and specifications for domestic sewage collection and treatment works associated with any domestic permit must be approved by the Commission and failure to secure approval before commencing construction of such works or making a discharge is a violation of this permit and each day is an additional violation until approval has been secured.
 - c. Permits for domestic wastewater treatment plants are granted subject to the policy of the Commission to encourage the development of area-wide waste collection, treatment and disposal systems. The Commission reserves the right to amend any domestic wastewater permit in accordance with applicable procedural requirements to require the system covered by this permit to be integrated into an area-wide system, should such be developed; to require the delivery of the wastes authorized to be collected in, treated by or discharged from said system, to such area-wide system; or to amend this permit in any other particular to effectuate the Commission’s policy. Such amendments may be made

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

9. Domestic wastewater treatment plants shall be operated and maintained by sewage plant operators holding a valid certificate of competency at the required level as defined in 30 TAC Chapter 30.
10. Facilities which generate industrial solid waste as defined in 30 TAC § 335.1 shall comply with these provisions:
 - a. Any solid waste, as defined in 30 TAC § 335.1 (including but not limited to such wastes as garbage, refuse, sludge from a waste treatment, water supply treatment plant or air pollution control facility, discarded materials, discarded materials to be recycled, whether the waste is solid, liquid, or semisolid), generated by the permittee during the management and treatment of wastewater, must be managed in accordance with all applicable provisions of 30 TAC Chapter 335, relating to Industrial Solid Waste Management.
 - b. Industrial wastewater that is being collected, accumulated, stored, or processed before discharge through any final discharge outfall, specified by this permit, is considered to be industrial solid waste until the wastewater passes through the actual point source discharge and must be managed in accordance with all applicable provisions of 30 TAC Chapter 335.
 - c. The permittee shall provide written notification, pursuant to the requirements of 30 TAC § 335.8(b)(1), to the Corrective Action Section (MC 127) of the Remediation Division informing the Commission of any closure activity involving an Industrial Solid Waste Management Unit, at least 90 days prior to conducting such an activity.
 - d. Construction of any industrial solid waste management unit requires the prior written notification of the proposed activity to the Registration and Reporting Section (MC 129) of the Permitting and Remediation Support Division. No person shall dispose of industrial solid waste, including sludge or other solids from wastewater treatment processes, prior to fulfilling the deed recordation requirements of 30 TAC § 335.5.
 - e. The term “industrial solid waste management unit” means a landfill, surface impoundment, waste-pile, industrial furnace, incinerator, cement kiln, injection well, container, drum, salt dome waste containment cavern, or any other structure vessel, appurtenance, or other improvement on land used to manage industrial solid waste.
 - f. The permittee shall keep management records for all sludge (or other waste) removed from any wastewater treatment process. These records shall fulfill all applicable requirements of 30 TAC Chapter 335 and must include the following, as it pertains to wastewater treatment and discharge:
 - i. Volume of waste and date(s) generated from treatment process;
 - ii. Volume of waste disposed of on-site or shipped off-site;
 - iii. Date(s) of disposal;
 - iv. Identity of hauler or transporter;

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

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

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

TCEQ Revision 06/2020

SLUDGE PROVISIONS

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

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

A. General Requirements

1. The permittee shall handle and dispose of sewage sludge or biosolids in accordance with 30 TAC § 312 and all other applicable state and federal regulations in a manner that protects public health and the environment from any reasonably anticipated adverse effects due to any toxic pollutants that may be present in the sludge or biosolids.
2. In all cases, if the person (permit holder) who prepares the sewage sludge or biosolids supplies the sewage sludge or biosolids to another person for land application use or to the owner or lease holder of the land, the permit holder shall provide necessary information to the parties who receive the sludge or biosolids to assure compliance with these regulations.
3. The land application of processed or unprocessed chemical toilet waste, grease trap waste, grit trap waste, milk solids, or similar non-hazardous municipal or industrial solid wastes, or any of the wastes listed in this provision combined with biosolids, WTP residuals or domestic septage is prohibited unless the grease trap waste is added at a fats, oil and grease (FOG) receiving facility as part of an anaerobic digestion process.

B. Testing Requirements

1. Sewage sludge or biosolids shall be tested once during the term of this permit in accordance with the method specified in both 40 CFR Part 261, Appendix II and 40 CFR Part 268, Appendix I [Toxicity Characteristic Leaching Procedure (TCLP)] or other method that receives the prior approval of the TCEQ for the contaminants listed in 40 CFR Part 261.24, Table 1. Sewage sludge or biosolids failing this test shall be managed according to RCRA standards for generators of hazardous waste, and the waste's disposition must be in accordance with all applicable requirements for hazardous waste processing, storage, or disposal. Following failure of any TCLP test, the management or disposal of sewage sludge or biosolids at a facility other than an authorized hazardous waste processing, storage, or disposal facility shall be prohibited until such time as the permittee can demonstrate the sewage sludge or biosolids no longer exhibits the hazardous waste toxicity characteristics (as demonstrated by the results of the TCLP tests). A written report shall be provided to both the TCEQ Registration and Reporting Section (MC 129) of the Permitting and Registration Support Division and the Regional Director (MC Region 13) within seven (7) days after failing the TCLP Test.

The report shall contain test results, certification that unauthorized waste management has stopped, and a summary of alternative disposal plans that comply with RCRA standards for the management of hazardous waste. The report shall be addressed to: Director, Permitting and Registration Support Division (MC 129), Texas Commission on Environmental Quality, P.O. Box 13087, Austin, Texas 78711-3087. In addition, the permittee shall prepare an annual report on the results of all sludge toxicity testing. The permittee shall submit the following information in an annual report to the TCEQ by September 30th of each year. The permittee must submit this annual report using the online electronic reporting system available through TCEQ’s website. If the permittee requests and obtains an electronic reporting waiver, the annual report can be submitted in hard copy to the TCEQ Regional Office (MC Region 13) and the Enforcement Division (MC 224).

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

TABLE 1

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

* Dry weight basis

3. Pathogen Control

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

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

Alternative 1 - The temperature of the sewage sludge that is used or disposed shall be maintained at or above a specific value for a period of time. See 30 TAC § 312.82(a)(3)(A) for specific information;

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

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

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

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

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

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

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

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

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

criteria.

Alternative 1

- i. A minimum of seven random samples of the sewage sludge shall be collected within 48 hours of the time the sewage sludge is used or disposed of during each monitoring episode for the sewage sludge.
- ii. The geometric mean of the density of fecal coliform in the samples collected shall be less than either 2,000,000 MPN per gram of total solids (dry weight basis) or 2,000,000 Colony Forming Units per gram of total solids (dry weight basis).

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

- i. Prior to use or disposal, all the sewage sludge must have been generated from a single location, except as provided in paragraph v. below;
- ii. An independent Texas Licensed Professional Engineer must make a certification to the generator of a sewage sludge that the wastewater treatment facility generating the sewage sludge is designed to achieve one of the PSRP at the permitted design loading of the facility. The certification need only be repeated if the design loading of the facility is increased. The certification shall include a statement indicating the design meets all the applicable standards specified in Appendix B of 40 CFR Part 503;
- iii. Prior to any off-site transportation or on-site use or disposal of any sewage sludge generated at a wastewater treatment facility, the chief certified operator of the wastewater treatment facility or other responsible official who manages the processes to significantly reduce pathogens at the wastewater treatment facility for the permittee, shall certify that the sewage sludge underwent at least the minimum operational requirements necessary in order to meet one of the PSRP. The acceptable processes and the minimum operational and record keeping requirements shall be in accordance with established U.S. Environmental Protection Agency final guidance;
- iv. All certification records and operational records describing how the requirements of this paragraph were met shall be kept by the generator for a minimum of three years and be available for inspection by commission staff for review; and
- v. If the sewage sludge is generated from a mixture of sources, resulting from a person who prepares sewage sludge from more than one wastewater treatment facility, the resulting derived product shall meet one of the PSRP, and shall meet the certification, operation, and record keeping requirements of this paragraph.

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

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

- ii. Prior to any off-site transportation or on-site use or disposal of any sewage sludge generated at a wastewater treatment facility, the chief certified operator of the wastewater treatment facility or other responsible official who manages the processes to significantly reduce pathogens at the wastewater treatment facility for the permittee, shall certify that the sewage sludge underwent at least the minimum operational requirements necessary in order to meet one of the PSRP. The acceptable processes and the minimum operational and record keeping requirements shall be in accordance with established U.S. Environmental Protection Agency final guidance;
- iii. All certification records and operational records describing how the requirements of this paragraph were met shall be kept by the generator for a minimum of three years and be available for inspection by commission staff for review;
- iv. The Executive Director will accept from the U.S. Environmental Protection Agency a finding of equivalency to the defined PSRP; and
- v. If the sewage sludge is generated from a mixture of sources resulting from a person who prepares sewage sludge from more than one wastewater treatment facility, the resulting derived product shall meet one of the Processes to Significantly Reduce Pathogens, and shall meet the certification, operation, and record keeping requirements of this paragraph.

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

- i. Food crops with harvested parts that touch the biosolids/soil mixture and are totally above the land surface shall not be harvested for 14 months after application of biosolids.
- ii. Food crops with harvested parts below the surface of the land shall not be harvested for 20 months after application of biosolids when the biosolids remain on the land surface for 4 months or longer prior to incorporation into the soil.
- iii. Food crops with harvested parts below the surface of the land shall not be harvested for 38 months after application of biosolids when the biosolids remain on the land surface for less than 4 months prior to incorporation into the soil.
- iv. Food crops, feed crops, and fiber crops shall not be harvested for 30 days after application of biosolids.
- v. Domestic livestock shall not be allowed to graze on the land for 30 days after application of biosolids.
- vi. Turf grown on land where biosolids are applied shall not be harvested for 1 year after application of the sewage sludge when the harvested turf is placed on either land with a high potential for public exposure or a lawn.
- vii. Public access to land with a high potential for public exposure shall be restricted for 1 year after application of biosolids.

- viii. Public access to land with a low potential for public exposure shall be restricted for 30 days after application of biosolids.
- ix. Land application of biosolids shall be in accordance with the buffer zone requirements found in 30 TAC § 312.44.
4. Vector Attraction Reduction Requirements

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

- Alternative 1 - The mass of volatile solids in the sewage sludge shall be reduced by a minimum of 38%.
- Alternative 2 - If Alternative 1 cannot be met for an anaerobically digested sludge, demonstration can be made by digesting a portion of the previously digested sludge anaerobically in the laboratory in a bench-scale unit for 40 additional days at a temperature between 30° and 37° Celsius. Volatile solids must be reduced by less than 17% to demonstrate compliance.
- Alternative 3 - If Alternative 1 cannot be met for an aerobically digested sludge, demonstration can be made by digesting a portion of the previously digested sludge with percent solids of two percent or less aerobically in the laboratory in a bench-scale unit for 30 additional days at 20° Celsius. Volatile solids must be reduced by less than 15% to demonstrate compliance.
- Alternative 4 - The specific oxygen uptake rate (SOUR) for sewage sludge treated in an aerobic process shall be equal to or less than 1.5 milligrams of oxygen per hour per gram of total solids (dry weight basis) at a temperature of 20° Celsius.
- Alternative 5 - Sewage sludge shall be treated in an aerobic process for 14 days or longer. During that time, the temperature of the sewage sludge shall be higher than 40° Celsius and the average temperature of the sewage sludge shall be higher than 45° Celsius.
- Alternative 6 - The pH of sewage sludge shall be raised to 12 or higher by alkali addition and, without the addition of more alkali shall remain at 12 or higher for two hours and then remain at a pH of 11.5 or higher for an additional 22 hours at the time the sewage sludge is prepared for sale or given away in a bag or other container.
- Alternative 7 - The percent solids of sewage sludge that does not contain unstabilized solids generated in a primary wastewater treatment process shall be equal to or greater than 75% based on the moisture content and total solids prior to mixing with other materials. Unstabilized solids are defined as organic materials in sewage sludge that have not been treated in either an aerobic or anaerobic treatment process.

Alternative 8 - The percent solids of sewage sludge that contains unstabilized solids generated in a primary wastewater treatment process shall be equal to or greater than 90% based on the moisture content and total solids prior to mixing with other materials at the time the sludge is used. Unstabilized solids are defined as organic materials in sewage sludge that have not been treated in either an aerobic or anaerobic treatment process.

- Alternative 9 -
- i. Biosolids shall be injected below the surface of the land.
 - ii. No significant amount of the biosolids shall be present on the land surface within one hour after biosolids are injected.
 - iii. When sewage sludge that is injected below the surface of the land is Class A or Class AB with respect to pathogens, the biosolids shall be injected below the land surface within eight hours after being discharged from the pathogen treatment process.

- Alternative 10-
- i. Biosolids applied to the land surface or placed on a surface disposal site shall be incorporated into the soil within six hours after application to or placement on the land.
 - ii. When biosolids that are incorporated into the soil is Class A or Class AB with respect to pathogens, the biosolids shall be applied to or placed on the land within eight hours after being discharged from the pathogen treatment process.

C. Monitoring Requirements

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

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

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

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

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

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

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

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

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

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

A. Pollutant Limits

Table 2

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

Table 3

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

*Dry weight basis

B. Pathogen Control

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

C. Management Practices

1. Bulk biosolids shall not be applied to agricultural land, forest, a public contact site, or a reclamation site that is flooded, frozen, or snow-covered so that the bulk sewage sludge enters a wetland or other waters in the State.
2. Bulk sewage sludge not meeting Class A biosolids requirements shall be land applied in a manner which complies with Applicability in accordance with 30 TAC §312.41 and the Management Requirements in accordance with 30 TAC § 312.44.
3. Bulk biosolids shall be applied at or below the agronomic rate of the cover crop.
4. An information sheet shall be provided to the person who receives bulk Class A or AB biosolids sold or given away. The information sheet shall contain the following information:
 - a. The name and address of the person who prepared the Class A or AB biosolids that are sold or given away in a bag or other container for application to the land.
 - b. A statement that application of the Class A or AB biosolids to the land is prohibited except in accordance with the instruction on the label or information sheet.
 - c. The annual whole sludge application rate for the biosolids application rate for the biosolids that does not cause any of the cumulative pollutant loading rates in Table 2 above to be exceeded, unless the pollutant concentrations in Table 3 found in Section II above are met.

D. Notification Requirements

1. If bulk biosolids are applied to land in a State other than Texas, written notice shall be provided prior to the initial land application to the permitting authority for the State in which the bulk biosolids are proposed to be applied. The notice shall include:
 - a. The location, by street address, and specific latitude and longitude, of each land application site.
 - b. The approximate time period bulk biosolids will be applied to the site.
 - c. The name, address, telephone number, and National Pollutant Discharge Elimination System permit number (if appropriate) for the person who will apply the bulk biosolids.

E. Record Keeping Requirements

The documents will be retained at the facility site and/or shall be readily available for review by a TCEQ representative. The person who prepares bulk sewage sludge or a biosolids material shall develop the following information and shall retain the information at the facility site and/or shall be readily available for review by a TCEQ representative for a period of five years. If the permittee supplies the sludge to another person who land applies the sludge, the permittee shall notify the land applier of the requirements for record keeping found in 30 TAC § 312.47 for persons who land apply.

1. The concentration (mg/kg) in the sludge of each pollutant listed in Table 3 above and the applicable pollutant concentration criteria (mg/kg), or the applicable cumulative pollutant loading rate and the applicable cumulative pollutant loading rate limit (lbs/ac) listed in Table 2 above.
2. A description of how the pathogen reduction requirements are met (including site restrictions for Class AB and Class B biosolids, if applicable).
3. A description of how the vector attraction reduction requirements are met.
4. A description of how the management practices listed above in Section II.C are being met.
5. The following certification statement:

“I certify, under penalty of law, that the applicable pathogen requirements in 30 TAC § 312.82(a) or (b) and the vector attraction reduction requirements in 30 TAC § 312.83(b) have been met for each site on which bulk biosolids are applied. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the management practices have been met. I am aware that there are significant penalties for false certification including fine and imprisonment.”
6. The recommended agronomic loading rate from the references listed in Section II.C.3. above, as well as the actual agronomic loading rate shall be retained. The person who applies bulk biosolids shall develop the following information and shall retain the information at the facility site and/or shall be readily available for review by a TCEQ representative indefinitely. If the permittee supplies the sludge to another person who land applies the sludge, the permittee shall notify the land applier of the requirements for record keeping found in 30 TAC § 312.47 for persons who land apply:
 - a. A certification statement that all applicable requirements (specifically listed) have been met, and that the permittee understands that there are significant penalties for false certification including fine and imprisonment. See 30 TAC § 312.47(a)(4)(A)(ii) or 30 TAC § 312.47(a)(5)(A)(ii), as applicable, and to the permittee’s specific sludge treatment activities.
 - b. The location, by street address, and specific latitude and longitude, of each site on which sludge is applied.
 - c. The number of acres in each site on which bulk sludge is applied.
 - d. The date and time sludge is applied to each site.

- e. The cumulative amount of each pollutant in pounds/acre listed in Table 2 applied to each site.
- f. The total amount of sludge applied to each site in dry tons.

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

F. Reporting Requirements

The permittee shall submit the following information in an annual report to the TCEQ by September 30th of each year. The permittee must submit this annual report using the online electronic reporting system available through TCEQ's website. If the permittee requests and obtains an electronic reporting waiver, the annual report can be submitted in hard copy to the TCEQ Regional Office (MC Region 13) and the Enforcement Division (MC 224).

1. Identify in the following categories (as applicable) the sewage sludge or biosolids treatment process or processes at the facility: preliminary operations (e.g., sludge or biosolids grinding and degritting), thickening (concentration), stabilization, anaerobic digestion, aerobic digestion, composting, conditioning, disinfection (e.g., beta ray irradiation, gamma ray irradiation, pasteurization), dewatering (e.g., centrifugation, sludge drying beds, sludge lagoons), heat drying, thermal reduction, and methane or biogas capture and recovery.
2. Identify the nature of material generated by the facility (such as a biosolid for beneficial use or land-farming, or sewage sludge for disposal at a monofill) and whether the material is ultimately conveyed off-site in bulk or in bags.
3. Results of tests performed for pollutants found in either Table 2 or 3 as appropriate for the permittee's land application practices.
4. The frequency of monitoring listed in Section I.C. that applies to the permittee.
5. Toxicity Characteristic Leaching Procedure (TCLP) results.
6. PCB concentration in sludge or biosolids in mg/kg.
7. Identity of hauler(s) and TCEQ transporter number.
8. Date(s) of transport.
9. Texas Commission on Environmental Quality registration number, if applicable.
10. Amount of sludge or biosolids disposal dry weight (lbs/acre) at each disposal site.
11. The concentration (mg/kg) in the sludge or biosolids of each pollutant listed in Table 1 (defined as a monthly average) as well as the applicable pollutant concentration criteria (mg/kg) listed in Table 3 above, or the applicable pollutant loading rate limit (lbs/acre) listed in Table 2 above if it exceeds 90% of the limit.
12. Level of pathogen reduction achieved (Class A, Class AB or Class B).
13. Alternative used as listed in Section I.B.3.(a. or b.). Alternatives describe how the pathogen reduction requirements are met. If Class B biosolids, include information on how site restrictions were met.

14. Identify each of the analytic methods used by the facility to analyze enteric viruses, fecal coliforms, helminth ova, *Salmonella* sp., and other regulated parameters.
15. Vector attraction reduction alternative used as listed in Section I.B.4.
16. Amount of sludge or biosolids transported in dry tons/year.
17. The certification statement listed in either 30 TAC § 312.47(a)(4)(A)(ii) or 30 TAC § 312.47(a)(5)(A)(ii) as applicable to the permittee's sludge or biosolids treatment activities, shall be attached to the annual reporting form.
18. When the amount of any pollutant applied to the land exceeds 90% of the cumulative pollutant loading rate for that pollutant, as described in Table 2, the permittee shall report the following information as an attachment to the annual reporting form.
 - a. The location, by street address, and specific latitude and longitude.
 - b. The number of acres in each site on which bulk biosolids are applied.
 - c. The date and time bulk biosolids are applied to each site.
 - d. The cumulative amount of each pollutant (i.e., pounds/acre) listed in Table 2 in the bulk biosolids applied to each site.
 - e. The amount of biosolids (i.e., dry tons) applied to each site.

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

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

- A. The permittee shall handle and dispose of sewage sludge or biosolids in accordance with 30 TAC § 330 and all other applicable state and federal regulations to protect public health and the environment from any reasonably anticipated adverse effects due to any toxic pollutants that may be present. The permittee shall ensure that the sewage sludge or biosolids meets the requirements in 30 TAC § 330 concerning the quality of the sludge disposed in a municipal solid waste landfill.
- B. If the permittee generates sewage sludge or biosolids and supplies that sewage sludge or biosolids to the owner or operator of a municipal solid waste landfill (MSWLF) for disposal, the permittee shall provide to the owner or operator of the MSWLF appropriate information needed to be in compliance with the provisions of this permit.
- C. Sewage sludge or biosolids shall be tested once during the term of this permit in accordance with the method specified in both 40 CFR Part 261, Appendix II and 40 CFR Part 268, Appendix I (Toxicity Characteristic Leaching Procedure) or other method, which receives the prior approval of the TCEQ for contaminants listed in Table 1 of 40 CFR § 261.24. Sewage sludge or biosolids failing this test shall be managed according to RCRA standards for generators of hazardous waste, and the waste's disposition must be in accordance with all applicable requirements for hazardous waste processing, storage, or disposal.

Following failure of any TCLP test, the management or disposal of sewage sludge or biosolids at a facility other than an authorized hazardous waste processing, storage, or disposal facility shall be prohibited until such time as the permittee can demonstrate the sewage sludge or biosolids no longer exhibits the hazardous waste toxicity characteristics (as demonstrated by the results of the TCLP tests). A written report shall be provided to both the TCEQ Registration and Reporting Section (MC 129) of the Permitting and Registration Support Division and the Regional Director (MC Region 13) of the appropriate TCEQ field office within 7 days after failing the TCLP Test.

The report shall contain test results, certification that unauthorized waste management has stopped, and a summary of alternative disposal plans that comply with RCRA standards for the management of hazardous waste. The report shall be addressed to: Director, Permitting and Registration Support Division (MC 129), Texas Commission on Environmental Quality, P. O. Box 13087, Austin, Texas 78711-3087. In addition, the permittee shall prepare an annual report on the results of all sludge toxicity testing. This annual report shall be submitted to the TCEQ Regional Office (MC Region 13) and the Enforcement Division (MC 224), by September 30th of each year.

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

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

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

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

F. Reporting Requirements

The permittee shall submit the following information in an annual report to the TCEQ by September 30th of each year. The permittee must submit this annual report using the online electronic reporting system available through TCEQ's website. If the permittee requests and obtains an electronic reporting waiver, the annual report can be submitted in hard copy to the TCEQ Regional Office (MC Region 13) and the Enforcement Division (MC 224).

1. Identify in the following categories (as applicable) the sewage sludge or biosolids treatment process or processes at the facility: preliminary operations (e.g., sludge or biosolids grinding and degritting), thickening (concentration), stabilization, anaerobic digestion, aerobic digestion, composting, conditioning, disinfection (e.g., beta ray irradiation, gamma ray irradiation, pasteurization), dewatering (e.g., centrifugation, sludge drying beds, sludge lagoons), heat drying, thermal reduction, and methane or biogas capture and recovery.
2. Toxicity Characteristic Leaching Procedure (TCLP) results.
3. Annual sludge production in dry tons/year.
4. Amount of sludge or biosolids disposed in a municipal solid waste landfill in dry tons/year.
5. Amount of sludge or biosolids transported interstate in dry tons/year.
6. A certification that the sewage sludge or biosolids meets the requirements of 30 TAC § 330 concerning the quality of the sludge disposed in a municipal solid waste landfill.
7. Identity of hauler(s) and transporter registration number.
8. Owner of disposal site(s).
9. Location of disposal site(s).
10. Date(s) of disposal.

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

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

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

A. General Requirements

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

B. Record Keeping Requirements

1. For sludge transported by an approved pipeline, the permittee must maintain records of the following:
 - a. the amount of sludge or biosolids transported;
 - b. the date of transport;
 - c. the name and TCEQ permit number of the receiving facility or facilities;
 - d. the location of the receiving facility or facilities;
 - e. the name and TCEQ permit number of the facility that generated the waste; and
 - f. copy of the written agreement between the permittee and the receiving facility to accept sludge or biosolids.
2. For sludge or biosolids transported by a registered transporter, the permittee must maintain records of the completed trip tickets in accordance with 30 TAC § 312.145(a)(1)-(7) and amount of sludge or biosolids transported.
3. The above records shall be maintained on-site on a monthly basis and shall be made available to the TCEQ upon request. These records shall be retained for at least five years.

C. Reporting Requirements

The permittee shall submit the following information in an annual report to the TCEQ by September 30th of each year. The permittee must submit this annual report using the online electronic reporting system available through TCEQ's website. If the permittee requests and obtains an electronic reporting waiver, the annual report can be submitted in hard copy to the TCEQ Regional Office (MC Region 13) and the Enforcement Division (MC 224).

1. Identify in the following categories (as applicable) the sewage sludge or biosolids treatment process or processes at the facility: preliminary operations (e.g., sludge or biosolids grinding and degritting), thickening (concentration), stabilization, anaerobic digestion, aerobic digestion, composting, conditioning, disinfection (e.g., beta ray irradiation, gamma ray irradiation, pasteurization), dewatering (e.g., centrifugation, sludge drying beds, sludge lagoons), heat drying, thermal reduction, and methane or biogas capture and recovery.
2. the annual sludge or biosolids production;
3. the amount of sludge or biosolids transported;
4. the owner of each receiving facility;
5. the location of each receiving facility; and
6. the date(s) of disposal at each receiving facility.

SPECIAL PROVISIONS:

1. This permit is granted subject to the policy of the Commission to encourage the development of areawide waste collection, treatment and disposal systems. The Commission reserves the right to amend this permit in accordance with applicable procedural requirements to require the system covered by this permit to be integrated into an areawide system, should such be developed; to require the delivery of the wastes authorized to be collected in, treated by or discharged from said system, to such areawide system; or to amend this permit in any other particular to effectuate the Commission's policy. Such amendments may be made when the changes required are advisable for water quality control purposes and are feasible on the basis of waste treatment technology, engineering, financial, and related considerations existing at the time the changes are required, exclusive of the loss of investment in or revenues from any then existing or proposed waste collection, treatment or disposal system.
2. The permittee shall employ or contract with one or more licensed wastewater treatment facility operators or wastewater system operations companies holding a valid license or registration according to the requirements of 30 TAC Chapter 30, Occupational Licenses and Registrations, and in particular 30 TAC Chapter 30, Subchapter J, Wastewater Operators and Operations Companies.

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

3. The permittee shall maintain and operate the treatment facility in order to achieve optimum efficiency of treatment capability. This shall include required monitoring of effluent flow and quality as well as appropriate grounds and building maintenance.
4. Plans and specifications have been approved for the 0.018 MGD wastewater treatment facility, in accordance with 30 TAC § 217, Design Criteria for Domestic Wastewater Systems. A summary transmittal approval letter was issued February 25, 2011 (Log No. 0211/028). A copy of the summary transmittal letter shall be available at the plant site for inspection by authorized representatives of the TCEQ.
5. The permittee shall comply with the requirements of 30 TAC § 309.13(a) through (d). The permittee shall comply with the requirements of 30 TAC § 309.13(e) by ownership of the north, south, and west side of the buffer zone area as well as via right-of-way on the east side of the buffer zone area. (See Attachment A.)
6. Application rates to the subsurface irrigation site shall not exceed 0.1 <or less, as determined by applicant requested rate> gallons per square foot per day. The permittee is responsible for providing equipment for determining application rates and maintaining accurate records of the volume of effluent applied. These records shall be made available for review by the Texas Commission on Environmental Quality and shall be maintained for least three years.
7. Subsurface irrigation practices shall be designed and managed so as to prevent ponding and

surfacing of effluent, contamination of ground and surface water, and the occurrence of nuisance conditions in the area. To promote effluent and nutrient uptake by the crop, and to prevent pathways for effluent surfacing, Bermuda grass and ryegrass shall be established and well maintained in the irrigation area throughout the year. The grass surface shall be mowed so that the Bermuda grass height is maintained between two and six inches and rye grass height shall be maintained between four and six inches from the soil surface

8. The permittee shall maintain a minimum rootable soil depth of 12 inches below the drip irrigation lines. At least a six-inch layer of soil shall be maintained over the drip lines. If imported soils are used, the permittee shall submit no later than 90 days prior to construction to the TCEQ Water Quality Assessment Team (MC 150) and the Domestic Wastewater Section (MC 148) of the Water Quality Division a plan for review/revision and approval describing how the imported soils will be incorporated into the native soils and how soil erosion will be prevented in the affected areas. In the event of wastewater surfacing due to damage to the drip irrigation lines, wastewater application shall be shut-off to the drip irrigation zone and public access to the zone shall be restricted.
9. Based on the requirements of 30 TAC § 222.151, the subsurface area drip dispersal system shall be designed and managed so as to prevent seepage or percolation out of the root zone, other than leaching in the amount required to maintain the health of the vegetative cover. Surfacing and ponding is prohibited. Creating a condition at the treatment facility or the drip dispersal zones that contributes to vector attraction or odor is prohibited.
10. Drip irrigation lines shall be installed on the contour and lateral slopes of the tubing shall not exceed 1 percent. The permittee can apply for a variance to this provision by providing justification in the detailed design criteria per Chapter 222 indicating how uneven application of effluent due to back draining will be avoided.
11. Each zone shall have at least one soil moisture-sensing devices placed at 12 inches below the depth of the drip lines that will automatically shut off irrigation to that zone when the soil becomes saturated.
12. The permittee shall use cultural practices to promote and maintain the health and propagation of the Bermuda grass and ryegrass crops and avoid plant lodging. The permittee shall harvest the crops (cut and remove it from the field) at least twice during the year. Harvesting and mowing dates shall be recorded in a log book kept on site to be made available to TCEQ personnel upon request.
13. The physical condition of the land application fields shall be monitored on a weekly basis. Any area with problems such as surface runoff, surficial erosion, or stressed or damaged vegetation, etc., shall be recorded in a field log kept onsite. Corrective measures will be implemented within 24 hours of discovery.
14. Dosing cycle shall be equally spaced during the day.
15. Effluent shall not be applied for irrigation during rainfall events or when the ground is frozen or saturated.
16. For any area where treated effluent is stored or where there exist hose bibs or faucets, the permittee shall erect adequate signs stating that the irrigation water is from a non-potable water supply. Signs shall consist of a red slash superimposed over the international symbol

for drinking water accompanied by the message “DO NOT DRINK THE WATER” in both English and Spanish. All piping transporting the effluent shall be clearly marked with these same signs.

17. If complete shutdown of the facility becomes necessary or if the storage capacity is exceeded, the permittee shall employ the pump and haul method to prevent the discharge of treated or untreated wastewater. The permittee shall obtain the necessary authorization from the TCEQ Regional Office (MC Region 13) before undertaking the pump and haul activity.
18. Permanent transmission lines shall be installed from the treatment system to each drip irrigation zone of the subsurface drip irrigation system.
19. The permittee shall monitor the accumulation of solids in the septic tank once every six months. Solids shall be removed once every two years or more frequently if necessary based upon accumulation of solids. The permittee shall maintain records of the dates of inspection and the dates on which solids were removed. These records shall be maintained on-site for a minimum of three years
20. Permanent transmission lines shall be installed from the treatment system to each drip irrigation zone of the subsurface drip irrigation system. According to 30 TAC Section 222.153, the permittee shall flush the subsurface area drip dispersal system from the dispersal zone and return the flush water to a point preceding the treatment system at least once every two months.
21. The permittee shall obtain representative soil samples from the root zones of the land application area receiving wastewater. Composite sampling techniques shall be used. Each composite sample shall represent no more than 4.13 acres with no less than one (1) cores per dosing bed (zone) representing each composite sample. Subsamples shall be composited by like sampling depth, type of crop and soil type for analysis and reporting. Soil types are soils that have like topsoil or plow layer textures. These soils shall be sampled individually from 0 to 12 inches and 12 to 24 inches below ground level. The permittee shall sample soils in December to February of each year. Soil samples shall be analyzed within 30 days of sample collection.

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

Parameter	Method	Minimum Analytical Level (MAL)	Reporting units
pH	2:1 (v/v) water to soil mixture		Reported to 0.1 pH units after calibration of pH meter
Electrical Conductivity	Obtained from the SAR water saturated paste extract	0.01	dS/m (same as mmho/cm)
Nitrate-nitrogen	From a 1 <u>N</u> KCl soil extract	1	mg/kg (dry weight basis)

Total Kjeldahl Nitrogen (TKN)	For determination of Organic plus Ammonium Nitrogen. Procedures that use Mercury (Hg) are not acceptable.	20	mg/kg (dry weight basis)
Total Nitrogen	= TKN plus Nitrate-nitrogen		mg/kg (dry weight basis)
Plant-available: Phosphorus	Mehlich III with inductively coupled plasma	1 (P)	mg/kg (dry weight basis)
Plant-available: Potassium (K) Calcium (Ca) Magnesium (Mg) Sodium (Na) Sulfur (S)	May be determined in the same Mehlich III extract with inductively coupled plasma	5 (K) 10 (Ca) 5 (Mg) 10 (Na) 1 (S)	mg/kg (dry weight basis)
Water-soluble: Sodium (Na) Calcium (Ca) Magnesium (Mg)	Obtained from the SAR water saturated paste extract	1 (Na) 1 (Ca) 1 (Mg)	Water soluble constituents are reported in mg/L
Sodium Adsorption Ratio (SAR)	$SAR = \frac{Na}{\sqrt{\frac{(Ca + Mg)}{2}}}$		<p>Express concentrations of Na, Ca and Mg in the water saturated paste extract in milliequivalents/liter (meq/L) to calculate the SAR. The SAR value is unit less.</p> <p>If the SAR is greater than 10, amendments (e.g., gypsum) shall be added to the soil to adjust the SAR to less than 10.</p>
Amendment addition, e.g., gypsum			Report in short tons/acre in the year effected

A copy of this soil testing plan shall be provided to the analytical laboratory prior to sample analysis. The permittee shall submit the results of the annual soil sample analyses with copies of the laboratory reports and a map depicting the areas that have received wastewater within the permanent land application fields to the TCEQ Regional Office (MC Region 13) and the Enforcement Division (MC 224), no later than September 1st of each sampling year. If wastewater is not applied in a particular year, the permittee shall notify the same TCEQ offices and indicate that wastewater has not been applied on the approved land irrigation site(s) during that year.

22. The facility is on the Edwards Aquifer Contributing Zone, so 30 TAC 213 Subchapter B rules apply.
23. The permittee shall locate the irrigation fields a minimum horizontal distance of 100 feet from surface waters in the state. The permittee shall locate the irrigation fields a minimum horizontal distance of 500 feet from public water wells, springs, or other similar sources of public drinking water and a minimum horizontal distance of 150 feet from private wells as described in 30 TAC §309.13(c)(1). The permittee shall not locate irrigation fields within a floodway.
24. The subsurface drip irrigation system shall be designed and managed so as to prevent ponding or surfacing of effluent or contamination of ground and surface waters and to prevent the occurrence of nuisance conditions in the area. Bermuda grass and rye grass shall be established and well maintained in the irrigation area throughout the year for wastewater and nutrient uptake by the crop and to prevent pathways for wastewater surfacing. The grass surface shall be mowed so that the Bermuda grass height is maintained between two and six inches and rye grass height shall be maintained between four and six inches from the soil surface.
25. The permittee shall maintain a buffer of 100 feet from the tributary to Mustang Creek where no wastewater shall be applied.
26. The permittee shall develop a Springs/Seeps Monitoring Plan and submit the plan to the TCEQ Water Quality Assessment Team (MC-150) for review, possible modification, and approval within 30 days of permit issuance. At a minimum, the plan shall include:
 - a) A procedure to conduct quarterly field checks at the drip irrigation fields and down-gradient of the fields to identify emerging springs or seeps.
 - b) A procedure to sample springs or seeps in the event that springs/seeps develop after drip irrigation of effluent commences.
 - c) Quarterly field checks and sampling (if applicable) of the springs/seeps shall occur after a minimum rainfall event of 0.5-inch, if possible.
 - d) Analysis of springs/seeps water for nutrients, including, but not limited to, a complete nitrogen series [(Nitrate (as N), Nitrite (as N), Total Kjeldahl Nitrogen, ammonia as N)], total phosphorus, ortho-phosphate, chlorides, fecal coliform, and specific conductivity.
 - e) A record of the quarterly checks and sampling of the springs and seeps shall be maintained in a field log and kept onsite for TCEQ inspection.
 - f) Monitoring of emerging and existing springs/seeps shall continue for the life of the system.

- g) The permittee shall submit the data, including laboratory reports, and a map showing the locations of any seeps/springs that were sampled per the Seeps/Springs Monitoring Plan to the Water Quality Assessment Team (MC-150) of the Water Quality Division, the TCEQ Region 13 (San Antonio) Office, and the Enforcement Division MC-224 during the month of September of each year for review. If no seeps/springs were identified during a particular quarter, that information shall be included in the annual report.
 - h) A procedure for the implementation of corrective measures to remedy the discharge if laboratory analysis indicates that wastewater is emerging as a seep or spring.
 - i) The permittee shall implement the plan upon approval by the Water Quality Assessment Team. The executive director may request modification of the approved plan if future information indicates that it would be necessary for the protection of the environment.
27. The permittee shall comply with buffer zone requirements of 30 TAC Section §309.13(c). A wastewater treatment plant unit, defined by 30 TAC Section §309.11(9), must be located a minimum horizontal distance of 250 feet from a private well and a minimum horizontal distance of 500 feet from a public water well site, spring, or other similar sources of public drinking water, as provided by §290.41(c)(1) of this title.
28. The permittee shall comply with the buffer zone requirements of 30 TAC §309.13(c), specifically regarding water wells and waters in the state. The permittee must locate the wastewater irrigation fields a minimum horizontal distance of 500 feet from public water wells, springs, or other similar sources of public drinking water; 150 feet from private water wells; and 100 feet from surface waters in the state.
29. The permittee shall construct berms or swales that will prevent, or divert, stormwater from entering all subsurface wastewater application areas.

**TECHNICAL SUMMARY AND
EXECUTIVE DIRECTOR'S PRELIMINARY DECISION**

DESCRIPTION OF APPLICATION

Applicant: The Villas at Timberwood Homeowners Association
TCEQ Permit No. WQ0014670002

Regulated Activity: Domestic Wastewater Permit

Type of Application: New Permit

Request: New Permit

Authority: Texas Water Code (TWC) § 26.027; 30 Texas Administrative Code (TAC) Chapters 222, 305, 309, 312, 319, and 30; and Commission policies.

EXECUTIVE DIRECTOR RECOMMENDATION

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

REASON FOR PROJECT PROPOSED

The Villas at Timberwood Homeowners Association has applied to the Texas Commission on Environmental Quality (TCEQ) for a new permit, TCEQ Permit No. WQ0014670002 to authorize the disposal of treated domestic wastewater at a daily average flow not to exceed 0.018 million gallons per day (MGD) via non-public access subsurface area drip dispersal system with a minimum area of 4.13 acres. This facility was previously permitted under SADDs Permit No. WQ0014670001. The existing wastewater treatment facility serves the Villas at Timberwood Homeowners Association.

PROJECT DESCRIPTION AND LOCATION

The Villas at Timberwood HOA WWTP consists of septic tanks and a subsurface area drip dispersal system. Treatment units include two tanks with a total volume of 28,723 gallons, effluent filter and a storage tank with a volume of 57,446 gallons. The permittee is required to provide at least three days of temporary storage for times when the facility is out of service due to emergency or for scheduled maintenance. The facility is in operation.

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

The wastewater treatment facility and disposal site are located approximately 1,600 feet southeast of the intersection of Harmony Hills and Shady Acres in Bexar County, Texas 78260.

The Villas at Timberwood Homeowners Association

Permit No. WQ0014670002

Statement of Basis/Technical Summary and Executive Director's Preliminary Decision

The wastewater treatment facility and disposal site are located in the drainage basin of Mustang Creek in Segment No. 1910 of the San Antonio River Basin. No discharge of pollutants into water in the State is authorized by this permit.

SUMMARY OF EFFLUENT DATA

The following is a summary of the applicant's effluent monitoring data for the period August 2023 through August 2025. The average of Daily Average value is computed by the averaging of all 30-day average values for the reporting period for each parameter: flow and five-day biochemical oxygen demand (BOD₅).

<u>Parameter</u>	<u>Average of Daily Average</u>
Flow, MGD	0.01
BOD ₅ , mg/l	68

The permittee was notified on September 22, 2025, that The Villas at Timberwood HOA WWTP has exceeded the permitted BOD₅ effluent limitation (65 mg/l). A response from the permittee was received on September 30, 2025. The permittee's consultant stated that the exceedances of the permitted effluent limit for BOD₅ of 65 mg/L were related to the replacement of blowers for the aeration system which increases BOD₅ until the plant recovers. To prevent further exceedances, the plant operators are routinely pumping out the septic tank to minimize solid buildup and they regularly replace blower filters to maximize air flow to the aeration tank.

DRAFT PERMIT CONDITIONS

The draft permit authorizes the disposal of treated domestic wastewater effluent at a daily average flow not to exceed 0.018 MGD via non-public access subsurface area drip dispersal system with a minimum area of 4.13 acres. The permittee is required to provide at least three days of temporary storage for times when the facility is out of service due to an emergency or for scheduled maintenance. Application rates shall not exceed 0.1 gallons per square foot per day. The permittee will maintain Bermuda grass with overlay of winter rye on the disposal site.

The effluent limitation in the draft permit, based on a daily average of 0.018 MGD is 65 mg/l BOD₅.

The permittee shall comply with the requirements of 30 TAC § 309.13(a) through (d). The permittee shall comply with the requirements of 30 TAC § 309.13(e) by ownership of the north, south, and west side of the buffer zone area as well as via right-of-way on the east side of the buffer zone area. (See Attachment A.)

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

SUMMARY OF CHANGES FROM APPLICATION

None.

PROCEDURES FOR FINAL DECISION

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

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

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

After the public comment deadline, the Executive Director prepares a response to all significant public comments on the application or the draft permit raised during the public comment period. The Chief Clerk then mails the Executive Director's Response to Comments and Final Decision to people who have filed comments, requested a contested case hearing, or requested to be on the mailing list. This notice provides that if a person is not satisfied with the Executive Director's response and decision, they can request a contested case hearing or file a request to reconsider the Executive Director's decision within 30 days after the notice is mailed.

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

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

The Villas at Timberwood Homeowners Association

Permit No. WQ0014670002

Statement of Basis/Technical Summary and Executive Director's Preliminary Decision

For additional information about this application, contact Sujata Sinha at (512) 239-1963.

Sujata Sinha

Sujata Sinha
Domestic Permits Team
Domestic Wastewater Section (MC 148)

10/14/2025

Date