



# Administrative Package Cover Page

**This file contains the following documents:**

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



# Portada de Paquete Administrativo

**Este archivo contiene los siguientes documentos:**

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



## TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

### PLAIN LANGUAGE SUMMARY FOR TPDES OR TLAP PERMIT APPLICATIONS

#### Plain Language Summary Template and Instructions for Texas Pollutant Discharge Elimination System (TPDES) and Texas Land Application (TLAP) Permit Applications

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

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

If you are subject to the alternative language notice requirements in [30 TAC Section 39.426](#), **you must provide a translated copy of the completed plain language summary in the appropriate alternative language as part of your application package**. For your convenience, a Spanish template has been provided below.

#### ENGLISH TEMPLATE FOR TPDES or TLAP NEW/RENEWAL/AMENDMENT APPLICATIONS DOMESTIC WASTEWATER/STORMWATER

*The following summary is provided for this pending water quality permit application being reviewed by the Texas Commission on Environmental Quality as required by 30 TAC Chapter 39. The information provided in this summary may change during the technical review of the application and is not a federal enforceable representation of the permit application.*

Woodmere Development Co., LTD (CN 602463333) proposes to operate Harris County MUD No. 606 (RN not yet provided), a wastewater treatment plant to serve HCMUD No. 606. The facility will be located at 0.6 miles northwest of the intersection of West Road and Katy Hockley Cutoff Road, in Cypress, Harris County, Texas 77433. New TPDES permit for a facility flowing at an average 640,000 gallons per day to ultimately discharge in Bear Creek.

Discharges from the facility are expected to contain Biochemical Oxygen Demand, 10 mg/L, Total Suspended Solids, 15 mg/L, Ammonia Nitrogen, 2 mg/L, Dissolved Oxygen, 4 mg/L. Domestic wastewater will be treated by a single stage nitrification process, wastewater will pass through screening, into aeration, then to clarification, after this process effluent will be disinfected with chlorine and discharged ultimately to Bear Creek.



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

### AGUAS RESIDUALES DOMESTICAS /AGUAS PLUVIALES

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

Woodmere Development Co., LTD (CN602463333) propone operar Harris County MUD No. 606 (numero de entidad todavia no se ha proporcionado), una planta de tratamiento de aguas residuales. La instalación estará ubicada en 0.6 millas noroeste de la interseccion de West Road y Katy Hockley Cutoff Road, en Cypress, Condado de Harris, Texas 77433. Nuevo permiso de TPDES para una instalación que fluye a un promedio de 640,000 galones por día para descargar finalmente en Bear Creek.

Se espera que las descargas de la instalación contengan Demanda Bioquímica de Oxígeno, 10 mg/L, Sólidos Suspendidos Totales, 15 mg/L, Nitrógeno Amoniacal, 2 mg/L, Oxígeno Disuelto, 4 mg/L. Aguas residuales domésticas. **estará** tratado por un proceso de nitrificación de una sola etapa, las aguas residuales pasarán a través de la criba, a la aireación, luego a la clarificación, después de este proceso, el efluente se desinfectará con cloro y se descargará finalmente a Bear Creek.

# TEXAS COMMISSION ON ENVIRONMENTAL QUALITY



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

**PROPOSED PERMIT NO. WQ0016678001**

**APPLICATION.** Woodmere Development Co.,Ltd, 15915 Katy Freeway, Suite 405, Houston, Texas 77094, has applied to the Texas Commission on Environmental Quality (TCEQ) for proposed Texas Pollutant Discharge Elimination System (TPDES) Permit No. WQ0016678001 (EPA I.D. No. TX0147036) to authorize the discharge of treated wastewater at a volume not to exceed a daily average flow of 640,000 gallons per day. The domestic wastewater treatment facility will be located approximately 0.6 miles northwest of the intersection of Katy Hockley Cutoff Road and West Road, near the city of Katy, in Harris County, Texas 77493. The discharge route will be from the plant site to an onsite detention pond system, thence to a ditch, thence to an offsite detention pond system, thence to Bear Creek, thence to South Mayde Creek, thence to Buffalo Bayou Above Tidal. TCEQ received this application on December 3, 2024. The permit application will be available for viewing and copying at Lone Star College - Tomball Community Library, 30555 Tomball Parkway, Tomball, in Harris 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/tpdes-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=-95.817777,29.906111&level=18>

**ALTERNATIVE LANGUAGE NOTICE.** Alternative language notice in Spanish is available at: <https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tpdes-applications>.

El aviso de idioma alternativo en español está disponible en

<https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tpdes-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](http://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](http://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 Woodmere Development Co.,Ltd at the address stated above or by calling Mr. Jason Hajduk, P.E., IDS Engineering Group, at 832-590-7148.

Issuance Date: February 26, 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. WQ0016678001

**SOLICITUD.** Woodmere Development Co.,Ltd, 15915 Katy Freeway, Suite 405, Houston, Texas 77094, ha solicitado a la Comisión de Calidad Ambiental del Estado de Texas (TCEQ) para el propuesto Permiso No. WQ0016678001 (EPA I.D. No. TX0147036) del Sistema de Eliminación de Descargas de Contaminantes de Texas (TPDES) para autorizar la descarga de aguas residuales tratadas en un volumen que no sobrepasa un flujo promedio diario de 640,000 galones por día. La planta estará ubicada aproximadamente 0.6 millas noroeste de la intersección de Katy Hockley Cutoff Road y West Road, cerca de la ciudad de Katy en el Condado de Harris, Texas 77493. La ruta de descarga estará del sitio de la planta a un sistema de estanque de detención en el sitio, de allí a una zanja, de allí a un sistema de estanque de detención externo, de allí a Bear Creek, de allí a South Mayde Creek, de allí a Buffalo Bayou Above Tidal. TCEQ recibió esta solicitud el 3 de diciembre de 2024. La solicitud para el permiso estará disponible para leerla y copiarla en Lone Star College - Tomball Community Library, 30555 Tomball Parkway, Tomball en el Condado de Harris, Texas antes de la fecha de publicación de este aviso en el periódico. Esta solicitud, incluyendo las actualizaciones, y los avisos asociados están disponibles electrónicamente en el siguiente pagina web:

<https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tpdes-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=-95.817777,29.906111&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/tpdes-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 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 agrega su nombre en una de las listas designe cual lista(s) y envía por correo su pedido a la Oficina del Secretario Principal de la TCEQ.

**INFORMACIÓN DISPONIBLE EN LÍNEA.** Para detalles sobre el estado de la solicitud, favor de visitar la Base de Datos Integrada de los Comisionados en [www.tceq.texas.gov/goto/cid](http://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 Woodmere Development Co.,Ltd a la dirección indicada arriba o llamando a Jason Hajduk, P.E., IDS Engineering Group, al 832-590-7148.

Fecha de emisión el 26 de febrero de 2025



## Leah Whallon

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**From:** Valeria Gomez (IDS) <VGomez@idseg.com>  
**Sent:** Tuesday, February 25, 2025 9:39 AM  
**To:** Leah Whallon  
**Cc:** Eve Blakemore (IDS); Jason Hajduk (IDS)  
**Subject:** RE: Application for Proposed Permit No. WQ0016678001; Woodmere Development Co.,Ltd; Harris County MUD 606 WWTP  
**Attachments:** 16 - Affected Landowners Map and List.pdf; Affected Landowners Mailing List.docx  
**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Good Morning Leah,

Thank you for your time on the phone on Friday! Please see the attached updated affected landowners map and list (Attachment 16), and the updated mailing list. Feel free to give me a call if you have any questions!

Thanks,



**Valeria Gomez, E.I.T.**  
Design Engineer

13430 Northwest Freeway, Suite 700, Houston, Texas 77040

Main: 713.462.3178 | Direct: 832.590.7149

[VGomez@idseg.com](mailto:VGomez@idseg.com)

[Website](#) | [Facebook](#) | [Linkedin](#)

TxEng Firm 2726 | TxSurv Firm 10110700

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**From:** Leah Whallon <[Leah.Whallon@Tceq.Texas.Gov](mailto:Leah.Whallon@Tceq.Texas.Gov)>  
**Sent:** Thursday, February 20, 2025 4:47 PM  
**To:** Valeria Gomez (IDS) <[VGomez@idseg.com](mailto:VGomez@idseg.com)>  
**Cc:** Eve Blakemore (IDS) <[EBlakemore@idseg.com](mailto:EBlakemore@idseg.com)>; Jason Hajduk (IDS) <[JHajduk@idseg.com](mailto:JHajduk@idseg.com)>  
**Subject:** RE: Application for Proposed Permit No. WQ0016678001; Woodmere Development Co.,Ltd; Harris County MUD 606 WWTP

[EXTERNAL EMAIL]

Thank you, Valeria.

The landowner map attached here still shows the applicant boundary as property #35 and that it is owned by BGM Land Investments Ltd. The landowner map and list also need to be updated to reflect the changes and the accurate applicant property boundary. Can you please make the updates to these attachments and send the corrected map, list, and mailing labels?

Thanks,



**Leah Whallon**

Texas Commission on Environmental Quality  
Water Quality Division  
512-239-0084  
[leah.whallon@tceq.texas.gov](mailto:leah.whallon@tceq.texas.gov)

How is our customer service? Fill out our online customer satisfaction survey at  
[www.tceq.texas.gov/customersurvey](http://www.tceq.texas.gov/customersurvey)

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**From:** Valeria Gomez (IDS) <[VGomez@idseg.com](mailto:VGomez@idseg.com)>  
**Sent:** Friday, February 14, 2025 10:46 AM  
**To:** Leah Whallon <[Leah.Whallon@Tceq.Texas.Gov](mailto:Leah.Whallon@Tceq.Texas.Gov)>  
**Cc:** Eve Blakemore (IDS) <[EBlakemore@idseg.com](mailto:EBlakemore@idseg.com)>; Jason Hajduk (IDS) <[JHajduk@idseg.com](mailto:JHajduk@idseg.com)>  
**Subject:** RE: Application for Proposed Permit No. WQ0016678001; Woodmere Development Co.,Ltd; Harris County MUD 606 WWTP

Good Morning Leah,

The only things that have changed from the previous application is the description of the discharge route in Section 10b of Administrative Report due to pre-technical review comments from Michelle Labrie, the addition of the deed (Attachment 20), and the updated affected landowners map/list (Attachment 16). Please see the attached Section 9d of the Administrative Report with your comments addressed. I have also attached the updated landowner map & list (Attachment 16), along with the mailing list properly formatted in the Word Document. Let me know if there is anything else you need!

Thanks,



**Valeria Gomez, E.I.T.**  
Design Engineer

13430 Northwest Freeway, Suite 700, Houston, Texas 77040

Main: 713.462.3178 | Direct: 832.590.7149

[VGomez@idseg.com](mailto:VGomez@idseg.com)

[Website](#) | [Facebook](#) | [Linkedin](#)

TxEg Firm 2726 | TxSurv Firm 10110700

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**From:** Leah Whallon <[Leah.Whallon@Tceq.Texas.Gov](mailto:Leah.Whallon@Tceq.Texas.Gov)>  
**Sent:** Tuesday, February 11, 2025 2:09 PM  
**To:** Valeria Gomez (IDS) <[VGomez@idseg.com](mailto:VGomez@idseg.com)>  
**Cc:** Eve Blakemore (IDS) <[EBlakemore@idseg.com](mailto:EBlakemore@idseg.com)>; Jason Hajduk (IDS) <[JHajduk@idseg.com](mailto:JHajduk@idseg.com)>

**Subject:** RE: Application for Proposed Permit No. WQ0016678001; Woodmere Development Co.,Ltd; Harris County MUD 606 WWTP

[EXTERNAL EMAIL]

Hi Valeria,

I've reviewed the updated file and want to clarify if the only change is the addition of the deed? If not, can you please summarize what has been updated in the application from the previous version?

Section 9 of the Administrative Report still lists BGM Land Investments as the owner of the land and the affected landowner map does not reflect the updated applicant property boundary and adjacent landowners. Can you please update the relevant pages of the application to match the changes made and provide only the revised pages? We will also need the updated landowner map, cross-reference landowner list, and the list formatted for mailing labels (Avery 5160) in a Microsoft Word document.

Please let me know if you have any questions.

Thanks,



**Leah Whallon**

Texas Commission on Environmental Quality

Water Quality Division

512-239-0084

[leah.whallon@tceq.texas.gov](mailto:leah.whallon@tceq.texas.gov)

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**From:** Leah Whallon

**Sent:** Thursday, February 6, 2025 4:50 PM

**To:** Valeria Gomez (IDS) <[VGomez@idseg.com](mailto:VGomez@idseg.com)>

**Cc:** Eve Blakemore (IDS) <[EBlakemore@idseg.com](mailto:EBlakemore@idseg.com)>; Jason Hajduk (IDS) <[JHajduk@idseg.com](mailto:JHajduk@idseg.com)>

**Subject:** RE: Application for Proposed Permit No. WQ0016678001; Woodmere Development Co.,Ltd; Harris County MUD 606 WWTP

Thank you, Valeria.

I was able to download the files. I'll review and follow up shortly. Please let me know if you have any questions.

Thanks,



**Leah Whallon**

Texas Commission on Environmental Quality

Water Quality Division

512-239-0084

[leah.whallon@tceq.texas.gov](mailto:leah.whallon@tceq.texas.gov)

How is our customer service? Fill out our online customer satisfaction survey at  
[www.tceq.texas.gov/customersurvey](http://www.tceq.texas.gov/customersurvey)

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**From:** Valeria Gomez (IDS) <[VGomez@idseg.com](mailto:VGomez@idseg.com)>

**Sent:** Thursday, February 6, 2025 2:12 PM

**To:** Leah Whallon <[Leah.Whallon@Tceq.Texas.Gov](mailto:Leah.Whallon@Tceq.Texas.Gov)>

**Cc:** Eve Blakemore (IDS) <[EBlakemore@idseg.com](mailto:EBlakemore@idseg.com)>; Jason Hajduk (IDS) <[JHajduk@idseg.com](mailto:JHajduk@idseg.com)>

**Subject:** RE: Application for Proposed Permit No. WQ0016678001; Woodmere Development Co.,Ltd; Harris County MUD 606 WWTP

Hi Leah,

Thank you for the extension until the 21<sup>st</sup>! I have updated permit application for HCMUD 606 WWTP addressing your comments and sent it via Newforma. You should have received an email from them containing the file for your download and review. Please let me know if you did not receive them or have any issues downloading the documents.

Thanks!



**Valeria Gomez, E.I.T.**

Design Engineer

13430 Northwest Freeway, Suite 700, Houston, Texas 77040

Main: 713.462.3178 | Direct: 832.590.7149

[VGomez@idseg.com](mailto:VGomez@idseg.com)

[Website](#) | [Facebook](#) | [Linkedin](#)

TxEng Firm 2726 | TxSurv Firm 10110700

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**From:** Leah Whallon <[Leah.Whallon@Tceq.Texas.Gov](mailto:Leah.Whallon@Tceq.Texas.Gov)>

**Sent:** Friday, January 24, 2025 2:13 PM

**To:** Valeria Gomez (IDS) <[VGomez@idseg.com](mailto:VGomez@idseg.com)>

**Cc:** Eve Blakemore (IDS) <[EBlakemore@idseg.com](mailto:EBlakemore@idseg.com)>; Jason Hajduk (IDS) <[JHajduk@idseg.com](mailto:JHajduk@idseg.com)>

**Subject:** RE: Application for Proposed Permit No. WQ0016678001; Woodmere Development Co.,Ltd; Harris County MUD 606 WWTP

[EXTERNAL EMAIL]

Hi Valeria,

Yes, we are able to hold the application until February 21, 2025. Please send the response by this date. Let me know if you have any questions.

Thanks,



**Leah Whallon**

Texas Commission on Environmental Quality  
Water Quality Division  
512-239-0084  
[leah.whallon@tceq.texas.gov](mailto:leah.whallon@tceq.texas.gov)

How is our customer service? Fill out our online customer satisfaction survey at  
[www.tceq.texas.gov/customersurvey](http://www.tceq.texas.gov/customersurvey)

---

**From:** Valeria Gomez (IDS) <[VGomez@idseg.com](mailto:VGomez@idseg.com)>

**Sent:** Friday, January 24, 2025 9:04 AM

**To:** Leah Whallon <[Leah.Whallon@Tceq.Texas.Gov](mailto:Leah.Whallon@Tceq.Texas.Gov)>

**Cc:** Eve Blakemore (IDS) <[EBlakemore@idseg.com](mailto:EBlakemore@idseg.com)>; Jason Hajduk (IDS) <[JHajduk@idseg.com](mailto:JHajduk@idseg.com)>

**Subject:** RE: Application for Proposed Permit No. WQ0016678001; Woodmere Development Co.,Ltd; Harris County MUD 606 WWTP

Hi Leah,

Thank you for your time on the phone yesterday! We are working on getting the metes & bounds drafted and sent to Woodmere Development Co. by this Wednesday. They will then have the special warranty deed recorded by February 19<sup>th</sup>. Due to these circumstances and the timeline, I was wondering if it were possible to get an extension until February 21<sup>st</sup>. Let me know if you have any questions.

Thank you!



**Valeria Gomez, E.I.T.**  
Design Engineer

13430 Northwest Freeway, Suite 700, Houston, Texas 77040

Main: 713.462.3178 | Direct: 832.590.7149

[VGomez@idseg.com](mailto:VGomez@idseg.com)

[Website](#) | [Facebook](#) | [Linkedin](#)

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---

**From:** Leah Whallon <[Leah.Whallon@Tceq.Texas.Gov](mailto:Leah.Whallon@Tceq.Texas.Gov)>

**Sent:** Tuesday, January 21, 2025 1:55 PM

**To:** Valeria Gomez (IDS) <[VGomez@idseg.com](mailto:VGomez@idseg.com)>

**Cc:** Eve Blakemore (IDS) <[EBlakemore@idseg.com](mailto:EBlakemore@idseg.com)>

**Subject:** RE: Application for Proposed Permit No. WQ0016678001; Woodmere Development Co.,Ltd; Harris County MUD 606 WWTP

---

[EXTERNAL EMAIL]

---

Hi Valeria,

Sorry for the delay, I was out of the office unexpectedly last week and am catching up now. Please let me know what questions you have so that I can help you address them.

Thank you,



**Leah Whallon**

Texas Commission on Environmental Quality

Water Quality Division

512-239-0084

[leah.whallon@tceq.texas.gov](mailto:leah.whallon@tceq.texas.gov)

How is our customer service? Fill out our online customer satisfaction survey at [www.tceq.texas.gov/customersurvey](http://www.tceq.texas.gov/customersurvey)

---

**From:** Valeria Gomez (IDS) <[VGomez@idseg.com](mailto:VGomez@idseg.com)>

**Sent:** Tuesday, January 14, 2025 5:11 PM

**To:** Leah Whallon <[Leah.Whallon@Tceq.Texas.Gov](mailto:Leah.Whallon@Tceq.Texas.Gov)>

**Cc:** Eve Blakemore (IDS) <[EBlakemore@idseg.com](mailto:EBlakemore@idseg.com)>

**Subject:** RE: Application for Proposed Permit No. WQ0016678001; Woodmere Development Co.,Ltd; Harris County MUD 606 WWTP

Good Evening Leah,

I have a few questions regarding your comments below. Please give me a call at 832-590-7149 at your earliest convenience!

I look forward to hearing from you.

Best,



**Valeria Gomez, E.I.T.**

Design Engineer

13430 Northwest Freeway, Suite 700, Houston, Texas 77040

Main: 713.462.3178 | Direct: 832.590.7149

[VGomez@idseg.com](mailto:VGomez@idseg.com)

[Website](#) | [Facebook](#) | [Linkedin](#)

TxEg Firm 2726 | TxSurv Firm 10110700

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---

**From:** Leah Whallon <[Leah.Whallon@Tceq.Texas.Gov](mailto:Leah.Whallon@Tceq.Texas.Gov)>

**Sent:** Monday, December 23, 2024 10:01 AM

**To:** Valeria Gomez (IDS) <[VGomez@idseg.com](mailto:VGomez@idseg.com)>

**Cc:** Jason Hajduk (IDS) <[JHajduk@idseg.com](mailto:JHajduk@idseg.com)>; Eve Blakemore (IDS) <[EBlakemore@idseg.com](mailto:EBlakemore@idseg.com)>; Kameron Pugh (IDS) <[KPugh@idseg.com](mailto:KPugh@idseg.com)>

**Subject:** RE: Application for Proposed Permit No. WQ0016678001; Woodmere Development Co.,Ltd; Harris County MUD 606 WWTP

---

[EXTERNAL EMAIL]

Hi Valeria,

I've reviewed the response and have some questions about the updated information provided in response to Item 3. Your response and the updated landowner map indicate BGM Land Investments, LTD. owns the land where the facility will be located and that BGM Land Investments, Ltd. is the same entity as the applicant, Woodmere Development Co.,Ltd. This is not consistent with the administrative report 1.0, Section 9 which lists Woodmere Development Co.,Ltd as the owner. These are two separate entities and cannot be considered the same entity when applying for the TPDES permit.

If BGM Land Investments, Ltd. owns the land where the facility will be located, they will need to be listed as the owner of the land in Section 9, and because they are not the same entity as the applicant, they will need to either be the applicant, or included as a co-applicant. To add a co-applicant, the administrative report will need to be updated in Sections 3, 9, and 14, as well as a core data form provided. The alternative is to provide a deed recorded easement or executed lease agreement between the owner and the applicant.

Because you are still within the due date of the initial NOD letter, I can send a 30 day extension letter next week to allow more time to resolve this issue. I have also not been able to confirm the additional check sent last week was received by our cashier yet as of today.

Please let me know if you have any questions and I will reach out next week to follow up.

Thank you,





**Leah Whallon**

Texas Commission on Environmental Quality

Water Quality Division

512-239-0084

[leah.whallon@tceq.texas.gov](mailto:leah.whallon@tceq.texas.gov)

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[www.tceq.texas.gov/customersurvey](http://www.tceq.texas.gov/customersurvey)

---

**From:** Valeria Gomez (IDS) <[VGomez@idseg.com](mailto:VGomez@idseg.com)>

**Sent:** Wednesday, December 18, 2024 9:33 AM

**To:** Leah Whallon <[Leah.Whallon@Tceq.Texas.Gov](mailto:Leah.Whallon@Tceq.Texas.Gov)>

**Cc:** Jason Hajduk (IDS) <[JHajduk@idseg.com](mailto:JHajduk@idseg.com)>; Eve Blakemore (IDS) <[EBlakemore@idseg.com](mailto:EBlakemore@idseg.com)>; Kameron Pugh (IDS) <[KPugh@idseg.com](mailto:KPugh@idseg.com)>

**Subject:** RE: Application for Proposed Permit No. WQ0016678001; Woodmere Development Co.,Ltd; Harris County MUD 606 WWTP

Good Morning Leah,

The files were too large to send via email, so I sent them via Newforma. You should have received an email from them containing the files for your download and review. Please let me know if you did not receive them or have any issues downloading the documents.

Thanks,



**Valeria Gomez, E.I.T.**

Design Engineer

13430 Northwest Freeway, Suite 700, Houston, Texas 77040

Main: 713.462.3178 | Direct: 832.590.7149

[VGomez@idseg.com](mailto:VGomez@idseg.com)

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---

**From:** Leah Whallon <[Leah.Whallon@Tceq.Texas.Gov](mailto:Leah.Whallon@Tceq.Texas.Gov)>

**Sent:** Friday, December 13, 2024 3:29:57 PM

**To:** Jason Hajduk (IDS) <[JHajduk@idseg.com](mailto:JHajduk@idseg.com)>

**Cc:** Kameron Pugh (IDS) <[KPugh@idseg.com](mailto:KPugh@idseg.com)>

**Subject:** Application for Proposed Permit No. WQ0016678001; Woodmere Development Co.,Ltd; Harris County MUD 606 WWTP

[EXTERNAL EMAIL]

Good Afternoon,

Please see the attached Notice of Deficiency letter dated December 13, 2024 requesting additional information needed to declare the application administratively complete. Please send the complete response by December 27, 2024.

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](mailto:leah.whallon@tceq.texas.gov)

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☒ Yes ☐ No

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

☐ Yes ☒ No

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

☐ Yes ☒ No

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

#### F. Plain Language Summary Template

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

**Attachment:** See Attachment No. 2

#### G. Public Involvement Plan Form

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

**Attachment:** See Attachment No. 3

## 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 N/A

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):

HCMUD No. 606 Wastewater Treatment Plant

C. Owner of treatment facility: Woodmere Development Co., LTD (to be transferred to HCMUD No. 606 upon MUD creation approval)

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

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

Prefix: Mr. Last Name, First Name: Alford, Aaron

Title: Executive Vice President Credential: N/A

Organization Name: Woodmere Development Co., LTD

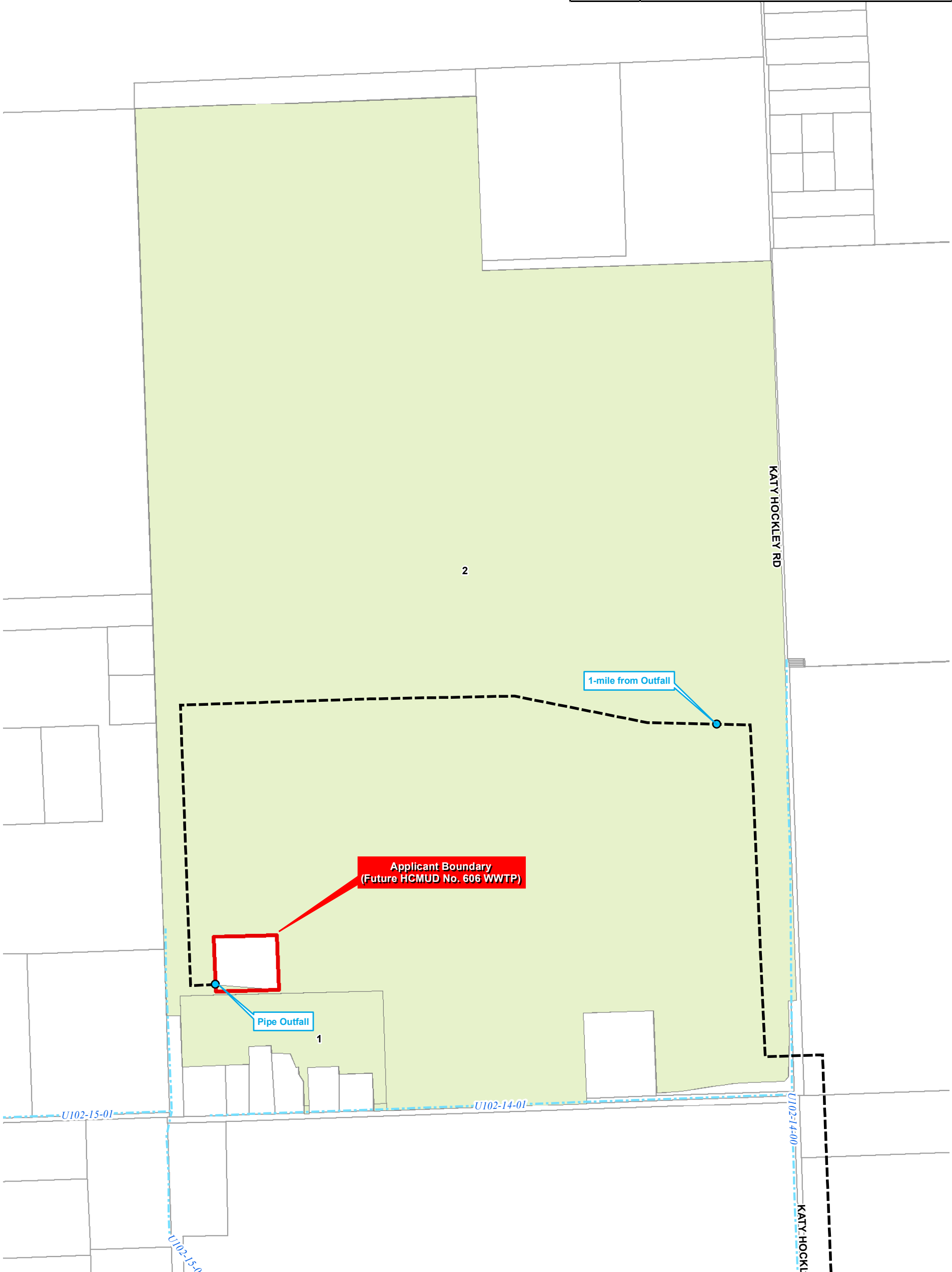
Mailing Address: 15915 Katy Fwy, Suite 405 City, State, Zip Code: Houston, TX 77094

Phone No.: 832-859-4305 E-mail Address: aalford@LongLakeLTD.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:** See Attachment 20

| ID | OWNER                            |
|----|----------------------------------|
| 1  | MEMORIAL CAPITAL INVESTMENTS LLC |
| 2  | BGM LAND INVESTMENTS LTD         |



**Legend**

Discharge Point

Discharge Route

Rivers & Ditches

Applicant Boundary

Affected Parcels

Parcels (HCAD)

IDS

Engineering Group

13430 NW. Freeway, Suite 700  
Houston, Texas 77040  
713.462.3178  
TxEng Firm 2726 | TxSurv Firm 10110700

FUTURE

HC MUD 606

AFFECTED PARCELS

0

300

600

1,200

Feet

1 inch = 600 feet

N

IDS Engineering Group \\houvgisdb1\Projects\2400\24-36-003-00\_HCMUD606\_TPDESPermit\AffectedLandowner\_11X17.mxd Plotted: 2/25/2025 at 8:30:20 AM by virevino

| GIS ID | Landowner                        | Mailing Address                      | City    | State | Zip Code   |
|--------|----------------------------------|--------------------------------------|---------|-------|------------|
| 1      | MEMORIAL CAPITAL INVESTMENTS LLC | 23501 CINCO RANCH BLVD STE H120 #259 | KATY    | TX    | 77494-3109 |
| 2      | BGM LAND INVESTMENTS LTD         | 15915 KATY FWY                       | HOUSTON | TX    | 77094-1708 |

MEMORIAL CAPITAL INVESTMENTS LLC  
23501 CINCO RANCH BLVD  
STE H120 #259  
KATY, TX 77494-3109

BGM LAND INVESTMENTS LTD  
15915 KATY FWY  
HOUSTON, TX 77094-1708

13430 Northwest Freeway Suite 700, Houston, TX 77040

PROJECT: HCMUD 606 TPDES Permit      DATE: 2/6/2025  
243600300

SUBJECT: Application for Proposed Permit      TRANSMITTAL ID: 00002  
No. WQ0016678001

PURPOSE: For your review and comment      VIA: Info Exchange

---

FROM

| NAME  | COMPANY                  | EMAIL            | PHONE        |
|---|--------------------------|------------------|--------------|
| Valeria Gomez<br>13430 Northwest<br>Freeway<br>Suite 700<br>Houston TX 77040<br>United States | IDS Engineering<br>Group | VGomez@idseg.com | 713-462-3178 |

TO

| NAME                        | COMPANY | EMAIL                       | PHONE |
|-----------------------------|---------|-----------------------------|-------|
| Leah.Whallon@tceq.texas.gov |         | Leah.Whallon@tceq.texas.gov |       |

REMARKS: Please see the attached file for the updated permit application for HCMUD 606 WWTP.

DESCRIPTION OF CONTENTS

| QTY | DATED    | TITLE                                     | NOTES |
|-----|----------|---|-------|
| 1   | 2/6/2025 | 2025-2-6 Submitted Permit Application.pdf |       |

---

COPIES:

Eve Blakemore      (IDS Engineering Group)  
Jason Hajduk      (IDS Engineering Group)



# DOMESTIC WASTEWATER PERMIT APPLICATION

Texas Commission on Environmental Quality

**Harris County Municipal Utility District No. 606**

**IDS Project No. 2436-003-00**

**December 2024**



# TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

## DOMESTIC WASTEWATER PERMIT APPLICATION CHECKLIST

Complete and submit this checklist with the application.

APPLICANT NAME: Woodmere Development Co., LTD

PERMIT NUMBER (If new, leave blank): WQ00 [Click to enter text.](#)

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 checked="" type="checkbox"/> | <input 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 checked="" type="checkbox"/> | <input type="checkbox"/>            |
| Public Involvement Plan Form | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Flow Diagram             | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| Technical Report 1.0         | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Site Drawing             | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| Technical Report 1.1         | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Original Photographs     | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| Worksheet 2.0                | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Design Calculations      | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| Worksheet 2.1                | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Solids Management Plan   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| Worksheet 3.0                | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Water Balance            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| Worksheet 3.1                | <input checked="" type="checkbox"/> | <input 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 checked="" type="checkbox"/> | <input type="checkbox"/> |                          |                                     |                                     |
| Worksheet 5.0                | <input checked="" type="checkbox"/> | <input type="checkbox"/> |                          |                                     |                                     |
| Worksheet 6.0                | <input checked="" type="checkbox"/> | <input 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 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 checked="" 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: 220223/220273  
Check/Money Order Amount: \$850.00/\$800.00  
Name Printed on Check: IDS Engineering Group

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 Wastewater Treatment

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

- ☐ Active      ☒ Inactive

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

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

d. Check the box next to the appropriate application type

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

e. For amendments or modifications, describe the proposed changes: N/A

f. For existing permits:

Permit Number: WQ00 N/A

EPA I.D. (TPDES only): TX N/A

Expiration Date: N/A

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

Woodmere Development Co., Ltd

*(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: 602463333

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: Alford, Aaron

Title: Executive Vice President

Credential: N/A

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: N/A

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: N/A

Last Name, First Name: N/A

Title: N/A

Credential: N/A

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

### 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. See Attachment No. 1.

## 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: Hajduk, Jason

Title: Senior Vice President

Credential: P.E.

Organization Name: IDS Engineering Group

Mailing Address: 13430 Northwest Freeway, Suite 700

City, State, Zip Code: Houston, TX 77040

Phone No.: 832-590-7148

E-mail Address: jhajduk@idseg.com

Check one or both: ☒ Administrative Contact ☒ Technical Contact

B. Prefix: Mr.

Last Name, First Name: Pugh, Kameron

Title: Senior Project Manager

Credential: P.E.

Organization Name: IDS Engineering Group

Mailing Address: 13430 Northwest Freeway, Suite 700

City, State, Zip Code: Houston, TX 77040

Phone No.: 832-590-7187

E-mail Address: kpugh@idseg.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: Alford, Aaron

Title: Executive Vice President

Credential: N/A

Organization Name: Woodmere Development Co., Ltd

Mailing Address: 15615 Katy Freeway Suite 405 City, State, Zip Code: Houston, TX 77094

Phone No.: 832-859-4305 E-mail Address: aalford@LongLakeLTD.com

B. Prefix: Mr. Last Name, First Name: Hajduk, Jason

Title: P.E. Credential: Senior Vice President

Organization Name: IDS Engineering Group

Mailing Address: 13430 Northwest Freeway, Suite 700

City, State, Zip Code: Houston, TX 77040

Phone No.: 832-590-7148 E-mail Address: jhajduk@idseg.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: Alford, Aaron

Title: Executive Vice President Credential: N/A

Organization Name: Woodmere Development Co., Ltd

Mailing Address: 15915 Katy Freeway, Suite 405 City, State, Zip Code: Houston, TX 77094

Phone No.: 832-859-4305 E-mail Address: aalford@LongLakeLTD.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: Williams, Michael

Title: N/A Credential: N/A

Organization Name: Municipal Operations & Consulting, Inc.

Mailing Address: 27316 Spectrum Way City, State, Zip Code: Oak Ridge, TX 77385

Phone No.: 832-642-7384 E-mail Address: mwilliams@municipalops.com

## Section 8. Public Notice Information (Instructions Page 27)

### A. Individual Publishing the Notices

Prefix: Ms. Last Name, First Name: Riley, Vonda

Title: Contract Administrator Credential: N/A

Organization Name: IDS Engineering Group

Mailing Address: 13430 Northwest Freeway, Suite 700

City, State, Zip Code: Houston, TX 77040

Phone No.: 832-590-7209

E-mail Address: vriley@idseg.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: Hajduk, Jason

Title: Senior Vice President

Credential: P.E.

Organization Name: IDS Engineering Group

Mailing Address: 13430 Northwest Freeway, Suite 700

City, State, Zip Code: Houston, TX 77040

Phone No.: 832-590-7148

E-mail Address: jhajduk@idseg.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: Lone Star College – Tomball Community Library

Location within the building: Community Board

Physical Address of Building: 30555 Tomball Parkway

City: Tomball

County: Harris

Contact (Last Name, First Name): Click to enter text.

Phone No.: 832-559-4200 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? Spanish

#### F. Plain Language Summary Template

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

**Attachment:** See Attachment No. 2

#### G. Public Involvement Plan Form

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

**Attachment:** See Attachment No. 3

## 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 N/A

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):

HCMUD No. 606 Wastewater Treatment Plant

C. Owner of treatment facility: Woodmere Development Co., LTD (to be transferred to HCMUD No. 606 upon MUD creation approval)

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

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

Prefix: Mr. Last Name, First Name: Alford, Aaron

Title: Executive Vice President Credential: N/A

Organization Name: BGM Land Investments LTD

Mailing Address: 15915 Katy Fwy, Suite 405 City, State, Zip Code: Houston, TX 77094

Phone No.: 832-859-4305 E-mail Address: aalford@LongLakeLTD.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:** See Attachment 20

E. Owner of effluent disposal site:

Prefix: N/A

Last Name, First Name: N/A

Title: N/A

Credential: N/A

Organization Name: N/A

Mailing Address: N/A

City, State, Zip Code: N/A

Phone No.: N/A

E-mail Address: N/A

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

**Attachment:** N/A

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

Prefix: N/A

Last Name, First Name: N/A

Title: N/A

Credential: N/A

Organization Name: N/A

Mailing Address: N/A

City, State, Zip Code: N/A

Phone No.: N/A

E-mail Address: N/A

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

**Attachment:** N/A

## Section 10. TPDES Discharge Information (Instructions Page 31)

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

☐ Yes ☒ No

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

0.6 miles northwest of the intersection at West Road and Katy Hockley Cutoff Road

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:

The initial discharge of the WWTP will exit the site to the west into the adjacent conveyance channel (approximately 260,000 cy in size with a 10-acre surface area), then flow into an onsite detention pond (approximately 940,000 cy in size with a 40-acre surface area), and finally into an onsite conveyance channel (approximately 335,000 cy in size with a 9 acre surface area) until it exits the site in the southeast corner. From there it will flow south through a proposed offsite drainage channel (approximately 85,000 cy in size with a 7-acre surface area) for 0.4 miles until it discharges into an adjacent development's detention pond system. It will then flow through their detention pond system (approximately 225,000 cy in size with a 16-acre surface area) for 0.7 miles ultimately discharges directly into Bear Creek Segment No. U102-00-00.

City nearest the outfall(s): Katy

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

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

☐ Yes ☒ No

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

☐ Authorization granted ☐ Authorization pending

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

**Attachment:** [Click to enter text.](#)

- D. For all applications involving an average daily discharge of 5 MGD or more, provide the names of all counties located within 100 statute miles downstream of the point(s) of discharge: [Click to enter text.](#)

## Section 11. TLAP Disposal Information (Instructions Page 32)

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

☐ Yes ☒ No

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

N/A

- B. City nearest the disposal site: N/A

- C. County in which the disposal site is located: N/A

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

N/A

- E. For **TLAPs**, please identify the nearest watercourse to the disposal site to which rainfall runoff might flow if not contained: N/A

## 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.

N/A

- 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: N/A

- D. Do you owe any fees to the TCEQ?

☐ Yes ☒ No

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

Account number: N/A

Amount past due: N/A

- E. Do you owe any penalties to the TCEQ?

☐ Yes ☒ No

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

Enforcement order number: N/A

Amount past due: N/A

### 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: Attachment 1 – Core Data Form, Attachment 2 – Plain Language Summary, Attachment 3 – Public Involvement Plan Form, Attachment 5 – USGS Map

## Section 14. Signature Page (Instructions Page 34)

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

Permit Number: Click to enter text.

Applicant: Woodmere Development Co., LTD

Certification:

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

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

Signatory name (typed or printed): Aaron Alford

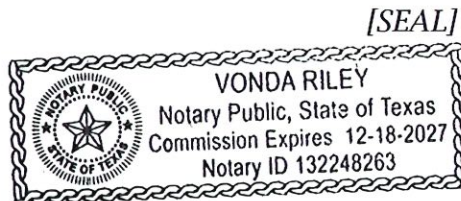
Signatory title: Executive Vice President

Signature:  Date: Nov 26, 2024  
(Use blue ink)

Subscribed and Sworn to before me by the said AARON B. ALFORD  
on this 26TH day of NOVEMBER, 2024.  
My commission expires on the 18TH day of DECEMBER, 2024.

VONDA RILEY  
Notary Public

HARRIS  
County, Texas



# DOMESTIC WASTEWATER PERMIT APPLICATION ADMINISTRATIVE REPORT 1.0

The following information is required for new and amendment applications.

## Section 1. Affected Landowner Information (Instructions Page 36)

- A. Indicate by a check mark that the landowners map or drawing, with scale, includes the following information, as applicable:
- ☒ The applicant's property boundaries
  - ☒ The facility site boundaries within the applicant's property boundaries
  - ☒ The distance the buffer zone falls into adjacent properties and the property boundaries of the landowners located within the buffer zone
  - ☒ The property boundaries of all landowners surrounding the applicant's property (Note: if the application is a major amendment for a lignite mine, the map must include the property boundaries of all landowners adjacent to the new facility (ponds).)
  - ☒ The point(s) of discharge and highlighted discharge route(s) clearly shown for one mile downstream
  - ☒ The property boundaries of the landowners located on both sides of the discharge route for one full stream mile downstream of the point of discharge
  - ☐ The property boundaries of the landowners along the watercourse for a one-half mile radius from the point of discharge if the point of discharge is into a lake, bay, estuary, or affected by tides
  - ☐ The boundaries of the effluent disposal site (for example, irrigation area or subsurface drainfield site) and all evaporation/holding ponds within the applicant's property
  - ☐ The property boundaries of all landowners surrounding the effluent disposal site
  - ☐ The boundaries of the sludge land application site (for land application of sewage sludge for beneficial use) and the property boundaries of landowners surrounding the applicant's property boundaries where the sewage sludge land application site is located
  - ☐ The property boundaries of landowners within one-half mile in all directions from the applicant's property boundaries where the sewage sludge disposal site (for example, sludge surface disposal site or sludge monofill) is located
- B. ☒ Indicate by a check mark that a separate list with the landowners' names and mailing addresses cross-referenced to the landowner's map has been provided.
- C. Indicate by a check mark in which format the landowners list is submitted:
- ☐ USB Drive
  - ☒ Four sets of labels
- D. Provide the source of the landowners' names and mailing addresses: Harris 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):

N/A

## Section 2. Original Photographs (Instructions Page 38)

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

- ☒ At least one original photograph of the new or expanded treatment unit location
- ☐ At least two photographs of the existing/proposed point of discharge and as much area downstream (photo 1) and upstream (photo 2) as can be captured. If the discharge is to an open water body (e.g., lake, bay), the point of discharge should be in the right or left edge of each photograph showing the open water and with as much area on each respective side of the discharge as can be captured.
- ☐ At least one photograph of the existing/proposed effluent disposal site
- ☒ A plot plan or map showing the location and direction of each photograph

## Section 3. Buffer Zone Map (Instructions Page 38)

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

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

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

- ☒ Ownership
- ☒ Restrictive easement
- ☐ Nuisance odor control
- ☐ Variance

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

- ☐ Yes      ☒ No

# **DOMESTIC WASTEWATER PERMIT APPLICATION**

## **SUPPLEMENTAL PERMIT INFORMATION FORM (SPIF)**

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

**Attachment:** See Attachment No. 4



# WATER QUALITY PERMIT

## PAYMENT SUBMITTAL FORM

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

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

**Mail this form and the check or money order to:**

*BY REGULAR U.S. MAIL*

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

*BY OVERNIGHT/EXPRESS MAIL*

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

**Fee Code: WQP**      **Waste Permit No:** [Click to enter text.](#)

1. Check or Money Order Number: 220223/220273
2. Check or Money Order Amount: \$850.00/\$800.00
3. Date of Check or Money Order: 12/2/2024 & 12/16/2024
4. Name on Check or Money Order: IDS Engineering Group
5. APPLICATION INFORMATION

Name of Project or Site: Harris County MUD No. 606 WWTP

Physical Address of Project or Site: TBD

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

**Staple Check or Money Order in This Space**

# ATTACHMENT 1

## INDIVIDUAL INFORMATION

### Section 1. Individual Information (Instructions Page 41)

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

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

Full legal name (Last Name, First Name, Middle Initial): N/A

Driver's License or State Identification Number: N/A

Date of Birth: N/A

Mailing Address: N/A

City, State, and Zip Code: N/A

Phone Number: N/A

Fax Number: N/A

E-mail Address: N/A

CN: N/A

#### For Commission Use Only:

Customer Number:

Regulated Entity Number:

Permit Number:

# DOMESTIC WASTEWATER PERMIT APPLICATION CHECKLIST OF COMMON DEFICIENCIES

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

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

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

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

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

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

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

## **Things to Know:**

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

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

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

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

Plain Language Summary ☒ Yes



# TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

## DOMESTIC WASTEWATER PERMIT APPLICATION TECHNICAL REPORT 1.0

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

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

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

#### A. Existing/Interim I Phase

Design Flow (MGD): 0.24

2-Hr Peak Flow (MGD): 0.96

Estimated construction start date: 10/01/2025

Estimated waste disposal start date: 10/01/2026

#### B. Interim II Phase

Design Flow (MGD): 0.40

2-Hr Peak Flow (MGD): 1.60

Estimated construction start date: 10/01/2027

Estimated waste disposal start date: 04/01/2028

#### C. Final Phase

Design Flow (MGD): 0.64

2-Hr Peak Flow (MGD): 2.56

Estimated construction start date: 10/01/2029

Estimated waste disposal start date: 10/01/2030

#### D. Current Operating Phase

Provide the startup date of the facility: N/A

### Section 2. Treatment Process (Instructions Page 43)

#### A. Current Operating Phase

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

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

See Attachment No. 6

## B. Treatment Units

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

**Table 1.0(1) - Treatment Units**

| Treatment Unit Type  | Number of Units | Dimensions (L x W x D) |
|----------------------|-----------------|------------------------|
| See Attachment No. 7 |                 |                        |
|                      |                 |                        |
|                      |                 |                        |
|                      |                 |                        |
|                      |                 |                        |
|                      |                 |                        |

## C. Process Flow Diagram

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

**Attachment:** See Attachment No. 8

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

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

- Latitude: 29°54'22.07"N
- Longitude: 95°49'7.93"W

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

- Latitude: Click to enter text.
- Longitude: Click to enter text.

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

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

**Attachment:** See Attachment No. 9

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

Harris County Municipal Utility District No. 606

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

#### Collection System Information

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

## Section 4. Unbuilt Phases (Instructions Page 45)

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

☐ Yes ☒ No

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

☐ Yes ☐ No

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

Click to enter text.

## Section 5. Closure Plans (Instructions Page 45)

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

☐ Yes ☒ No

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

☐ Yes ☐ No

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

[Click to enter text.](#)

## Section 6. Permit Specific Requirements (Instructions Page 45)

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

### A. Summary transmittal

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

☐ Yes ☒ No

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

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

[Click to enter text.](#)

### B. Buffer zones

Have the buffer zone requirements been met?

☒ Yes ☐ No

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

Buffer zone is maintained within the site and within restricted reserves owned by the Developer. See Attachment No. 10

### C. Other actions required by the current permit

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

☐ Yes ☒ No

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

Click to enter text.

### D. Grit and grease treatment

#### 1. Acceptance of grit and grease waste

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

☐ Yes ☒ No

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

#### 2. Grit and grease processing

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

Click to enter text.

#### 3. Grit disposal

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

☐ Yes ☐ No

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



Describe the method of grit disposal.

**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.

**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:

**4. Existing coverage in individual permit**

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

☐ Yes ☐ No

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

Click to enter text.

**5. Zero stormwater discharge**

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

☐ Yes ☐ No

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

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

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

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

☐ Yes ☐ No

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

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

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

#### F. Discharges to the Lake Houston Watershed

Does the facility discharge in the Lake Houston watershed?

☐ Yes ☒ No

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

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

##### 1. Acceptance of sludge from other WWTPs

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

☐ Yes ☒ No

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

In addition, provide the date the plant started or is anticipated to start accepting sludge, an estimate of monthly sludge acceptance (gallons or millions of gallons), an estimate of the BOD<sub>5</sub> concentration of the sludge, and the design BOD<sub>5</sub> 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 BOD<sub>5</sub> concentration of the septic waste, and the design BOD<sub>5</sub> concentration of the influent from the collection system. Also note if this information has or has not changed since the last permit action.

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

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

Is 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 50)

Is the facility in operation?

☐ Yes ☒ No

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

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

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

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

| Pollutant                                 | Average Conc. | Max Conc. | No. of Samples | Sample Type | Sample Date/Time |
|---|---------------|-----------|----------------|-------------|------------------|
| CBOD <sub>5</sub> , mg/l                  |               |           |                |             |                  |
| Total Suspended Solids, mg/l              |               |           |                |             |                  |
| Ammonia Nitrogen, mg/l                    |               |           |                |             |                  |
| Nitrate Nitrogen, mg/l                    |               |           |                |             |                  |
| Total Kjeldahl Nitrogen, mg/l             |               |           |                |             |                  |
| Sulfate, mg/l                             |               |           |                |             |                  |
| Chloride, mg/l                            |               |           |                |             |                  |
| Total Phosphorus, mg/l                    |               |           |                |             |                  |
| pH, standard units                        |               |           |                |             |                  |
| Dissolved Oxygen*, mg/l                   |               |           |                |             |                  |
| Chlorine Residual, mg/l                   |               |           |                |             |                  |
| <i>E.coli</i> (CFU/100ml) freshwater      |               |           |                |             |                  |
| Enterococci (CFU/100ml) saltwater         |               |           |                |             |                  |
| Total Dissolved Solids, mg/l              |               |           |                |             |                  |
| Electrical Conductivity, $\mu$ mohs/cm, † |               |           |                |             |                  |
| Oil & Grease, mg/l                        |               |           |                |             |                  |
| Alkalinity (CaCO <sub>3</sub> )*, mg/l    |               |           |                |             |                  |

\*TPDES permits only

†TLAP permits only

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

| Pollutant                             | Average Conc. | Max Conc. | No. of Samples | Sample Type | Sample Date/Time |
|---------------------------------------|---------------|-----------|----------------|-------------|------------------|
| Total Suspended Solids, mg/l          |               |           |                |             |                  |
| Total Dissolved Solids, mg/l          |               |           |                |             |                  |
| pH, standard units                    |               |           |                |             |                  |
| Fluoride, mg/l                        |               |           |                |             |                  |
| Aluminum, mg/l                        |               |           |                |             |                  |
| Alkalinity (CaCO <sub>3</sub> ), mg/l |               |           |                |             |                  |

## Section 8. Facility Operator (Instructions Page 50)

Facility Operator Name: Michael WilliamsFacility Operator's License Classification and Level: AFacility Operator's License Number: 4558384-2

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

### A. WWTP's Biosolids Management Facility Type

Check all that apply. See instructions for guidance

- ☐ Design flow  $\geq$  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 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: [Click to enter text.](#)

### C. Biosolids Management

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

all biosolids management practices listed in the instructions. Rather indicate the management practice the facility plans to use.

#### Biosolids Management

| Management Practice | Handler or Preparer Type  | Bulk or Bag Container | Amount (dry metric tons) | Pathogen Reduction Options      | Vector Attraction Reduction Option       |
|---------------------|---------------------------|-----------------------|--------------------------|---------------------------------|--|
| Storage             | On-Site Owner or Operator | Not Applicable        |                          | Class B: PSRP Aerobic Digestion | Option 1: Volatile solids reduced by 38% |
| Choose an item.     | Choose an item.           | Choose an item.       |                          | Choose an item.                 | Choose an item.                          |
| Choose an item.     | Choose an item.           | Choose an item.       |                          | Choose an item.                 | Choose an item.                          |

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

#### D. Disposal site

Disposal site name: TBD

TCEQ permit or registration number: TBD

County where disposal site is located: TBD

#### E. Transportation method

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

Name of the hauler: TBD

Hauler registration number: TBD

Sludge is transported as a:

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

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

#### A. Beneficial use authorization

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

☐ Yes ☒ No

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

☐ Yes ☐ No

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

☐ Yes ☐ No

## B. Sludge processing authorization

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

|  |                              |  |
|--|------------------------------|--|
| Sludge Composting                          | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| Marketing and Distribution of sludge       | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| Sludge Surface Disposal or Sludge Monofill | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| Temporary storage in sludge lagoons        | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |

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

☐ Yes ☐ No

## Section 11. Sewage Sludge Lagoons (Instructions Page 53)

Does this facility include sewage sludge lagoons?

☐ Yes ☒ No

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

### A. Location information

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

- Original General Highway (County) Map:  
**Attachment:** [Click to enter text.](#)
- USDA Natural Resources Conservation Service Soil Map:  
**Attachment:**
- Federal Emergency Management Map:  
**Attachment:** [Click to enter text.](#)
- Site map:  
**Attachment:**

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

- ☐ Overlap a designated 100-year frequency flood plain
- ☐ Soils with flooding classification
- ☐ Overlap an unstable area
- ☐ Wetlands
- ☐ Located less than 60 meters from a fault
- ☐ None of the above

**Attachment:** [Click to enter text.](#)



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

[Click to enter text.](#)

## B. Temporary storage information

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

Nitrate Nitrogen, mg/kg: [Click to enter text.](#)

Total Kjeldahl Nitrogen, mg/kg: [Click to enter text.](#)

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

Phosphorus, mg/kg: [Click to enter text.](#)

Potassium, mg/kg: [Click to enter text.](#)

pH, standard units: [Click to enter text.](#)

Ammonia Nitrogen mg/kg: [Click to enter text.](#)

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

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

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

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

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

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

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

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

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

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

Total PCBs: [Click to enter text.](#)

Provide the following information:

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

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

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

## C. Liner information

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

☐ Yes ☐ No

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

[Click to enter text.](#)

#### D. Site development plan

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

[Click to enter text.](#)

Attach the following documents to the application.

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

#### E. Groundwater monitoring

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

☐ Yes ☐ No

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

**Attachment:** [Click to enter text.](#)

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

### A. Additional authorizations

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

☐ Yes ☒ No

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

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:

N/A

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

### A. RCRA hazardous wastes

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

☐ Yes ☒ No

**B. Remediation activity wastewater**

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

☐ Yes ☒ No

**C. Details about wastes received**

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

**Attachment:** [Click to enter text.](#)

## Section 14. Laboratory Accreditation (Instructions Page 56)

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

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

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

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

### CERTIFICATION:

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

Printed Name: N/A

Title: N/A

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

# DOMESTIC WASTEWATER PERMIT APPLICATION

## TECHNICAL REPORT 1.1

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

### Section 1. Justification for Permit (Instructions Page 57)

#### A. Justification of permit need

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

See Attachment No. 11

#### B. Regionalization of facilities

For additional guidance, please review [TCEQ's Regionalization Policy for Wastewater Treatment](#)<sup>1</sup>.

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

##### 1. Municipally incorporated areas

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

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

☐ Yes ☒ No ☐ Not Applicable

If yes, within the city limits of: [Click to enter text.](#)

If yes, attach correspondence from the city.

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

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

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

##### 2. Utility CCN areas

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

☐ Yes ☒ No

<sup>1</sup> <https://www.tceq.texas.gov/permitting/wastewater/tceq-regionalization-for-wastewater>

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

**Attachment:** [Click to enter text.](#)

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

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

☒ Yes ☐ No

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

**Attachment:** [See Attachment No. 18](#)

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

**Attachment:** [See Attachment No. 19](#)

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:** [N/A](#)

## Section 2. Proposed Organic Loading (Instructions Page 59)

Is this facility in operation?

☐ Yes ☒ No

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

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

### A. Current organic loading

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

Average Influent Organic Strength or BOD<sub>5</sub> Concentration in mg/l: [Click to enter text.](#)

Average Influent Loading (lbs/day = total average flow X average BOD<sub>5</sub> conc. X 8.34): [Click to enter text.](#)

Provide the source of the average organic strength or BOD<sub>5</sub> 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 BOD <sub>5</sub> Concentration (mg/l) |
|---|-----------------------------------|--|
| Municipality                              | 0.24 Ph 1/0.40 Ph 2/<br>0.64 Ph 3 | 250  |
| Subdivision                               | 0.00                              |  |
| Trailer park – transient                  | 0.00                              |  |
| Mobile home park                          | 0.00                              |  |
| School with cafeteria and showers         | 0.00                              |  |
| School with cafeteria, no showers         | 0.00                              |  |
| Recreational park, overnight use          | 0.00                              |  |
| Recreational park, day use                | 0.00                              |  |
| Office building or factory                | 0.00                              |  |
| Motel                                     | 0.00                              |  |
| Restaurant                                | 0.00                              |  |
| Hospital                                  | 0.00                              |  |
| Nursing home                              | 0.00                              |  |
| Other                                     | 0.00                              |  |
| TOTAL FLOW from all sources               | 0.24 Ph 1/0.40 Ph 2/<br>0.64 Ph 3 |  |
| AVERAGE BOD <sub>5</sub> from all sources |                                   | 250  |

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

### A. Existing/Interim I Phase Design Effluent Quality

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

Total Suspended Solids, mg/l: 15

Ammonia Nitrogen, mg/l: 2

Total Phosphorus, mg/l: N/A

Dissolved Oxygen, mg/l: 4

Other: Click to enter text.



**B. Interim II Phase Design Effluent Quality**

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

Total Suspended Solids, mg/l: 15

Ammonia Nitrogen, mg/l: 2

Total Phosphorus, mg/l: N/A

Dissolved Oxygen, mg/l: 4

Other: Click to enter text.

**C. Final Phase Design Effluent Quality**

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

Total Suspended Solids, mg/l: 15

Ammonia Nitrogen, mg/l: 2

Total Phosphorus, mg/l: N/A

Dissolved Oxygen, mg/l: 4

Other: Click to enter text.

**D. Disinfection Method**

Identify the proposed method of disinfection.

☒ Chlorine: 1-4 mg/l after 20 minutes detention time at peak flow

Dechlorination process: N/A

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

☐ Other: Click to enter text.

**Section 4. Design Calculations (Instructions Page 59)**

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

**Attachment:** See Attachment No. 12

**Section 5. Facility Site (Instructions Page 60)**

**A. 100-year floodplain**

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

☒ Yes ☐ No

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

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

FEMA Panel No. 48201C0390N; See Attachment No. 15

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

☐ Yes ☒ No

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

☐ Yes ☐ No

If **yes**, provide the permit number: [Click to enter text.](#)

If **no**, provide the approximate date you anticipate submitting your application to the Corps: [Click to enter text.](#)

## B. Wind rose

Attach a wind rose: [See Attachment No. 13](#)

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

## A. Beneficial use authorization

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

☐ Yes ☒ No

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

## B. Sludge processing authorization

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

- ☐ Sludge Composting
- ☐ Marketing and Distribution of sludge
- ☐ Sludge Surface Disposal or Sludge Monofill

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

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

Attach a solids management plan to the application.

**Attachment:** [See Attachment No. 14](#)

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

- Treatment units and processes dimensions and capacities

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

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

# DOMESTIC WASTEWATER PERMIT APPLICATION

## WORKSHEET 2.0: RECEIVING WATERS

The following information is required for all TPDES permit applications.

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

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

☐ Yes ☒ No

If **no**, proceed 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 64)

Does the facility discharge into tidally affected waters?

☐ Yes ☒ No

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

#### A. Receiving water outfall

Width of the receiving water at the outfall, in feet: [Click to enter text.](#)

#### B. Oyster waters

Are there oyster waters in the vicinity of the discharge?

☐ Yes ☐ No

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

[Click to enter text.](#)

#### C. Sea grasses

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

☐ Yes ☐ No

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

[Click to enter text.](#)

### Section 3. Classified Segments (Instructions Page 64)

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

☐ Yes ☒ No

If **yes**, this Worksheet is complete.

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

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

Name of the immediate receiving waters: Drainage Channel (to be constructed, not yet built)

#### 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: Drainage ditch not yet built

### C. Downstream perennial confluences

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

N/A

### 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.

The initial discharge of the WWTP will exit the site to the west into the adjacent conveyance channel (approximately 260,000 cy in size with a 10-acre surface area), then flow into an onsite detention pond (approximately 940,000 cy in size with a 40-acre surface area), and finally into an onsite conveyance channel (approximately 335,000 cy in size with a 9 acre surface area) until it exits the site in the southeast corner. From there it will flow south through a proposed offsite drainage channel (approximately 85,000 cy in size with a 7-acre surface area) for 0.4 miles until it discharges into an adjacent development's detention pond system. It will then flow through their detention pond system (approximately 225,000 cy in size with a 16-acre surface area) for 0.7 miles ultimately discharges directly into Bear Creek Segment No. U102-00-00.

### E. Normal dry weather characteristics

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

N/A; RCP and drainage channels not yet built.

Date and time of observation: N/A

Was the water body influenced by stormwater runoff during observations?

☐ Yes ☐ No

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

### A. Upstream influences

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

- |   |  |
|---|--|
| <input type="checkbox"/> Oil field activities | <input type="checkbox"/> Urban runoff        |
| <input type="checkbox"/> Upstream discharges  | <input type="checkbox"/> Agricultural runoff |

☐ Septic tanks  
from detention

☒ Other(s), specify: To contain tract outfall

## B. Waterbody uses

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

☐ Livestock watering

☐ Contact recreation

☐ Irrigation withdrawal

☐ Non-contact recreation

☐ Fishing

☐ Navigation

☐ Domestic water supply

☐ Industrial water supply

☐ Park activities

☐ Other(s), specify: Click to enter text.

## C. Waterbody aesthetics

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

☐ Wilderness: outstanding natural beauty; usually wooded or unpastured area; water clarity exceptional

☐ Natural Area: trees and/or native vegetation; some development evident (from fields, pastures, dwellings); water clarity discolored

☒ Common Setting: not offensive; developed but uncluttered; water may be colored or turbid

☐ Offensive: stream does not enhance aesthetics; cluttered; highly developed; dumping areas; water discolored

# DOMESTIC WASTEWATER PERMIT APPLICATION

## WORKSHEET 2.1: STREAM PHYSICAL CHARACTERISTICS

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

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

### Section 1. General Information (Instructions Page 66)

Date of study: [Click to enter text.](#) Time of study: [Click to enter text.](#)

Stream name: [Click to enter text.](#)

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

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

☐ Perennial ☐ Intermittent with perennial pools

### Section 2. Data Collection (Instructions Page 66)

Number of stream bends that are well defined: [Click to enter text.](#)

Number of stream bends that are moderately defined: [Click to enter text.](#)

Number of stream bends that are poorly defined: [Click to enter text.](#)

Number of riffles: [Click to enter text.](#)

Evidence of flow fluctuations (check one):

☐ Minor ☐ moderate ☐ severe

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

[Click to enter text.](#)



## Stream transects

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

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

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

## Section 3. Summarize Measurements (Instructions Page 66)

Streambed slope of entire reach, from USGS map in feet/feet: [Click to enter text.](#)

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

Length of stream evaluated, in feet: [Click to enter text.](#)

Number of lateral transects made: [Click to enter text.](#)

Average stream width, in feet: [Click to enter text.](#)

Average stream depth, in feet: [Click to enter text.](#)

Average stream velocity, in feet/second: [Click to enter text.](#)

Instantaneous stream flow, in cubic feet/second: [Click to enter text.](#)

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

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

Maximum pool depth, in feet: [Click to enter text.](#)

# DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 3.0: LAND DISPOSAL OF EFFLUENT

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

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

Identify the method of land disposal:

- |   |  |
|---|--|
| <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 type="checkbox"/> Subsurface area drip dispersal system |
| <input type="checkbox"/> Evaporation  | <input type="checkbox"/> Evapotranspiration beds               |
| <input checked="" type="checkbox"/> Other (describe in detail): <u>Haul sludge to permitted/registered facility</u> |  |

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

For existing authorizations, provide Registration Number: [Click to enter text.](#)

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

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

**Table 3.0(1) – Land Application Site Crops**

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

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

**Table 3.0(2) – Storage and Evaporation Ponds**

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

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

**Attachment:** [Click to enter text.](#)

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

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

☐ Yes ☐ No

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

[Click to enter text.](#)

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

[Click to enter text.](#)

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

[Click to enter text.](#)

## Section 5. Annual Cropping Plan (Instructions Page 68)

Attach an Annual Cropping Plan which includes a discussion of each of the following items. If not applicable, provide a detailed explanation indicating why. **Attachment:** [Click to enter text.](#)

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

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

Attach a USGS map with the following information shown and labeled. If not applicable, provide a detailed explanation indicating why. **Attachment:** [Click to enter text.](#)

- 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?<br>Y/N | Open, cased,<br>capped, or plugged? | Proposed Best Management<br>Practice |
|---------|----------|-------------------|-------------------------------------|--------------------------------------|
|         |          |                   | <a href="#">Choose an item.</a>     |                                      |
|         |          |                   | <a href="#">Choose an item.</a>     |                                      |
|         |          |                   | <a href="#">Choose an item.</a>     |                                      |
|         |          |                   | <a href="#">Choose an item.</a>     |                                      |
|         |          |                   | <a href="#">Choose an item.</a>     |                                      |

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

**Attachment:** [Click to enter text.](#)

## Section 7. Groundwater Quality (Instructions Page 69)

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

**Attachment:** [Click to enter text.](#)

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 70)

### A. Soil map

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

**Attachment:** [Click to enter text.](#)

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

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 |
|-------------|--------------------|--------------|--------------------------|--------------|
|             |                    |              |                          |              |
|             |                    |              |                          |              |
|             |                    |              |                          |              |
|             |                    |              |                          |              |
|             |                    |              |                          |              |
|             |                    |              |                          |              |
|             |                    |              |                          |              |

## Section 9. Effluent Monitoring Data (Instructions Page 71)

Is the facility in operation?

☐ Yes ☒ No

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

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

**Table 3.0(5) – Effluent Monitoring Data**

[illegible]

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

Click to enter text.

# DOMESTIC WASTEWATER PERMIT APPLICATION

## WORKSHEET 3.1: SURFACE LAND DISPOSAL OF EFFLUENT

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

### Section 1. Surface Disposal (Instructions Page 72)

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

#### A. Irrigation

Area under irrigation, in acres: [Click to enter text.](#)

Design application frequency:

hours/day [Click to enter text.](#) And days/week [Click to enter text.](#)

Land grade (slope):

average percent (%): [Click to enter text.](#)

maximum percent (%): [Click to enter text.](#)

Design application rate in acre-feet/acre/year: [Click to enter text.](#)

Design total nitrogen loading rate, in lbs N/acre/year: [Click to enter text.](#)

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

Method of application: [Click to enter text.](#)

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

**Attachment:** [Click to enter text.](#)

#### B. Evaporation ponds

Daily average effluent flow into ponds, in gallons per day: [Click to enter text.](#)

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

**Attachment:** [Click to enter text.](#)

#### C. Evapotranspiration beds

Number of beds: [Click to enter text.](#)

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

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

Void ratio of soil in the beds: [Click to enter text.](#)

Storage volume within the beds, in acre-feet: [Click to enter text.](#)

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

**Attachment:** [Click to enter text.](#)



#### D. Overland flow

Area used for application, in acres: [Click to enter text.](#)

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

Design application rate, in gpm/foot of slope width: [Click to enter text.](#)

Slope length, in feet: [Click to enter text.](#)

Design BOD<sub>5</sub> loading rate, in lbs BOD<sub>5</sub>/acre/day: [Click to enter text.](#)

Design application frequency:

hours/day: [Click to enter text.](#) **And** days/week: [Click to enter text.](#)

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

**Attachment:** [Click to enter text.](#)

## Section 2. Edwards Aquifer (Instructions Page 73)

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

☐ Yes ☒ No

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

☐ Yes ☐ No

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

**Attachment:** [Click to enter text.](#)

# DOMESTIC WASTEWATER PERMIT APPLICATION

## WORKSHEET 3.2: SURFACE LAND DISPOSAL OF EFFLUENT

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

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

### Section 1. Subsurface Application (Instructions Page 74)

Identify the type of system:

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

Application area, in acres: [Click to enter text.](#)

Area of drainfield, in square feet: [Click to enter text.](#)

Application rate, in gal/square foot/day: [Click to enter text.](#)

Depth to groundwater, in feet: [Click to enter text.](#)

Area of trench, in square feet: [Click to enter text.](#)

Dosing duration per area, in hours: [Click to enter text.](#)

Number of beds: [Click to enter text.](#)

Dosing amount per area, in inches/day: [Click to enter text.](#)

Infiltration rate, in inches/hour: [Click to enter text.](#)

Storage volume, in gallons: [Click to enter text.](#)

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

Soil Classification: [Click to enter text.](#)

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

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

### Section 2. Edwards Aquifer (Instructions Page 74)

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

- ☐ Yes ☐ No

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

- ☐ Yes ☐ No

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

# DOMESTIC WASTEWATER PERMIT APPLICATION

## WORKSHEET 3.3: SUBSURFACE AREA DRIP DISPERSAL (SADDS) LAND DISPOSAL OF EFFLUENT

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

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

### Section 1. Administrative Information (Instructions Page 75)

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

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

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: [Click to enter text.](#)

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

☐ Yes ☐ No

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

[Click to enter text.](#)

## Section 2. Subsurface Area Drip Dispersal System (Instructions Page 75)

### A. Type of system

- ☐ Subsurface Drip Irrigation
- ☐ Surface Drip Irrigation
- ☐ Other, specify: [Click to enter text.](#)

### B. Irrigation operations

Application area, in acres: [Click to enter text.](#)

Infiltration Rate, in inches/hour: [Click to enter text.](#)

Average slope of the application area, percent (%): [Click to enter text.](#)

Maximum slope of the application area, percent (%): [Click to enter text.](#)

Storage volume, in gallons: [Click to enter text.](#)

Major soil series: [Click to enter text.](#)

Depth to groundwater, in feet: [Click to enter text.](#)

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

Nitrogen application rate, in lbs/gal/day: [Click to enter text.](#)

### D. Dosing information

Number of doses per day: [Click to enter text.](#)

Dosing duration per area, in hours: [Click to enter text.](#)

Rest period between doses, in hours: [Click to enter text.](#)

Dosing amount per area, in inches/day: [Click to enter text.](#)

Number of zones: [Click to enter text.](#)

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

☐ Yes ☐ No

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

**Attachment:** [Click to enter text.](#)

### Section 3. Required Plans (Instructions Page 75)

#### A. Recharge feature plan

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

**Attachment:** [Click to enter text.](#)

#### B. Soil evaluation

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

**Attachment:** [Click to enter text.](#)

#### C. Site preparation plan

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

**Attachment:** [Click to enter text.](#)

#### D. Soil sampling/testing

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

**Attachment:** [Click to enter text.](#)

### Section 4. Floodway Designation (Instructions Page 76)

#### A. Site location

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

☐ Yes ☐ No

#### B. Flood map

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

**Attachment:** [Click to enter text.](#)

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

#### A. Buffer Map

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

**Attachment:** [Click to enter text.](#)

**B. Buffer variance request**

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

☐ Yes ☐ No

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

**Attachment:** [Click to enter text.](#)

**Section 6. Edwards Aquifer (Instructions Page 76)**

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

☐ Yes ☐ No

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

☐ Yes ☐ No

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

# DOMESTIC WASTEWATER PERMIT APPLICATION

## WORKSHEET 4.0: POLLUTANT ANALYSIS REQUIREMENTS

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

This worksheet is not required minor amendments without renewal.

### Section 1. Toxic Pollutants (Instructions Page 78)

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

Grab ☐ Composite ☐

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

**Table 4.0(1) – Toxics Analysis**

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

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



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

| Pollutant   | AVG<br>Effluent<br>Conc. (µg/l) | MAX<br>Effluent<br>Conc. (µg/l) | Number of<br>Samples | MAL<br>(µg/l) |
|---|---------------------------------|---------------------------------|----------------------|---------------|
| 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<br>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<br>Effluent<br>Conc. (µg/l) | MAX<br>Effluent<br>Conc. (µg/l) | Number of<br>Samples | MAL<br>(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<br>Effluent<br>Conc. (µg/l) | MAX<br>Effluent<br>Conc. (µg/l) | Number of<br>Samples | MAL<br>(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<br>[Bromodichloromethane] |                                 |                                 |                      | 10            |
| 1,1-Dichloroethane                             |                                 |                                 |                      | 10            |
| 1,2-Dichloroethane                             |                                 |                                 |                      | 10            |
| 1,1-Dichloroethylene                           |                                 |                                 |                      | 10            |
| 1,2-Dichloropropane                            |                                 |                                 |                      | 10            |
| 1,3-Dichloropropylene<br>[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<br>Effluent<br>Conc. (µg/l) | MAX<br>Effluent<br>Conc. (µg/l) | Number of<br>Samples | MAL<br>(µg/l) |
|-----------------------|---------------------------------|---------------------------------|----------------------|---------------|
| 2-Chlorophenol        |                                 |                                 |                      | 10            |
| 2,4-Dichlorophenol    |                                 |                                 |                      | 10            |
| 2,4-Dimethylphenol    |                                 |                                 |                      | 10            |
| 4,6-Dinitro-o-Cresol  |                                 |                                 |                      | 50            |
| 2,4-Dinitrophenol     |                                 |                                 |                      | 50            |
| 2-Nitrophenol         |                                 |                                 |                      | 20            |
| 4-Nitrophenol         |                                 |                                 |                      | 50            |
| P-Chloro-m-Cresol     |                                 |                                 |                      | 10            |
| Pentalchlorophenol    |                                 |                                 |                      | 5             |
| Phenol                |                                 |                                 |                      | 10            |
| 2,4,6-Trichlorophenol |                                 |                                 |                      | 10            |

**Table 4.0(2)D – Base/Neutral Compounds**

| Pollutant                                  | AVG<br>Effluent<br>Conc. (µg/l) | MAX<br>Effluent<br>Conc. (µg/l) | Number of<br>Samples | MAL<br>(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-<br>benzene) |                                 |                                 |                      | 20            |
| Fluoranthene                               |                                 |                                 |                      | 10            |

| <b>Pollutant</b>           | <b>AVG<br/>Effluent<br/>Conc. (µg/l)</b> | <b>MAX<br/>Effluent<br/>Conc. (µg/l)</b> | <b>Number of<br/>Samples</b> | <b>MAL<br/>(µg/l)</b> |
|----------------------------|--|--|------------------------------|-----------------------|
| 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<br>Effluent<br>Conc. (µg/l) | MAX<br>Effluent<br>Conc. (µg/l) | Number of<br>Samples | MAL<br>(µg/l) |
|--------------------------------------|---------------------------------|---------------------------------|----------------------|---------------|
| Aldrin                               |                                 |                                 |                      | 0.01          |
| alpha-BHC (Hexachlorocyclohexane)    |                                 |                                 |                      | 0.05          |
| beta-BHC (Hexachlorocyclohexane)     |                                 |                                 |                      | 0.05          |
| gamma-BHC<br>(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<br>Equivalenc<br>y Factors | Wastewater<br>Concentration<br>(ppq) | Wastewater<br>Equivalents<br>(ppq) | Sludge<br>Concentration<br>(ppt) | Sludge<br>Equivalents<br>(ppt) | MAL<br>(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<br>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<br>HpCDFs    | 0.01                             |                                      |                                    |                                  |                                | 50           |
| OCDD                   | 0.0003                           |                                      |                                    |                                  |                                | 100          |
| OCDF                   | 0.0003                           |                                      |                                    |                                  |                                | 100          |
| PCB 77                 | 0.0001                           |                                      |                                    |                                  |                                | 0.5          |
| PCB 81                 | 0.0003                           |                                      |                                    |                                  |                                | 0.5          |
| PCB 126                | 0.1                              |                                      |                                    |                                  |                                | 0.5          |
| PCB 169                | 0.03                             |                                      |                                    |                                  |                                | 0.5          |
| Total                  |                                  |                                      |                                    |                                  |                                |              |

# DOMESTIC WASTEWATER PERMIT APPLICATION

## WORKSHEET 5.0: TOXICITY TESTING REQUIREMENTS

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

This worksheet is not required minor amendments without renewal.

### Section 1. Required Tests (Instructions Page 88)

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

7-day Chronic: [Click to enter text.](#)

48-hour Acute: [Click to enter text.](#)

### Section 2. Toxicity Reduction Evaluations (TREs)

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

☐ Yes ☐ No

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

[Click to enter text.](#)

### Section 3. Summary of WET Tests

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

**Table 5.0(1) Summary of WET Tests**

| Test Date | Test Species | NOEC Survival | NOEC Sub-lethal |
|-----------|--------------|---------------|-----------------|
|           |              |               |                 |
|           |              |               |                 |
|           |              |               |                 |
|           |              |               |                 |
|           |              |               |                 |
|           |              |               |                 |
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|           |              |               |                 |
|           |              |               |                 |

# DOMESTIC WASTEWATER PERMIT APPLICATION

## WORKSHEET 6.0: INDUSTRIAL WASTE CONTRIBUTION

The following is required for all publicly owned treatment works.

### Section 1. All POTWs (Instructions Page 89)

#### A. Industrial users (IUs)

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

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

Categorical IUs:

Number of IUs: 0

Average Daily Flows, in MGD: 0

Significant IUs - non-categorical:

Number of IUs: 0

Average Daily Flows, in MGD: 0

Other IUs:

Number of IUs: 0

Average Daily Flows, in MGD: 0

#### 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 90)

### A. Substantial modifications

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

☐ Yes ☐ No

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

Click to enter text.

## B. Non-substantial modifications

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

☐ Yes ☐ No

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

Click to enter text.

## C. Effluent parameters above the MAL

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

**Table 6.0(1) – Parameters Above the MAL**

| Pollutant | Concentration | MAL | Units | Date |
|-----------|---------------|-----|-------|------|
|           |               |     |       |      |
|           |               |     |       |      |
|           |               |     |       |      |
|           |               |     |       |      |
|           |               |     |       |      |

## D. Industrial user interruptions

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

☐ Yes ☐ No

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

Click to enter text.

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

#### A. General information

Company Name: N/A

SIC Code: N/A

Contact name: N/A

Address: N/A

City, State, and Zip Code: N/A

Telephone number: N/A

Email address: N/A

#### 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).

N/A

#### C. Product and service information

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

N/A

#### D. Flow rate information

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

Process Wastewater:

Discharge, in gallons/day: N/A

Discharge Type: ☐ Continuous ☐ Batch ☐ Intermittent

Non-Process Wastewater:

Discharge, in gallons/day: N/A

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.

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 92)

**1. TCEQ Program Area**

Program Area (PST, VCP, IHW, etc.): [Click to enter text.](#)

Program ID: [Click to enter text.](#)

Contact Name: [Click to enter text.](#)

Phone Number: [Click to enter text.](#)

**2. Agent/Consultant Contact Information**

Contact Name: [Click to enter text.](#)

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

City, State, and Zip Code: [Click to enter text.](#)

Phone Number: [Click to enter text.](#)

**3. Owner/Operator Contact Information**

☐ Owner ☐ Operator

Owner/Operator Name: [Click to enter text.](#)

Contact Name: [Click to enter text.](#)

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

City, State, and Zip Code: [Click to enter text.](#)

Phone Number: [Click to enter text.](#)

**4. Facility Contact Information**

Facility Name: [Click to enter text.](#)

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

City, State, and Zip Code: [Click to enter text.](#)

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

Facility Contact Person: [Click to enter text.](#)

Phone Number: [Click to enter text.](#)

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

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

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

Method of determination (GPS, TOPO, etc.): [Click to enter text.](#)

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:

[Click to enter text.](#)

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         |      |               |  |           |                           |
| Tubing         |      |               |  |           |                           |
| Screen         |      |               |  |           |                           |

### Section 3. Proposed Trench System, Subsurface Fluid Distribution System, or Infiltration Gallery

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

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

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

### Section 4. Site Hydrogeological and Injection Zone Data

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

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 WTP 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)

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**Attachment 1 – TCEQ Core Data Form**  
**(Admin. Rpt. 1.0, 3c)**



# 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

|  |   |   |
|--|---|---|
| <b>1. Reason for Submission</b> (If other is checked please describe in space provided.)   |   |   |
| <input checked="" type="checkbox"/> New Permit, Registration or Authorization (Core Data Form should be submitted with the program application.) |   |   |
| <input type="checkbox"/> Renewal (Core Data Form should be submitted with the renewal form)  |   | <input type="checkbox"/> Other                          |
| <b>2. Customer Reference Number</b> (if issued)  | <a href="#">Follow this link to search for CN or RN numbers in Central Registry**</a> | <b>3. Regulated Entity Reference Number</b> (if issued) |
| CN 602463333   |   | RN  |

## SECTION II: Customer Information

|   |                    |  |       |  |  |
|---|--------------------|--|-------|--|--|
| <b>4. General Customer Information</b>  |                    | <b>5. Effective Date for Customer Information Updates</b> (mm/dd/yyyy) |       |  |  |
| <input checked="" type="checkbox"/> New Customer <input type="checkbox"/> Update to Customer Information <input type="checkbox"/> Change in Regulated Entity Ownership                                  |                    |  |       |  |  |
| <input type="checkbox"/> Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)  |                    |  |       |  |  |
| <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>         |                    |  |       |  |  |
| <b>6. Customer Legal Name</b> (If an individual, print last name first: eg: Doe, John)  |                    |  |       | <i>If new Customer, enter previous Customer below:</i>   |  |
| Woodmere Development Co., LTD   |                    |  |       |  |  |
| <b>7. TX SOS/CPA Filing Number</b>  |                    | <b>8. TX State Tax ID</b> (11 digits)                                  |       | <b>9. Federal Tax ID</b><br>(9 digits)                   | <b>10. DUNS Number</b> (if applicable)   |
|   |                    |  |       |  |  |
| <b>11. Type of Customer:</b>  |                    | <input checked="" type="checkbox"/> Corporation                        |       | <input type="checkbox"/> Individual                      | Partnership: <input type="checkbox"/> General <input type="checkbox"/> Limited |
| Government: <input type="checkbox"/> City <input type="checkbox"/> County <input type="checkbox"/> Federal <input type="checkbox"/> Local <input type="checkbox"/> State <input type="checkbox"/> Other |                    | <input type="checkbox"/> Sole Proprietorship                           |       | <input type="checkbox"/> Other:                          |  |
| <b>12. Number of Employees</b>  |                    |  |       | <b>13. Independently Owned and Operated?</b>             |  |
| <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 type="checkbox"/> Yes <input type="checkbox"/> No |  |
| <b>14. Customer Role</b> (Proposed or Actual) – as it relates to the Regulated Entity listed on this form. Please check one of the following  |                    |  |       |  |  |
| <input type="checkbox"/> Owner <input type="checkbox"/> Operator <input type="checkbox"/> Owner & Operator <input checked="" type="checkbox"/> Other: Developer   |                    |  |       |  |  |
| <input type="checkbox"/> Occupational Licensee <input type="checkbox"/> Responsible Party <input type="checkbox"/> VCP/BSA Applicant  |                    |  |       |  |  |
| <b>15. Mailing Address:</b>   | 15915 Katy Freeway |  |       |  |  |
|   | Suite 405          |  |       |  |  |
|   | City               | Houston  | State | TX   | ZIP 77094 ZIP + 4  |
| <b>16. Country Mailing Information</b> (if outside USA)   |                    |  |       | <b>17. E-Mail Address</b> (if applicable)                |  |
|   |                    |  |       | aalford@LongLakeLTD.com                                  |  |
| <b>18. Telephone Number</b>   |                    | <b>19. Extension or Code</b>   |       | <b>20. Fax Number</b> (if applicable)                    |  |
|   |                    |  |       |  |  |



## SECTION III: Regulated Entity Information

|   |      |  |       |  |     |  |         |
|---|------|--|-------|--|-----|--|---------|
| <b>21. General Regulated Entity Information</b> <i>(If 'New Regulated Entity' is selected, a new permit application is also required.)</i>  |      |  |       |  |     |  |         |
| <input checked="" type="checkbox"/> New Regulated Entity <input type="checkbox"/> Update to Regulated Entity Name <input 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>                 |      |  |       |  |     |  |         |
| <b>22. Regulated Entity Name</b> <i>(Enter name of the site where the regulated action is taking place.)</i>  |      |  |       |  |     |  |         |
| Haris County Municipal District No. 606 Wastewater Treatment Plant  |      |  |       |  |     |  |         |
| <b>23. Street Address of the Regulated Entity:</b><br><br><i>(No PO Boxes)</i>  |      |  |       |  |     |  |         |
|   |      |  |       |  |     |  |         |
|   | City |  | State |  | ZIP |  | ZIP + 4 |
| <b>24. County</b>   |      |  |       |  |     |  |         |

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

|  |   |  |  |  |           |  |         |
|--|---|--|--|--|-----------|--|---------|
| <b>25. Description to Physical Location:</b>   | 0.6 miles northwest of the intersection of West Road and Katy Hockley Cutoff Road |  |  |  |           |  |         |
| <b>26. Nearest City</b>  | <b>State</b>  |  |  | <b>Nearest ZIP Code</b>                      |           |  |         |
| Cypress  | TX  |  |  | 77433  |           |  |         |
| <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> |   |  |  |  |           |  |         |
| <b>27. Latitude (N) In Decimal:</b>  | 29.906205   |  |  | <b>28. Longitude (W) In Decimal:</b>         | 95.817716 |  |         |
| Degrees  | Minutes   | Seconds  | Degrees  | Minutes                                      | Seconds   |  |         |
| 29   | 54  | 22.34  | 95   | 49   | 3.78      |  |         |
| <b>29. Primary SIC Code</b><br>(4 digits)  | <b>30. Secondary SIC Code</b><br>(4 digits)                                       | <b>31. Primary NAICS Code</b><br>(5 or 6 digits) | <b>32. Secondary NAICS Code</b><br>(5 or 6 digits) |  |           |  |         |
|  |   |  |  |  |           |  |         |
| <b>33. What is the Primary Business of this entity?</b> <i>(Do not repeat the SIC or NAICS description.)</i>   |   |  |  |  |           |  |         |
|  |   |  |  |  |           |  |         |
| <b>34. Mailing Address:</b>  |   |  |  |  |           |  |         |
|  |   |  |  |  |           |  |         |
|  | City  |  | State  |  | ZIP       |  | ZIP + 4 |
| <b>35. E-Mail Address:</b>   |   |  |  |  |           |  |         |
| <b>36. Telephone Number</b>  | <b>37. Extension or Code</b>  |  |  | <b>38. Fax Number</b> <i>(if applicable)</i> |           |  |         |
| (   )   -  |   |  |  | (   )   -                                    |           |  |         |

**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:                     |
|  |  |   |  |   |

## **SECTION IV: Preparer Information**

|                             |                      |                       |                           |                   |                 |
|-----------------------------|----------------------|-----------------------|---------------------------|-------------------|-----------------|
| <b>40. Name:</b>            | Valeria Gomez        |                       |                           | <b>41. Title:</b> | Design Engineer |
| <b>42. Telephone Number</b> | <b>43. Ext./Code</b> | <b>44. Fax Number</b> | <b>45. E-Mail Address</b> |                   |                 |
| ( 832 ) 590-7149            |                      | ( ) -                 | VGomez@idseg.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.

|                         |   |                   |                          |            |
|-------------------------|---|-------------------|--------------------------|------------|
| <b>Company:</b>         | Woodmere Development Co., LTD   | <b>Job Title:</b> | Executive Vice President |            |
| <b>Name (In Print):</b> | Aaron Alford  | <b>Phone:</b>     | ( 832 ) 859- 4305        |            |
| <b>Signature:</b>       |  |                   | <b>Date:</b>             | 11/26/2024 |

**Attachment 2 – Plain Language Summary**  
**(Admin. Rpt. 1.0, 8f)**



## TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

### PLAIN LANGUAGE SUMMARY FOR TPDES OR TLAP PERMIT APPLICATIONS

#### Plain Language Summary Template and Instructions for Texas Pollutant Discharge Elimination System (TPDES) and Texas Land Application (TLAP) Permit Applications

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

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

If you are subject to the alternative language notice requirements in [30 TAC Section 39.426](#), **you must provide a translated copy of the completed plain language summary in the appropriate alternative language as part of your application package**. For your convenience, a Spanish template has been provided below.

#### ENGLISH TEMPLATE FOR TPDES or TLAP NEW/RENEWAL/AMENDMENT APPLICATIONS DOMESTIC WASTEWATER/STORMWATER

*The following summary is provided for this pending water quality permit application being reviewed by the Texas Commission on Environmental Quality as required by 30 TAC Chapter 39. The information provided in this summary may change during the technical review of the application and is not a federal enforceable representation of the permit application.*

Woodmere Development Co., LTD (CN 602463333) proposes to operate Harris County MUD No. 606 (RN not yet provided), a wastewater treatment plant to serve HCMUD No. 606. The facility will be located at 0.6 miles northwest of the intersection of West Road and Katy Hockley Cutoff Road, in Cypress, Harris County, Texas 77433. New TPDES permit for a facility flowing at an average 640,000 gallons per day to ultimately discharge in Bear Creek.

Discharges from the facility are expected to contain Biochemical Oxygen Demand, 10 mg/L, Total Suspended Solids, 15 mg/L, Ammonia Nitrogen, 2 mg/L, Dissolved Oxygen, 4 mg/L. Domestic wastewater will be treated by a single stage nitrification process, wastewater will pass through screening, into aeration, then to clarification, after this process effluent will be disinfected with chlorine and discharged ultimately to Bear Creek.

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

### AGUAS RESIDUALES DOMESTICAS /AGUAS PLUVIALES

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

Woodmere Development Co., LTD (CN602463333) propone operar Harris County MUD No. 606 (numero de entidad todavia no se ha proporcionado), una planta de tratamiento de aguas residuales. La instalación estará ubicada en 0.6 millas noroeste de la interseccion de West Road y Katy Hockley Cutoff Road, en Cypress, Condado de Harris, Texas 77433. Nuevo permiso de TPDES para una instalación que fluye a un promedio de 640,000 galones por día para descargar finalmente en Bear Creek.

Se espera que las descargas de la instalación contengan Demanda Bioquímica de Oxígeno, 10 mg/L, Sólidos Suspendidos Totales, 15 mg/L, Nitrógeno Amoniacal, 2 mg/L, Oxígeno Disuelto, 4 mg/L. Aguas residuales domésticas. **estará** tratado por un proceso de nitrificación de una sola etapa, las aguas residuales pasarán a través de la criba, a la aireación, luego a la clarificación, después de este proceso, el efluente se desinfectará con cloro y se descargará finalmente a Bear Creek.

**Attachment 3 – Public Involvement Plan Form**  
**(Admin. Rpt. 1.0, 8g)**



Texas Commission on Environmental Quality

## Public Involvement Plan Form for Permit and Registration Applications

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

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

### Section 1. Preliminary Screening

New Permit or Registration Application

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

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

### Section 2. Secondary Screening

Requires public notice,

Considered to have significant public interest, and

Located within any of the following geographical locations:

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

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

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

### Section 3. Application Information

#### Type of Application (check all that apply):

Air            Initial        Federal        Amendment        Standard Permit        Title V  
Waste        Municipal Solid Waste        Industrial and Hazardous Waste        Scrap Tire  
                  Radioactive Material Licensing                    Underground Injection Control

#### Water Quality

    Texas Pollutant Discharge Elimination System (TPDES)  
        Texas Land Application Permit (TLAP)  
        State Only Concentrated Animal Feeding Operation (CAFO)  
        Water Treatment Plant Residuals Disposal Permit  
    Class B Biosolids Land Application Permit  
    Domestic Septage Land Application Registration

#### Water Rights New Permit

    New Appropriation of Water  
    New or existing reservoir

#### Amendment to an Existing Water Right

    Add a New Appropriation of Water  
    Add a New or Existing Reservoir  
    Major Amendment that could affect other water rights or the environment

### Section 4. Plain Language Summary

Provide a brief description of planned activities.



## Section 5. Community and Demographic Information

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

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

(City)

(County)

(Census Tract)

Please indicate which of these three is the level used for gathering the following information.

City

County

Census Tract

- (a) Percent of people over 25 years of age who at least graduated from high school
- (b) Per capita income for population near the specified location
- (c) Percent of minority population and percent of population by race within the specified location
- (d) Percent of Linguistically Isolated Households by language within the specified location
- (e) Languages commonly spoken in area by percentage
- (f) Community and/or Stakeholder Groups
- (g) Historic public interest or involvement

## Section 6. Planned Public Outreach Activities

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

Yes      No

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

Yes      No

If Yes, please describe.

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

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

Yes      No

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

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

Publish in alternative language newspaper

Posted on Commissioner's Integrated Database Website

Mailed by TCEQ's Office of the Chief Clerk

Other (specify)

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

Yes      No

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

Yes      No

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

TCEQ Regional Office

TCEQ Central Office

Public Place (specify)

## Section 7. Voluntary Submittal

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

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

Yes      No

What types of notice will be provided?

Publish in alternative language newspaper

Posted on Commissioner's Integrated Database Website

Mailed by TCEQ's Office of the Chief Clerk

Other (specify)

**Attachment 4 – Supplemental Permit Information Form**  
**(Admin. Rpt. 1.1, 1)**

# TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

## SUPPLEMENTAL PERMIT INFORMATION FORM (SPIF)

### FOR AGENCIES REVIEWING DOMESTIC OR INDUSTRIAL TPDES WASTEWATER PERMIT APPLICATIONS

#### TCEQ USE ONLY:

Application type: \_\_\_\_Renewal \_\_\_\_Major Amendment \_\_\_\_Minor Amendment \_\_\_\_New

County: \_\_\_\_\_ Segment Number: \_\_\_\_\_

Admin Complete Date: \_\_\_\_\_

Agency Receiving SPIF:

\_\_\_\_ Texas Historical Commission

\_\_\_\_ U.S. Fish and Wildlife

\_\_\_\_ Texas Parks and Wildlife Department

\_\_\_\_ U.S. Army Corps of Engineers

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

Complete this form as a separate document. TCEQ will mail a copy to each agency as required by our agreement with EPA. If any of the items are not completely addressed or further information is needed, we will contact you to provide the information before issuing the permit. Address each item completely.

**Do not refer to your response to any item in the permit application form.** Provide each attachment for this form separately from the Administrative Report of the application. The application will not be declared administratively complete without this SPIF form being completed in its entirety including all attachments. Questions or comments concerning this form may be directed to the Water Quality Division's Application Review and Processing Team by email at [WQ-ARPTeam@tceq.texas.gov](mailto:WQ-ARPTeam@tceq.texas.gov) or by phone at (512) 239-4671.

The following applies to all applications:

1. Permittee: Woodmere Development Co., LTD

Permit No. WQ00

EPA ID No. TX

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

0.6 miles northwest of the intersection of West Road and Katy Hockley Cutoff Road

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

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

First and Last Name: Kameron Pugh

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

Title: Senior Project Manager

Mailing Address: 13430 Northwest Freeway, Suite 700

City, State, Zip Code: Houston, TX 77040

Phone No.: 832-590-7187 Ext.:

Fax No.:

E-mail Address: kpugh@idseg.com

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

Woodmere Development Co., LTD – This property will be transferred to Harris County Municipal Utility District No. 606 upon MUD creation.

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

The initial discharge of the WWTP will exit the site to the west into the adjacent conveyance channel (approximately 260,000 cy in size with a 10-acre surface area), then flow into an onsite detention pond (approximately 940,000 cy in size with a 40-acre surface area), and finally into an onsite conveyance channel (approximately 335,000 cy in size with a 9 acre surface area) until it exits the site in the southeast corner. From there it will flow south through a proposed offsite drainage channel (approximately 85,000 cy in size with a 7-acre surface area) for 0.4 miles until it discharges into an adjacent development's detention pond system. It will then flow through their detention pond system (approximately 225,000 cy in size with a 16-acre surface area) for 0.7 miles ultimately discharges directly into Bear Creek Segment No. U102-00-00.

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

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

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

- ☒ Proposed access roads, utility lines, construction easements
- ☐ Visual effects that could damage or detract from a historic property's integrity
- ☐ Vibration effects during construction or as a result of project design

- ☒ Additional phases of development that are planned for the future
- ☐ Sealing caves, fractures, sinkholes, other karst features
- ☐ Disturbance of vegetation or wetlands

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

Area of construction is a presently cleared area and flat elevation.

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

This location is currently unused, the site is lightly wooded with several small commercial sheds.

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

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

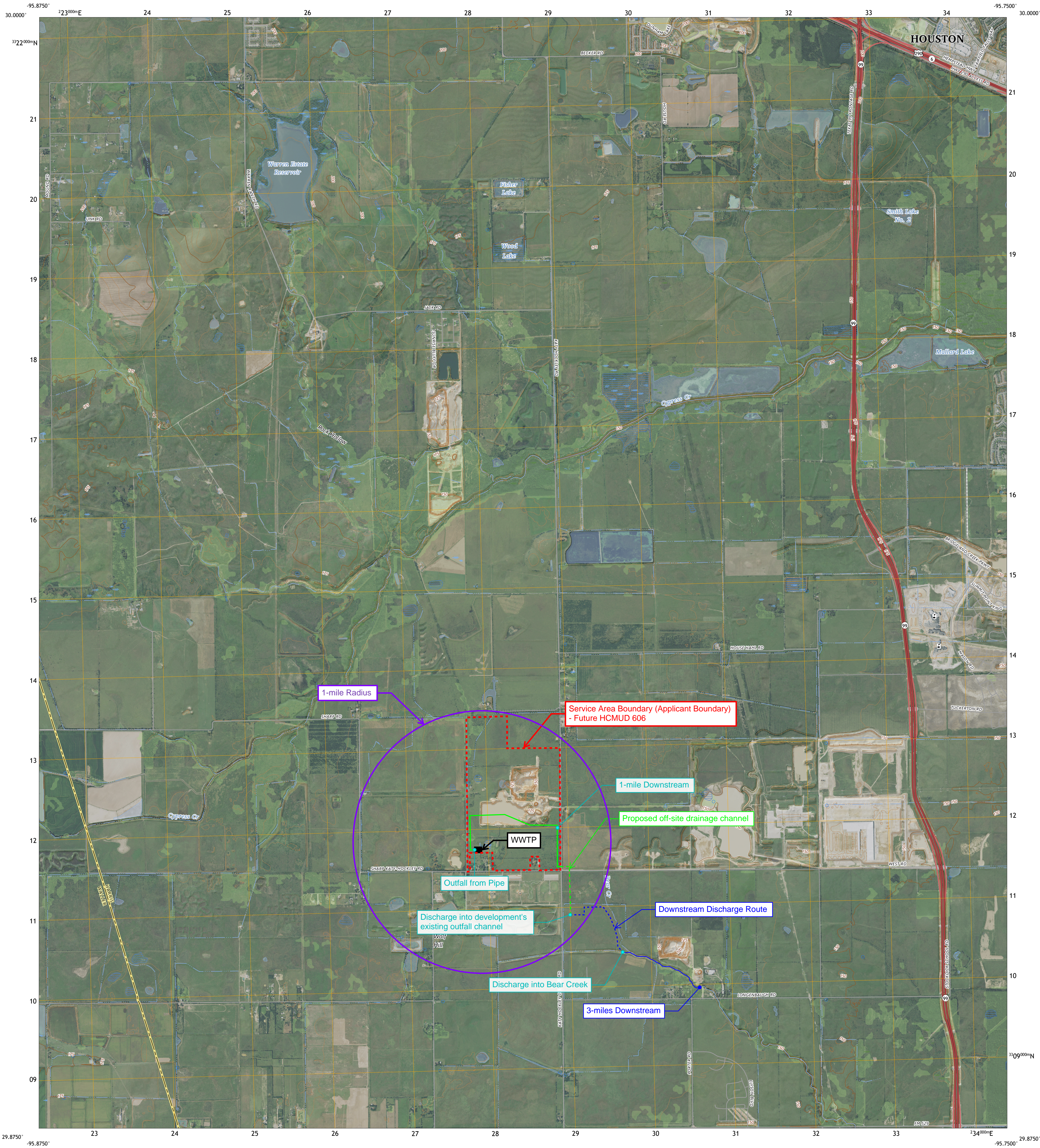
Historically there have been no structures on this site. Confirmed via satellite and airborne imaging going back to 1944.

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

The property has been used for a sand mining operation onsite. No previous developments.

**Attachment 5 – USGS Map (Full Size)**  
**(Admin. Rpt. 1.0, 13; SPIF, 5)**



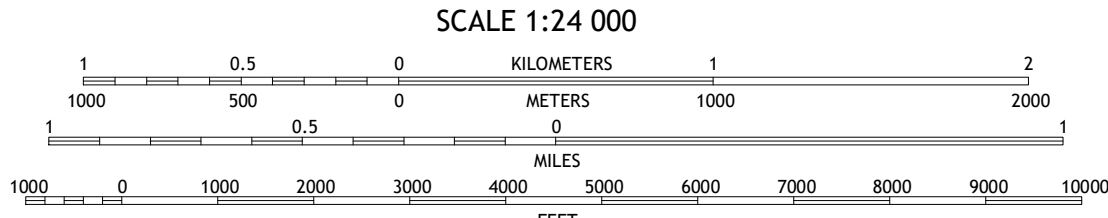
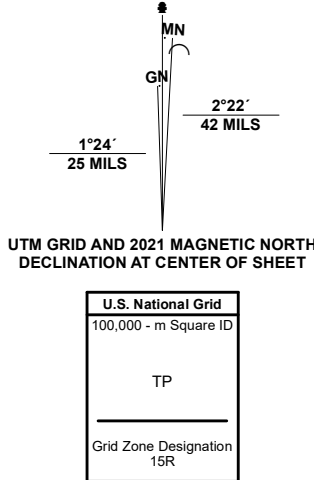


Produced by the United States Geological Survey

North American Datum of 1983 (NAD83)  
World Geodetic System of 1984 (WGS84). Projection and  
1 000-meter grid/Universal Transverse Mercator, Zone 15R  
Data is provided by The National Map (TNM), is the best available at the time of map  
generation, and includes data content from supporting themes of Elevation,  
Hydrography, Geographic Names, Boundaries, Transportation, Structures, Land Cover,  
and Orthoimagery. Refer to associated Federal Geographic Data Committee (FGDC)  
Metadata for additional source data information.

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. Temporal changes may have occurred since these data  
were collected and some data may no longer represent actual surface conditions.

Learn About The National Map: <https://nationalmap.gov>



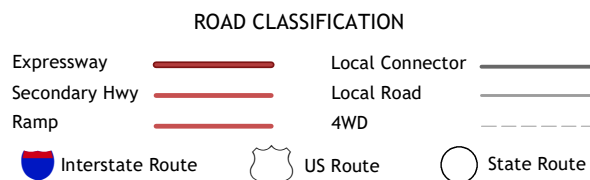
CONTOUR INTERVAL 5 FEET  
NORTH AMERICAN VERTICAL DATUM OF 1988  
CONTOUR SMOOTHNESS = Medium



QUADRANGLE LOCATION

|               |             |           |
|---------------|-------------|-----------|
| Waller        | Hockley     | Rose Hill |
| Hockley Round | Warren Lake | Cypress   |
| Brookshire    | Katy        | Addicks   |

ADJOINING QUADRANGLES



WARREN LAKE, TX  
2024



**Attachment 6 – Description of Treatment**  
**(Tech. Rpt. 1.0, 2a)**

## Technical Report 1.0

### Section 2. Treatment Process

#### A. Current Operating Phase

##### Proposed Phase I

The proposed phase 1 plant operates as a single stage nitrification activated sludge process. It includes a headworks with manual bar screen, three (3) 60-foot length steel basin package plant split into 38-foot aeration basin and 22-foot digester with a 35-foot diameter clarifier. The total aeration capacity of 14,597 CF is capable of treating 0.245 MGD average daily flow. Chlorine contact basin capacity of 1,998 CF provides over 20 minutes of contact time at peak flow of the plant. 6-inch return sludge airlifts are to be included to provide 75 to 200 percent of average daily flow. Disinfected effluent flows from the plant to the outfall via an 18-inch pipe. Three (3) aerobic digester basins with a volume of 8,451 CF provide adequate capacity for sludge digestion. Sludge is to be disposed by a contract hauler.

##### Interim Phase

The interim phase 2 plant will be operated as a single stage nitrification activated sludge process. It will include a headworks with manual bar screens, six (6) 60-foot length steel basin package plants split into 38-foot length aeration basins and 22-foot digesters with two (2) 35-foot diameter clarifiers. Total aeration basin capacity of 29,193 CF capable of treating 0.490 MGD average daily flow, chlorine contact basin with 3,996 CF capacity which provides over 20 minutes of contact time at peak flow. 6-inch return sludge airlifts are to be included to provide 75 to 200 percent of average daily flow. Disinfected effluent flows from the plant to the outfall via an 18-inch pipe. Six (6) aerobic digester basins with a volume of 16,901 CF provide adequate capacity for sludge digestion. Sludge is to be disposed by a contract hauler.

##### Final Phase

The final phase 3 plant will be operated as a single stage nitrification activated sludge process. It will include a headworks with manual bar screens, nine (9) 60-foot length steel basin package plants split into 38-foot aeration basins and 22-foot digesters with three (3) 35-foot diameter clarifier. Total aeration basin capacity of 43,790 CF capable of treating 0.735 MGD average daily flow, three (3) chlorine contact basins with 5,994 CF capacity which provides over 20 minutes of contact time at peak flow. 6-inch return sludge airlifts are to be included to provide 75 to 200 percent of average daily flow. Disinfected effluent flows from the plant to the outfall via an 18-inch pipe. Nine (9) aerobic digester basins with a total volume of 25,352 CF provide adequate capacity for sludge digestion. Sludge is to be disposed of by a contract hauler.

**Attachment 7 – Treatment Unit Dimensions**  
**(Tech. Rpt. 1.0, 2b)**

Technical Report 1.0  
 Section 2. Treatment Process  
 B. Treatment Units

**Phase 1 - 0.24 MGD**

|                  | No. of Basins | Diameter (ft) | Length (ft) | Width (ft) | Height (ft) | SWD (ft-in) | Volume (Cu. Ft) |
|------------------|---------------|---------------|-------------|------------|-------------|-------------|-----------------|
| Clarifier        | 1             | 35            | -           | -          | 14.167      | 10.5        | 10102.18        |
| Aeration         | 3             | -             | 38          | 12         | 12.167      | 10.667      | 14592.46        |
| Chlorine Contact | 1             |               | 18.75       | 12         | 10.167      | 8.5         | 1912.50         |
| Digester         | 3             | -             | 22          | 12         | 12.167      | 10.667      | 8448.26         |

**Phase 2 - 0.40 MGD**

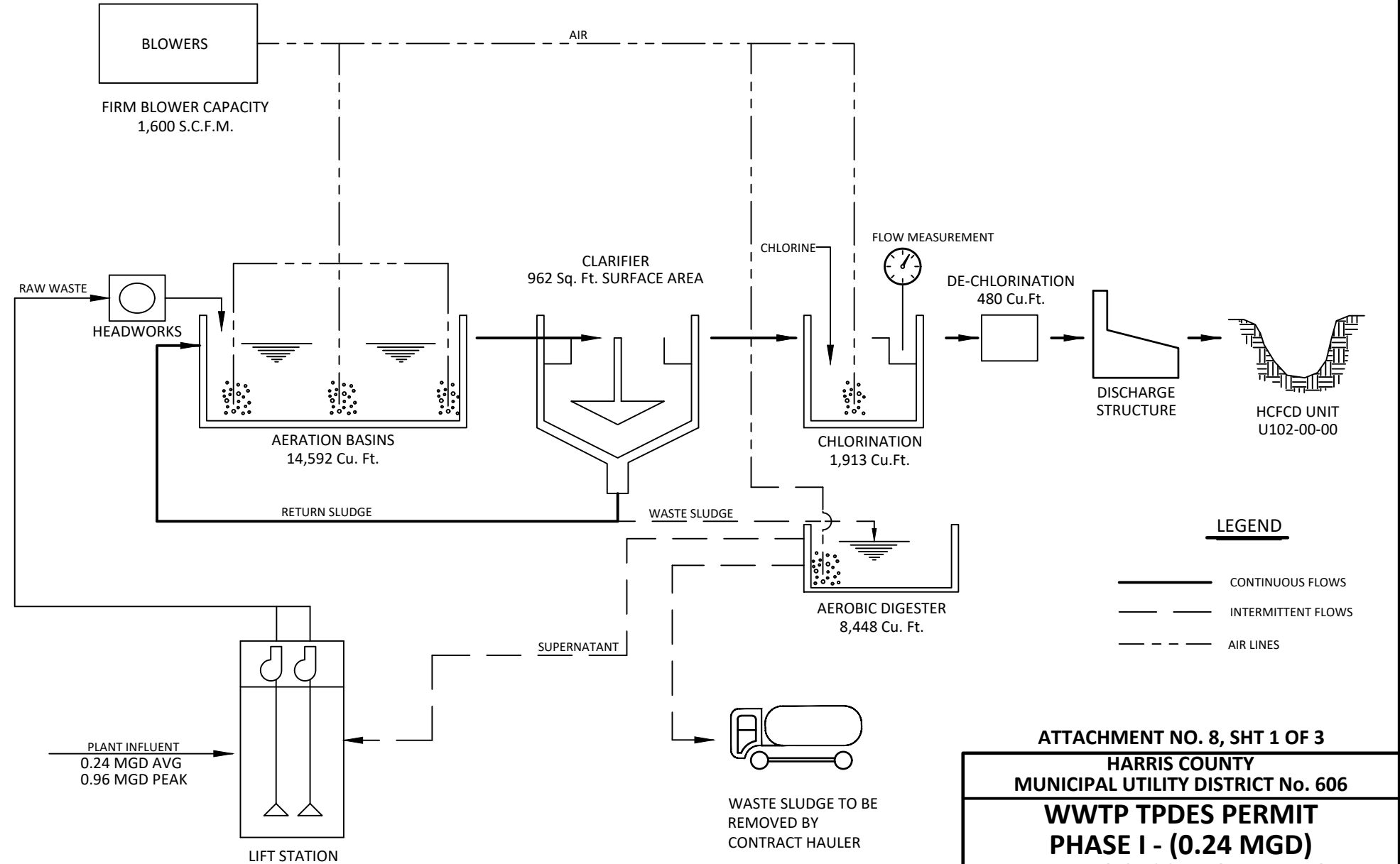
|                  | No. of Basins | Diameter (ft) | Length (ft) | Width (ft) | Height (ft) | SWD (ft-in) | Volume (Cu. Ft) |
|------------------|---------------|---------------|-------------|------------|-------------|-------------|-----------------|
| Clarifier        | 2             | 35            | -           | -          | 14.167      | 10.5        | 20204.37        |
| Aeration         | 6             | -             | 38          | 12         | 12.167      | 10.667      | 29184.91        |
| Chlorine Contact | 2             |               | 18.75       | 12         | 10.167      | 8.5         | 3825.00         |
| Digester         | 6             | -             | 22          | 12         | 12.167      | 10.667      | 16896.53        |

**Final Phase - 0.60 MGD**

|                  | No. of Basins | Diameter (ft) | Length (ft) | Width (ft) | Height (ft) | SWD (ft-in) | Volume (Cu. Ft) |
|------------------|---------------|---------------|-------------|------------|-------------|-------------|-----------------|
| Clarifier        | 3             | 35            | -           | -          | 14.167      | 10.5        | 30306.55        |
| Aeration         | 9             | -             | 38          | 12         | 12.167      | 10.667      | 43777.37        |
| Chlorine Contact | 3             |               | 18.75       | 12         | 10.167      | 8.5         | 5737.50         |
| Digester         | 9             | -             | 22          | 12         | 12.167      | 10.667      | 25344.79        |
| Dechlorination   | 1             |               | 5           | 12         | 10.167      | 8.5         | 480.00          |

**Attachment 8 – Process Flow Diagrams**  
**(Tech. Rpt. 1.0, 2c)**

# MODE OF TREATMENT COMPLETE MIX ACTIVATED SLUDGE WITH NITRIFICATION



ATTACHMENT NO. 8, SHT 1 OF 3

HARRIS COUNTY  
MUNICIPAL UTILITY DISTRICT No. 606

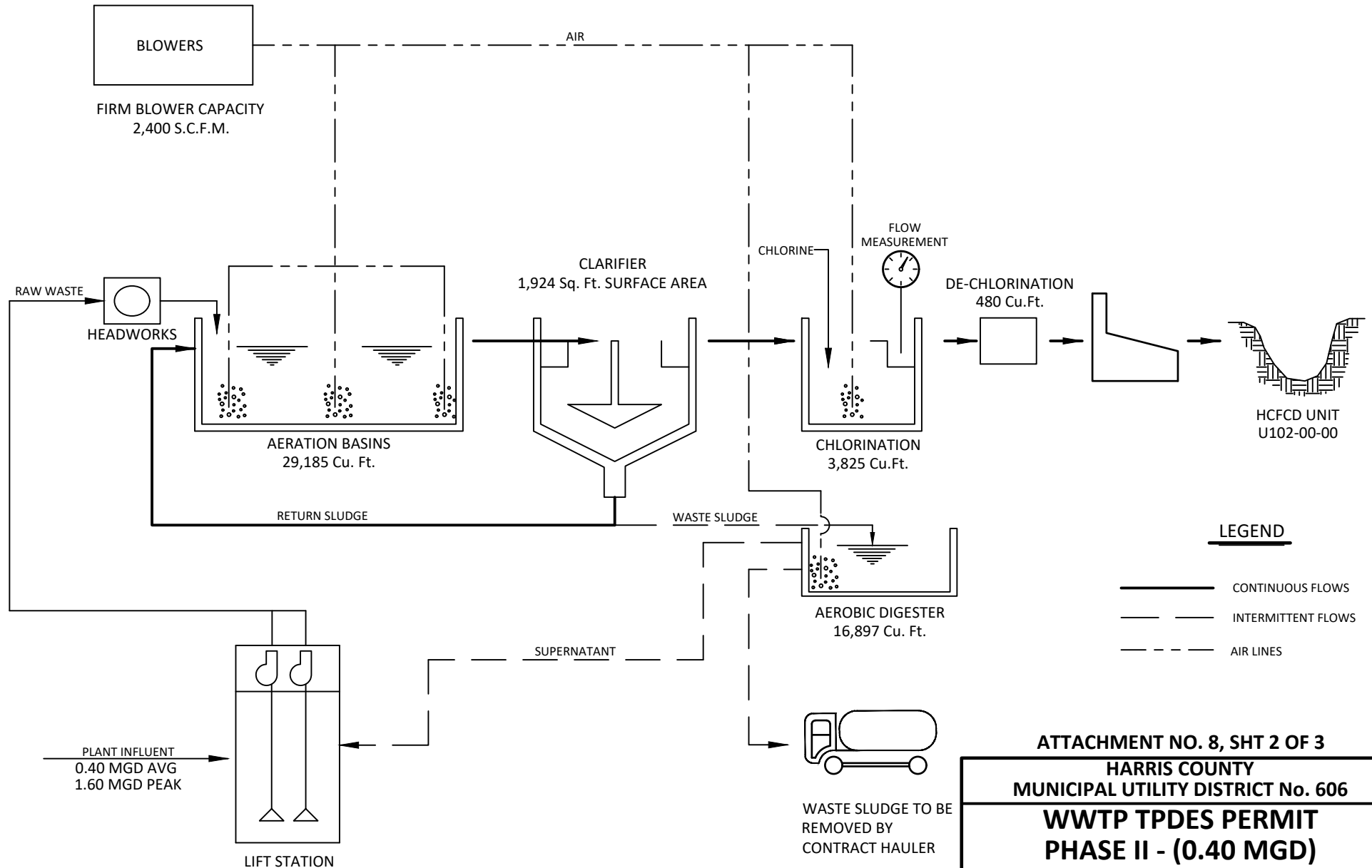
**WWTP TPDES PERMIT  
PHASE I - (0.24 MGD)  
WWTP PROCESS FLOW DIAGRAM**



13430 NW Freeway  
Suite 700  
Houston, Tx. 77040  
713.462.3178  
TxEng Firm 2726  
TxSurv Firm 10110700

SCALE: N.T.S.  
DATE: NOVEMBER 2024  
PROJECT No. 2436-003-00

# MODE OF TREATMENT COMPLETE MIX ACTIVATED SLUDGE WITH NITRIFICATION



ATTACHMENT NO. 8, SHT 2 OF 3

HARRIS COUNTY  
MUNICIPAL UTILITY DISTRICT No. 606

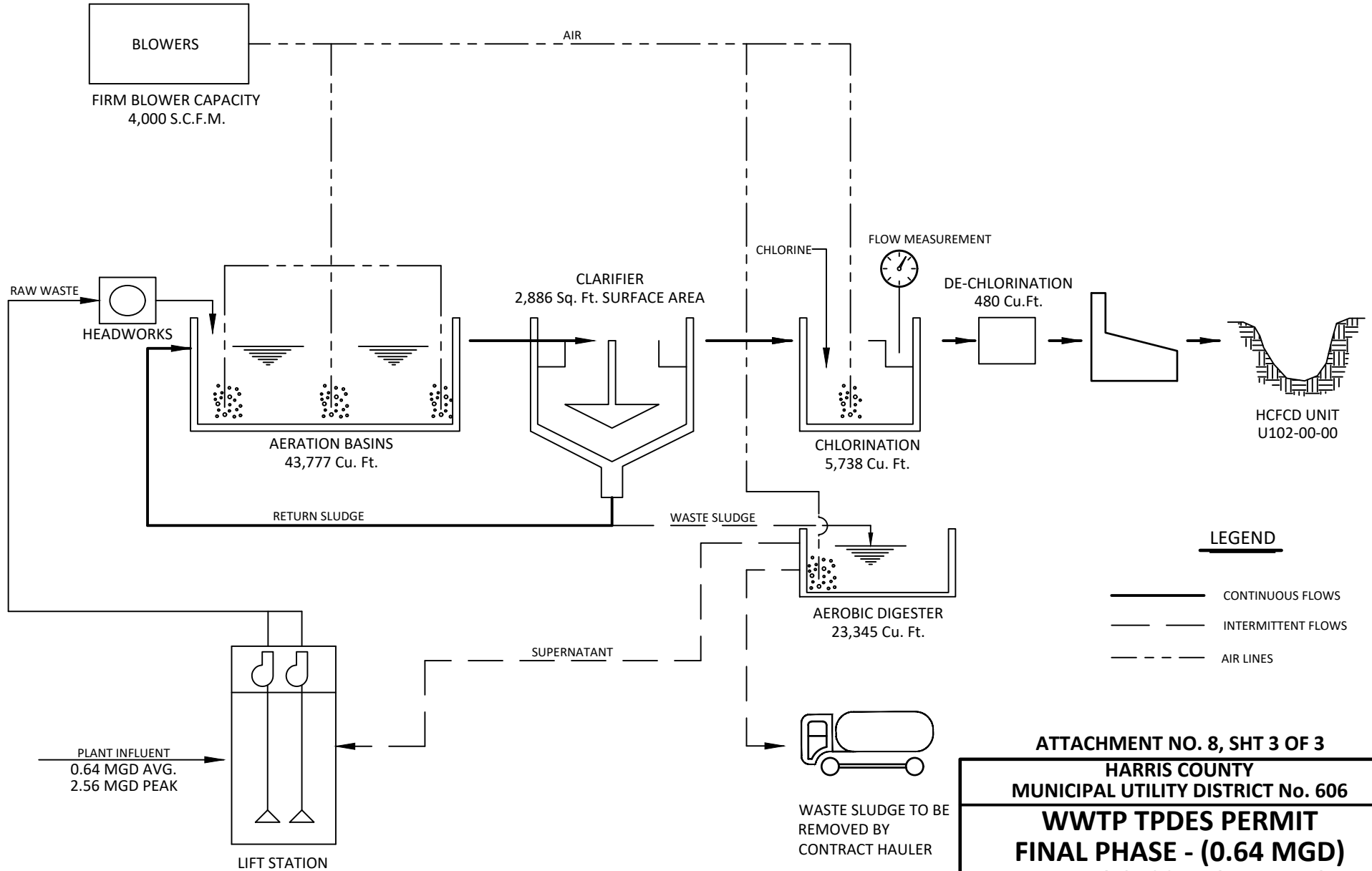
**WWTP TPDES PERMIT  
PHASE II - (0.40 MGD)  
WWTP PROCESS FLOW DIAGRAM**



13430 NW Freeway  
Suite 700  
Houston, Tx. 77040  
713.462.3178  
TxEng Firm 2726  
TxSurv Firm 10110700

SCALE: N.T.S.  
DATE: NOVEMBER 2024  
PROJECT No. 2436-003-00

# MODE OF TREATMENT COMPLETE MIX ACTIVATED SLUDGE WITH NITRIFICATION



ATTACHMENT NO. 8, SHT 3 OF 3

HARRIS COUNTY  
MUNICIPAL UTILITY DISTRICT No. 606

**WWTP TPDES PERMIT  
FINAL PHASE - (0.64 MGD)  
WWTP PROCESS FLOW DIAGRAM**



13430 NW Freeway  
Suite 700  
Houston, Tx. 77040  
713.462.3178  
TxEng Firm 2726  
TxSurv Firm 10110700

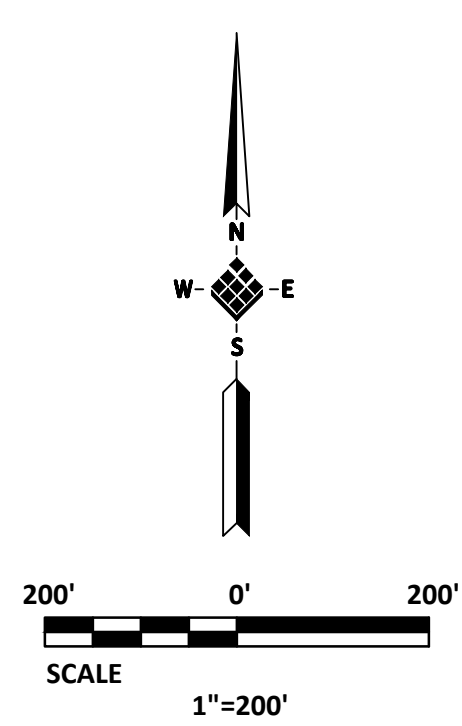
SCALE: N.T.S.  
DATE: NOVEMBER 2024  
PROJECT No. 2436-003-00



**Attachment 9 – Site Drawings**  
**(Tech. Rpt. 1.0, 3)**



19 20  
22 21



DRAW SITE (A)  
FILE NO. 1814001, O.P.R.P.

60' RIGHT-OF-WAY  
FOR DRAW SITE  
FILE NO. 1814001, O.P.R.P.

DETENTION  
RESERVE

RECREATION  
RESERVE

WASTEWATER  
TREATMENT  
PLANT RESERVE  
3.11 AC

WATER PLANT  
RESERVE  
2.93 AC









SECTION 1

SECTION 2

KATY HOCKLEY ROAD  
(60' RIGHT-OF-WAY)

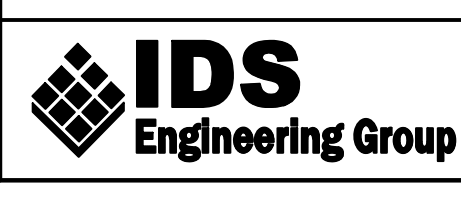
KATY HOCKLEY CUTOFF ROAD  
(60' RIGHT-OF-WAY)

LEGEND

- |   |                             |  |                                    |
|---|-----------------------------|--|------------------------------------|
|  | 962 - 45' x 115' LOTS (77%) |  | RECREATION RESERVE                 |
|  | 295 - 55' x 120' LOTS (23%) |  | DETENTION RESERVES                 |
|  | MODEL HOMES                 |  | WASTEWATER TREATMENT PLANT RESERVE |
|  | OPEN SPACE RESERVES         |  | WATER PLANT RESERVE                |

KATY-HOCKLEY TRACT

LAND PLAN 10  
1,257 LOTS

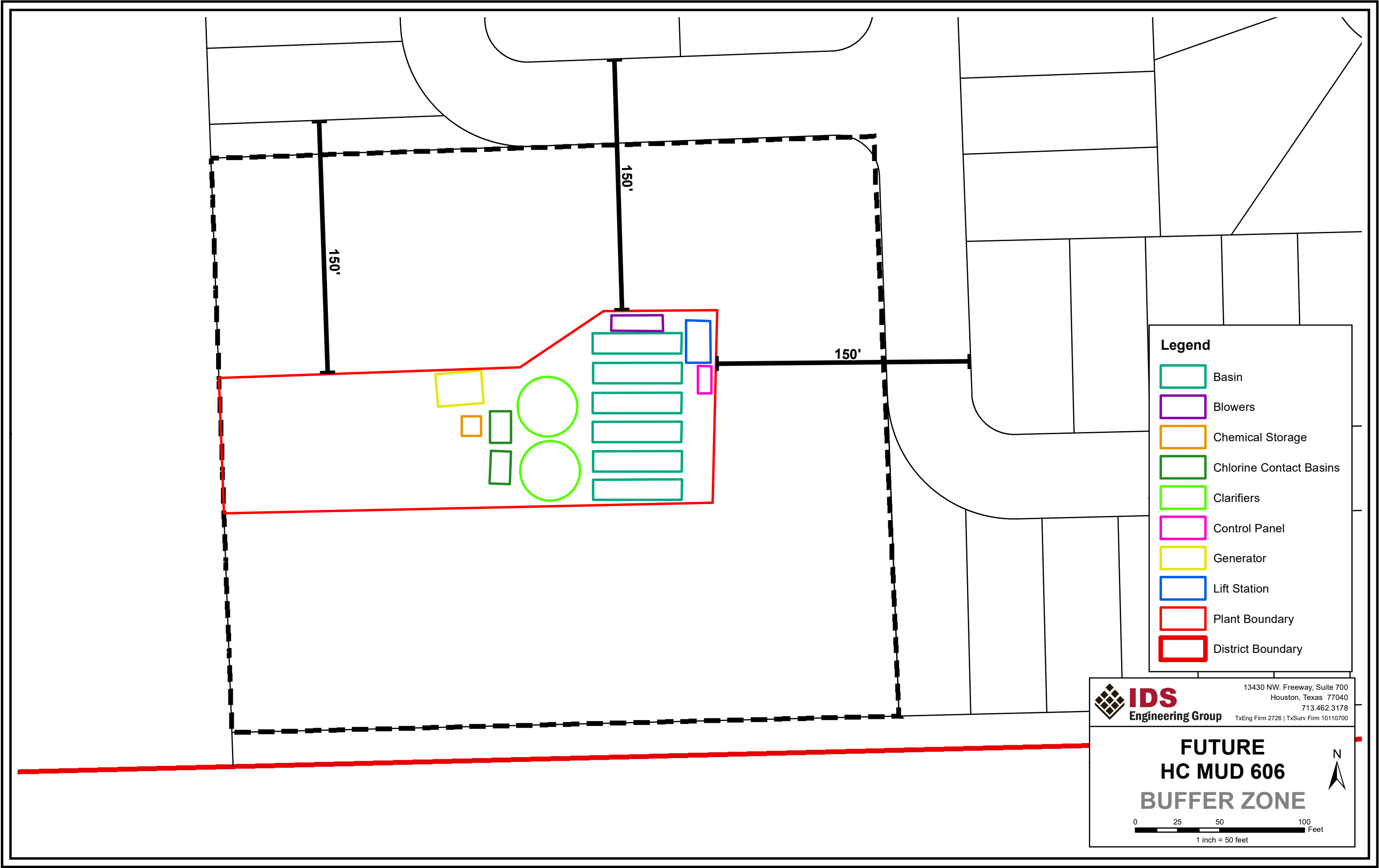


13430 NW Freeway  
Suite 100  
Houston, Tx 77040  
713.462.5178  
Yates from 2/28  
Toll-free from 10/1/2009

SCALE: 1" = 200'  
DATE: MAY 2024  
PROJECT No. 0909-165




**Attachment 10 – Buffer Zone Map**  
**(Admin Rpt. 1.1, 3a)**



**Legend**


- Basin
- Blowers
- Chemical Storage
- Chlorine Contact Basins
- Clarifiers
- Control Panel
- Generator
- Lift Station
- Plant Boundary
- District Boundary



**IDS**  
Engineering Group

13430 NW. Freeway, Suite 700  
Houston, Texas 77040  
713.462.3178  
TxEng Firm 2726 | TxSurv Firm 10110700

**FUTURE  
HC MUD 606  
BUFFER ZONE**



0 25 50 100  
Feet  
1 inch = 50 feet

**Attachment 11 – Justification for Treatment**  
**(Tech. Rpt. 1.1, 1a)**

## Technical Report 1.1

### Section 1. Justification for Permit

#### A. Justification of permit need

Woodmere Development Co., LTD is proposing to develop a 494.4-acre tract of land within Harris County that will include the addition of a single-family residential community. Included in the development will be roads, drainage, wastewater collection system, wastewater treatment facilities, water distribution system, and water treatment facilities to serve the developed areas. Flow projections are based upon information provided by the developer that included the ability to serve approximately the first sections of the 1,200+ lot subdivision with 800 equivalent single family connections (ESFCs) at 300 gallons per day (gpd) with the Interim Phase I Wastewater Treatment Plant (WWTP), approximately 1,300 ESFCs with the Interim Phase II WWTP and ultimately serve 2,100 ESFCs with the Final Phase WWTP.

The Interim Phase I WWTP would be required to treat an average daily flow of 160,000 gpd. Multiplying the 160,000 gpd times a factor of 1.5 for the WWTP's less than 1 MGD in size would require a plant size to treat an average daily flow of 240,000 gpd. The proposed Interim Phase I WWTP is sized to treat an average daily flow of 240,000 gpd with a peak flow of 960,000 gpd. The proposed Interim Phase II WWTP is sized to treat an average daily flow of 400,000 gpd with a peak flow of 1,600,000 gpd. The proposed Final Phase WWTP is sized to add 640,000 gpd of treatment to the Interim Phase II WWTP. The combined phases will have the ability to treat 640,000 gpd with a peak flow of 2,560,000 gpd.

**Attachment 12 – Wastewater Plant Design Calculations**  
**(Tech. Rpt. 1.1, 4)**

HCMUD No. 606  
Wastewater Treatment Plant - Steel Package  
IDS Project No. 2436-004-00  
10/29/2024  
Completed by: ENW  
Checked by:

### FINAL PROCESS CALCULATIONS

|   |              |                             |              |  |
|---|--------------|-----------------------------|--------------|--|
| Avrg Design Flow                            | 0.24 MGD     | Influent BOD <sub>5</sub>   | 250 mg/L     | Location and date of Influent Data/ List any assumptions made to this section here |
| Peak Factor                                 | 4            |                             | 500 lbs/day  |  |
| Peak Flow                                   | 0.96 MGD     | Influent TSS                | 200 mg/L     |  |
|   | 666.6667 gpm |                             | 400 lbs/day  |  |
| Effluent Characteristics                    |              | Influent NH <sub>3</sub> -N | 25 mg/L      |  |
| BOD <sub>5</sub> S <sub>e</sub> (Apr-Oct)   | 10 mg/L      |                             | 50 lbs/day   |  |
| BOD <sub>5</sub> S <sub>e</sub> (Nov-Mar)   | 10 mg/L      | Influent TKN                | mg/L         |  |
| TSS TSS <sub>e</sub>                        | 15 mg/L      | Influent Phosphorus         | mg/L         |  |
| NH <sub>3</sub> -N N <sub>e</sub> (Apr-Oct) | 2 mg/L       | Reactor temp                | 20 °C        |  |
| NH <sub>3</sub> -N N <sub>e</sub> (Nov-Mar) | 2 mg/L       | Elevation                   | 125 feet ASL |  |

### Aeration Basin

|                              |        |                  |                                     |                                     |                       |
|------------------------------|--------|------------------|-------------------------------------|-------------------------------------|-----------------------|
| TCEQ Maximum Organic Loading |        | 35               | lbs BOD/day/1000 c.f.               | Regulation<br>217.154(b)(Table F.1) |                       |
| Aeration Volume Required     |        | 14297            | c.f.                                |                                     |                       |
| MLSS                         |        | 3000             | mg/L                                |                                     |                       |
| MLVSS/MLSS                   |        | 0.7              |                                     |                                     |                       |
| MLVSS                        |        | 2100             | mg/L                                |                                     |                       |
|                              |        |                  |                                     |                                     |                       |
| <u>Proposed</u>              |        |                  | <u>Existing</u>                     | Aeration Basin No. 1                | Aeration Basins No. 2 |
| Length                       | 38     | ft               | Length                              |                                     |                       |
| Width                        | 12     | ft               | Width                               |                                     |                       |
| Height                       | 12.167 | ft               | Height                              |                                     |                       |
| SWD                          | 10.67  | ft               | SWD                                 |                                     |                       |
| # Tanks                      | 3      |                  | # Tanks                             |                                     | 0                     |
| Volume                       | 14,597 | c.f.             | Volume                              | 0                                   | c.f.                  |
| Capacity                     | 0.245  | MGD Average Flow | Total Existing Aeration Volume      |                                     | 0 c.f.                |
|                              |        |                  |                                     |                                     |                       |
| Total Volume                 |        | 14,597           | c.f.                                | Total Proposed Aeration Capacity    | 0.245026 MGD          |
| Volume greater than required |        | YES              |                                     |                                     |                       |
| Organic Loading              |        | 34.28            | lbs BOD <sub>5</sub> /day           |                                     |                       |
|                              |        |                  |                                     |                                     |                       |
| Hydraulic Retention Time     |        | 10.92            | hours                               |                                     |                       |
| Solids Retention Time, SRT   |        | 15.5968425       | days                                |                                     |                       |
| f:m                          |        | 0.11904762       | lbs BOD <sub>5</sub> /lbs MLVSS/day |                                     |                       |



**Clarifier Basin**

|  |             | Regulation                |                                    |                   |          |
|--|-------------|---------------------------|------------------------------------|-------------------|----------|
| TCEQ Maximum Surface Loading (Qpk)                                       | 1200        | gal/day/s.f. at peak flow | 217.154(c)(Table F.2)              |                   |          |
| TCEQ Minimum Detention Time (Qpk)  | 1.8         | hours at peak flow        | 217.154(c)(Table F.2)              |                   |          |
| TCEQ Maximum Weir Loading (Qpk)  | 30000       | gal/day/ft                | 217.152(c)(4)                      |                   |          |
| TCEQ Minimum Side Water Depth (SWD)                                      | 10          | ft                        | 217.152(g)(2)(A)/(B)               |                   |          |
| TCEQ Maximum Stilling Well Velocity                                      | 0.15        | ft/sec                    | 217.152(a)(4)                      |                   |          |
| Surface Area Required  | 800         | s.f.                      | 31.9 ft min dia for one clarifier  |                   |          |
| Volume Required  | 9625        | c.f.                      | 22.6 ft min dia for two clarifiers |                   |          |
| Stilling Well Diameter   | 7           | feet                      | 15-20% of total tank diameter      |                   |          |
| Stilling Well Qpk  | 1.49        | cfs                       | plus 0.446583687 cfs recycle flow  |                   |          |
| Stilling Well Velocity at Qpk  | 0.003       | fps                       | Meets req? YES                     |                   |          |
| Clarifiers Provided  | 1           | tanks(s)                  | Existing Clarifiers                |                   | tanks(s) |
| Diameter   | 35          | ft                        | Diameter                           |                   | ft       |
| Height   | 14.167      | ft                        | Height                             |                   | ft       |
| Static WL  | 10.50       | ft                        | Static WL                          |                   | ft       |
| SWD  | 10.792      | ft                        | SWD                                |                   | ft       |
| Surface Area   | 962         | s.f.                      | Surface Area                       | 0                 | s.f.     |
| Volume   | 10383.1     | c.f.                      | Volume                             | 0.0               | c.f.     |
| Total Surface Area   | 962         | s.f.                      | Greater than req?                  | YES               |          |
| Total Volume   | 10383.1     | c.f.                      | Greater than req?                  | YES               |          |
|  | <u>Qavg</u> |                           | <u>Qpk</u>                         |                   |          |
| Clarifier Surface Loading  | 549         | gpd/s.f.                  | 998                                | Less than max?    | YES      |
| Clarifier Detention Time   | 3.53        | Hours                     | 1.94                               | Greater than req? | YES      |
| This currently uses the average RAS flowrate to calculate detention time |             |                           |                                    |                   |          |
| Clarifier Wall to Weir Length  | 12          | in                        |                                    |                   |          |
| Weir Length  | 103.7       | ft                        |                                    |                   |          |
| Weir Loading   | 9260        | gpd/ft                    | Less than max?                     | YES               |          |

**RAS/WAS Pumping and Piping**

|                                       |      | Regulation |                 |      |               |
|---------------------------------------|------|------------|-----------------|------|---------------|
| TCEQ minimum sludge pipe diameter     | 4    | in         | 217.152(e)(2-3) |      |               |
| Clarifier Surface Area                | 962  | s.f.       |                 |      |               |
| TCEQ min RAS pump capacity @200gpd/sf | 134  | gpm        | Qr/Q =          | 0.80 | 217.152(j)(3) |
| TCEQ max RAS pump capacity @400gpd/sf | 267  | gpm        | Qr/Q =          | 1.60 | 217.152(j)(3) |
| RAS/WAS pipe diameter                 | 6    | in         |                 |      |               |
| Velocity in RAS/WAS pipe @ min rate   | 1.82 | fps        |                 |      |               |
| Velocity in RAS/WAS pipe @ max rate   | 3.64 | fps        |                 |      |               |

**Chlorine Contact Basin**

|  |            |                   | Regulation    |
|--|------------|-------------------|---------------|
| Minimum Contact Time at Peak Flow          | 20 min     |                   | 217.281(b)(1) |
| Required Volume for Chlorine Contact Basin | 13333 gal  |                   |               |
| Required Volume for Chlorine Contact Basin | 1783 c.f.  |                   |               |
| <u>Proposed</u>                            |            | <u>Existing</u>   |               |
| Length                                     | 18.75 ft   | Length            | ft            |
| Width                                      | 12 ft      | Width             | ft            |
| Height                                     | 10.167 ft  | Height            | ft            |
| SWD  | 8.5 ft     | SWD               | ft            |
| # Tanks                                    | 1          | # Tanks           |               |
| Volume                                     | 1,913 c.f. | Volume            | 0 c.f.        |
| Total Volume Provided                      | 1,913 c.f. | Greater than req? | Yes           |
| Contact Time Provided                      |            |                   |               |
| at Peak Flow                               | 21.46 min  | Greater than req? | Yes           |

**Dechlorination Basin**

|  |                |                   | Regulation    |
|--|----------------|-------------------|---------------|
| Minimum Contact Time at Peak Flow          | 20 Seconds     |                   | 217.281(c)(2) |
| Required Volume for Chlorine Contact Basin | 222 gal        |                   |               |
| Required Volume for Chlorine Contact Basin | 30 c.f.        |                   |               |
| <u>Proposed</u>                            |                | <u>Existing</u>   |               |
| Length                                     | 5 ft           | Length            | ft            |
| Width                                      | 12 ft          | Width             | ft            |
| Height                                     | 10.167 ft      | Height            | ft            |
| SWD  | 8 ft           | SWD               | ft            |
| # Tanks                                    | 1              | # Tanks           |               |
| Volume                                     | 480 c.f.       | Volume            | 0 c.f.        |
| Total Volume Provided                      | 480 c.f.       | Greater than req? | Yes           |
| Contact Time Provided                      |                |                   |               |
| at Peak Flow                               | 323.16 Seconds | Greater than req? | Yes           |

**Aerobic Digester Basin**

|   |                         |   | Regulation   |
|---|-------------------------|---|--|
| Does the Plant Have a Primary Clarifier?                  | No                      |   |  |
| Average Basin Temperature                                 | 20 deg C                | (about 68 degrees fahrenheit year round in houston) |  |
| Volatile Solids Reduction Percentage                      | 45 %                    | See figure 14-31 Metcalf &Eddy                      |  |
| Waste Activated Sludge Suspended Solids Concentration, Xw | 8500 mg/L               |   |  |
| Fraction of Influent BOD consisting of Raw Primary Solids | 0.5 decimal             | expressed as a                                      | Only Applicable For Plant's With Primary Clarification |
| Influent BOD Concentration                                | 250 mg/L                |   | Only Applicable For Plant's With Primary Clarification |
| Digester Suspended Solids Concentration                   | 20000 mg/L              | this value is assumed                               |  |
| Reaction Rate Constant, kd                                | 0.06 d <sup>-1</sup>    | This value is assumed                               | needs to be backchecked                                |
| Reaction Rate Constant Nitrification, kd n                | 0.30 d <sup>-1</sup>    |   |  |
| Volatile Fraction of Digester BOD, Y                      | 0.60 lbs VSS /lbs BOD   |   |  |
| Volatile Fraction of Digester Ammonia, Yn                 | 0.15 lbs VSS /lbs NH3-N |   |  |
| Volatile Fraction of Digester Suspended Solids, Pn        | 0.7 decimal             | This value is assumed                               | needs to be backchecked                                |

|   |        |                        |  |
|---|--------|------------------------|--|
| Fraction of MLVSS to MLSS                 | 0.7    | expressed as a decimal |  |
| Solids Retention Time (SRT)               | 40     | days                   |  |
| Density of Water                          | 62.32  | lbs/c.f.               |  |
| Percent Solids of Waste Activated Sludge  | 0.01   | expressed as a decimal | This value is assumed  |
| Percent Solids of Sludge in Digester      | 0.02   | expressed as a decimal |  |
| Specific Gravity of Sludge                | 1.005  |                        | This value is assumed  |
| Carbonaceous Yield Coefficient            | 0.58   |                        | Incorporates the reaction rate constant with the yield coefficient |
| Carbonaceous Sludge Production            | 280.57 | lb MLVSS / day         |  |
|   | 401    | lb MLSS / day          |  |
| Nitrogenous Yield Coefficient             | 0.13   |                        |  |
| Nitrogenous Sludge Production             | 6      | lb MLVSS / day         |  |
|   | 9      | lb MLSS / day          |  |
| Inert Sludge Production (TSS), Dry Solids | 167    | lb / day               |  |
| Volatile Sludge Production                | 287    | lbs / day              |  |
| Total Sludge Production                   | 576    | lbs / day              |  |

|  |              |                 |
|--|--------------|-----------------|
| Volumetric Flow Rate of Sludge Per Day | 920 c.f./day | 4.778219037 GPM |
| Digester Volume Required               | 5835 c.f.    |                 |

|                                       |     |  |                  |
|---------------------------------------|-----|--|------------------|
| Minimum Digester Volatile Solids Rate | 100 | lb volatile solids per 1000 cf per day | 217.249(t)(7)(D) |
| Maximum Digester Volatile Solids Rate | 200 | lb volatile solids per 1000 cf per day | 217.249(t)(7)(D) |
| Actual Digester Volatile Solids Rate  | 36  | lb volatile solids per 1000 cf per day |                  |

|                                  |           |
|----------------------------------|-----------|
| Maximum Digester Volume Allowed  | 2866 c.f. |
| Minimum Digester Volume Required | 1433 c.f. |

| Proposed |            | Existing     |        | Existing     |        |
|----------|------------|--------------|--------|--------------|--------|
| Length   | 22 ft      | Diameter     | ft     | Diameter     | ft     |
| Width    | 12 ft      | Surface Area | ft     | Surface Area | ft     |
| Height   | 12.167 ft  | Height       | ft     | Height       | ft     |
| SWD      | 10 ft      | SWD          | ft     | SWD          | ft     |
| # Tanks  | 3          | # Tanks      |        | # Tanks      |        |
| Volume   | 7,920 c.f. | Volume       | 0 c.f. | Volume       | 0 c.f. |

|   |     |
|---|-----|
| Digester Capacity Capable of Meeting SRT? | Yes |
|---|-----|

|                       |            |   |     |
|-----------------------|------------|---|-----|
| Total Volume Provided | 7,920 c.f. | Digester Capacity Capable of Handling Required Range? | Yes |
|-----------------------|------------|---|-----|

#### Sludge Thickening Basin

|  |                               | Regulation       |
|--|-------------------------------|------------------|
| TCEQ Maximum Surface Loading (Qpk)       | 800 gal/day/s.f. at peak flow | 217.248(b)(2)(C) |
| TCEQ Minimum Surface Loading (Qpk)       | 400 gal/day/s.f. at peak flow | 217.248(b)(2)(C) |
| TCEQ Minimum Side Water Depth (SWD)      | 10 ft                         | 217.248(b)(2)(D) |
| TCEQ Minimum Bottom Slope                | 1.5 inches/ft                 | 217.248(b)(2)(E) |
| TCEQ Min. Peripheral Velocity of Scraper | 15 ft/min                     | 217.248(b)(2)(F) |
| TCEQ Max. Peripheral Velocity of Scraper | 20 ft/min                     | 217.248(b)(2)(F) |
| Volumetric Flow Rate of Sludge Per Day   | 6881 gal/day                  |                  |

|                               |            |                                   |
|-------------------------------|------------|-----------------------------------|
| Minimum Surface Area Required | 8.60 s.f.  | 4.7 ft min dia for one Thickener  |
| Maximum Surface Area Allowed  | 17.20 s.f. | 3.3 ft min dia for two Thickeners |

|                     |     |          |
|---------------------|-----|----------|
| Thickeners Provided |     | tanks(s) |
| Diameter            |     | ft       |
| Height              |     | ft       |
| Static WL           |     | ft       |
| SWD                 |     | ft       |
| Surface Area        | 0.0 | s.f.     |
| Volume              | 0.0 | c.f.     |

it's the existing small clarifier

|                    |          |                        |    |
|--------------------|----------|------------------------|----|
| Total Surface Area | 0 s.f.   | Within Required Range? | NO |
| Total Volume       | 0.0 c.f. |                        |    |

## Aeration Equipment Sizing

|  |  | Regulation                               |
|--|--|--|
| Oxygen Requirement per Equation F.2  | 1.63 lbs O <sub>2</sub> /lb BOD <sub>5</sub> | 217.155(a)(2)(Equation F.2)              |
| Oxygen Requirement per Table F.3   | 2.2 lbs O <sub>2</sub> /lb BOD <sub>5</sub>  | 217.155(a)(2)(Table F.3)                 |
| Oxygen Requirement for Use in Air Requirements                                 | 2.2 lbs O <sub>2</sub> /lb BOD <sub>5</sub>  | 217.155(a)(2)                            |
| <i>Aeration System Airflow Design Based on 217.155(b)(1) Table F.4</i>         |  |  |
| Minimum Air Flow Requirement for Diffused Air                                  | 3200 SCF/day/lb BOD <sub>5</sub>             | 217.155(b)(1)(Table F.4)                 |
| Design Airflow Rate  | 1112 SCFM                                    | 217.155(b)(1)(Table F.4)                 |
| <i>Aeration System Airflow Design Based on 217.155(b)(2) Equation F.3</i>      |  |  |
| Clean Water Oxygen Transfer Efficiency   | 11 %   | 217.155(b)(2) *Based on Single Drop Diff |
| Standard Diffuser Depth  | 12 ft  | 217.155(b)(2)(D)                         |
| Type of Diffuser   | Coarse Bubble                                |  |
| Wastewater Oxygen Transfer Efficiency  | 7.15 %                                       | 217.155(b)(2)(B)(i)                      |
| Required Air Flow Rate   | 620 SCFM                                     | 217.155(B)(2)©                           |
| Actual Diffuser Depth  | 9.67 ft                                      | 217.155(b)(2)(D)                         |
| Is a Correction Factor Require?  | Yes  | 217.155(b)(2)(D)                         |
| Diffuser Submergence Correction Factor Used                                    | 1.6029                                       | 217.155(b)(2)(D)(Table F.5)              |
| Corrected Required Air Flow Rate   | 994 SCFM                                     | 217.155(b)(2)(D)                         |
| Design Airflow Requirements for Aeration Process                               | 994 SCFM                                     | 217.155(b)                               |
| <i>Mixing Requirements for Diffused Air Based on 217.155(b)(3)(B)</i>          |  |  |
| Type of Diffuser   | Coarse Bubble                                |  |
| Minimum Airflow Requirement Diffused Air                                       | 20 SCFM/1000 c.f.                            | 217.155(b)(3)                            |
| Design Airflow Requirements for Aeration Mixing                                | 291.9312 SCFM                                | 217.155(b)(3)                            |
| <b>Design Airflow Requirements for Aeration Basins</b>                         | <b>994 SCFM</b>                              |  |
| <i>Digester Aeration System Airflow Design</i>                                 |  |  |
| Amount of Oxygen Required  | 2.3 lbs O <sub>2</sub> /lb VSS reduction     |  |
| Density of Air   | 0.0749 lbs Air/c.f.                          |  |
| Required Amount of Oxygen for Digestion  | 659 lbs O <sub>2</sub> /day                  |  |
| Wastewater Oxygen Transfer Efficiency for Digester Diffusers                   | 7.15 %                                       |  |
| Required Amount of Air for Digestion   | 369 SCFM                                     |  |
| Minimum Airflow Requirements for Diffused Air Mixing in Digester               | 30 SCFM/1000 c.f.                            | 217.251(d)(1)(C)                         |
| Required Amount of Air for Digester Mixing                                     | 237.6 SCFM                                   |  |
| <b>Design Airflow Requirements for Digester Basins</b>                         | <b>369 SCFM</b>                              | 217.251(d)(1)(C)                         |
| Minimum Airflow Requirements for Diffused Air Mixing in Chlorine Contact Basin | 20 SCFM/1000 c.f.                            |  |
| <b>Design Airflow Requirements for Chlorine Contact Mixing</b>                 | <b>38.25 SCFM</b>                            |  |
| <b>Design Airflow Requirements for Airlift Pumps</b>                           | SCFM   | per manufacturer recommendation          |
| Minimum Airflow Requirement for Equalization Basin Mixing                      | 0 SCFM/s.f.                                  | 217.128(d)                               |
| <b>Design Airflow Requirements for Equalization Basin Mixing</b>               | <b>0 SCFM</b>                                |  |
| <b>Total Airflow Requirements for WWTP Systems</b>                             | <b>1400 SCFM</b>                             | 6548                                     |

**Process Air Blower Capacity**

---

|  |      |      |
|--|------|------|
| No. of Existing Blowers  | 0    |      |
| Existing Blower Capacity   | 0    | SCFM |
| No. of Prop. Blowers   | 3    |      |
| Prop. Blower Capacity  | 800  | SCFM |
| Prop. Blower Firm Capacity   | 1600 | SCFM |
| Prop. Blower Total Capacity  | 2400 | SCFM |
| (Blower firm capacity is blower capacity with largest blower out of service) |      |      |
| Prop. Blower Firm Capacity Greater Than Required                             | Yes  |      |
| Prop. Blower Total Capacity Greater Than Required                            | Yes  |      |

**Pounds Per Day of Chlorine Required for Treatment**

---

|                        |         |         |                      |
|------------------------|---------|---------|----------------------|
| Chlorine Concentration | 8       | mg/L    | Regulation           |
| Lbs of Chlorine / Day  | 64.0512 | lbs/day | 217.272(b) Table K.1 |

**Maximum Withdrawal Rate From Gas Cylinder**

---

|  |     |                 |                            |
|--|-----|-----------------|----------------------------|
| Low Ambient Temperature                  | 65  | deg Farenheit   | Regulation                 |
| Threshold Temperature                    | 0   | deg Farenheit   | 217.273(a)(1)              |
| Withdrawal Factor                        | 8   | lbs/deg Far/day | 217.273(a)(1) Table K.2    |
| Maximum gas withdrawal rate per cylinder | 520 | lbs/day         | 217.273(a)(1) Equation K.2 |

**Minimum Number of Cylinders Required per Bank**

---

|   |   |               |            |
|---|---|---------------|------------|
| Minimum number of cylinders required per bank | 0 | No. Cylinders | Regulation |
|   |   |               | 217.273(b) |

HCMUD No. 606  
Wastewater Treatment Plant - Steel Package  
IDS Project No. 2436-004-00  
10/29/2024  
Completed by: ENW  
Checked by:

### FINAL PROCESS CALCULATIONS

|   |              |                             |              |  |
|---|--------------|-----------------------------|--------------|--|
| Avrg Design Flow                            | 0.4 MGD      | Influent BOD <sub>5</sub>   | 250 mg/L     | Location and date of Influent Data/ List any assumptions made to this section here |
| Peak Factor                                 | 4            |                             | 834 lbs/day  |  |
| Peak Flow                                   | 1.6 MGD      | Influent TSS                | 200 mg/L     |  |
|   | 1111.111 gpm |                             | 667 lbs/day  |  |
| Effluent Characteristics                    |              | Influent NH <sub>3</sub> -N | 25 mg/L      |  |
| BOD <sub>5</sub> S <sub>e</sub> (Apr-Oct)   | 10 mg/L      |                             | 83 lbs/day   |  |
| BOD <sub>5</sub> S <sub>e</sub> (Nov-Mar)   | 10 mg/L      | Influent TKN                | mg/L         |  |
| TSS TSS <sub>e</sub>                        | 15 mg/L      | Influent Phosphorus         | mg/L         |  |
| NH <sub>3</sub> -N N <sub>e</sub> (Apr-Oct) | 2 mg/L       | Reactor temp                | 20 °C        |  |
| NH <sub>3</sub> -N N <sub>e</sub> (Nov-Mar) | 2 mg/L       | Elevation                   | 125 feet ASL |  |

### Aeration Basin

|                              |  |                                  |                                     |                       |
|------------------------------|--|----------------------------------|-------------------------------------|-----------------------|
| TCEQ Maximum Organic Loading |  | 35 lbs BOD/day/1000 c.f.         | Regulation<br>217.154(b)(Table F.1) |                       |
| Aeration Volume Required     |  | 23829 c.f.                       |                                     |                       |
| MLSS                         |  | 3000 mg/L                        |                                     |                       |
| MLVSS/MLSS                   |  | 0.7                              |                                     |                       |
| MLVSS                        |  | 2100 mg/L                        |                                     |                       |
|                              |  |                                  |                                     |                       |
| <u>Proposed</u>              |  | <u>Existing</u>                  | Aeration Basin No. 1                | Aeration Basins No. 2 |
| Length                       | 38 ft  | Length                           | 38 ft                               | ft                    |
| Width                        | 12 ft  | Width                            | 12 ft                               | ft                    |
| Height                       | 12.167 ft                                      | Height                           | 12.167 ft                           | ft                    |
| SWD                          | 10.67 ft                                       | SWD                              | 10.67 ft                            | ft                    |
| # Tanks                      | 3  | # Tanks                          | 3                                   | 0                     |
| Volume                       | 14,597 c.f.                                    | Volume                           | 14,597 c.f.                         | 0 c.f.                |
| Capacity                     | 0.245 MGD Average Flow                         | Total Existing Aeration Volume   |                                     | 14,597 c.f.           |
|                              |  |                                  |                                     |                       |
| Total Volume                 | 29,193 c.f.                                    | Total Proposed Aeration Capacity |                                     | 0.490052 MGD          |
| Volume greater than required | YES  |                                  |                                     |                       |
| Organic Loading              | 28.57 lbs BOD <sub>5</sub> /day                |                                  |                                     |                       |
|                              |  |                                  |                                     |                       |
| Hydraulic Retention Time     | 13.10 hours                                    |                                  |                                     |                       |
| Solids Retention Time, SRT   | 15.5968425 days                                |                                  |                                     |                       |
| f:m                          | 0.11904762 lbs BOD <sub>5</sub> /lbs MLVSS/day |                                  |                                     |                       |

## Clarifier Basin

|  |                                |                                    |                       |
|--|--------------------------------|------------------------------------|-----------------------|
|  |                                | Regulation                         |                       |
| TCEQ Maximum Surface Loading (Qpk)                                       | 1200 gal/day/s.f. at peak flow | 217.154(c)(Table F.2)              |                       |
| TCEQ Minimum Detention Time (Qpk)  | 1.8 hours at peak flow         | 217.154(c)(Table F.2)              |                       |
| TCEQ Maximum Weir Loading (Qpk)  | 30000 gal/day/ft               | 217.152(c)(4)                      |                       |
| TCEQ Minimum Side Water Depth (SWD)                                      | 10 ft                          | 217.152(g)(2)(A)/(B)               |                       |
| TCEQ Maximum Stilling Well Velocity                                      | 0.15 ft/sec                    | 217.152(a)(4)                      |                       |
| Surface Area Required  | 1333.33333 s.f.                | 41.2 ft min dia for one clarifier  |                       |
| Volume Required  | 16042 c.f.                     | 29.1 ft min dia for two clarifiers |                       |
| Stilling Well Diameter   | 7 feet                         | 15-20% of total tank diameter      |                       |
| Stilling Well Qpk  | 2.48 cfs                       | plus 0.893167374 cfs recycle flow  |                       |
| Stilling Well Velocity at Qpk  | 0.005 fps                      | Meets req? YES                     |                       |
| Clarifiers Provided  | 1 tanks(s)                     | Existing Clarifiers                | 1 tanks(s)            |
| Diameter   | 35 ft                          | Diameter                           | 35 ft                 |
| Height   | 14.167 ft                      | Height                             | 14.167 ft             |
| Static WL  | 10.50 ft                       | Static WL                          | 10.50 ft              |
| SWD  | 10.792 ft                      | SWD                                | 10.667 ft             |
| Surface Area   | 962 s.f.                       | Surface Area                       | 962 s.f.              |
| Volume   | 10383.1 c.f.                   | Volume                             | 10262.9 c.f.          |
| Total Surface Area   | 1924 s.f.                      | Greater than req?                  | YES                   |
| Total Volume   | 20646.0 c.f.                   | Greater than req?                  | YES                   |
|  |                                | Qavg                               | Qpk                   |
| Clarifier Surface Loading  | 508 gpd/s.f.                   | 832                                | Less than max? YES    |
| Clarifier Detention Time   | 3.79 Hours                     | 2.32                               | Greater than req? YES |
| This currently uses the average RAS flowrate to calculate detention time |                                |                                    |                       |
| Clarifier Wall to Weir Length  | 12 in                          |                                    |                       |
| Weir Length  | 207.3 ft                       |                                    |                       |
| Weir Loading   | 7717 gpd/ft                    | Less than max?                     | YES                   |

## RAS/WAS Pumping and Piping

|                                       |           |                 |                    |
|---------------------------------------|-----------|-----------------|--------------------|
|                                       |           | Regulation      |                    |
| TCEQ minimum sludge pipe diameter     | 4 in      | 217.152(e)(2-3) |                    |
| Clarifier Surface Area                | 1924 s.f. |                 |                    |
| TCEQ min RAS pump capacity @200gpd/sf | 267 gpm   | Qr/Q =          | 0.96 217.152(j)(3) |
| TCEQ max RAS pump capacity @400gpd/sf | 535 gpm   | Qr/Q =          | 1.92 217.152(j)(3) |
| RAS/WAS pipe diameter                 | 6 in      |                 |                    |
| Velocity in RAS/WAS pipe @ min rate   | 3.64 fps  |                 |                    |
| Velocity in RAS/WAS pipe @ max rate   | 7.28 fps  |                 |                    |



**Chlorine Contact Basin**

|  |            |                   | Regulation    |
|--|------------|-------------------|---------------|
| Minimum Contact Time at Peak Flow          | 20 min     |                   | 217.281(b)(1) |
| Required Volume for Chlorine Contact Basin | 22222 gal  |                   |               |
| Required Volume for Chlorine Contact Basin | 2971 c.f.  |                   |               |
| <u>Proposed</u>                            |            | <u>Existing</u>   |               |
| Length                                     | 18.75 ft   | Length            | 18.75 ft      |
| Width                                      | 12 ft      | Width             | 12 ft         |
| Height                                     | 10.167 ft  | Height            | 10.167 ft     |
| SWD  | 8.5 ft     | SWD               | 8.5 ft        |
| # Tanks                                    | 1          | # Tanks           | 1             |
| Volume                                     | 1,913 c.f. | Volume            | 1912.5 c.f.   |
| Total Volume Provided                      | 3,825 c.f. | Greater than req? | Yes           |
| Contact Time Provided                      |            |                   |               |
| at Peak Flow                               | 25.75 min  | Greater than req? | Yes           |

**Dechlorination Basin**

|  |                |                   | Regulation    |
|--|----------------|-------------------|---------------|
| Minimum Contact Time at Peak Flow          | 20 Seconds     |                   | 217.281(c)(2) |
| Required Volume for Chlorine Contact Basin | 370 gal        |                   |               |
| Required Volume for Chlorine Contact Basin | 50 c.f.        |                   |               |
| <u>Proposed</u>                            |                | <u>Existing</u>   |               |
| Length                                     | 5 ft           | Length            | ft            |
| Width                                      | 12 ft          | Width             | ft            |
| Height                                     | 10.167 ft      | Height            | ft            |
| SWD  | 8 ft           | SWD               | ft            |
| # Tanks                                    | 1              | # Tanks           |               |
| Volume                                     | 480 c.f.       | Volume            | 0 c.f.        |
| Total Volume Provided                      | 480 c.f.       | Greater than req? | Yes           |
| Contact Time Provided                      |                |                   |               |
| at Peak Flow                               | 193.89 Seconds | Greater than req? | Yes           |

**Aerobic Digester Basin**

|   |                         |  | Regulation   |
|---|-------------------------|--|--|
| Does the Plant Have a Primary Clarifier?                  | No                      |  |  |
| Average Basin Temperature                                 | 20 deg C                | (about 68 degrees farenheit year round in houston) |  |
| Volatile Solids Reduction Percentage                      | 45 %                    | See figure 14-31 Metcalf &Eddy                     |  |
| Waste Activated Sludge Suspended Solids Concentration, Xw | 8500 mg/L               |  |  |
| Fraction of Influent BOD consisting of Raw Primary Solids | 0.5 decimal             | expressed as a                                     | Only Applicable For Plant's With Primary Clarification |
| Influent BOD Concentration                                | 250 mg/L                |  | Only Applicable For Plant's With Primary Clarification |
| Digester Suspended Solids Concentration                   | 20000 mg/L              | this value is assumed                              |  |
| Reaction Rate Constant, kd                                | 0.06 d <sup>-1</sup>    | This value is assumed                              | needs to be backchecked                                |
| Reaction Rate Constant Nitrification, kd n                | 0.30 d <sup>-1</sup>    |  |  |
| Volatile Fraction of Digester BOD, Y                      | 0.60 lbs VSS /lbs BOD   |  |  |
| Volatile Fraction of Digester Ammonia, Yn                 | 0.15 lbs VSS /lbs NH3-N |  |  |
| Volatile Fraction of Digester Suspended Solids, Pn        | 0.7 decimal             | This value is assumed                              | needs to be backchecked                                |

|   |        |                        |  |
|---|--------|------------------------|--|
| Fraction of MLVSS to MLSS                 | 0.7    | expressed as a decimal |  |
| Solids Retention Time (SRT)               | 40     | days                   |  |
| Density of Water                          | 62.32  | lbs/c.f.               |  |
| Percent Solids of Waste Activated Sludge  | 0.01   | expressed as a decimal | This value is assumed  |
| Percent Solids of Sludge in Digester      | 0.02   | expressed as a decimal |  |
| Specific Gravity of Sludge                | 1.005  |                        | This value is assumed  |
| Carbonaceous Yield Coefficient            | 0.58   |                        | Incorporates the reaction rate constant with the yield coefficient |
| Carbonaceous Sludge Production            | 465.15 | lb MLVSS / day         |  |
|   | 664    | lb MLSS / day          |  |
| Nitrogenous Yield Coefficient             | 0.13   |                        |  |
| Nitrogenous Sludge Production             | 10     | lb MLVSS / day         |  |
|   | 14     | lb MLSS / day          |  |
| Inert Sludge Production (TSS), Dry Solids | 278    | lb / day               |  |
| Volatile Sludge Production                | 475    | lbs / day              |  |
| Total Sludge Production                   | 956    | lbs / day              |  |

|  |               |                 |
|--|---------------|-----------------|
| Volumetric Flow Rate of Sludge Per Day | 1527 c.f./day | 7.931595835 GPM |
| Digester Volume Required               | 9686 c.f.     |                 |

|                                       |     |  |                  |
|---------------------------------------|-----|--|------------------|
| Minimum Digester Volatile Solids Rate | 100 | lb volatile solids per 1000 cf per day | 217.249(t)(7)(D) |
| Maximum Digester Volatile Solids Rate | 200 | lb volatile solids per 1000 cf per day | 217.249(t)(7)(D) |
| Actual Digester Volatile Solids Rate  | 30  | lb volatile solids per 1000 cf per day |                  |

|                                  |           |
|----------------------------------|-----------|
| Maximum Digester Volume Allowed  | 4750 c.f. |
| Minimum Digester Volume Required | 2375 c.f. |

| Proposed |            | Existing     |            | Existing     |        |
|----------|------------|--------------|------------|--------------|--------|
| Length   | 22 ft      | Diameter     | 22 ft      | Diameter     | ft     |
| Width    | 12 ft      | Surface Area | 12 ft      | Surface Area | ft     |
| Height   | 12.167 ft  | Height       | 12.167 ft  | Height       | ft     |
| SWD      | 10 ft      | SWD          | 10 ft      | SWD          | ft     |
| # Tanks  | 3          | # Tanks      | 3          | # Tanks      |        |
| Volume   | 7,920 c.f. | Volume       | 7,920 c.f. | Volume       | 0 c.f. |

|   |     |
|---|-----|
| Digester Capacity Capable of Meeting SRT? | Yes |
|---|-----|

|                       |             |   |     |
|-----------------------|-------------|---|-----|
| Total Volume Provided | 15,840 c.f. | Digester Capacity Capable of Handling Required Range? | Yes |
|-----------------------|-------------|---|-----|

#### Sludge Thickening Basin

|  |                               | Regulation       |
|--|-------------------------------|------------------|
| TCEQ Maximum Surface Loading (Qpk)       | 800 gal/day/s.f. at peak flow | 217.248(b)(2)(C) |
| TCEQ Minimum Surface Loading (Qpk)       | 400 gal/day/s.f. at peak flow | 217.248(b)(2)(C) |
| TCEQ Minimum Side Water Depth (SWD)      | 10 ft                         | 217.248(b)(2)(D) |
| TCEQ Minimum Bottom Slope                | 1.5 inches/ft                 | 217.248(b)(2)(E) |
| TCEQ Min. Peripheral Velocity of Scraper | 15 ft/min                     | 217.248(b)(2)(F) |
| TCEQ Max. Peripheral Velocity of Scraper | 20 ft/min                     | 217.248(b)(2)(F) |
| Volumetric Flow Rate of Sludge Per Day   | 11422 gal/day                 |                  |

|                               |            |                                   |
|-------------------------------|------------|-----------------------------------|
| Minimum Surface Area Required | 14.28 s.f. | 6.0 ft min dia for one Thickener  |
| Maximum Surface Area Allowed  | 28.56 s.f. | 4.3 ft min dia for two Thickeners |

|                     |     |          |
|---------------------|-----|----------|
| Thickeners Provided |     | tanks(s) |
| Diameter            |     | ft       |
| Height              |     | ft       |
| Static WL           |     | ft       |
| SWD                 |     | ft       |
| Surface Area        | 0.0 | s.f.     |
| Volume              | 0.0 | c.f.     |

it's the existing small clarifier

|                    |          |                        |    |
|--------------------|----------|------------------------|----|
| Total Surface Area | 0 s.f.   | Within Required Range? | NO |
| Total Volume       | 0.0 c.f. |                        |    |

## Aeration Equipment Sizing

|  |  |                                      | Regulation                               |
|--|--|--------------------------------------|--|
| Oxygen Requirement per Equation F.2  | 1.63 lbs O <sub>2</sub> /lb BOD <sub>5</sub> |                                      | 217.155(a)(2)(Equation F.2)              |
| Oxygen Requirement per Table F.3   | 2.2 lbs O <sub>2</sub> /lb BOD <sub>5</sub>  |                                      | 217.155(a)(2)(Table F.3)                 |
| Oxygen Requirement for Use in Air Requirements                                 | 2.2 lbs O <sub>2</sub> /lb BOD <sub>5</sub>  |                                      | 217.155(a)(2)                            |
| <i>Aeration System Airflow Design Based on 217.155(b)(1) Table F.4</i>         |  |                                      |  |
| Minimum Air Flow Requirement for Diffused Air                                  | 3200   | SCF/day/lb BOD <sub>5</sub>          | 217.155(b)(1)(Table F.4)                 |
| Design Airflow Rate  | 1853.333333                                  | SCFM                                 | 217.155(b)(1)(Table F.4)                 |
| <i>Aeration System Airflow Design Based on 217.155(b)(2) Equation F.3</i>      |  |                                      |  |
| Clean Water Oxygen Transfer Efficiency   | 11 %   |                                      | 217.155(b)(2) *Based on Single Drop Diff |
| Standard Diffuser Depth  | 12 ft  |                                      | 217.155(b)(2)(D)                         |
| Type of Diffuser   | Coarse Bubble                                |                                      |  |
| Wastewater Oxygen Transfer Efficiency  | 7.15 %                                       |                                      | 217.155(b)(2)(B)(i)                      |
| Required Air Flow Rate   | 1033   | SCFM                                 | 217.155(B)(2)©                           |
| Actual Diffuser Depth  | 9.67 ft                                      |                                      | 217.155(b)(2)(D)                         |
| Is a Correction Factor Require?  | Yes  |                                      | 217.155(b)(2)(D)                         |
| Diffuser Submergence Correction Factor Used                                    | 1.6029                                       |                                      | 217.155(b)(2)(D)(Table F.5)              |
| Corrected Required Air Flow Rate   | 1656   | SCFM                                 | 217.155(b)(2)(D)                         |
| Design Airflow Requirements for Aeration Process                               | 1656   | SCFM                                 | 217.155(b)                               |
| <i>Mixing Requirements for Diffused Air Based on 217.155(b)(3)(B)</i>          |  |                                      |  |
| Type of Diffuser   | Coarse Bubble                                |                                      |  |
| Minimum Airflow Requirement Diffused Air                                       | 20   | SCFM/1000 c.f.                       | 217.155(b)(3)                            |
| Design Airflow Requirements for Aeration Mixing                                | 583.8624                                     | SCFM                                 | 217.155(b)(3)                            |
| <b>Design Airflow Requirements for Aeration Basins</b>                         | <b>1656</b>                                  | <b>SCFM</b>                          |  |
| <i>Digester Aeration System Airflow Design</i>                                 |  |                                      |  |
| Amount of Oxygen Required  | 2.3  | lbs O <sub>2</sub> /lb VSS reduction |  |
| Density of Air   | 0.0749                                       | lbs Air/c.f.                         |  |
| Required Amount of Oxygen for Digestion  | 1093   | lbs O <sub>2</sub> /day              |  |
| Wastewater Oxygen Transfer Efficiency for Digester Diffusers                   | 7.15 %                                       |                                      |  |
| Required Amount of Air for Digestion   | 611  | SCFM                                 |  |
| Minimum Airflow Requirements for Diffused Air Mixing in Digester               | 30   | SCFM/1000 c.f.                       | 217.251(d)(1)(C)                         |
| Required Amount of Air for Digester Mixing                                     | 475.2  | SCFM                                 |  |
| <b>Design Airflow Requirements for Digester Basins</b>                         | <b>611</b>                                   | <b>SCFM</b>                          | 217.251(d)(1)(C)                         |
| Minimum Airflow Requirements for Diffused Air Mixing in Chlorine Contact Basin | 20   | SCFM/1000 c.f.                       |  |
| <b>Design Airflow Requirements for Chlorine Contact Mixing</b>                 | <b>76.5</b>                                  | <b>SCFM</b>                          |  |
| <b>Design Airflow Requirements for Airlift Pumps</b>                           |  | SCFM                                 | per manufacturer recommendation          |
| Minimum Airflow Requirement for Equalization Basin Mixing                      | 0  | SCFM/s.f.                            | 217.128(d)                               |
| <b>Design Airflow Requirements for Equalization Basin Mixing</b>               | <b>0</b>                                     | <b>SCFM</b>                          |  |
| <b>Total Airflow Requirements for WWTP Systems</b>                             | <b>2343</b>                                  | <b>SCFM</b>                          | 6548                                     |

**Process Air Blower Capacity**

---

|  |      |      |
|--|------|------|
| No. of Existing Blowers  | 0    |      |
| Existing Blower Capacity   | 0    | SCFM |
| No. of Prop. Blowers   | 4    |      |
| Prop. Blower Capacity  | 800  | SCFM |
| Prop. Blower Firm Capacity   | 2400 | SCFM |
| Prop. Blower Total Capacity  | 3200 | SCFM |
| (Blower firm capacity is blower capacity with largest blower out of service) |      |      |
| Prop. Blower Firm Capacity Greater Than Required                             | Yes  |      |
| Prop. Blower Total Capacity Greater Than Required                            | Yes  |      |

**Pounds Per Day of Chlorine Required for Treatment**

---

|                        |         |         |                      |
|------------------------|---------|---------|----------------------|
| Chlorine Concentration | 8       | mg/L    | Regulation           |
| Lbs of Chlorine / Day  | 106.752 | lbs/day | 217.272(b) Table K.1 |

**Maximum Withdrawal Rate From Gas Cylinder**

---

|  |     |                 |                            |
|--|-----|-----------------|----------------------------|
| Low Ambient Temperature                  | 65  | deg Farenheit   | Regulation                 |
| Threshold Temperature                    | 0   | deg Farenheit   | 217.273(a)(1)              |
| Withdrawal Factor                        | 8   | lbs/deg Far/day | 217.273(a)(1) Table K.2    |
| Maximum gas withdrawal rate per cylinder | 520 | lbs/day         | 217.273(a)(1) Equation K.2 |

**Minimum Number of Cylinders Required per Bank**

---

|   |   |               |            |
|---|---|---------------|------------|
| Minimum number of cylinders required per bank | 0 | No. Cylinders | Regulation |
|   |   |               | 217.273(b) |

HCMUD No. 606  
Wastewater Treatment Plant - Steel Package  
IDS Project No. 2436-004-00  
10/29/2024  
Completed by: ENW  
Checked by:

### FINAL PROCESS CALCULATIONS

|   |              |                             |              |  |
|---|--------------|-----------------------------|--------------|--|
| Avrg Design Flow                            | 0.64 MGD     | Influent BOD <sub>5</sub>   | 250 mg/L     | Location and date of Influent Data/ List any assumptions made to this section here |
| Peak Factor                                 | 4            |                             | 1334 lbs/day |  |
| Peak Flow                                   | 2.56 MGD     | Influent TSS                | 200 mg/L     |  |
|   | 1777.778 gpm |                             | 1068 lbs/day |  |
| Effluent Characteristics                    |              | Influent NH <sub>3</sub> -N | 25 mg/L      |  |
| BOD <sub>5</sub> S <sub>e</sub> (Apr-Oct)   | 10 mg/L      |                             | 133 lbs/day  |  |
| BOD <sub>5</sub> S <sub>e</sub> (Nov-Mar)   | 10 mg/L      | Influent TKN                | mg/L         |  |
| TSS TSS <sub>e</sub>                        | 15 mg/L      | Influent Phosphorus         | mg/L         |  |
| NH <sub>3</sub> -N N <sub>e</sub> (Apr-Oct) | 2 mg/L       | Reactor temp                | 20 °C        |  |
| NH <sub>3</sub> -N N <sub>e</sub> (Nov-Mar) | 2 mg/L       | Elevation                   | 125 feet ASL |  |

### Aeration Basin

|                              |                        |  |                                  |                              |
|------------------------------|------------------------|--|----------------------------------|------------------------------|
| TCEQ Maximum Organic Loading |                        | 35 lbs BOD/day/1000 c.f.                       | Regulation 217.154(b)(Table F.1) |                              |
| Aeration Volume Required     |                        | 38126 c.f.                                     |                                  |                              |
| MLSS                         |                        | 3000 mg/L                                      |                                  |                              |
| MLVSS/MLSS                   |                        | 0.7  |                                  |                              |
| MLVSS                        |                        | 2100 mg/L                                      |                                  |                              |
| <u>Proposed</u>              |                        |  | <u>Existing</u>                  | <u>Aeration Basins No. 2</u> |
| Length                       | 38 ft                  |  | Length                           | 38 ft                        |
| Width                        | 12 ft                  |  | Width                            | 12 ft                        |
| Height                       | 12.167 ft              |  | Height                           | 12.167 ft                    |
| SWD                          | 10.67 ft               |  | SWD                              | 10.67 ft                     |
| # Tanks                      | 3                      |  | # Tanks                          | 6                            |
| Volume                       | 14,597 c.f.            |  | Volume                           | 29,193 c.f.                  |
| Capacity                     | 0.245 MGD Average Flow |  | Total Existing Aeration Volume   | 29,193 c.f.                  |
| Total Volume                 |                        | 43,790 c.f.                                    | Total Proposed Aeration Capacity |                              |
| Volume greater than required |                        | YES  | 0.735079 MGD                     |                              |
| Organic Loading              |                        | 30.47 lbs BOD <sub>5</sub> /day                |                                  |                              |
| Hydraulic Retention Time     |                        | 12.28 hours                                    |                                  |                              |
| Solids Retention Time, SRT   |                        | 15.5968425 days                                |                                  |                              |
| f:m                          |                        | 0.11904762 lbs BOD <sub>5</sub> /lbs MLVSS/day |                                  |                              |

## Clarifier Basin

|  |                                |                                    |                       |
|--|--------------------------------|------------------------------------|-----------------------|
|  |                                | Regulation                         |                       |
| TCEQ Maximum Surface Loading (Qpk)                                       | 1200 gal/day/s.f. at peak flow | 217.154(c)(Table F.2)              |                       |
| TCEQ Minimum Detention Time (Qpk)  | 1.8 hours at peak flow         | 217.154(c)(Table F.2)              |                       |
| TCEQ Maximum Weir Loading (Qpk)  | 30000 gal/day/ft               | 217.152(c)(4)                      |                       |
| TCEQ Minimum Side Water Depth (SWD)                                      | 10 ft                          | 217.152(g)(2)(A)/(B)               |                       |
| TCEQ Maximum Stilling Well Velocity                                      | 0.15 ft/sec                    | 217.152(a)(4)                      |                       |
| Surface Area Required  | 2133.33333 s.f.                | 52.1 ft min dia for one clarifier  |                       |
| Volume Required  | 25667 c.f.                     | 36.9 ft min dia for two clarifiers |                       |
| Stilling Well Diameter   | 7 feet                         | 15-20% of total tank diameter      |                       |
| Stilling Well Qpk  | 3.96 cfs                       | plus 1.339751061 cfs recycle flow  |                       |
| Stilling Well Velocity at Qpk  | 0.009 fps                      | Meets req? YES                     |                       |
| Clarifiers Provided  | 1 tanks(s)                     | Existing Clarifiers                | 2 tanks(s)            |
| Diameter   | 35 ft                          | Diameter                           | 35 ft                 |
| Height   | 14.167 ft                      | Height                             | 14.167 ft             |
| Static WL  | 10.50 ft                       | Static WL                          | 10.50 ft              |
| SWD  | 10.792 ft                      | SWD                                | 10.792 ft             |
| Surface Area   | 962 s.f.                       | Surface Area                       | 1924 s.f.             |
| Volume   | 10383.1 c.f.                   | Volume                             | 20766.2 c.f.          |
| Total Surface Area   | 2886 s.f.                      | Greater than req?                  | YES                   |
| Total Volume   | 31149.4 c.f.                   | Greater than req?                  | YES                   |
|  |                                | Qavg                               | Qpk                   |
| Clarifier Surface Loading  | 522 gpd/s.f.                   | 887                                | Less than max? YES    |
| Clarifier Detention Time   | 3.71 Hours                     | 2.18                               | Greater than req? YES |
| This currently uses the average RAS flowrate to calculate detention time |                                |                                    |                       |
| Clarifier Wall to Weir Length  | 12 in                          |                                    |                       |
| Weir Length  | 311.0 ft                       |                                    |                       |
| Weir Loading   | 8231 gpd/ft                    | Less than max?                     | YES                   |

## RAS/WAS Pumping and Piping

|                                       |           |                 |                    |
|---------------------------------------|-----------|-----------------|--------------------|
|                                       |           | Regulation      |                    |
| TCEQ minimum sludge pipe diameter     | 4 in      | 217.152(e)(2-3) |                    |
| Clarifier Surface Area                | 2886 s.f. |                 |                    |
| TCEQ min RAS pump capacity @200gpd/sf | 401 gpm   | Qr/Q =          | 0.90 217.152(j)(3) |
| TCEQ max RAS pump capacity @400gpd/sf | 802 gpm   | Qr/Q =          | 1.80 217.152(j)(3) |
| RAS/WAS pipe diameter                 | 6 in      |                 |                    |
| Velocity in RAS/WAS pipe @ min rate   | 5.46 fps  |                 |                    |
| Velocity in RAS/WAS pipe @ max rate   | 10.93 fps |                 |                    |

**Chlorine Contact Basin**

|  |             |                 |                             |     |
|--|-------------|-----------------|-----------------------------|-----|
| Minimum Contact Time at Peak Flow          |             | 20 min          | Regulation<br>217.281(b)(1) |     |
| Required Volume for Chlorine Contact Basin |             | 35556 gal       |                             |     |
| Required Volume for Chlorine Contact Basin |             | 4754 c.f.       |                             |     |
| <u>Proposed</u>                            |             | <u>Existing</u> |                             |     |
| Length                                     | 18.75 ft    | Length          | 18.75 ft                    |     |
| Width                                      | 12 ft       | Width           | 12 ft                       |     |
| Height                                     | 10.167 ft   | Height          | 10.167 ft                   |     |
| SWD  | 8.5 ft      | SWD             | 8.5 ft                      |     |
| # Tanks                                    | 1           | # Tanks         | 2                           |     |
| Volume                                     | 1912.5 c.f. | Volume          | 3825 c.f.                   |     |
| Total Volume Provided                      |             | 5,738 c.f.      | Greater than req?           | Yes |
| Contact Time Provided                      |             |                 |                             |     |
| at Peak Flow                               |             | 24.14 min       | Greater than req?           | Yes |

**Dechlorination Basin**

|  |                |                   | Regulation    |
|--|----------------|-------------------|---------------|
| Minimum Contact Time at Peak Flow          |                | 20 Seconds        | 217.281(c)(2) |
| Required Volume for Chlorine Contact Basin |                | 593 gal           |               |
| Required Volume for Chlorine Contact Basin |                | 80 c.f.           |               |
| <u>Proposed</u>                            |                |                   |               |
| Length                                     | 5 ft           | <u>Existing</u>   |               |
| Width                                      | 12 ft          | Length            | ft            |
| Height                                     | 10.167 ft      | Width             | ft            |
| SWD  | 8 ft           | Height            | ft            |
| # Tanks                                    | 1              | SWD               | ft            |
| Volume                                     | 480 c.f.       | # Tanks           |               |
|  |                | Volume            | 0 c.f.        |
| Total Volume Provided                      | 480 c.f.       | Greater than req? | Yes           |
| Contact Time Provided                      |                |                   |               |
| at Peak Flow                               | 121.18 Seconds | Greater than req? | Yes           |

**Aerobic Digester Basin**

| Regulation  |                         |  |                         |
|---|-------------------------|--|-------------------------|
| Does the Plant Have a Primary Clarifier?                  | No                      |  |                         |
| Average Basin Temperature                                 | 20 deg C                | (about 68 degrees farenheit year round in houston)     |                         |
| Volatile Solids Reduction Percentage                      | 45 %                    | See figure 14-31 Metcalf &Eddy                         |                         |
| Waste Activated Sludge Suspended Solids Concentration, Xw | 8500 mg/L               |  |                         |
| Fraction of Influent BOD consisting of Raw Primary Solids | 0.5 decimal             | expressed as a   |                         |
| Influent BOD Concentration                                | 250 mg/L                | Only Applicable For Plant's With Primary Clarification |                         |
| Digester Suspended Solids Concentration                   | 20000 mg/L              | Only Applicable For Plant's With Primary Clarification |                         |
| Reaction Rate Constant, kd                                | 0.06 d <sup>-1</sup>    | this value is assumed                                  |                         |
| Reaction Rate Constant Nitrification, kd n                | 0.30 d <sup>-1</sup>    | This value is assumed                                  | needs to be backchecked |
| Volatile Fraction of Digester BOD, Y                      | 0.60 lbs VSS /lbs BOD   |  |                         |
| Volatile Fraction of Digester Ammonia, Yn                 | 0.15 lbs VSS /lbs NH3-N |  |                         |
| Volatile Fraction of Digester Suspended Solids, Pn        | 0.7 decimal             | This value is assumed                                  | needs to be backchecked |



|   |        |                        |  |
|---|--------|------------------------|--|
| Fraction of MLVSS to MLSS                 | 0.7    | expressed as a decimal |  |
| Solids Retention Time (SRT)               | 40     | days                   |  |
| Density of Water                          | 62.32  | lbs/c.f.               |  |
| Percent Solids of Waste Activated Sludge  | 0.01   | expressed as a decimal | This value is assumed  |
| Percent Solids of Sludge in Digester      | 0.02   | expressed as a decimal |  |
| Specific Gravity of Sludge                | 1.005  |                        | This value is assumed  |
| Carbonaceous Yield Coefficient            | 0.58   |                        | Incorporates the reaction rate constant with the yield coefficient |
| Carbonaceous Sludge Production            | 745.71 | lb MLVSS / day         |  |
|   | 1065   | lb MLSS / day          |  |
| Nitrogenous Yield Coefficient             | 0.13   |                        |  |
| Nitrogenous Sludge Production             | 16     | lb MLVSS / day         |  |
|   | 23     | lb MLSS / day          |  |
| Inert Sludge Production (TSS), Dry Solids | 444    | lb / day               |  |
| Volatile Sludge Production                | 762    | lbs / day              |  |
| Total Sludge Production                   | 1532   | lbs / day              |  |

|  |               |                 |
|--|---------------|-----------------|
| Volumetric Flow Rate of Sludge Per Day | 2447 c.f./day | 12.70973172 GPM |
| Digester Volume Required               | 15521 c.f.    |                 |

|                                       |     |  |                  |
|---------------------------------------|-----|--|------------------|
| Minimum Digester Volatile Solids Rate | 100 | lb volatile solids per 1000 cf per day | 217.249(t)(7)(D) |
| Maximum Digester Volatile Solids Rate | 200 | lb volatile solids per 1000 cf per day | 217.249(t)(7)(D) |
| Actual Digester Volatile Solids Rate  | 32  | lb volatile solids per 1000 cf per day |                  |

|                                  |           |
|----------------------------------|-----------|
| Maximum Digester Volume Allowed  | 7617 c.f. |
| Minimum Digester Volume Required | 3808 c.f. |

| Proposed |            | Existing |             | Existing     |        |
|----------|------------|----------|-------------|--------------|--------|
| Length   | 22 ft      | Length   | 22 ft       | Diameter     | ft     |
| Width    | 12 ft      | Width    | 12 ft       | Surface Area | ft     |
| Height   | 12.167 ft  | Height   | 12.167 ft   | Height       | ft     |
| SWD      | 10 ft      | SWD      | 10 ft       | SWD          | ft     |
| # Tanks  | 3          | # Tanks  | 6           | # Tanks      |        |
| Volume   | 7,920 c.f. | Volume   | 15,840 c.f. | Volume       | 0 c.f. |

|                       |   |     |
|-----------------------|---|-----|
|                       | Digester Capacity Capable of Meeting SRT?             | Yes |
|                       | Digester Capacity Capable of Handling Required Range? | Yes |
| Total Volume Provided | 23,760 c.f.   |     |

### Sludge Thickening Basin

|  |                               | Regulation       |
|--|-------------------------------|------------------|
| TCEQ Maximum Surface Loading (Qpk)       | 800 gal/day/s.f. at peak flow | 217.248(b)(2)(C) |
| TCEQ Minimum Surface Loading (Qpk)       | 400 gal/day/s.f. at peak flow | 217.248(b)(2)(C) |
| TCEQ Minimum Side Water Depth (SWD)      | 10 ft                         | 217.248(b)(2)(D) |
| TCEQ Minimum Bottom Slope                | 1.5 inches/ft                 | 217.248(b)(2)(E) |
| TCEQ Min. Peripheral Velocity of Scraper | 15 ft/min                     | 217.248(b)(2)(F) |
| TCEQ Max. Peripheral Velocity of Scraper | 20 ft/min                     | 217.248(b)(2)(F) |
| Volumetric Flow Rate of Sludge Per Day   | 18303 gal/day                 |                  |

|                               |            |                                   |
|-------------------------------|------------|-----------------------------------|
| Minimum Surface Area Required | 22.88 s.f. | 7.6 ft min dia for one Thickener  |
| Maximum Surface Area Allowed  | 45.76 s.f. | 5.4 ft min dia for two Thickeners |

|                     |          |                                   |
|---------------------|----------|-----------------------------------|
| Thickeners Provided | tanks(s) |                                   |
| Diameter            | ft       | it's the existing small clarifier |
| Height              | ft       |                                   |
| Static WL           | ft       |                                   |
| SWD                 | ft       |                                   |
| Surface Area        | 0.0 s.f. |                                   |
| Volume              | 0.0 c.f. |                                   |

|                    |          |                        |    |
|--------------------|----------|------------------------|----|
| Total Surface Area | 0 s.f.   | Within Required Range? | NO |
| Total Volume       | 0.0 c.f. |                        |    |

## Aeration Equipment Sizing

|  |  |                                      | Regulation                               |
|--|--|--------------------------------------|--|
| Oxygen Requirement per Equation F.2  | 1.63 lbs O <sub>2</sub> /lb BOD <sub>5</sub> |                                      | 217.155(a)(2)(Equation F.2)              |
| Oxygen Requirement per Table F.3   | 2.2 lbs O <sub>2</sub> /lb BOD <sub>5</sub>  |                                      | 217.155(a)(2)(Table F.3)                 |
| Oxygen Requirement for Use in Air Requirements                                 | 2.2 lbs O <sub>2</sub> /lb BOD <sub>5</sub>  |                                      | 217.155(a)(2)                            |
| <i>Aeration System Airflow Design Based on 217.155(b)(1) Table F.4</i>         |  |                                      |  |
| Minimum Air Flow Requirement for Diffused Air                                  | 3200   | SCF/day/lb BOD <sub>5</sub>          | 217.155(b)(1)(Table F.4)                 |
| Design Airflow Rate  | 2965.333333                                  | SCFM                                 | 217.155(b)(1)(Table F.4)                 |
| <i>Aeration System Airflow Design Based on 217.155(b)(2) Equation F.3</i>      |  |                                      |  |
| Clean Water Oxygen Transfer Efficiency   | 11 %   |                                      | 217.155(b)(2) *Based on Single Drop Diff |
| Standard Diffuser Depth  | 12 ft  |                                      | 217.155(b)(2)(D)                         |
| Type of Diffuser   | Coarse Bubble                                |                                      |  |
| Wastewater Oxygen Transfer Efficiency  | 7.15 %                                       |                                      | 217.155(b)(2)(B)(i)                      |
| Required Air Flow Rate   | 1653   | SCFM                                 | 217.155(B)(2)©                           |
| Actual Diffuser Depth  | 9.67 ft                                      |                                      | 217.155(b)(2)(D)                         |
| Is a Correction Factor Require?  | Yes  |                                      | 217.155(b)(2)(D)                         |
| Diffuser Submergence Correction Factor Used                                    | 1.6029                                       |                                      | 217.155(b)(2)(D)(Table F.5)              |
| Corrected Required Air Flow Rate   | 2649   | SCFM                                 | 217.155(b)(2)(D)                         |
| Design Airflow Requirements for Aeration Process                               | 2649   | SCFM                                 | 217.155(b)                               |
| <i>Mixing Requirements for Diffused Air Based on 217.155(b)(3)(B)</i>          |  |                                      |  |
| Type of Diffuser   | Coarse Bubble                                |                                      |  |
| Minimum Airflow Requirement Diffused Air                                       | 20   | SCFM/1000 c.f.                       | 217.155(b)(3)                            |
| Design Airflow Requirements for Aeration Mixing                                | 875.7936                                     | SCFM                                 | 217.155(b)(3)                            |
| <b>Design Airflow Requirements for Aeration Basins</b>                         | <b>2649</b>                                  | <b>SCFM</b>                          |  |
| <i>Digester Aeration System Airflow Design</i>                                 |  |                                      |  |
| Amount of Oxygen Required  | 2.3  | lbs O <sub>2</sub> /lb VSS reduction |  |
| Density of Air   | 0.0749                                       | lbs Air/c.f.                         |  |
| Required Amount of Oxygen for Digestion  | 1752   | lbs O <sub>2</sub> /day              |  |
| Wastewater Oxygen Transfer Efficiency for Digester Diffusers                   | 7.15 %                                       |                                      |  |
| Required Amount of Air for Digestion   | 979  | SCFM                                 |  |
| Minimum Airflow Requirements for Diffused Air Mixing in Digester               | 30   | SCFM/1000 c.f.                       | 217.251(d)(1)(C)                         |
| Required Amount of Air for Digester Mixing                                     | 712.8  | SCFM                                 |  |
| <b>Design Airflow Requirements for Digester Basins</b>                         | <b>979</b>                                   | <b>SCFM</b>                          | 217.251(d)(1)(C)                         |
| Minimum Airflow Requirements for Diffused Air Mixing in Chlorine Contact Basin | 20   | SCFM/1000 c.f.                       |  |
| <b>Design Airflow Requirements for Chlorine Contact Mixing</b>                 | <b>114.75</b>                                | <b>SCFM</b>                          |  |
| <b>Design Airflow Requirements for Airlift Pumps</b>                           |  | SCFM                                 | per manufacturer recommendation          |
| Minimum Airflow Requirement for Equalization Basin Mixing                      | 0  | SCFM/s.f.                            | 217.128(d)                               |
| <b>Design Airflow Requirements for Equalization Basin Mixing</b>               | <b>0</b>                                     | <b>SCFM</b>                          |  |
| <b>Total Airflow Requirements for WWTP Systems</b>                             | <b>3743</b>                                  | <b>SCFM</b>                          | 6548                                     |

**Process Air Blower Capacity**

---

|  |      |      |
|--|------|------|
| No. of Existing Blowers  | 0    |      |
| Existing Blower Capacity   | 0    | SCFM |
| No. of Prop. Blowers   | 6    |      |
| Prop. Blower Capacity  | 800  | SCFM |
| Prop. Blower Firm Capacity   | 4000 | SCFM |
| Prop. Blower Total Capacity  | 4800 | SCFM |
| (Blower firm capacity is blower capacity with largest blower out of service) |      |      |
| Prop. Blower Firm Capacity Greater Than Required                             | Yes  |      |
| Prop. Blower Total Capacity Greater Than Required                            | Yes  |      |

**Pounds Per Day of Chlorine Required for Treatment**

---

|                        |          |         |                      |
|------------------------|----------|---------|----------------------|
| Chlorine Concentration | 8        | mg/L    | Regulation           |
| Lbs of Chlorine / Day  | 170.8032 | lbs/day | 217.272(b) Table K.1 |

**Maximum Withdrawal Rate From Gas Cylinder**

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|  |     |                 |                            |
|--|-----|-----------------|----------------------------|
| Low Ambient Temperature                  | 65  | deg Farenheit   | Regulation                 |
| Threshold Temperature                    | 0   | deg Farenheit   | 217.273(a)(1)              |
| Withdrawal Factor                        | 8   | lbs/deg Far/day | 217.273(a)(1) Table K.2    |
| Maximum gas withdrawal rate per cylinder | 520 | lbs/day         | 217.273(a)(1) Equation K.2 |

**Minimum Number of Cylinders Required per Bank**

---

|   |   |               |            |
|---|---|---------------|------------|
| Minimum number of cylinders required per bank | 0 | No. Cylinders | Regulation |
|   |   |               | 217.273(b) |

| HYDRAULIC CALCULATIONS                          |  |  |                            |  |  |           |           |           |         |
|---|--|--|----------------------------|--|--|-----------|-----------|-----------|---------|
| HCMUD 606 WWTP                                  |  |  |                            |  |  |           |           |           |         |
| Steel Package Plant                             |  |  |                            |  |  |           |           |           |         |
|   |  |  |                            |  |  | Avg Flow  | Peak Flow | Ult Flow  | Units   |
|   |  |  |                            |  |  | 0.24      | 0.96      | 2.56      | MGD     |
|   |  |  |                            |  |  | 167       | 667       | 1778      | gpm     |
|   |  |  |                            |  |  | 0.37      | 1.49      | 3.96      | cfs     |
| 1 Losses Through Aeration Influent Pipe Orifice |  |  |                            |  |  |           |           |           |         |
| 2   |  |  |                            |  |  |           |           |           |         |
| 3   |  | Pipe Diameter                          |                            |  |  | 10        | 10        | 10        | Inch    |
| 4   |  | Headworks Bottom Elevation             |                            |  |  | 178.167   | 178.167   | 178.167   | Feet    |
| 5   |  | Downstream WSE                         |                            |  |  | 175.05    | 175.09    | 175.17    | Feet    |
| 5   |  | C (Weir Coefficient)                   |                            |  |  | 0.6       | 0.6       | 0.6       |         |
| 6   |  | Flow Factor                            |                            |  |  | 1         | 1         | 1         |         |
| 6   |  | Effluent Flowrate                      |                            |  |  | 0.19      | 0.74      | 1.98      | cfs     |
| 6   |  | Diameter                               |                            |  |  | 0.8333333 | 0.8333333 | 0.8333333 | Feet    |
| 7   |  | Headloss                               |                            |  |  | 0.001     | 0.008     | 0.059     | Feet    |
| 8   |  | Upstream Water Surface Elevation       |                            |  |  | 175.05    | 175.10    | 175.23    | Feet    |
| 9 Headworks Weir                                |  |  |                            |  |  |           |           |           |         |
| 10  |  |  |                            |  |  |           |           |           |         |
| 11  |  | Flow Factor                            |                            |  |  | 1         | 1         | 1         |         |
| 12  |  | Flowrate                               |                            |  |  | 0.19      | 0.74      | 1.98      | cfs     |
| 13  |  | Weir Constants                         |                            |  |  |           |           |           |         |
| 14  |  | Angle                                  |                            |  |  | 180       | 180       | 180       |         |
| 15  |  | Weir Elevation                         |                            |  |  | 179.667   | 179.667   | 179.667   | Feet    |
| 16  |  | C (Weir Coefficient)                   |                            |  |  | 3.3       | 3.3       | 3.3       |         |
| 17  |  | Weir Length                            |                            |  |  | 2.50      | 2.50      | 2.50      | Feet    |
| 18  |  | Head on Weir                           |                            |  |  | 0.08      | 0.20      | 0.39      | Feet    |
| 19  |  | Upstream Water Surface Elevation       |                            |  |  | 179.75    | 179.87    | 180.05    | Feet    |
| 20 Loss Through 1" Bar Screen                   |  |  |                            |  |  |           |           |           |         |
| 21  |  |  |                            |  |  |           |           |           |         |
| 22  |  | Screen Width                           | 1" Bar Screen Opening      |  |  | 0.06      | 0.06      | 0.06      | Feet    |
| 23  |  | Bar Width                              | (standard is 0.25")        |  |  | 0.02      | 0.02      | 0.02      | Feet    |
| 24  |  | Headworks Screening Channel Width      |                            |  |  | 5.00      | 5.00      | 5.00      | Feet    |
| 25  |  | Screen Angle                           | (typically between 35-55)  |  |  | 55.00     | 55.00     | 55.00     | deg     |
| 26  |  | Clogging Factor                        |                            |  |  | 0.70      | 0.70      | 0.70      |         |
| 27  |  | N-Value                                |                            |  |  | 0.01      | 0.01      | 0.01      |         |
| 28  |  | Actual Openings                        |                            |  |  | 17.86     | 17.86     | 17.86     |         |
| 29  |  | Channel Bottom Elevation               |                            |  |  | 178.17    | 178.17    | 178.17    | Feet    |
| 30  |  | Side Water Depth                       |                            |  |  | 1.58      | 1.70      | 1.89      | Feet    |
| 31  |  | Channel Length                         |                            |  |  | 1.11      | 1.19      | 1.32      | Feet    |
| 32  |  | Cross Sectional Area of Water          |                            |  |  | 0.10      | 0.11      | 0.12      | Sq. Ft. |
| 33  |  | Wetted Perimeter                       |                            |  |  | 3.22      | 3.46      | 3.84      | Feet    |
| 34  |  | Flowrate (mgd)                         |                            |  |  | 0.01      | 0.05      | 0.14      | MGD     |
| 35  |  | Flowrate (Cfs)                         |                            |  |  | 0.02      | 0.08      | 0.22      | CFS     |
| 36  |  | Velocity through channel (fps)         |                            |  |  | 0.21      | 0.78      | 1.87      | FPS     |
| 37  |  | Headloss due to friction               |                            |  |  |           |           |           |         |
| 38  |  | $H = L*((Q*n)/(1.49*A*(R^{2/3})))^2$   |                            |  |  | 0.00      | 0.01      | 0.04      | Feet    |
| 39  |  |  |                            |  |  |           |           |           |         |
| 40  |  | Water Surface Elevation                | Upstream of Opening        |  |  | 179.75    | 179.87    | 180.09    | ft      |
| 41  |  |  |                            |  |  |           |           |           |         |
| 42 Loss Through 3/4" Bar Screen                 |  |  |                            |  |  |           |           |           |         |
| 43  |  |  |                            |  |  |           |           |           |         |
| 44  |  | Screen Width                           | 3/4" Bar Screen Opening, 4 |  |  | 0.08      | 0.08      | 0.08      | Feet    |
| 45  |  | Bar Width (standard is 0.25")          |                            |  |  | 0.02      | 0.02      | 0.02      | Feet    |
| 46  |  | Headwork Screening Channel Width       |                            |  |  | 5.00      | 5.00      | 5.00      | Feet    |
| 47  |  | Screen Angle (typically between 35-55) |                            |  |  | 55.00     | 55.00     | 55.00     | deg     |
| 48  |  | Clogging Factor                        |                            |  |  | 0.70      | 0.70      | 0.70      |         |
| 49  |  | N-Value                                |                            |  |  | 0.01      | 0.01      | 0.01      |         |
| 50  |  | Actual Openings                        |                            |  |  | 14.42     | 14.42     | 14.42     |         |
| 51  |  | Channel Bottom Elevation               |                            |  |  | 178.17    | 178.17    | 178.17    | Feet    |
| 52  |  | Side Water Depth                       |                            |  |  | 1.58      | 1.71      | 1.92      | Feet    |
| 53  |  | Channel Length                         |                            |  |  | 1.11      | 1.19      | 1.35      | Feet    |

|    |  |               |               |               |           |
|----|--|---------------|---------------|---------------|-----------|
| 54 | Cross Sectional Area of Water                            | 0.13          | 0.14          | 0.16          | Sq. Ft.   |
| 55 | Wetted Perimeter   | 3.24          | 3.50          | 3.93          | Feet      |
| 56 | Flowrate (mgd)   | 0.02          | 0.07          | 0.18          | MGD       |
| 57 | Flowrate (Cfs)   | 0.03          | 0.10          | 0.27          | CFS       |
| 58 | Velocity through channel (fps)                           | 0.20          | 0.73          | 1.72          | FPS       |
| 59 | Headloss due to friction                                 |               |               |               |           |
| 60 | $H = L * ((Q * n) / (1.49 * A * (R^{2/3})))^2$           | 0.00          | 0.00          | 0.03          | Feet      |
| 61 |  |               |               |               |           |
| 62 | <b>Water Surface Elevation Upstream of Opening</b>       | <b>179.75</b> | <b>179.88</b> | <b>180.12</b> | <b>ft</b> |
| 63 |  |               |               |               |           |
| 64 | <b>Emergency Bypass Weir</b>                             |               |               |               |           |
| 65 |  |               |               |               |           |
| 66 | Length of Weir   | 2.00          | 2.00          | 2.00          | Feet      |
| 67 | Flow over Weir, MGD                                      | 0.24          | 0.96          | 2.56          | MGD       |
| 68 | Flow over Weir, Cfs                                      | 0.37          | 1.49          | 3.96          | CFS       |
| 69 | Water Surface Downstream                                 | 175.05        | 179.88        | 180.12        | Feet      |
| 70 | Channel Bottom Elevation                                 | 178.17        | 178.17        | 178.17        | Feet      |
| 71 | Headworks TOW Elevation                                  | 181.67        | 181.67        | 181.67        | Feet      |
| 72 | Weir Elevation   | 180.17        | 180.17        | 180.17        | Feet      |
| 73 | Cw   | 3.33          | 3.33          | 3.33          |           |
| 74 | Head over Weir, $H = (Q / Cw * L)^{2/3}$                 | 0.15          | 0.37          | 0.71          | Feet      |
| 75 | Head over Weir, Inches                                   | 1.75          | 4.41          | 8.49          | Inches    |
| 76 | Water Depth in Channel Upstream of Weir, Feet            | 2.15          | 2.37          | 2.71          | Feet      |
| 77 | Headloss over Weir                                       | 5.27          | 0.66          | 0.76          | Feet      |
| 78 |  |               |               |               |           |
| 79 | <b>Water Surface Elevation Upstream of Overflow Weir</b> | <b>180.31</b> | <b>180.53</b> | <b>180.87</b> | <b>ft</b> |

**HYDRAULIC CALCULATIONS**  
**HCMUD 606 WWTP**  
**Steel Package Plant**

|   |   |  |  |  |  | Avg Flow      | Peak Flow     | Ult Flow      | Units       |
|---|---|--|--|--|--|---------------|---------------|---------------|-------------|
|   |   |  |  |  |  | 0.08          | 0.32          | 0.8533333     | MGD         |
|   |   |  |  |  |  | 56            | 222           | 593           | gpm         |
|   |   |  |  |  |  | 0.12          | 0.50          | 1.32          | cfs         |
| <b>1 Aeration Basin Effluent Line to Upstream End of Aeration Basin</b> |   |  |  |  |  |               |               |               |             |
| 2   |   |  |  |  |  |               |               |               |             |
| 3   | Channel Width                           |  |  |  |  | 12            | 12            | 12            | Feet        |
| 4   | Aeration Basin Bottom Elevation         |  |  |  |  | 165           | 165           | 165           | Feet        |
| 5   | Top of Wall Elevation                   |  |  |  |  | 177.127       | 177.127       | 177.127       | Feet        |
| 5   | Downstream WSE                          |  |  |  |  | 175.05        | 175.08        | 175.14        | Feet        |
| 6   | Sidewater Depth                         |  |  |  |  | 10.05         | 10.08         | 10.14         | Feet        |
| 6   | Channel Length                          |  |  |  |  | 38.00         | 38.00         | 38.00         | Feet        |
| 6   | Cross Sectional Area                    |  |  |  |  | 120.56254     | 121.00742     | 121.63952     | SF          |
| 7   | Flow Factor                             |  |  |  |  | 1             | 1             | 1             |             |
| 8   | Flowrate                                |  |  |  |  | 0.72          | 1.09          | 1.92          | cfs         |
| 9   | Wetted Perimeter                        |  |  |  |  | 32.093757     | 32.167903     | 32.273254     | Feet        |
| 10  | Hydraulic Radius                        |  |  |  |  | 3.756573      | 13.75         | 13.75         | Feet        |
| 11  | Velocity                                |  |  |  |  | 0.0059656     | 0.0090123     | 0.0157494     | fps         |
| 12  | N-value                                 |  |  |  |  | 0.015         | 0.015         | 0.015         | Feet        |
| 10  | <b>Headloss</b>                         |  |  |  |  | <b>0.000</b>  | <b>0.000</b>  | <b>0.000</b>  | Feet        |
| 11  | <b>Upstream Water Surface Elevation</b> |  |  |  |  | <b>175.05</b> | <b>175.08</b> | <b>175.14</b> | <b>Feet</b> |
| <b>12 Influent Line from Headworks to Upstream of Aeration Basin 2</b>  |   |  |  |  |  |               |               |               |             |
| 13  |   |  |  |  |  |               |               |               |             |
| 14  | Pipe Diameter                           |  |  |  |  | 12            | 12            | 12            | Inch        |
| 15  | Downstream WSE                          |  |  |  |  | 175.05        | 175.08        | 175.14        | Feet        |
| 16  | Number of Pipes (Parallel)              |  |  |  |  | 1             | 1             | 1             |             |
| 17  | N-Value                                 |  |  |  |  | 0.012         | 0.012         | 0.012         |             |
| 18  | Flow Factor                             |  |  |  |  | 1             | 1             | 1             |             |
| 19  | Flowrate                                |  |  |  |  | 0.12          | 0.50          | 1.32          | cfs         |
| 20  | Diameter                                |  |  |  |  | 1             | 1             | 1             | Feet        |
| 21  | Reach Length                            |  |  |  |  | 30            | 30            | 30            | Feet        |
| 22  | Cross Sectional Area                    |  |  |  |  | 0.785         | 0.785         | 0.785         | SF          |
| 23  | Velocity                                |  |  |  |  | 0.158         | 0.630         | 1.681         | fps         |
| 24  | Wetted Perimeter                        |  |  |  |  | 3.142         | 3.142         | 3.142         | Feet        |
| 25  | Hydraulic Radius                        |  |  |  |  | 0.25          | 0.25          | 0.25          | Feet        |
| 26  | Friction Slope                          |  |  |  |  | 0.000         | 0.000         | 0.001         | Ft/Ft       |
| 27  |   |  |  |  |  |               |               |               |             |
| 28  | <b>Friction Loss</b>                    |  |  |  |  | 0.00          | 0.00          | 0.03          | Feet        |
| 29  |   |  |  |  |  |               | Vel Head      |               |             |
| 30  | Minor Losses                            |  |  |  |  | Minimum       | Avg           | Avg           |             |

|    |   |               |              |                   |                   |                   |             |
|----|---|---------------|--------------|-------------------|-------------------|-------------------|-------------|
| 31 | Assume Pipe Flowing Full                |               |              | 0.000             | 0.006             | 0.044             | Feet        |
| 32 |   |               |              |                   |                   |                   |             |
| 33 | <u>Minor Losses</u>                     | <u>Number</u> | <u>Koeff</u> | <u>Minor Loss</u> | <u>Minor Loss</u> | <u>Minor Loss</u> |             |
| 34 | Exit Loss                               | 1             | 1            | 0.000             | 0.000             | 0.000             | Feet        |
| 35 | 22 Degree Bend                          | 0             | 0.2          | 0.000             | 0.000             | 0.000             | Feet        |
| 36 | 45 Degree Bend                          | 1             | 0.2          | 0.000             | 0.000             | 0.000             | Feet        |
| 37 | Entrance Loss                           | 1             | 0.5          | 0.000             | 0.000             | 0.000             | Feet        |
| 38 | <b>Total Minor Losses</b>               |               |              | <b>0.000</b>      | <b>0.000</b>      | <b>0.000</b>      | Feet        |
| 39 | <b>Total Losses</b>                     |               |              | <b>0.000</b>      | <b>0.005</b>      | <b>0.035</b>      | Feet        |
| 40 | <b>Upstream Water Surface Elevation</b> |               |              | <b>175.05</b>     | <b>175.09</b>     | <b>175.17</b>     | <b>Feet</b> |



**HYDRAULIC CALCULATIONS**  
**HCMUD 606 WWTP**  
**Steel Package Plant**

|   |   |  |  |  |  | Avg Flow      | Peak Flow     | Ult Flow      | Units       |
|---|---|--|--|--|--|---------------|---------------|---------------|-------------|
|   |   |  |  |  |  | 0.24          | 0.96          | 2.56          | MGD         |
|   |   |  |  |  |  | 167           | 667           | 1778          | gpm         |
|   |   |  |  |  |  | 0.37          | 1.49          | 3.96          | cfs         |
| <b>1 Losses Through Clarifier Effluent Pipe Orifice</b> |   |  |  |  |  |               |               |               |             |
| 2   |   |  |  |  |  |               |               |               |             |
| 3   | Pipe Diameter                           |  |  |  |  | 12            | 12            | 12            | Inch        |
| 4   | Launder Bottom Elevation                |  |  |  |  | 174           | 174           | 174           | Feet        |
| 5   | Downstream WSE                          |  |  |  |  | 174.29        | 174.51        | 174.78        | Feet        |
| 6   | C (Weir Coefficient)                    |  |  |  |  | 0.6           | 0.6           | 0.6           |             |
| 7   | Flow Factor                             |  |  |  |  | 1             | 1             | 1             |             |
| 8   | Effluent Flowrate                       |  |  |  |  | 0.37          | 1.49          | 3.96          | cfs         |
| 9   | Diameter                                |  |  |  |  | 1             | 1             | 1             | Feet        |
| 10  | <b>Headloss</b>                         |  |  |  |  | <b>0.001</b>  | <b>0.016</b>  | <b>0.113</b>  | Feet        |
| 11  | <b>Upstream Water Surface Elevation</b> |  |  |  |  | <b>174.29</b> | <b>174.53</b> | <b>174.89</b> | <b>Feet</b> |
| <b>12 Clarifier V-notch Weir</b>                        |   |  |  |  |  |               |               |               |             |
| 13  |   |  |  |  |  |               |               |               |             |
| 14  | Flow Factor                             |  |  |  |  | 1             | 1             | 1             |             |
| 15  | Flowrate                                |  |  |  |  | 0.37          | 1.49          | 3.96          | cfs         |
| 16  | <b>Weir Constants</b>                   |  |  |  |  |               |               |               |             |
| 17  | Angle                                   |  |  |  |  | 90            | 90            | 90            |             |
| 18  | Weir Elevation                          |  |  |  |  | 175           | 175           | 175           | Feet        |
| 19  | C (Weir Coefficient)                    |  |  |  |  | 2.5           | 2.5           | 2.5           |             |
| 20  | Clarifier Diameter                      |  |  |  |  | 35.00         | 35.00         | 35.00         | Feet        |
| 21  | Spacing b/w Inner Wall and Weir         |  |  |  |  | 2.00          | 2.00          | 2.00          | Feet        |
| 22  | Weir Length                             |  |  |  |  | 103.67        | 103.67        | 103.67        | Feet        |
| 23  | Spacing b/w V-notches                   |  |  |  |  | 0.50          | 0.50          | 0.50          | Feet        |
| 24  | Number of Weirs                         |  |  |  |  | 207           | 207           | 207           |             |
| 25  | Flow Through Each Weir                  |  |  |  |  | 0.002         | 0.007         | 0.019         | cfs         |
| 26  | Head on Weir                            |  |  |  |  | 0.05          | 0.08          | 0.12          | Feet        |
| 27  | <b>Upstream Water Surface Elevation</b> |  |  |  |  | <b>175.05</b> | <b>175.08</b> | <b>175.12</b> | <b>Feet</b> |
| <b>28 Clarifier Losses</b>                              |   |  |  |  |  |               |               |               |             |
| 29  |   |  |  |  |  |               |               |               |             |
| 30  | Basin Diameter                          |  |  |  |  | 420           | 420           | 420           | Inch        |
| 31  | N-Value                                 |  |  |  |  | 0.012         | 0.012         | 0.012         |             |
| 32  | Flow Factor                             |  |  |  |  | 1             | 1             | 1             |             |
| 33  | Effluent Flowrate                       |  |  |  |  | 0.37          | 1.49          | 3.96          | cfs         |
| 34  | Diameter                                |  |  |  |  | 35            | 35            | 35            | Feet        |
| 35  | Basin Floor Elevation                   |  |  |  |  | 165           | 165           | 165           | Feet        |
| 36  | Reach Length                            |  |  |  |  | 10.79         | 10.79         | 10.79         | Feet        |

|    |   |               |              |                   |                   |                   |             |
|----|---|---------------|--------------|-------------------|-------------------|-------------------|-------------|
| 37 | Cross Sectional Area                    |               |              | 962.113           | 962.113           | 962.113           | SF          |
| 38 | Velocity                                |               |              | 0.000             | 0.002             | 0.004             | fps         |
| 39 | Wetted Perimeter                        |               |              | 109.956           | 109.956           | 109.956           | Feet        |
| 40 | Hydraulic Radius                        |               |              | 8.75              | 8.75              | 8.75              | Feet        |
| 41 | Friction Slope                          |               |              | 0.000             | 0.000             | 0.000             | Ft/Ft       |
| 42 |   |               |              |                   |                   |                   |             |
| 43 | <b>Friction Loss</b>                    |               |              | 0.00              | 0.00              | 0.00              | Feet        |
| 44 |   |               |              |                   | Vel Head          |                   |             |
| 45 | Minor Losses                            |               |              | Minimum           | Avg               | Avg               |             |
| 46 | Assume Pipe Flowing Full                |               |              | 0.000             | 0.000             | 0.000             | Feet        |
| 47 |   |               |              |                   |                   |                   |             |
| 48 | <u>Minor Losses</u>                     | <u>Number</u> | <u>Koeff</u> | <u>Minor Loss</u> | <u>Minor Loss</u> | <u>Minor Loss</u> |             |
| 49 | Exit Loss                               | 1             | 1            | 0.000             | 0.000             | 0.000             | Feet        |
| 50 | 22 Degree Bend                          | 0             | 0.2          | 0.000             | 0.000             | 0.000             | Feet        |
| 51 | 45 Degree Bend                          | 0             | 0.2          | 0.000             | 0.000             | 0.000             | Feet        |
| 52 | Entrance Loss                           | 1             | 0.5          | 0.000             | 0.000             | 0.000             | Feet        |
| 53 | <b>Total Minor Losses</b>               |               |              | <b>0.000</b>      | <b>0.000</b>      | <b>0.000</b>      | Feet        |
| 54 | <b>Total Losses</b>                     |               |              | <b>0.000</b>      | <b>0.000</b>      | <b>0.000</b>      | Feet        |
| 55 | <b>Upstream Water Surface Elevation</b> |               |              | <b>175.05</b>     | <b>175.08</b>     | <b>175.12</b>     | <b>Feet</b> |
| 56 | <b>Clarifier Center Well Losses</b>     |               |              |                   |                   |                   |             |
| 57 |   |               |              |                   |                   |                   |             |
| 58 | Basin Diameter                          |               |              | 84                | 84                | 84                | Inch        |
| 59 | N-Value                                 |               |              | 0.012             | 0.012             | 0.012             |             |
| 60 | Flow Factor                             |               |              | 1                 | 1                 | 1                 |             |
| 61 | Flowrate                                |               |              | 0.84              | 1.56              | 3.16              | cfs         |
| 62 | Diameter                                |               |              | 7                 | 7                 | 7                 | Feet        |
| 63 | Reach Length                            |               |              | 4.25              | 4.25              | 4.25              | Feet        |
| 64 | Cross Sectional Area                    |               |              | 38.485            | 38.485            | 38.485            | SF          |
| 65 | Velocity                                |               |              | 0.022             | 0.040             | 0.082             | fps         |
| 66 | Wetted Perimeter                        |               |              | 21.99             | 21.99             | 21.99             | Feet        |
| 67 | Hydraulic Radius                        |               |              | 1.750             | 1.750             | 1.750             | Feet        |
| 68 | Friction Slope                          |               |              | 0.000             | 0.000             | 0.000             | Ft/Ft       |
| 69 |   |               |              |                   |                   |                   |             |
| 70 | <b>Friction Loss</b>                    |               |              | 0.00              | 0.00              | 0.00              | Feet        |
| 71 |   |               |              |                   | Vel Head          |                   |             |
| 72 | Minor Losses                            |               |              | Minimum           | Avg               | Avg               |             |
| 73 | Assume Pipe Flowing Full                |               |              | 0.000             | 0.000             | 0.000             | Feet        |
| 74 |   |               |              |                   |                   |                   |             |
| 75 | <u>Minor Losses</u>                     | <u>Number</u> | <u>Koeff</u> | <u>Minor Loss</u> | <u>Minor Loss</u> | <u>Minor Loss</u> |             |
| 76 | Exit Loss                               | 1             | 1            | 0.000             | 0.000             | 0.000             | Feet        |
| 77 | 22 Degree Bend                          | 0             | 0.2          | 0.000             | 0.000             | 0.000             | Feet        |
| 78 | 45 Degree Bend                          | 0             | 0.2          | 0.000             | 0.000             | 0.000             | Feet        |
| 79 | Entrance Loss                           | 1             | 0.5          | 0.000             | 0.000             | 0.000             | Feet        |
| 80 | <b>Total Minor Losses</b>               |               |              | <b>0.000</b>      | <b>0.000</b>      | <b>0.000</b>      | Feet        |
| 81 | <b>Total Losses</b>                     |               |              | <b>0.000</b>      | <b>0.000</b>      | <b>0.000</b>      | Feet        |
| 82 | <b>Upstream Water Surface Elevation</b> |               |              | <b>175.05</b>     | <b>175.08</b>     | <b>175.12</b>     | <b>Feet</b> |

|     |   |               |              |                   |                   |                   |             |
|-----|---|---------------|--------------|-------------------|-------------------|-------------------|-------------|
| 83  | Top of Basin Elevation                                |               |              | 179.17            | 179.17            | 179.17            | Feet        |
| 84  | Freeboard   |               |              | 4.12              | 4.09              | 4.05              | Feet        |
| 85  | <b>Clarifier Feed Pipe From Aeration to Clarifier</b> |               |              |                   |                   |                   |             |
| 86  |   |               |              |                   |                   |                   |             |
| 87  | Pipe Diameter   |               |              | 18                | 18                | 18                | Inch        |
| 88  | Downstream WSE  |               |              | 175.05            | 175.08            | 175.12            | Feet        |
| 89  | Number of Pipes (Parallel)                            |               |              | 1                 | 1                 | 1                 |             |
| 90  | N-Value   |               |              | 0.012             | 0.012             | 0.012             |             |
| 91  | Flow Factor   |               |              | 1                 | 1                 | 1                 |             |
| 92  | Flowrate  |               |              | 0.8354449         | 1.5554449         | 3.1554449         | cfs         |
| 93  | Diameter  |               |              | 1.5               | 1.5               | 1.5               | Feet        |
| 94  | Reach Length  |               |              | 25                | 25                | 25                | Feet        |
| 95  | Cross Sectional Area                                  |               |              | 1.767             | 1.767             | 1.767             | SF          |
| 96  | Velocity  |               |              | 0.473             | 0.880             | 1.786             | fps         |
| 97  | Wetted Perimeter                                      |               |              | 4.712             | 4.712             | 4.712             | Feet        |
| 98  | Hydraulic Radius                                      |               |              | 0.375             | 0.375             | 0.375             | Feet        |
| 99  | Friction Slope  |               |              | 0.000             | 0.000             | 0.001             | Ft/Ft       |
| 100 |   |               |              |                   |                   |                   |             |
| 101 | <b>Friction Loss</b>                                  |               |              | 0.00              | 0.00              | 0.02              | Feet        |
| 102 |   |               |              |                   | Vel Head          |                   |             |
| 103 | Minor Losses  |               |              | Minimum           | Avg               | Avg               |             |
| 104 | Assume Pipe Flowing Full                              |               |              | 0.003             | 0.012             | 0.050             | Feet        |
| 105 |   |               |              |                   |                   |                   |             |
| 106 | <u>Minor Losses</u>                                   | <u>Number</u> | <u>Koeff</u> | <u>Minor Loss</u> | <u>Minor Loss</u> | <u>Minor Loss</u> |             |
| 107 | Exit Loss   | 1             | 1            | 0.000             | 0.000             | 0.000             | Feet        |
| 108 | 22 Degree Bend  | 0             | 0.2          | 0.000             | 0.000             | 0.000             | Feet        |
| 109 | 90 Degree Bend  | 1             | 0.39         | 0.000             | 0.000             | 0.000             | Feet        |
| 110 | Entrance Loss   | 1             | 0.5          | 0.000             | 0.000             | 0.000             | Feet        |
| 111 | <b>Total Minor Losses</b>                             |               |              | <b>0.000</b>      | <b>0.000</b>      | <b>0.000</b>      | Feet        |
| 112 | <b>Total Losses</b>                                   |               |              | <b>0.001</b>      | <b>0.005</b>      | <b>0.019</b>      | Feet        |
| 113 | <b>Upstream Water Surface Elevation</b>               |               |              | <b>175.05</b>     | <b>175.08</b>     | <b>175.14</b>     | <b>Feet</b> |

**HYDRAULIC CALCULATIONS**  
**HCMUD 606 WWTP**  
**Steel Package Plant**

|  |   |               |              |                   |                   | Avg Flow          | Peak Flow | Ult Flow | Units |
|--|---|---------------|--------------|-------------------|-------------------|-------------------|-----------|----------|-------|
|  |   |               |              |                   |                   | 0.24              | 0.96      | 2.56     | MGD   |
|  |   |               |              |                   |                   | 167               | 667       | 1778     | gpm   |
|  |   |               |              |                   |                   | 0.37              | 1.49      | 3.96     | cfs   |
| <b>1 Outfall at Storm Sewer Manhole</b>          |   |               |              |                   |                   |                   |           |          |       |
| <b>2 100-Yr W.S.E. of Receiving Stream</b>       |   |               |              |                   |                   | 160.54            | 160.54    | 160.54   | Feet  |
| <b>3 Pipe from Most Downstream MH to Outfall</b> |   |               |              |                   |                   |                   |           |          |       |
| 4  |   |               |              |                   |                   |                   |           |          |       |
| 5  | Pipe Diameter                           |               |              |                   |                   | 24                | 24        | 24       | Inch  |
| 6  | Downstream WSE (Worst Case)             |               |              |                   |                   | 160.54            | 160.54    | 160.54   | Feet  |
| 7  | Number of Pipes (Parallel)              |               |              |                   |                   | 1                 | 1         | 1        |       |
| 8  | N-Value                                 |               |              |                   |                   | 0.024             | 0.024     | 0.024    |       |
| 9  | Flow Factor                             |               |              |                   |                   | 1                 | 1         | 1        |       |
| 10   | Effluent Flowrate                       |               |              |                   |                   | 0.24              | 0.96      | 2.56     | MGD   |
| 11   | Onsite Storm Flowrate (Q100)            |               |              |                   |                   | 16.090            | 16.090    | 16.090   | cfs   |
| 12   | Total Flowrate                          |               |              |                   |                   | 16.461            | 17.575    | 20.051   | cfs   |
| 13   | Diameter                                |               |              |                   |                   | 2                 | 2         | 2        | Feet  |
| 14   | Reach Length                            |               |              |                   |                   | 30                | 30        | 30       | Feet  |
| 15   | Cross Sectional Area                    |               |              |                   |                   | 3.142             | 3.142     | 3.142    | SF    |
| 16   | Velocity                                |               |              |                   |                   | 5.240             | 5.594     | 6.382    | fps   |
| 17   | Wetted Perimeter                        |               |              |                   |                   | 6.283             | 6.283     | 6.283    | Feet  |
| 18   | Hydraulic Radius                        |               |              |                   |                   | 0.5               | 0.5       | 0.5      | Feet  |
| 19   | Friction Slope                          |               |              |                   |                   | 0.018             | 0.020     | 0.027    | Ft/Ft |
| 20   |   |               |              |                   |                   |                   |           |          |       |
| 21   | <b>Friction Loss</b>                    |               |              |                   |                   | 0.54              | 0.61      | 0.80     | Feet  |
| 22   |   |               |              |                   |                   |                   | Vel Head  |          |       |
| 23   | Minor Losses                            |               |              |                   |                   | Minimum           | Avg       | Avg      |       |
| 24   | Assume Pipe Flowing Full                |               |              |                   |                   | 0.426             | 0.486     | 0.633    | Feet  |
| 25   |   |               |              |                   |                   |                   |           |          |       |
| 26   | <u>Minor Losses</u>                     | <u>Number</u> | <u>Koeff</u> | <u>Minor Loss</u> | <u>Minor Loss</u> | <u>Minor Loss</u> |           |          |       |
| 27   | Exit Loss                               | 1             | 1            | 0.426             | 0.486             | 0.633             |           |          | Feet  |
| 28   | 22 Degree Bend                          | 0             | 0.2          | 0.000             | 0.000             | 0.000             |           |          | Feet  |
| 29   | 45 Degree Bend                          | 0             | 0.2          | 0.000             | 0.000             | 0.000             |           |          | Feet  |
| 30   | Entrance Loss                           | 1             | 0.5          | 0.213             | 0.243             | 0.316             |           |          | Feet  |
| 31   | <b>Total Minor Losses</b>               |               |              | <b>0.639</b>      | <b>0.729</b>      | <b>0.949</b>      |           |          | Feet  |
| 32   | <b>Total Losses</b>                     |               |              | <b>1.178</b>      | <b>1.343</b>      | <b>1.748</b>      |           |          | Feet  |
| 33   | <b>Upstream Water Surface Elevation</b> |               |              | <b>161.72</b>     | <b>161.88</b>     | <b>162.29</b>     |           |          | Feet  |
| <b>34 Sampling Manhole to outfall manhole</b>    |   |               |              |                   |                   |                   |           |          |       |
| 35   |   |               |              |                   |                   |                   |           |          |       |
| 36   | Pipe Diameter                           |               |              |                   |                   | 12                | 12        | 12       | Inch  |

|    |  |               |              |                   |                   |                   |             |       |
|----|--|---------------|--------------|-------------------|-------------------|-------------------|-------------|-------|
| 37 | Downstream WSE (Worst Case)                  |               |              |                   | 161.72            | 161.88            | 162.29      | Feet  |
| 38 | Number of Pipes (Parallel)                   |               |              |                   | 1                 | 1                 | 1           |       |
| 39 | N-Value                                      |               |              |                   | 0.013             | 0.013             | 0.013       |       |
| 40 | Flow Factor                                  |               |              |                   | 1                 | 1                 | 1           |       |
| 41 | Effluent Flowrate                            |               |              |                   | 0.24              | 0.96              | 2.56        | MGD   |
| 42 | Onsite Storm Flowrate (Q100)                 |               |              |                   | 0.000             | 0.000             | 0.000       | cfs   |
| 43 | Total Flowrate                               |               |              |                   | 0.371             | 1.485             | 1.485       | cfs   |
| 44 | Diameter                                     |               |              |                   | 1                 | 1                 | 1           | Feet  |
| 45 | Reach Length                                 |               |              |                   | 38                | 38                | 38          | Feet  |
| 46 | Cross Sectional Area                         |               |              |                   | 0.785             | 0.785             | 0.785       | SF    |
| 47 | Velocity                                     |               |              |                   | 0.473             | 1.891             | 1.891       | fps   |
| 48 | Wetted Perimeter                             |               |              |                   | 3.142             | 3.142             | 3.142       | Feet  |
| 49 | Hydraulic Radius                             |               |              |                   | 0.25              | 0.25              | 0.25        | Feet  |
| 50 | Friction Slope                               |               |              |                   | 0.000             | 0.002             | 0.002       | Ft/Ft |
| 51 |  |               |              |                   |                   |                   |             |       |
| 52 | <b>Friction Loss</b>                         |               |              |                   | 0.00              | 0.07              | 0.07        | Feet  |
| 53 |  |               |              |                   |                   | Vel Head          |             |       |
| 54 | Minor Losses                                 |               |              |                   | Minimum           | Avg               | Avg         |       |
| 55 | Assume Pipe Flowing Full                     |               |              |                   | 0.003             | 0.056             | 0.056       | Feet  |
| 56 |  |               |              |                   |                   |                   |             |       |
| 57 | <u>Minor Losses</u>                          | <u>Number</u> | <u>Koeff</u> | <u>Minor Loss</u> | <u>Minor Loss</u> | <u>Minor Loss</u> |             |       |
| 58 | Exit Loss                                    | 1             | 1            | 0.003             | 0.056             | 0.056             | Feet        |       |
| 59 | 22 Degree Bend                               | 0             | 0.2          | 0.000             | 0.000             | 0.000             | Feet        |       |
| 60 | 45 Degree Bend                               | 0             | 0.2          | 0.000             | 0.000             | 0.000             | Feet        |       |
| 61 | Entrance Loss                                | 1             | 0.5          | 0.002             | 0.028             | 0.028             | Feet        |       |
| 62 | <b>Total Minor Losses</b>                    |               |              | <b>0.005</b>      | <b>0.083</b>      | <b>0.083</b>      | Feet        |       |
| 63 | <b>Total Losses</b>                          |               |              | <b>0.009</b>      | <b>0.149</b>      | <b>0.149</b>      | Feet        |       |
| 64 | <b>Upstream Water Surface Elevation</b>      |               |              | <b>161.73</b>     | <b>162.03</b>     | <b>162.44</b>     | <b>Feet</b> |       |
| 65 | <b>CCB 1 to Sampling Manhole (Pipe Only)</b> |               |              |                   |                   |                   |             |       |
| 66 |  |               |              |                   |                   |                   |             |       |
| 67 | Pipe Diameter                                |               |              |                   | 12                | 12                | 12          | Inch  |
| 68 | Downstream WSE (Worst Case)                  |               |              |                   | 161.73            | 162.03            | 162.44      | Feet  |
| 69 | Number of Pipes (Parallel)                   |               |              |                   | 1                 | 1                 | 1           |       |
| 70 | N-Value                                      |               |              |                   | 0.013             | 0.013             | 0.013       |       |
| 71 | Flow Factor                                  |               |              |                   | 1                 | 1                 | 1           |       |
| 72 | Effluent Flowrate                            |               |              |                   | 0.24              | 0.96              | 2.56        | MGD   |
| 73 | Onsite Storm Flowrate (Q100)                 |               |              |                   | 0.000             | 0.000             | 0.000       | cfs   |
| 74 | Total Flowrate                               |               |              |                   | 0.371             | 1.485             | 1.485       | cfs   |
| 75 | Diameter                                     |               |              |                   | 1                 | 1                 | 1           | Feet  |
| 76 | Reach Length                                 |               |              |                   | 70                | 70                | 70          | Feet  |
| 77 | Cross Sectional Area                         |               |              |                   | 0.785             | 0.785             | 0.785       | SF    |
| 78 | Velocity                                     |               |              |                   | 0.473             | 1.891             | 1.891       | fps   |
| 79 | Wetted Perimeter                             |               |              |                   | 3.142             | 3.142             | 3.142       | Feet  |
| 80 | Hydraulic Radius                             |               |              |                   | 0.25              | 0.25              | 0.25        | Feet  |
| 81 | Friction Slope                               |               |              |                   | 0.000             | 0.002             | 0.002       | Ft/Ft |
| 82 |  |               |              |                   |                   |                   |             |       |

|     |   |               |              |                   |                   |                   |             |
|-----|---|---------------|--------------|-------------------|-------------------|-------------------|-------------|
| 83  | <b>Friction Loss</b>                    |               |              | 0.01              | 0.12              | 0.12              | Feet        |
| 84  |   |               |              |                   | Vel Head          |                   |             |
| 85  | Minor Losses                            |               |              | Minimum           | Avg               | Avg               |             |
| 86  | Assume Pipe Flowing Full                |               |              | 0.003             | 0.056             | 0.056             | Feet        |
| 87  |   |               |              |                   |                   |                   |             |
| 88  | <u>Minor Losses</u>                     | <u>Number</u> | <u>Koeff</u> | <u>Minor Loss</u> | <u>Minor Loss</u> | <u>Minor Loss</u> |             |
| 89  | Exit Loss                               | 1             | 1            | 0.003             | 0.056             | 0.056             | Feet        |
| 90  | Tee - thru flow                         | 1             | 0.24         | 0.001             | 0.013             | 0.013             | Feet        |
| 91  | Gate Valve                              | 1             | 0.1          | 0.000             | 0.006             | 0.006             | Feet        |
| 92  | 22 Degree Bend                          | 0             | 0.2          | 0.000             | 0.000             | 0.000             | Feet        |
| 93  | 45 Degree Bend                          | 0             | 0.2          | 0.000             | 0.000             | 0.000             | Feet        |
| 94  | 90 Degree Bend                          | 3             | 0.39         | 0.004             | 0.065             | 0.065             | Feet        |
| 95  | Entrance Loss                           | 1             | 0.5          | 0.002             | 0.028             | 0.028             | Feet        |
| 96  | <b>Total Minor Losses</b>               |               |              | <b>0.010</b>      | <b>0.167</b>      | <b>0.167</b>      | Feet        |
| 97  | <b>Total Losses</b>                     |               |              | <b>0.018</b>      | <b>0.288</b>      | <b>0.288</b>      | Feet        |
| 98  | <b>Upstream Water Surface Elevation</b> |               |              | <b>161.75</b>     | <b>162.32</b>     | <b>162.72</b>     | <b>Feet</b> |
| 99  | <b>V-Notch Weir in CCB 1</b>            |               |              |                   |                   |                   |             |
| 100 |   |               |              |                   |                   |                   |             |
| 101 | Number of Weirs                         |               |              | 1                 | 1                 | 1                 |             |
| 102 | Flow Factor                             |               |              | 1                 | 1                 | 1                 |             |
| 103 | Max Flow Rate Through Weir              |               |              | 0.19              | 0.74              | 1.98              | cfs         |
| 104 | <b>Weir Constants</b>                   |               |              |                   |                   |                   |             |
| 105 | Angle                                   |               |              | 90                | 90                | 90                |             |
| 106 | Weir Elevation                          |               |              | 174               | 174               | 174               | Feet        |
| 107 | C (Weir Coefficient)                    |               |              | 2.5               | 2.5               | 2.5               |             |
| 108 | Downstream WSE                          |               |              | 161.72            | 161.88            | 162.29            | Feet        |
| 109 | Headloss Through Weir                   |               |              | 0.29              | 0.51              | 0.75              | Feet        |
| 110 | <b>Upstream Water Surface Elevation</b> |               |              | <b>174.29</b>     | <b>174.51</b>     | <b>174.75</b>     | <b>Feet</b> |
| 111 | <b>CCB 1 Channel to Effluent Weir</b>   |               |              |                   |                   |                   |             |
| 112 |   |               |              |                   |                   |                   |             |
| 113 | Channel Width                           |               |              | 12                | 12                | 12                | Feet        |
| 114 | Channel Bottom Elevation                |               |              | 165               | 165               | 165               | Feet        |
| 115 | Channel Length                          |               |              | 18                | 18                | 18                | Feet        |
| 116 | Flowrate                                |               |              | 0.37              | 1.49              | 3.96              | cfs         |
| 117 | Sidewater Depth                         |               |              | 9.29              | 9.51              | 9.75              | Feet        |
| 118 | Cross Sectional Area of Water           |               |              | 111.50            | 114.09            | 117.01            | SF          |
| 119 | Wetted Perimeter                        |               |              | 30.58             | 31.01             | 31.50             | Feet        |
| 120 | Hydraulic Radius                        |               |              | 3.65              | 3.68              | 3.71              | Feet        |
| 121 | Velocity Through Channel                |               |              | 0.00              | 0.01              | 0.03              | fps         |
| 122 | Roughness Coefficient (n)               |               |              | 0.015             | 0.015             | 0.015             |             |
| 123 | Headloss                                |               |              | 3.61E-09          | 5.45E-08          | 3.63E-07          | Feet        |
| 124 | <b>Upstream Water Surface Elevation</b> |               |              | <b>174.29</b>     | <b>174.51</b>     | <b>174.75</b>     | <b>Feet</b> |
| 125 | Top of CCB 1                            |               |              | 175.17            | 175.17            | 175.17            | Feet        |
| 126 | Freeboard                               |               |              | 0.88              | 0.66              | 0.42              | Feet        |
| 127 | <b>Settled Effluent Pipe to CCB 1</b>   |               |              |                   |                   |                   |             |
| 128 |   |               |              |                   |                   |                   |             |

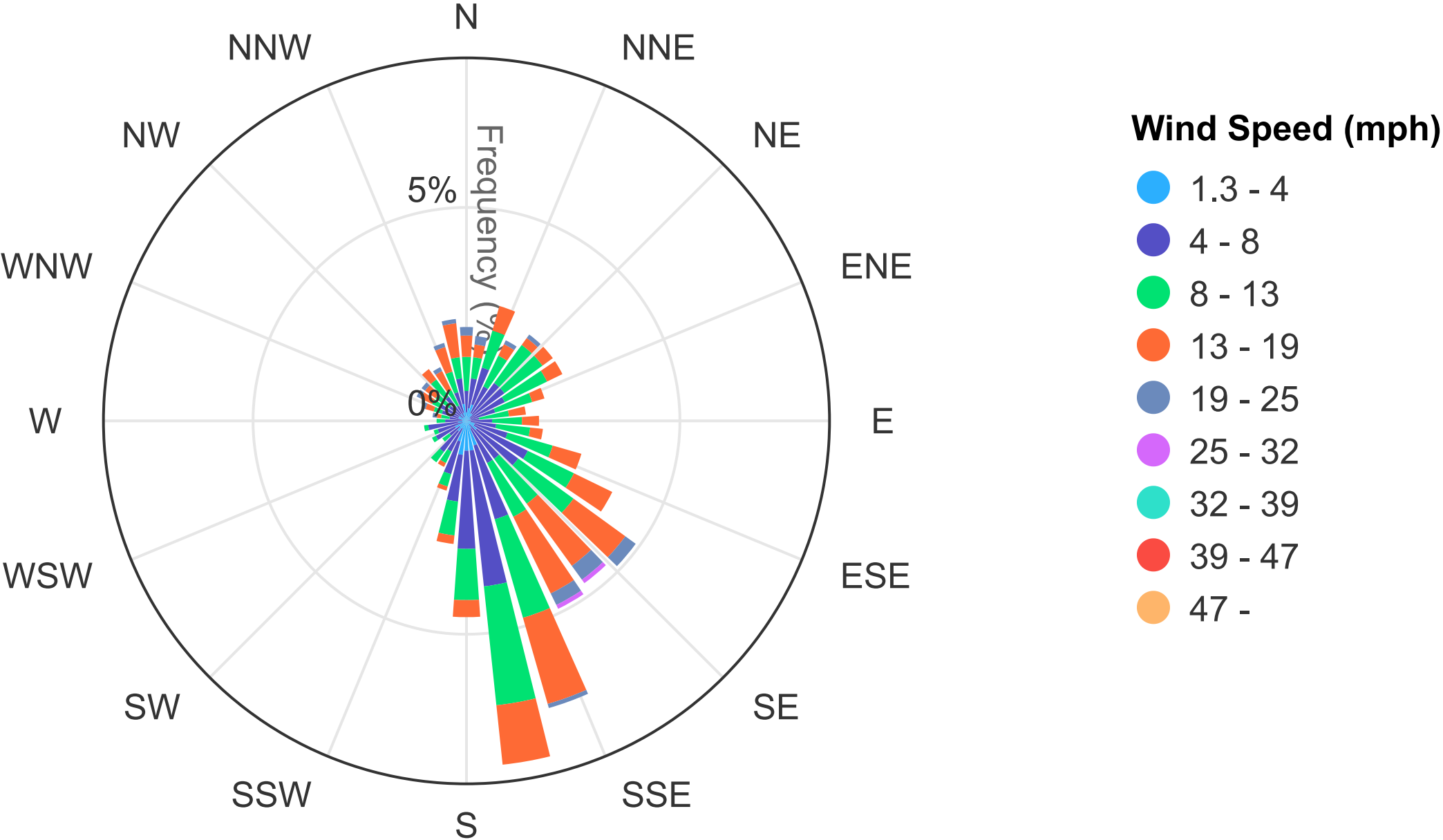
|     |   |               |              |                   |                   |                   |             |
|-----|---|---------------|--------------|-------------------|-------------------|-------------------|-------------|
| 129 | Pipe Diameter                           |               |              | 18                | 18                | 18                | Inch        |
| 130 | Downstream WSE                          |               |              | 174.29            | 174.51            | 174.75            | Feet        |
| 131 | Number of Pipes (Parallel)              |               |              | 1                 | 1                 | 1                 |             |
| 132 | N-Value                                 |               |              | 0                 | 0                 | 0                 |             |
| 133 | Flow Factor                             |               |              | 1                 | 1                 | 1                 |             |
| 134 | Effluent Flowrate                       |               |              | 0.1856679         | 0.7426717         | 1.9804578         | cfs         |
| 135 | Diameter                                |               |              | 1.5               | 1.5               | 1.5               | Feet        |
| 136 | Reach Length                            |               |              | 12                | 12                | 12                | Feet        |
| 137 | Cross Sectional Area                    |               |              | 1.767             | 1.767             | 1.767             | SF          |
| 138 | Velocity                                |               |              | 0.105             | 0.420             | 1.121             | fps         |
| 139 | Wetted Perimeter                        |               |              | 4.712             | 4.712             | 4.712             | Feet        |
| 140 | Hydraulic Radius                        |               |              | 0.375             | 0.375             | 0.375             | Feet        |
| 141 | Friction Slope                          |               |              | 0.000             | 0.000             | 0.000             | Ft/Ft       |
| 142 |   |               |              |                   |                   |                   |             |
| 143 | <b>Friction Loss</b>                    |               |              | 0.00              | 0.00              | 0.00              | Feet        |
| 144 |   |               |              |                   | Vel Head          |                   |             |
| 145 | Minor Losses                            |               |              | Minimum           | Avg               | Avg               |             |
| 146 | Assume Pipe Flowing Full                |               |              | 0.000             | 0.003             | 0.020             | Feet        |
| 147 |   |               |              |                   |                   |                   |             |
| 148 | <u>Minor Losses</u>                     | <u>Number</u> | <u>Koeff</u> | <u>Minor Loss</u> | <u>Minor Loss</u> | <u>Minor Loss</u> |             |
| 149 | Exit Loss                               | 1             | 1            | 0.000             | 0.003             | 0.020             | Feet        |
| 150 | 22 Degree Bend                          | 0             | 0.2          | 0.000             | 0.000             | 0.000             | Feet        |
| 151 | 45 Degree Bend                          | 0             | 0.2          | 0.000             | 0.000             | 0.000             | Feet        |
| 152 | Entrance Loss                           | 1             | 0.5          | 0.000             | 0.001             | 0.010             | Feet        |
| 153 | <b>Total Minor Losses</b>               |               |              | <b>0.000</b>      | <b>0.004</b>      | <b>0.029</b>      | Feet        |
| 154 | <b>Total Losses</b>                     |               |              | <b>0.000</b>      | <b>0.004</b>      | <b>0.029</b>      | Feet        |
| 155 | <b>Upstream Water Surface Elevation</b> |               |              | <b>174.29</b>     | <b>174.51</b>     | <b>174.78</b>     | <b>Feet</b> |

**Attachment 13 – Wind Rose**  
**(Tech. Rpt. 1.1, 5b)**



# HOUSTON INTERCONTINENTAL AP (TX) Wind Rose

January 01, 2024 - September 19, 2024  
Sub-Interval: January 1 - December 31, 0 - 24



Click and drag to zoom

**Attachment 14 – Sludge Management Plan**  
**(Tech. Rpt. 1.1, 7)**

# Technical Report 1.1

## 12. Sewage Sludge Solids Management Plan

### Interim I Phase - Capacity of Digester

|                                |                                     |
|--------------------------------|-------------------------------------|
| Design Flow                    | 0.24 MGD Influent Flow              |
| Minimum Retention Time         | 15 days                             |
| Digester Volume                | 5,378 ft <sup>3</sup>               |
| Digester Dimensions            | 3 @ 22'-0" L x 12'-0" W x 12'-2"SWD |
| Side Water Depth               | 11 ft.                              |
| Digester Sludge Retention Time | 15 days                             |

|                      |                        |            |
|----------------------|------------------------|------------|
| <b>CBOD5 Removal</b> | Influent concentration | 250.0 mg/l |
|                      | Effluent concentration | 10.0 mg/l  |
|                      | Net removal            | 240.0 mg/l |

| <b>Solids Generated</b>                          | <b>100% Flow</b> | <b>75% Flow</b> | <b>50% Flow</b> | <b>25% Flow</b> |
|--|------------------|-----------------|-----------------|-----------------|
| Pounds BOD5/day removed                          | 480              | 360             | 240             | 120             |
| Pounds of dry sludge produced*                   | 151              | 113             | 76              | 38              |
| Pounds of wet sludge produced**                  | 10088            | 7566            | 5044            | 2522            |
| Volume of wet sludge produced in gals.           | 1213             | 909             | 606             | 303             |
| Volume of wet sludge produced in ft <sup>3</sup> | 162              | 122             | 81              | 41              |

\*Assuming 0.315 pounds of dry sludge produced per pound of BOD5 removed.

\*\*Assuming 1.5% solids.

MLSS operating range = 3000 mg/l

The sludge is wasted from the clarifier to the aerobic digester. At the digester the sludge is further processed to achieve sludge stabilization.

| <b>Removal Schedule (days)</b> | <b>100% Flow</b> | <b>75% Flow</b> | <b>50% Flow</b> | <b>25% Flow</b> |
|--------------------------------|------------------|-----------------|-----------------|-----------------|
| Days between sludge removal    | 33               | 44              | 66              | 133             |

Following stabilization the sludge is periodically removed from the digester and hauled offsite by a registered hauler to a registered site.

# Technical Report 1.1

## 12. Sewage Sludge Solids Management Plan

### Interim II Phase - Capacity of Digester

|                                |                                     |
|--------------------------------|-------------------------------------|
| Design Flow                    | 0.40 MGD Influent Flow              |
| Minimum Retention Time         | 15 days                             |
| Digester Volume                | 16,901 ft <sup>3</sup>              |
| Digester Dimensions            | 6 @ 22'-0" L x 12'-0" W x 12'-2"SWD |
| Side Water Depth               | 10.67 ft.                           |
| Digester Sludge Retention Time | 15 days                             |

|                      |                        |            |
|----------------------|------------------------|------------|
| <b>CBOD5 Removal</b> | Influent concentration | 250.0 mg/l |
|                      | Effluent concentration | 10.0 mg/l  |
|                      | Net removal            | 240.0 mg/l |

| <b>Solids Generated</b>                          | <b>100% Flow</b> | <b>75% Flow</b> | <b>50% Flow</b> | <b>25% Flow</b> |
|--|------------------|-----------------|-----------------|-----------------|
| Pounds BOD5/day removed                          | 801              | 600             | 400             | 200             |
| Pounds of dry sludge produced*                   | 252              | 189             | 126             | 63              |
| Pounds of wet sludge produced**                  | 16813            | 12610           | 8407            | 4203            |
| Volume of wet sludge produced in gals.           | 2021             | 1516            | 1010            | 505             |
| Volume of wet sludge produced in ft <sup>3</sup> | 270              | 203             | 135             | 68              |

\*Assuming 0.315 pounds of dry sludge produced per pound of BOD5 removed.

\*\*Assuming 1.5% solids.

MLSS operating range = 3000 mg/l

The sludge is wasted from the clarifier to the aerobic digester. At the digester the sludge is further processed to achieve sludge stabilization.

| <b>Removal Schedule (days)</b> | <b>100% Flow</b> | <b>75% Flow</b> | <b>50% Flow</b> | <b>25% Flow</b> |
|--------------------------------|------------------|-----------------|-----------------|-----------------|
| Days between sludge removal    | 63               | 83              | 125             | 250             |

Following stabilization the sludge is periodically removed from the digester and hauled offsite by a registered hauler to a registered site.

12. Sewage Sludge Solids Management Plan

**Final Phase - Capacity of Digester**

|                                |                                     |
|--------------------------------|-------------------------------------|
| Design Flow                    | 0.64 MGD Influent Flow              |
| Minimum Retention Time         | 15 days                             |
| Digester Volume                | 25,352 ft <sup>3</sup>              |
| Digester Dimensions            | 9 @ 22'-0" L x 12'-0" W x 12'-2"SWD |
| Side Water Depth               | 11 ft.                              |
| Digester Sludge Retention Time | 15 days                             |

|                      |                        |            |
|----------------------|------------------------|------------|
| <b>CBOD5 Removal</b> | Influent concentration | 250.0 mg/l |
|                      | Effluent concentration | 10.0 mg/l  |
|                      | Net removal            | 240.0 mg/l |

| <b>Solids Generated</b>                          | <b>100% Flow</b> | <b>75% Flow</b> | <b>50% Flow</b> | <b>25% Flow</b> |
|--|------------------|-----------------|-----------------|-----------------|
| Pounds BOD5/day removed                          | 1281             | 961             | 641             | 320             |
| Pounds of dry sludge produced*                   | 404              | 303             | 202             | 101             |
| Pounds of wet sludge produced**                  | 26902            | 20176           | 13451           | 6725            |
| Volume of wet sludge produced in gals.           | 3233             | 2425            | 1617            | 808             |
| Volume of wet sludge produced in ft <sup>3</sup> | 432              | 324             | 216             | 108             |

\*Assuming 0.315 pounds of dry sludge produced per pound of BOD5 removed.

\*\*Assuming 1.5% solids.

MLSS operating range = 3000 mg/l

The sludge is wasted from the clarifier to the aerobic digester. At the digester the sludge is further processed to achieve sludge stabilization.

| <b>Removal Schedule (days)</b> | <b>100% Flow</b> | <b>75% Flow</b> | <b>50% Flow</b> | <b>25% Flow</b> |
|--------------------------------|------------------|-----------------|-----------------|-----------------|
| Days between sludge removal    | 59               | 78              | 117             | 235             |

Following stabilization the sludge is periodically removed from the digester and hauled offsite by a registered hauler to a registered site.

## **Attachment 15 – FIRM Panel**



**Attachment 16 –  
Affected Landowners Map and Cross Reference List  
(Admin Rpt. 1.1, 1a)**



**Attachment 17 – Site Image**  
**(Admin Rpt. 1.1, 2)**




- Legend**
- Harris Co  
Parcels (2023-04)
  - Low Resolution  
15m Imagery
  - High Resolution  
60cm Imagery
  - High Resolution  
30cm Imagery
  - Citations
  - 60cm  
Resolution  
Metadata

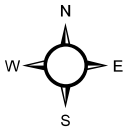


## WASTEWATER TREATMENT PLANT SITE

Print Date: 9/19/2024 3:55:37 PM    IDS Engineering Group

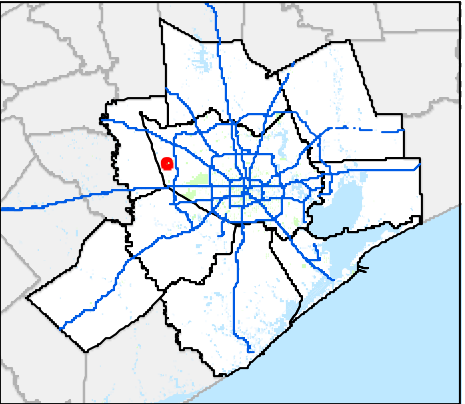


1 inch = 263 feet



Disclaimer: This web site represents the information that has been made available for the use of this system and does not necessarily include the most complete and/or accurate data. IDS Engineering Group does not warrant its accuracy or completeness. Verification should be done as necessary.

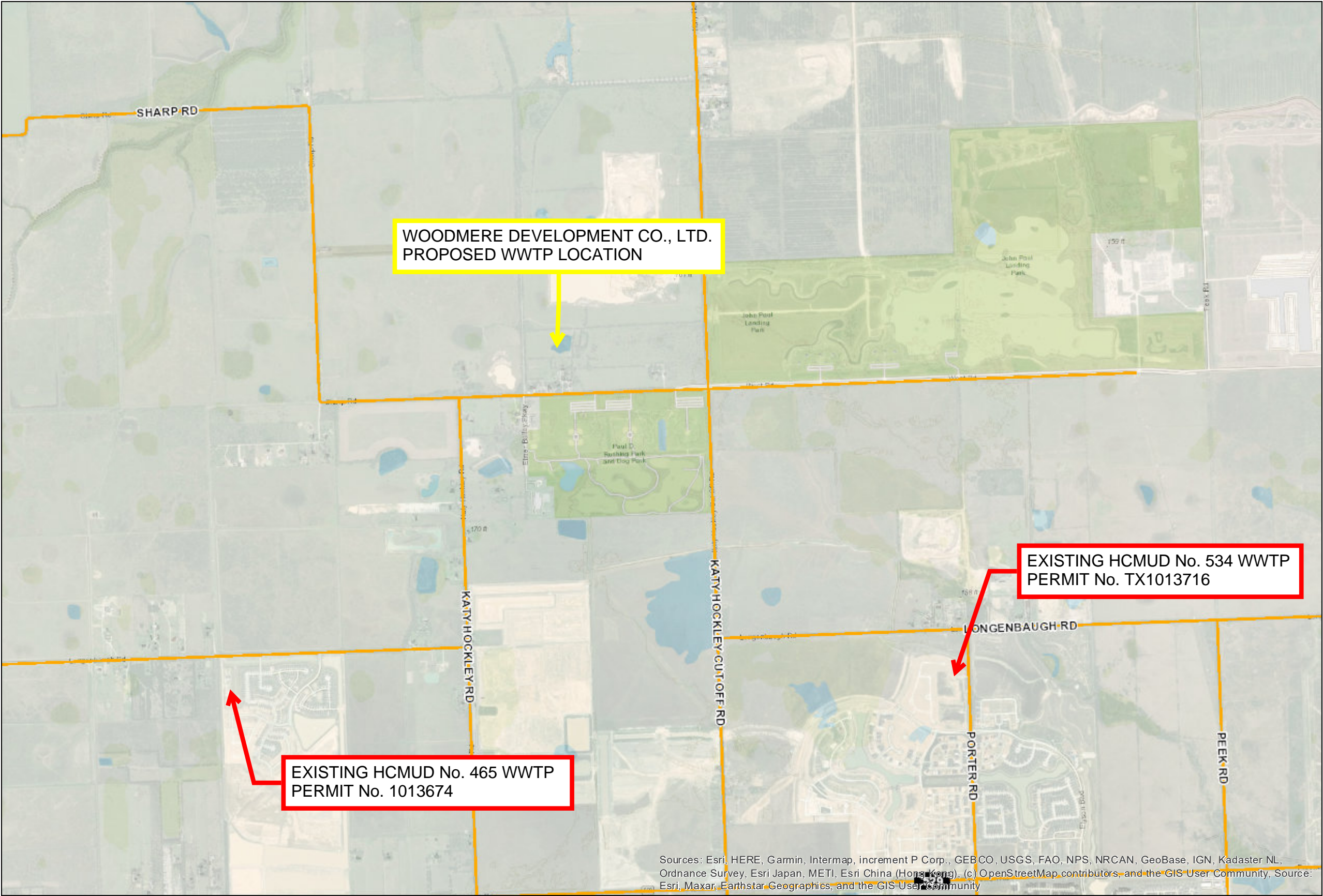
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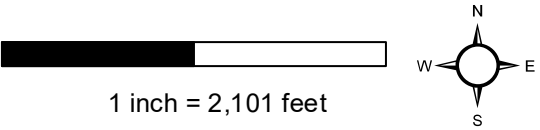
**Attachment 18 – Area WWTP Info**  
**(Tech. Rpt. 1.1, 1.3)**

- Legend**
- IDS MUDs
  - Low Resolution  
15m Imagery
  - High Resolution  
60cm Imagery
  - High Resolution  
30cm Imagery
  - Citations
  - 4.8m Resolution  
Metadata



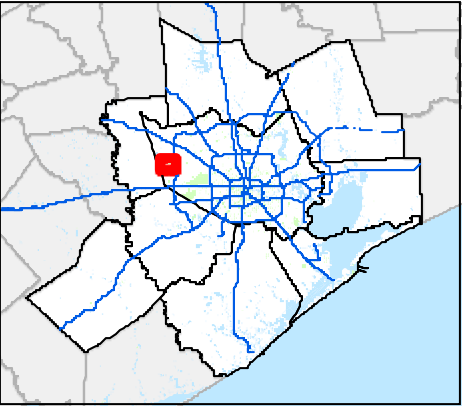
Area Wastewater Treatment Plants

Print Date: 9/19/2024 4:09:40 PM    IDS Engineering Group



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**Permitee Name: Harris County Municipal Utility District No. 465**

Permit No.: 1013674

Address: 27018 Winward Creek Trail, Katy, TX 77493

**Permitee Name: Harris County Municipal Utility District No. 534**

Permit No.: TX1013716

Address: 7614 Swooping Swallow Lane, Katy, TX 77493

**Attachment 19 – Area WWTP Capacity Request Letters**  
**(Tech. Rpt. 1.1, 1.3)**



September 23, 2024

Harris County Municipal Utility District No. 465  
c/o Elevation Land Solutions  
Attn: Mr. Travis Harrison  
2445 Technology Forest Blvd, Suite 200  
The Woodlands, TX 77381

Mr. Harrison,

We are writing to you on behalf of Woodmere Development Co., LTD, which is seeking a TPDES discharge permit for a proposed wastewater treatment plant. We are in the process of preparing the permit application for this operation. The projected ultimate flow is 0.480 MGD and Woodmere Development Co., LTD currently owns a site sufficient in size for the facility.

As part of the TPDES discharge permit process, the TCEQ requires that we contact each wastewater discharge permit holder within a three-mile radius of the proposed facility to solicit information about available treatment capacity. The wastewater plant located within your district is within the three-mile radius and we are therefore inquiring about the availability of capacity.

Please complete the short questionnaire below and return within 5 days to our office. You may also email your response to [vgomez@idseg.com](mailto:vgomez@idseg.com). Please call me at (832) 590-7149 if you have any questions or need additional information. Thank you for your timely response to this matter.

Sincerely,

A handwritten signature in cursive script that reads "Val gomez".

Valeria Gomez, E.I.T  
Design Engineer

| Reply   |   |
|---|---|
| Date: <u>9/23/2024</u>                          | Terms (if capacity available): _____                |
| Name of Permittee: <u>Harris County MUD 465</u> | _____   |
| Address: _____                                  | Name of Person Responding: <u>Daniel Hayden, PE</u> |
| _____   | Title: <u>District Engineer</u>                     |
| Capacity Available Now (Yes/No)? <u>No</u>      | Telephone: <u>832-823-2200</u>                      |
| Willing to Expand Plant (Yes/No)? <u>No</u>     | Fax: _____  |
| Date Available: _____                           |   |

\\IDSEG\F5\PROJECTS\2400\243600300 HCMUD 606 TPDES PERMIT\ENG-PM\FORMS\ATTACHMENTS\CAPACITY LETTERS.DOCX



September 23, 2024

Harris County Municipal Utility District No. 534  
c/o BGE, Inc.  
Attn: Miss Melinda Salazar  
10777 Westheimer Road, Suite 400  
Houston, TX 77042

Miss Salazar,

We are writing to you on behalf of Woodmere Development Co., LTD, which is seeking a TPDES discharge permit for a proposed wastewater treatment plant. We are in the process of preparing the permit application for this operation. The projected ultimate flow is 0.480 MGD and Woodmere Development Co., LTD currently owns a site sufficient in size for the facility.

As part of the TPDES discharge permit process, the TCEQ requires that we contact each wastewater discharge permit holder within a three-mile radius of the proposed facility to solicit information about available treatment capacity. The wastewater plant located within your district is within the three-mile radius and we are therefore inquiring about the availability of capacity.

Please complete the short questionnaire below and return within 5 days to our office. You may also email your response to [vgomez@idseg.com](mailto:vgomez@idseg.com). Please call me at (832) 590-7149 if you have any questions or need additional information. Thank you for your timely response to this matter.

Sincerely,

A handwritten signature in cursive script that reads "Val gomez".

Valeria Gomez, E.I.T  
Design Engineer

| Reply  |   |
|--|---|
| Date: <u>9/26/24</u>   | Terms (if capacity available): _____              |
| Name of Permittee: <u>HCMUD 533</u>  | _____   |
| Address: <u>c/o ABNA 3200 Southwest</u><br><u>Freeway Suite 2600 Houston, TX</u> | _____   |
| Capacity Available Now (Yes/No)? <u>No</u>                                       | Name of Person Responding: <u>Melinda Salazar</u> |
| Willing to Expand Plant (Yes/No)? <u>No</u>                                      | Title: _____                                      |
| Date Available: <u>N/A</u>   | Telephone: _____                                  |
|  | Fax: _____  |

\\IDSEG\FS\PROJECTS\2400\243600300 HCMUD 606 TPDES PERMIT\ENG-PM\FORMS\ATTACHMENTS\CAPACITY LETTERS.DOCX



**Attachment 20 – Special Warranty Deed**  
**(Admin Rpt 1.0, 9d)**

**NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.**

**SPECIAL WARRANTY DEED**

THE STATE OF TEXAS           §  
  §     KNOW ALL MEN BY THESE PRESENTS:  
COUNTY OF HARRIS         §

That **BGM LAND INVESTMENTS, LTD.**, a Texas limited partnership, herein called "**Grantor**", for and in consideration of the sum of Ten and No/100 Dollars (\$10.00) and other valuable consideration to the undersigned paid by the Grantee herein named, the receipt of which is hereby acknowledged, has GRANTED, BARGAINED, SOLD AND CONVEYED, and by these presents does GRANT, BARGAIN, SELL AND CONVEY, unto **WOODMERE DEVELOPMENT CO., LTD.**, a Texas limited partnership, herein called "**Grantee**", subject to the reservations hereinafter made, that certain tract of real property located in Harris County, Texas, containing 3.105 acres, more or less, as more particularly described in **Exhibit "A"** attached hereto, together with all rights, titles, and interests appurtenant thereto and incorporated herein (the "**Property**").

TO HAVE AND TO HOLD the Property, together with all and singular the rights and appurtenances thereto in anywise belonging unto the said Grantee, and unto Grantee's successors and assigns forever; and Grantor does hereby bind itself, its successors and assigns, to WARRANT AND FOREVER DEFEND all and singular the Property unto the said Grantee, Grantee's successors and assigns against every person whomsoever lawfully

RP-2025-35272

claiming or to claim the same or any part thereof, by through or under Grantor, but not otherwise.

This conveyance is made and accepted subject to the following matters, to the extent same are in effect at this time:

Any and all restrictions, covenants, conditions and easements, mineral reservations and leases, if any, relating to the Property, but only to the extent that they are still in effect, shown of record in the hereinabove mentioned county and state, and to all zoning laws, regulations and ordinances of municipal and/or governmental authorities, if any, but only to the extent that they are still in effect, relating to the Property.

Taxes for the current year have been prorated as of the date hereof, and Grantee agrees to assume and pay same.

EXECUTED this 24<sup>th</sup> day of January, 2025.

**GRANTOR:**

BGM LAND INVESTMENTS, LTD.,  
a Texas limited partnership

By: GP LandVest, LLC,  
a Texas limited liability company,  
its General Partner

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Jason J. [Signature]  
JASON J. [Signature]  
CFO

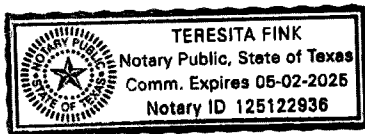
RP-2025-35272

**Acknowledgment**

THE STATE OF TEXAS     §  
                                     §  
COUNTY OF HARRIS     §

Before me, Teresita Fink, on this 29th day of January, 2025,  
personally appeared Jason Bvin, CFO of GP LANDVEST, LLC,  
a Texas limited liability company, the General Partner of BGM LAND INVESTMENTS,  
LTD., a Texas limited partnership, known to me to be the person whose name is subscribed  
to the foregoing instrument and acknowledged to me that he executed the same for the  
purposes and consideration therein expressed, on behalf of said limited liability company  
and limited partnership.

[S E A L]



Teresita Fink  
Notary Public in and for the State of Texas

Printed Name of Notary:  
My Commission Expires:

Teresita Fink  
5-2-25

GRANTEE'S ADDRESS:

WOODMERE DEVELOPMENT CO., LTD.  
15915 Katy Freeway, Suite 405  
Houston, Texas 77094  
Attn: Andrew Rue

RP-2025-35272

**EXHIBIT "A"**

**LEGAL DESCRIPTION**

**METES AND BOUNDS DESCRIPTION  
OF A 3.105 ACRE TRACT (135,245 SQUARE FEET) OF LAND  
IN SECTION 71, BLOCK 2 OF THE  
H. & T. C. R.R. CO. SURVEY, ABSTRACT NUMBER 457  
IN HARRIS COUNTY, TEXAS**

**BEING** 3.105 acres (135,245 square feet) of land in Section 71, Block 2 of the H. & T. C. R.R. CO. Survey, Abstract Number 457 in Harris County, Texas and being out of a 494.4 acre tract described in the deed from Katy Investments, L.L.C. to BGM Land Investments, Ltd, recorded under File Number RP-2022-475325 in the Official Public Records of Real Property of Harris County, Texas and being more particularly described by metes and bounds as follows with bearings based on the Texas Coordinate System of 1983, South Central Zone:

**COMMENCING** at a 1/2 inch iron rod with cap stamped "RPLS 2085" found for the northeast corner of a called 0.7858 acre tract described in the deed from Katy Investments, L.L.C. to Memorial Capital Investments, L.L.C. recorded under File No. RP-2021-656661 of the Official Public Records of Real Property of Harris County, Texas, from which a 1/2 inch iron rod with cap stamped "RPLS 2085" bears South 02° 07' 23" East – 124.99 feet;

**THENCE** North 64° 13' 08" West – 43.76 feet, to a 5/8-inch iron rod with cap stamped "IDS" set for the southwest corner and **POINT OF BEGINNING** of the herein described tract;

**THENCE** over and across said 494.4 acre tract, the following courses, and distances:

North 02° 05' 08" West - 340.42 feet, to a 5/8-inch iron rod with cap stamped "IDS" set for the northwest corner of the herein described tract;

North 87° 54' 52" East – 370.00 feet to a 5/8-inch iron rod with cap stamped "IDS" set for an angle corner of the herein described tract, and the beginning of a curve to the right;

In a southeasterly direction, with said curve to the right, having a radius of 25.00 feet, a central angle of 90° 00' 00", a chord bearing and distance of South 47° 05' 08" East – 35.36 feet, and an arc distance of 39.27 feet, to a 5/8-inch iron rod with cap stamped "IDS" set for the end of said curve;

South 02° 05' 08" East – 320.04 feet, to a 5/8-inch iron rod with cap stamped "IDS" set for the southeast corner of the herein described tract;

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South 88° 35' 02" West - 395.03 feet to the **POINT OF BEGINNING** of the herein  
described tract and containing 3.105 acres (135,245 square feet) of land.

RP-2025-35272

RP-2025-35272  
# Pages 6  
01/31/2025 01:58 PM  
e-Filed & e-Recorded in the  
Official Public Records of  
HARRIS COUNTY  
TENESHIA HUDSPETH  
COUNTY CLERK  
Fees \$41.00

RECORDERS MEMORANDUM

This instrument was received and recorded electronically  
and any blackouts, additions or changes were present  
at the time the instrument was filed and recorded.

Any provision herein which restricts the sale, rental, or  
use of the described real property because of color or  
race is invalid and unenforceable under federal law.  
THE STATE OF TEXAS  
COUNTY OF HARRIS

I hereby certify that this instrument was FILED in  
File Number Sequence on the date and at the time stamped  
hereon by me; and was duly RECORDED in the Official  
Public Records of Real Property of Harris County, Texas.



*Teneshia Hudspeth*  
COUNTY CLERK  
HARRIS COUNTY, TEXAS

RP-2025-35272

# DOMESTIC WASTEWATER PERMIT APPLICATION

Texas Commission on Environmental Quality

**Harris County Municipal Utility District No. 606**

**IDS Project No. 2436-003-00**

**December 2024**





December 3, 2024

Matthew Udenenwu, Manager of Wastewater Permitting Section  
Applications Review and Processing Team (MC-148)  
Texas Commission on Environmental Quality  
12100 Park 35 Circle  
Austin, Texas 78753

Reference: Woodmere Development Co., LTD.  
Domestic Wastewater Permit Application  
IDS Project No. 2436-003-00

Dear Mr. Matthew Udenenwu,

Transmitted herewith please find one (1) original copy of the Domestic Wastewater Permit Application submitted on behalf of Woodmere Development Co., LTD. One (1) check for the application fee in the amount of \$850.00 has been sent to the Texas Commission on Environmental Quality Financial Administration Division (MC-214). A copy of the check has been included with the attached package. An electronic copy of the Domestic Wastewater Permit Application has also been submitted via TCEQ's file transfer protocol server (FTP).

If you have any questions, do not hesitate to contact me at [VGomez@idseg.com](mailto:VGomez@idseg.com) or (832)-590-7149.

Sincerely,

A handwritten signature in blue ink that reads "Val Gomez".

Valeria Gomez, E.I.T.  
Design Engineer

Enclosures

\\IDSEG\FS\PROJECTS\2400\243600300 HCMUD 606 TPDES PERMIT\ENG-PM\FORMS\COVER LETTER.DOCX



# TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

## DOMESTIC WASTEWATER PERMIT APPLICATION CHECKLIST

Complete and submit this checklist with the application.

APPLICANT NAME: Woodmere Development Co., LTD

PERMIT NUMBER (If new, leave blank): WQ00 [Click to enter text.](#)

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 checked="" type="checkbox"/> | <input 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 checked="" type="checkbox"/> | <input type="checkbox"/>            |
| Public Involvement Plan Form | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Flow Diagram             | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| Technical Report 1.0         | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Site Drawing             | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| Technical Report 1.1         | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Original Photographs     | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| Worksheet 2.0                | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Design Calculations      | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| Worksheet 2.1                | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Solids Management Plan   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| Worksheet 3.0                | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Water Balance            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| Worksheet 3.1                | <input checked="" type="checkbox"/> | <input 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 checked="" type="checkbox"/> | <input type="checkbox"/> |                          |                                     |                                     |
| Worksheet 5.0                | <input checked="" type="checkbox"/> | <input type="checkbox"/> |                          |                                     |                                     |
| Worksheet 6.0                | <input checked="" type="checkbox"/> | <input 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 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 checked="" 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: 220223  
Check/Money Order Amount: \$850.00  
Name Printed on Check: IDS Engineering Group

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 Wastewater Treatment

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

- ☐ Active      ☒ Inactive

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

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

d. Check the box next to the appropriate application type

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

e. For amendments or modifications, describe the proposed changes: N/A

f. For existing permits:

Permit Number: WQ00 N/A

EPA I.D. (TPDES only): TX N/A

Expiration Date: N/A

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

Woodmere Development Co., Ltd

*(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: 602463333

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: Alford, Aaron

Title: Executive Vice President

Credential: N/A

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: N/A

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: N/A

Last Name, First Name: N/A

Title: N/A

Credential: N/A

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

### 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. See Attachment No. 1.

## 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: Hajduk, Jason  
Title: Senior Vice President Credential: P.E.  
Organization Name: IDS Engineering Group  
Mailing Address: 13430 Northwest Freeway, Suite 700  
City, State, Zip Code: Houston, TX 77040  
Phone No.: 832-590-7148 E-mail Address: jhajduk@idseg.com  
Check one or both: ☒ Administrative Contact ☒ Technical Contact

B. Prefix: Mr. Last Name, First Name: Pugh, Kameron  
Title: Senior Project Manager Credential: P.E.  
Organization Name: IDS Engineering Group  
Mailing Address: 13430 Northwest Freeway, Suite 700  
City, State, Zip Code: Houston, TX 77040  
Phone No.: 832-590-7187 E-mail Address: kpugh@idseg.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: Alford, Aaron  
Title: Executive Vice President Credential: N/A  
Organization Name: Woodmere Development Co., Ltd

Mailing Address: 15615 Katy Freeway Suite 405 City, State, Zip Code: Houston, TX 77094

Phone No.: 832-859-4305 E-mail Address: aalford@LongLakeLTD.com

B. Prefix: Mr. Last Name, First Name: Hajduk, Jason

Title: P.E. Credential: Senior Vice President

Organization Name: IDS Engineering Group

Mailing Address: 13430 Northwest Freeway, Suite 700

City, State, Zip Code: Houston, TX 77040

Phone No.: 832-590-7148 E-mail Address: jhajduk@idseg.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: Alford, Aaron

Title: Executive Vice President Credential: N/A

Organization Name: Woodmere Development Co., Ltd

Mailing Address: 15915 Katy Freeway, Suite 405 City, State, Zip Code: Houston, TX 77094

Phone No.: 832-859-4305 E-mail Address: aalford@LongLakeLTD.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: Williams, Michael

Title: N/A Credential: N/A

Organization Name: Municipal Operations & Consulting, Inc.

Mailing Address: 27316 Spectrum Way City, State, Zip Code: Oak Ridge, TX 77385

Phone No.: 832-642-7384 E-mail Address: mwilliams@municipalops.com

## Section 8. Public Notice Information (Instructions Page 27)

### A. Individual Publishing the Notices

Prefix: Ms. Last Name, First Name: Riley, Vonda

Title: Contract Administrator Credential: N/A

Organization Name: IDS Engineering Group

Mailing Address: 13430 Northwest Freeway, Suite 700

City, State, Zip Code: Houston, TX 77040

Phone No.: 832-590-7209

E-mail Address: vriley@idseg.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: Hajduk, Jason

Title: Senior Vice President

Credential: P.E.

Organization Name: IDS Engineering Group

Mailing Address: 13430 Northwest Freeway, Suite 700

City, State, Zip Code: Houston, TX 77040

Phone No.: 832-590-7148

E-mail Address: jhajduk@idseg.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: Lone Star College – Tomball Community Library

Location within the building: Community Board

Physical Address of Building: 30555 Tomball Parkway

City: Tomball

County: Harris

Contact (Last Name, First Name): Click to enter text.

Phone No.: 832-559-4200 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? Spanish

#### F. Plain Language Summary Template

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

**Attachment:** See Attachment No. 2

#### G. Public Involvement Plan Form

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

**Attachment:** See Attachment No. 3

## 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 N/A

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):

HCMUD No. 606 Wastewater Treatment Plant

C. Owner of treatment facility: Woodmere Development Co., LTD (to be transferred to HCMUD No. 606 upon MUD creation approval)

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

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

Prefix: Mr. Last Name, First Name: Alford, Aaron

Title: Executive Vice President Credential: N/A

Organization Name: Woodmere Development Co., LTD

Mailing Address: 15915 Katy Freeway, Suite 405 City, State, Zip Code: Houston, TX 77094

Phone No.: 832-859-4305 E-mail Address: aalford@LongLakeLTD.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: N/A

Last Name, First Name: N/A

Title: N/A

Credential: N/A

Organization Name: N/A

Mailing Address: N/A

City, State, Zip Code: N/A

Phone No.: N/A

E-mail Address: N/A

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

**Attachment:** N/A

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

Prefix: N/A

Last Name, First Name: N/A

Title: N/A

Credential: N/A

Organization Name: N/A

Mailing Address: N/A

City, State, Zip Code: N/A

Phone No.: N/A

E-mail Address: N/A

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

**Attachment:** N/A

## Section 10. TPDES Discharge Information (Instructions Page 31)

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

☐ Yes ☒ No

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

0.6 miles northwest of the intersection at West Road and Katy Hockley Cutoff Road

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:

The discharge of the WWTP will exit the site to the west into the adjacent conveyance pond until it exits the site in the southeast corner. From there it will enter the proposed offsite drainage channel which outfalls into an adjacent development's existing outfall channel and ultimately discharges into Bear Creek Segment No. U102-00-00.

City nearest the outfall(s): Katy

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

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

☐ Yes ☒ No

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

☐ Authorization granted ☐ Authorization pending

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

**Attachment:** [Click to enter text.](#)

- D. For all applications involving an average daily discharge of 5 MGD or more, provide the names of all counties located within 100 statute miles downstream of the point(s) of discharge: [Click to enter text.](#)

## Section 11. TLAP Disposal Information (Instructions Page 32)

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

☐ Yes ☒ No

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

N/A

- B. City nearest the disposal site: N/A

- C. County in which the disposal site is located: N/A

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

N/A

- E. For **TLAPs**, please identify the nearest watercourse to the disposal site to which rainfall runoff might flow if not contained: N/A

## 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.

N/A

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: N/A

D. Do you owe any fees to the TCEQ?

☐ Yes ☒ No

If yes, provide the following information:

Account number: N/A

Amount past due: N/A

E. Do you owe any penalties to the TCEQ?

☐ Yes ☒ No

If yes, please provide the following information:

Enforcement order number: N/A

Amount past due: N/A

### 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: Attachment 1 – Core Data Form, Attachment 2 – Plain Language Summary, Attachment 3 – Public Involvement Plan Form, Attachment 5 – USGS Map

## Section 14. Signature Page (Instructions Page 34)

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

Permit Number: Click to enter text.

Applicant: Woodmere Development Co., LTD

Certification:

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

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

Signatory name (typed or printed): Aaron Alford

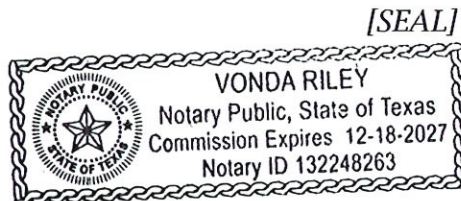
Signatory title: Executive Vice President

Signature:  Date: Nov 26, 2024  
(Use blue ink)

Subscribed and Sworn to before me by the said AARON B. ALFORD  
on this 26TH day of NOVEMBER, 2024.  
My commission expires on the 18TH day of DECEMBER, 2024.

VONDA RILEY  
Notary Public

HARRIS  
County, Texas



# DOMESTIC WASTEWATER PERMIT APPLICATION ADMINISTRATIVE REPORT 1.0

The following information is required for new and amendment applications.

## Section 1. Affected Landowner Information (Instructions Page 36)

- A. Indicate by a check mark that the landowners map or drawing, with scale, includes the following information, as applicable:
- ☒ The applicant's property boundaries
  - ☒ The facility site boundaries within the applicant's property boundaries
  - ☒ The distance the buffer zone falls into adjacent properties and the property boundaries of the landowners located within the buffer zone
  - ☒ The property boundaries of all landowners surrounding the applicant's property (Note: if the application is a major amendment for a lignite mine, the map must include the property boundaries of all landowners adjacent to the new facility (ponds).)
  - ☒ The point(s) of discharge and highlighted discharge route(s) clearly shown for one mile downstream
  - ☒ The property boundaries of the landowners located on both sides of the discharge route for one full stream mile downstream of the point of discharge
  - ☐ The property boundaries of the landowners along the watercourse for a one-half mile radius from the point of discharge if the point of discharge is into a lake, bay, estuary, or affected by tides
  - ☐ The boundaries of the effluent disposal site (for example, irrigation area or subsurface drainfield site) and all evaporation/holding ponds within the applicant's property
  - ☐ The property boundaries of all landowners surrounding the effluent disposal site
  - ☐ The boundaries of the sludge land application site (for land application of sewage sludge for beneficial use) and the property boundaries of landowners surrounding the applicant's property boundaries where the sewage sludge land application site is located
  - ☐ The property boundaries of landowners within one-half mile in all directions from the applicant's property boundaries where the sewage sludge disposal site (for example, sludge surface disposal site or sludge monofill) is located
- B. ☒ Indicate by a check mark that a separate list with the landowners' names and mailing addresses cross-referenced to the landowner's map has been provided.
- C. Indicate by a check mark in which format the landowners list is submitted:
- ☐ USB Drive
  - ☒ Four sets of labels
- D. Provide the source of the landowners' names and mailing addresses: Harris 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):

N/A

## Section 2. Original Photographs (Instructions Page 38)

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

- ☒ At least one original photograph of the new or expanded treatment unit location
- ☐ At least two photographs of the existing/proposed point of discharge and as much area downstream (photo 1) and upstream (photo 2) as can be captured. If the discharge is to an open water body (e.g., lake, bay), the point of discharge should be in the right or left edge of each photograph showing the open water and with as much area on each respective side of the discharge as can be captured.
- ☐ At least one photograph of the existing/proposed effluent disposal site
- ☒ A plot plan or map showing the location and direction of each photograph

## Section 3. Buffer Zone Map (Instructions Page 38)

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

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

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

- ☒ Ownership
- ☒ Restrictive easement
- ☐ Nuisance odor control
- ☐ Variance

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

- ☐ Yes      ☒ No

# **DOMESTIC WASTEWATER PERMIT APPLICATION**

## **SUPPLEMENTAL PERMIT INFORMATION FORM (SPIF)**

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

**Attachment:** See Attachment No. 4

# WATER QUALITY PERMIT

## PAYMENT SUBMITTAL FORM

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

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

**Mail this form and the check or money order to:**

*BY REGULAR U.S. MAIL*

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

*BY OVERNIGHT/EXPRESS MAIL*

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

**Fee Code: WQP**      **Waste Permit No:** [Click to enter text.](#)

1. Check or Money Order Number: 220223
2. Check or Money Order Amount: \$850.00
3. Date of Check or Money Order: 12/2/2024
4. Name on Check or Money Order: IDS Engineering Group
5. APPLICATION INFORMATION

Name of Project or Site: Harris County MUD No. 606 WWTP

Physical Address of Project or Site: TBD

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

**Staple Check or Money Order in This Space**



# ATTACHMENT 1

## INDIVIDUAL INFORMATION

### Section 1. Individual Information (Instructions Page 41)

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

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

Full legal name (Last Name, First Name, Middle Initial): N/A

Driver's License or State Identification Number: N/A

Date of Birth: N/A

Mailing Address: N/A

City, State, and Zip Code: N/A

Phone Number: N/A

Fax Number: N/A

E-mail Address: N/A

CN: N/A

#### For Commission Use Only:

Customer Number:

Regulated Entity Number:

Permit Number:

# DOMESTIC WASTEWATER PERMIT APPLICATION CHECKLIST OF COMMON DEFICIENCIES

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

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

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

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

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

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

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

## **Things to Know:**

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

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

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

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

Plain Language Summary ☒ Yes



# TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

## DOMESTIC WASTEWATER PERMIT APPLICATION TECHNICAL REPORT 1.0

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

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

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

#### A. Existing/Interim I Phase

Design Flow (MGD): 0.24

2-Hr Peak Flow (MGD): 0.96

Estimated construction start date: 10/01/2025

Estimated waste disposal start date: 10/01/2026

#### B. Interim II Phase

Design Flow (MGD): 0.40

2-Hr Peak Flow (MGD): 1.60

Estimated construction start date: 10/01/2027

Estimated waste disposal start date: 04/01/2028

#### C. Final Phase

Design Flow (MGD): 0.64

2-Hr Peak Flow (MGD): 2.56

Estimated construction start date: 10/01/2029

Estimated waste disposal start date: 10/01/2030

#### D. Current Operating Phase

Provide the startup date of the facility: N/A

### Section 2. Treatment Process (Instructions Page 43)

#### A. Current Operating Phase

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

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

See Attachment No. 6

## B. Treatment Units

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

**Table 1.0(1) - Treatment Units**

| Treatment Unit Type  | Number of Units | Dimensions (L x W x D) |
|----------------------|-----------------|------------------------|
| See Attachment No. 7 |                 |                        |
|                      |                 |                        |
|                      |                 |                        |
|                      |                 |                        |
|                      |                 |                        |
|                      |                 |                        |

## C. Process Flow Diagram

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

**Attachment:** See Attachment No. 8

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

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

- Latitude: 29°53'58.07"N
- Longitude: 95°48'24.72"W

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

- Latitude: Click to enter text.
- Longitude: Click to enter text.

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

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

**Attachment:** See Attachment No. 9

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

Harris County Municipal Utility District No. 606

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

#### Collection System Information

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

### Section 4. Unbuilt Phases (Instructions Page 45)

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

☐ Yes ☒ No

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

☐ Yes ☐ No

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

Click to enter text.

### Section 5. Closure Plans (Instructions Page 45)

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

☐ Yes ☒ No

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

☐ Yes ☐ No

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

[Click to enter text.](#)

## Section 6. Permit Specific Requirements (Instructions Page 45)

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

### A. Summary transmittal

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

☐ Yes ☒ No

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

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

[Click to enter text.](#)

### B. Buffer zones

Have the buffer zone requirements been met?

☒ Yes ☐ No

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

Buffer zone is maintained within the site and within restricted reserves owned by the Developer. See Attachment No. 10

### C. Other actions required by the current permit

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

☐ Yes ☒ No

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

Click to enter text.

### D. Grit and grease treatment

#### 1. Acceptance of grit and grease waste

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

☐ Yes ☒ No

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

#### 2. Grit and grease processing

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

Click to enter text.

#### 3. Grit disposal

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

☐ Yes ☐ No

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

Describe the method of grit disposal.

**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.

**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:

**4. Existing coverage in individual permit**

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

☐ Yes ☐ No

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

Click to enter text.

**5. Zero stormwater discharge**

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

☐ Yes ☐ No

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

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

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

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

☐ Yes ☐ No

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

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

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

#### F. Discharges to the Lake Houston Watershed

Does the facility discharge in the Lake Houston watershed?

☐ Yes ☒ No

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

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

##### 1. Acceptance of sludge from other WWTPs

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

☐ Yes ☒ No

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

In addition, provide the date the plant started or is anticipated to start accepting sludge, an estimate of monthly sludge acceptance (gallons or millions of gallons), an estimate of the BOD<sub>5</sub> concentration of the sludge, and the design BOD<sub>5</sub> 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 BOD<sub>5</sub> concentration of the septic waste, and the design BOD<sub>5</sub> concentration of the influent from the collection system. Also note if this information has or has not changed since the last permit action.

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

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

Is 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 50)

Is the facility in operation?

☐ Yes ☒ No

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

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

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

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

| Pollutant                                 | Average Conc. | Max Conc. | No. of Samples | Sample Type | Sample Date/Time |
|---|---------------|-----------|----------------|-------------|------------------|
| CBOD <sub>5</sub> , mg/l                  |               |           |                |             |                  |
| Total Suspended Solids, mg/l              |               |           |                |             |                  |
| Ammonia Nitrogen, mg/l                    |               |           |                |             |                  |
| Nitrate Nitrogen, mg/l                    |               |           |                |             |                  |
| Total Kjeldahl Nitrogen, mg/l             |               |           |                |             |                  |
| Sulfate, mg/l                             |               |           |                |             |                  |
| Chloride, mg/l                            |               |           |                |             |                  |
| Total Phosphorus, mg/l                    |               |           |                |             |                  |
| pH, standard units                        |               |           |                |             |                  |
| Dissolved Oxygen*, mg/l                   |               |           |                |             |                  |
| Chlorine Residual, mg/l                   |               |           |                |             |                  |
| <i>E.coli</i> (CFU/100ml) freshwater      |               |           |                |             |                  |
| Enterococci (CFU/100ml) saltwater         |               |           |                |             |                  |
| Total Dissolved Solids, mg/l              |               |           |                |             |                  |
| Electrical Conductivity, $\mu$ mohs/cm, † |               |           |                |             |                  |
| Oil & Grease, mg/l                        |               |           |                |             |                  |
| Alkalinity (CaCO <sub>3</sub> )*, mg/l    |               |           |                |             |                  |

\*TPDES permits only

†TLAP permits only

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

| Pollutant                             | Average Conc. | Max Conc. | No. of Samples | Sample Type | Sample Date/Time |
|---------------------------------------|---------------|-----------|----------------|-------------|------------------|
| Total Suspended Solids, mg/l          |               |           |                |             |                  |
| Total Dissolved Solids, mg/l          |               |           |                |             |                  |
| pH, standard units                    |               |           |                |             |                  |
| Fluoride, mg/l                        |               |           |                |             |                  |
| Aluminum, mg/l                        |               |           |                |             |                  |
| Alkalinity (CaCO <sub>3</sub> ), mg/l |               |           |                |             |                  |

## Section 8. Facility Operator (Instructions Page 50)

Facility Operator Name: Michael WilliamsFacility Operator's License Classification and Level: AFacility Operator's License Number: 4558384-2

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

### A. WWTP's Biosolids Management Facility Type

Check all that apply. See instructions for guidance

- ☐ Design flow  $\geq$  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 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: [Click to enter text.](#)

### C. Biosolids Management

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

all biosolids management practices listed in the instructions. Rather indicate the management practice the facility plans to use.

#### Biosolids Management

| Management Practice | Handler or Preparer Type  | Bulk or Bag Container | Amount (dry metric tons) | Pathogen Reduction Options      | Vector Attraction Reduction Option       |
|---------------------|---------------------------|-----------------------|--------------------------|---------------------------------|--|
| Storage             | On-Site Owner or Operator | Not Applicable        |                          | Class B: PSRP Aerobic Digestion | Option 1: Volatile solids reduced by 38% |
| Choose an item.     | Choose an item.           | Choose an item.       |                          | Choose an item.                 | Choose an item.                          |
| Choose an item.     | Choose an item.           | Choose an item.       |                          | Choose an item.                 | Choose an item.                          |

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

#### D. Disposal site

Disposal site name: TBD

TCEQ permit or registration number: TBD

County where disposal site is located: TBD

#### E. Transportation method

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

Name of the hauler: TBD

Hauler registration number: TBD

Sludge is transported as a:

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

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

#### A. Beneficial use authorization

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

☐ Yes ☒ No

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

☐ Yes ☐ No

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

☐ Yes ☐ No

## B. Sludge processing authorization

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

|  |                              |  |
|--|------------------------------|--|
| Sludge Composting                          | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| Marketing and Distribution of sludge       | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| Sludge Surface Disposal or Sludge Monofill | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| Temporary storage in sludge lagoons        | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |

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

☐ Yes ☐ No

## Section 11. Sewage Sludge Lagoons (Instructions Page 53)

Does this facility include sewage sludge lagoons?

☐ Yes ☒ No

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

### A. Location information

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

- Original General Highway (County) Map:  
**Attachment:** [Click to enter text.](#)
- USDA Natural Resources Conservation Service Soil Map:  
**Attachment:**
- Federal Emergency Management Map:  
**Attachment:** [Click to enter text.](#)
- Site map:  
**Attachment:**

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

- ☐ Overlap a designated 100-year frequency flood plain
- ☐ Soils with flooding classification
- ☐ Overlap an unstable area
- ☐ Wetlands
- ☐ Located less than 60 meters from a fault
- ☐ None of the above

**Attachment:** [Click to enter text.](#)

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

[Click to enter text.](#)

## B. Temporary storage information

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

Nitrate Nitrogen, mg/kg: [Click to enter text.](#)

Total Kjeldahl Nitrogen, mg/kg: [Click to enter text.](#)

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

Phosphorus, mg/kg: [Click to enter text.](#)

Potassium, mg/kg: [Click to enter text.](#)

pH, standard units: [Click to enter text.](#)

Ammonia Nitrogen mg/kg: [Click to enter text.](#)

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

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

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

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

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

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

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

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

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

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

Total PCBs: [Click to enter text.](#)

Provide the following information:

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

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

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

## C. Liner information

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

☐ Yes ☐ No



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

[Click to enter text.](#)

#### D. Site development plan

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

[Click to enter text.](#)

Attach the following documents to the application.

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

#### E. Groundwater monitoring

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

☐ Yes ☐ No

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

**Attachment:** [Click to enter text.](#)

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

### A. Additional authorizations

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

☐ Yes ☒ No

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

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:

N/A

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

### A. RCRA hazardous wastes

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

☐ Yes ☒ No

**B. Remediation activity wastewater**

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

☐ Yes ☒ No

**C. Details about wastes received**

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

**Attachment:** [Click to enter text.](#)

## Section 14. Laboratory Accreditation (Instructions Page 56)

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

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

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

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

### CERTIFICATION:

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

Printed Name: N/A

Title: N/A

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

# DOMESTIC WASTEWATER PERMIT APPLICATION

## TECHNICAL REPORT 1.1

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

### Section 1. Justification for Permit (Instructions Page 57)

#### A. Justification of permit need

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

See Attachment No. 11

#### B. Regionalization of facilities

For additional guidance, please review [TCEQ's Regionalization Policy for Wastewater Treatment](#)<sup>1</sup>.

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

##### 1. Municipally incorporated areas

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

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

☐ Yes ☒ No ☐ Not Applicable

If yes, within the city limits of: [Click to enter text.](#)

If yes, attach correspondence from the city.

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

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

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

##### 2. Utility CCN areas

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

☐ Yes ☒ No

<sup>1</sup> <https://www.tceq.texas.gov/permitting/wastewater/tceq-regionalization-for-wastewater>

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

**Attachment:** [Click to enter text.](#)

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

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

☒ Yes      ☐ No

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

**Attachment:** [See Attachment No. 18](#)

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

**Attachment:** [See Attachment No. 19](#)

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:** [N/A](#)

## Section 2. Proposed Organic Loading (Instructions Page 59)

Is this facility in operation?

☐ Yes      ☒ No

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

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

### A. Current organic loading

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

Average Influent Organic Strength or BOD<sub>5</sub> Concentration in mg/l: [Click to enter text.](#)

Average Influent Loading (lbs/day = total average flow X average BOD<sub>5</sub> conc. X 8.34): [Click to enter text.](#)

Provide the source of the average organic strength or BOD<sub>5</sub> 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 BOD <sub>5</sub> Concentration (mg/l) |
|---|-----------------------------------|--|
| Municipality                              | 0.24 Ph 1/0.40 Ph 2/<br>0.64 Ph 3 | 250  |
| Subdivision                               | 0.00                              |  |
| Trailer park – transient                  | 0.00                              |  |
| Mobile home park                          | 0.00                              |  |
| School with cafeteria and showers         | 0.00                              |  |
| School with cafeteria, no showers         | 0.00                              |  |
| Recreational park, overnight use          | 0.00                              |  |
| Recreational park, day use                | 0.00                              |  |
| Office building or factory                | 0.00                              |  |
| Motel                                     | 0.00                              |  |
| Restaurant                                | 0.00                              |  |
| Hospital                                  | 0.00                              |  |
| Nursing home                              | 0.00                              |  |
| Other                                     | 0.00                              |  |
| TOTAL FLOW from all sources               | 0.24 Ph 1/0.40 Ph 2/<br>0.64 Ph 3 |  |
| AVERAGE BOD <sub>5</sub> from all sources |                                   | 250  |

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

### A. Existing/Interim I Phase Design Effluent Quality

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

Total Suspended Solids, mg/l: 15

Ammonia Nitrogen, mg/l: 2

Total Phosphorus, mg/l: N/A

Dissolved Oxygen, mg/l: 4

Other: Click to enter text.

**B. Interim II Phase Design Effluent Quality**

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

Total Suspended Solids, mg/l: 15

Ammonia Nitrogen, mg/l: 2

Total Phosphorus, mg/l: N/A

Dissolved Oxygen, mg/l: 4

Other: Click to enter text.

**C. Final Phase Design Effluent Quality**

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

Total Suspended Solids, mg/l: 15

Ammonia Nitrogen, mg/l: 2

Total Phosphorus, mg/l: N/A

Dissolved Oxygen, mg/l: 4

Other: Click to enter text.

**D. Disinfection Method**

Identify the proposed method of disinfection.

☒ Chlorine: 1-4 mg/l after 20 minutes detention time at peak flow

Dechlorination process: N/A

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

☐ Other: Click to enter text.

**Section 4. Design Calculations (Instructions Page 59)**

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

**Attachment:** See Attachment No. 12

**Section 5. Facility Site (Instructions Page 60)**

**A. 100-year floodplain**

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

☒ Yes ☐ No

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



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

FEMA Panel No. 48201C0390N; See Attachment No. 15

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

☐ Yes ☒ No

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

☐ Yes ☐ No

If **yes**, provide the permit number: [Click to enter text.](#)

If **no**, provide the approximate date you anticipate submitting your application to the Corps: [Click to enter text.](#)

## B. Wind rose

Attach a wind rose: [See Attachment No. 13](#)

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

## A. Beneficial use authorization

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

☐ Yes ☒ No

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

## B. Sludge processing authorization

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

- ☐ Sludge Composting
- ☐ Marketing and Distribution of sludge
- ☐ Sludge Surface Disposal or Sludge Monofill

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

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

Attach a solids management plan to the application.

**Attachment:** [See Attachment No. 14](#)

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

- Treatment units and processes dimensions and capacities

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

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

# DOMESTIC WASTEWATER PERMIT APPLICATION

## WORKSHEET 2.0: RECEIVING WATERS

The following information is required for all TPDES permit applications.

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

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

☐ Yes ☒ No

If **no**, proceed 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 64)

Does the facility discharge into tidally affected waters?

☐ Yes ☒ No

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

#### A. Receiving water outfall

Width of the receiving water at the outfall, in feet: [Click to enter text.](#)

#### B. Oyster waters

Are there oyster waters in the vicinity of the discharge?

☐ Yes ☐ No

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

[Click to enter text.](#)

#### C. Sea grasses

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

☐ Yes ☐ No

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

[Click to enter text.](#)

### Section 3. Classified Segments (Instructions Page 64)

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

☐ Yes ☒ No

If **yes**, this Worksheet is complete.

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

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

Name of the immediate receiving waters: Drainage Channel (to be constructed, not yet built)

#### 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: Drainage ditch not yet built

### C. Downstream perennial confluences

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

N/A

### 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.

The initial discharge flows 1.30 miles through on-site conveyance ponds, then discharges into an unbuilt drainage channel for 0.40 miles until it discharges into a development's existing outfall channel for 0.70 miles until it ultimately discharges into Bear Creek Segment No. U102-00-00.

### E. Normal dry weather characteristics

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

N/A; RCP and drainage channels not yet built.

Date and time of observation: N/A

Was the water body influenced by stormwater runoff during observations?

☐ Yes ☐ No

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

### A. Upstream influences

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

- |   |   |
|---|---|
| <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 checked="" type="checkbox"/> Other(s), specify: <u>To contain tract outfall from detention</u> |

## 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: <a href="#">Click to enter text.</a> |

## C. Waterbody aesthetics

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

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

# DOMESTIC WASTEWATER PERMIT APPLICATION

## WORKSHEET 2.1: STREAM PHYSICAL CHARACTERISTICS

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

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

### Section 1. General Information (Instructions Page 66)

Date of study: [Click to enter text.](#) Time of study: [Click to enter text.](#)

Stream name: [Click to enter text.](#)

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

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

☐ Perennial ☐ Intermittent with perennial pools

### Section 2. Data Collection (Instructions Page 66)

Number of stream bends that are well defined: [Click to enter text.](#)

Number of stream bends that are moderately defined: [Click to enter text.](#)

Number of stream bends that are poorly defined: [Click to enter text.](#)

Number of riffles: [Click to enter text.](#)

Evidence of flow fluctuations (check one):

☐ Minor ☐ moderate ☐ severe

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

[Click to enter text.](#)

## Stream transects

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

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

| <b>Stream type at transect</b><br>Select riffle, run, glide, or pool. See Instructions, Definitions section. | <b>Transect location</b> | <b>Water surface width (ft)</b> | <b>Stream depths (ft)</b><br>at 4 to 10 points along each transect from the channel bed to the water surface. Separate the measurements with commas. |
|--|--------------------------|---------------------------------|--|
| <a href="#">Choose an item.</a>  |                          |                                 |  |
| <a href="#">Choose an item.</a>  |                          |                                 |  |
| <a href="#">Choose an item.</a>  |                          |                                 |  |
| <a href="#">Choose an item.</a>  |                          |                                 |  |
| <a href="#">Choose an item.</a>  |                          |                                 |  |
| <a href="#">Choose an item.</a>  |                          |                                 |  |
| <a href="#">Choose an item.</a>  |                          |                                 |  |
| <a href="#">Choose an item.</a>  |                          |                                 |  |
| <a href="#">Choose an item.</a>  |                          |                                 |  |
| <a href="#">Choose an item.</a>  |                          |                                 |  |

## Section 3. Summarize Measurements (Instructions Page 66)

Streambed slope of entire reach, from USGS map in feet/feet: [Click to enter text.](#)

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

Length of stream evaluated, in feet: [Click to enter text.](#)

Number of lateral transects made: [Click to enter text.](#)

Average stream width, in feet: [Click to enter text.](#)

Average stream depth, in feet: [Click to enter text.](#)

Average stream velocity, in feet/second: [Click to enter text.](#)

Instantaneous stream flow, in cubic feet/second: [Click to enter text.](#)

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

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

Maximum pool depth, in feet: [Click to enter text.](#)



# DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 3.0: LAND DISPOSAL OF EFFLUENT

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

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

Identify the method of land disposal:

- |   |  |
|---|--|
| <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 type="checkbox"/> Subsurface area drip dispersal system |
| <input type="checkbox"/> Evaporation  | <input type="checkbox"/> Evapotranspiration beds               |
| <input checked="" type="checkbox"/> Other (describe in detail): <u>Haul sludge to permitted/registered facility</u> |  |

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

For existing authorizations, provide Registration Number: [Click to enter text.](#)

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

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

**Table 3.0(1) – Land Application Site Crops**

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

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

Table 3.0(2) – Storage and Evaporation Ponds

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

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

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

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

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

☐ Yes ☐ No

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

[Click to enter text.](#)

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

[Click to enter text.](#)

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

[Click to enter text.](#)

## Section 5. Annual Cropping Plan (Instructions Page 68)

Attach an Annual Cropping Plan which includes a discussion of each of the following items. If not applicable, provide a detailed explanation indicating why. **Attachment:** [Click to enter text.](#)

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

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

Attach a USGS map with the following information shown and labeled. If not applicable, provide a detailed explanation indicating why. **Attachment:** [Click to enter text.](#)

- 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?<br>Y/N | Open, cased,<br>capped, or plugged? | Proposed Best Management<br>Practice |
|---------|----------|-------------------|-------------------------------------|--------------------------------------|
|         |          |                   | <a href="#">Choose an item.</a>     |                                      |
|         |          |                   | <a href="#">Choose an item.</a>     |                                      |
|         |          |                   | <a href="#">Choose an item.</a>     |                                      |
|         |          |                   | <a href="#">Choose an item.</a>     |                                      |
|         |          |                   | <a href="#">Choose an item.</a>     |                                      |

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

**Attachment:** [Click to enter text.](#)

## Section 7. Groundwater Quality (Instructions Page 69)

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

**Attachment:** [Click to enter text.](#)

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 70)

### A. Soil map

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

**Attachment:** [Click to enter text.](#)

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

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 |
|-------------|--------------------|--------------|--------------------------|--------------|
|             |                    |              |                          |              |
|             |                    |              |                          |              |
|             |                    |              |                          |              |
|             |                    |              |                          |              |
|             |                    |              |                          |              |
|             |                    |              |                          |              |
|             |                    |              |                          |              |

## Section 9. Effluent Monitoring Data (Instructions Page 71)

Is the facility in operation?

☐ Yes ☒ No

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

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

**Table 3.0(5) – Effluent Monitoring Data**

[illegible]

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

Click to enter text.

# DOMESTIC WASTEWATER PERMIT APPLICATION

## WORKSHEET 3.1: SURFACE LAND DISPOSAL OF EFFLUENT

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

### Section 1. Surface Disposal (Instructions Page 72)

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

#### A. Irrigation

Area under irrigation, in acres: [Click to enter text.](#)

Design application frequency:

hours/day [Click to enter text.](#) And days/week [Click to enter text.](#)

Land grade (slope):

average percent (%): [Click to enter text.](#)

maximum percent (%): [Click to enter text.](#)

Design application rate in acre-feet/acre/year: [Click to enter text.](#)

Design total nitrogen loading rate, in lbs N/acre/year: [Click to enter text.](#)

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

Method of application: [Click to enter text.](#)

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

**Attachment:** [Click to enter text.](#)

#### B. Evaporation ponds

Daily average effluent flow into ponds, in gallons per day: [Click to enter text.](#)

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

**Attachment:** [Click to enter text.](#)

#### C. Evapotranspiration beds

Number of beds: [Click to enter text.](#)

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

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

Void ratio of soil in the beds: [Click to enter text.](#)

Storage volume within the beds, in acre-feet: [Click to enter text.](#)

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

**Attachment:** [Click to enter text.](#)

#### D. Overland flow

Area used for application, in acres: [Click to enter text.](#)

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

Design application rate, in gpm/foot of slope width: [Click to enter text.](#)

Slope length, in feet: [Click to enter text.](#)

Design BOD<sub>5</sub> loading rate, in lbs BOD<sub>5</sub>/acre/day: [Click to enter text.](#)

Design application frequency:

hours/day: [Click to enter text.](#) **And** days/week: [Click to enter text.](#)

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

**Attachment:** [Click to enter text.](#)

## Section 2. Edwards Aquifer (Instructions Page 73)

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

☐ Yes ☒ No

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

☐ Yes ☐ No

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

**Attachment:** [Click to enter text.](#)



# DOMESTIC WASTEWATER PERMIT APPLICATION

## WORKSHEET 3.2: SURFACE LAND DISPOSAL OF EFFLUENT

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

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

### Section 1. Subsurface Application (Instructions Page 74)

Identify the type of system:

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

Application area, in acres: [Click to enter text.](#)

Area of drainfield, in square feet: [Click to enter text.](#)

Application rate, in gal/square foot/day: [Click to enter text.](#)

Depth to groundwater, in feet: [Click to enter text.](#)

Area of trench, in square feet: [Click to enter text.](#)

Dosing duration per area, in hours: [Click to enter text.](#)

Number of beds: [Click to enter text.](#)

Dosing amount per area, in inches/day: [Click to enter text.](#)

Infiltration rate, in inches/hour: [Click to enter text.](#)

Storage volume, in gallons: [Click to enter text.](#)

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

Soil Classification: [Click to enter text.](#)

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

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

### Section 2. Edwards Aquifer (Instructions Page 74)

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

- ☐ Yes ☐ No

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

- ☐ Yes ☐ No

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

# DOMESTIC WASTEWATER PERMIT APPLICATION

## WORKSHEET 3.3: SUBSURFACE AREA DRIP DISPERSAL (SADDS) LAND DISPOSAL OF EFFLUENT

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

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

### Section 1. Administrative Information (Instructions Page 75)

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

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

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: [Click to enter text.](#)

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

☐ Yes ☐ No

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

[Click to enter text.](#)

## Section 2. Subsurface Area Drip Dispersal System (Instructions Page 75)

### A. Type of system

- ☐ Subsurface Drip Irrigation
- ☐ Surface Drip Irrigation
- ☐ Other, specify: [Click to enter text.](#)

### B. Irrigation operations

Application area, in acres: [Click to enter text.](#)

Infiltration Rate, in inches/hour: [Click to enter text.](#)

Average slope of the application area, percent (%): [Click to enter text.](#)

Maximum slope of the application area, percent (%): [Click to enter text.](#)

Storage volume, in gallons: [Click to enter text.](#)

Major soil series: [Click to enter text.](#)

Depth to groundwater, in feet: [Click to enter text.](#)

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

Nitrogen application rate, in lbs/gal/day: [Click to enter text.](#)

### D. Dosing information

Number of doses per day: [Click to enter text.](#)

Dosing duration per area, in hours: [Click to enter text.](#)

Rest period between doses, in hours: [Click to enter text.](#)

Dosing amount per area, in inches/day: [Click to enter text.](#)

Number of zones: [Click to enter text.](#)

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

☐ Yes ☐ No

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

**Attachment:** [Click to enter text.](#)

### Section 3. Required Plans (Instructions Page 75)

#### A. Recharge feature plan

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

**Attachment:** [Click to enter text.](#)

#### B. Soil evaluation

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

**Attachment:** [Click to enter text.](#)

#### C. Site preparation plan

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

**Attachment:** [Click to enter text.](#)

#### D. Soil sampling/testing

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

**Attachment:** [Click to enter text.](#)

### Section 4. Floodway Designation (Instructions Page 76)

#### A. Site location

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

☐ Yes ☐ No

#### B. Flood map

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

**Attachment:** [Click to enter text.](#)

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

#### A. Buffer Map

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

**Attachment:** [Click to enter text.](#)

**B. Buffer variance request**

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

☐ Yes ☐ No

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

**Attachment:** [Click to enter text.](#)

**Section 6. Edwards Aquifer (Instructions Page 76)**

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

☐ Yes ☐ No

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

☐ Yes ☐ No

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

# DOMESTIC WASTEWATER PERMIT APPLICATION

## WORKSHEET 4.0: POLLUTANT ANALYSIS REQUIREMENTS

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

This worksheet is not required minor amendments without renewal.

### Section 1. Toxic Pollutants (Instructions Page 78)

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

Grab ☐ Composite ☐

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

**Table 4.0(1) – Toxics Analysis**

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

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

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



| Pollutant   | AVG<br>Effluent<br>Conc. (µg/l) | MAX<br>Effluent<br>Conc. (µg/l) | Number of<br>Samples | MAL<br>(µg/l) |
|---|---------------------------------|---------------------------------|----------------------|---------------|
| 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<br>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<br>Effluent<br>Conc. (µg/l) | MAX<br>Effluent<br>Conc. (µg/l) | Number of<br>Samples | MAL<br>(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<br>Effluent<br>Conc. (µg/l) | MAX<br>Effluent<br>Conc. (µg/l) | Number of<br>Samples | MAL<br>(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<br>[Bromodichloromethane] |                                 |                                 |                      | 10            |
| 1,1-Dichloroethane                             |                                 |                                 |                      | 10            |
| 1,2-Dichloroethane                             |                                 |                                 |                      | 10            |
| 1,1-Dichloroethylene                           |                                 |                                 |                      | 10            |
| 1,2-Dichloropropane                            |                                 |                                 |                      | 10            |
| 1,3-Dichloropropylene<br>[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<br>Effluent<br>Conc. (µg/l) | MAX<br>Effluent<br>Conc. (µg/l) | Number of<br>Samples | MAL<br>(µg/l) |
|-----------------------|---------------------------------|---------------------------------|----------------------|---------------|
| 2-Chlorophenol        |                                 |                                 |                      | 10            |
| 2,4-Dichlorophenol    |                                 |                                 |                      | 10            |
| 2,4-Dimethylphenol    |                                 |                                 |                      | 10            |
| 4,6-Dinitro-o-Cresol  |                                 |                                 |                      | 50            |
| 2,4-Dinitrophenol     |                                 |                                 |                      | 50            |
| 2-Nitrophenol         |                                 |                                 |                      | 20            |
| 4-Nitrophenol         |                                 |                                 |                      | 50            |
| P-Chloro-m-Cresol     |                                 |                                 |                      | 10            |
| Pentalchlorophenol    |                                 |                                 |                      | 5             |
| Phenol                |                                 |                                 |                      | 10            |
| 2,4,6-Trichlorophenol |                                 |                                 |                      | 10            |

**Table 4.0(2)D – Base/Neutral Compounds**

| Pollutant                                  | AVG<br>Effluent<br>Conc. (µg/l) | MAX<br>Effluent<br>Conc. (µg/l) | Number of<br>Samples | MAL<br>(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-<br>benzene) |                                 |                                 |                      | 20            |
| Fluoranthene                               |                                 |                                 |                      | 10            |

| <b>Pollutant</b>           | <b>AVG<br/>Effluent<br/>Conc. (µg/l)</b> | <b>MAX<br/>Effluent<br/>Conc. (µg/l)</b> | <b>Number of<br/>Samples</b> | <b>MAL<br/>(µg/l)</b> |
|----------------------------|--|--|------------------------------|-----------------------|
| 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<br>Effluent<br>Conc. (µg/l) | MAX<br>Effluent<br>Conc. (µg/l) | Number of<br>Samples | MAL<br>(µg/l) |
|--------------------------------------|---------------------------------|---------------------------------|----------------------|---------------|
| Aldrin                               |                                 |                                 |                      | 0.01          |
| alpha-BHC (Hexachlorocyclohexane)    |                                 |                                 |                      | 0.05          |
| beta-BHC (Hexachlorocyclohexane)     |                                 |                                 |                      | 0.05          |
| gamma-BHC<br>(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<br>Equivalenc<br>y Factors | Wastewater<br>Concentration<br>(ppq) | Wastewater<br>Equivalents<br>(ppq) | Sludge<br>Concentration<br>(ppt) | Sludge<br>Equivalents<br>(ppt) | MAL<br>(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<br>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<br>HpCDFs    | 0.01                             |                                      |                                    |                                  |                                | 50           |
| OCDD                   | 0.0003                           |                                      |                                    |                                  |                                | 100          |
| OCDF                   | 0.0003                           |                                      |                                    |                                  |                                | 100          |
| PCB 77                 | 0.0001                           |                                      |                                    |                                  |                                | 0.5          |
| PCB 81                 | 0.0003                           |                                      |                                    |                                  |                                | 0.5          |
| PCB 126                | 0.1                              |                                      |                                    |                                  |                                | 0.5          |
| PCB 169                | 0.03                             |                                      |                                    |                                  |                                | 0.5          |
| Total                  |                                  |                                      |                                    |                                  |                                |              |

# DOMESTIC WASTEWATER PERMIT APPLICATION

## WORKSHEET 5.0: TOXICITY TESTING REQUIREMENTS

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

This worksheet is not required minor amendments without renewal.

### Section 1. Required Tests (Instructions Page 88)

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

7-day Chronic: [Click to enter text.](#)

48-hour Acute: [Click to enter text.](#)

### Section 2. Toxicity Reduction Evaluations (TREs)

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

☐ Yes ☐ No

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

[Click to enter text.](#)

### Section 3. Summary of WET Tests

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

**Table 5.0(1) Summary of WET Tests**

| Test Date | Test Species | NOEC Survival | NOEC Sub-lethal |
|-----------|--------------|---------------|-----------------|
|           |              |               |                 |
|           |              |               |                 |
|           |              |               |                 |
|           |              |               |                 |
|           |              |               |                 |
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|           |              |               |                 |
|           |              |               |                 |

# DOMESTIC WASTEWATER PERMIT APPLICATION

## WORKSHEET 6.0: INDUSTRIAL WASTE CONTRIBUTION

The following is required for all publicly owned treatment works.

### Section 1. All POTWs (Instructions Page 89)

#### A. Industrial users (IUs)

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

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

Categorical IUs:

Number of IUs: 0

Average Daily Flows, in MGD: 0

Significant IUs - non-categorical:

Number of IUs: 0

Average Daily Flows, in MGD: 0

Other IUs:

Number of IUs: 0

Average Daily Flows, in MGD: 0

#### 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 90)

### A. Substantial modifications

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

☐ Yes ☐ No

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

Click to enter text.

## B. Non-substantial modifications

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

☐ Yes ☐ No

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

Click to enter text.

## C. Effluent parameters above the MAL

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

**Table 6.0(1) – Parameters Above the MAL**

| Pollutant | Concentration | MAL | Units | Date |
|-----------|---------------|-----|-------|------|
|           |               |     |       |      |
|           |               |     |       |      |
|           |               |     |       |      |
|           |               |     |       |      |
|           |               |     |       |      |
|           |               |     |       |      |

## D. Industrial user interruptions

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

☐ Yes ☐ No

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

Click to enter text.

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

#### A. General information

Company Name: N/A

SIC Code: N/A

Contact name: N/A

Address: N/A

City, State, and Zip Code: N/A

Telephone number: N/A

Email address: N/A

#### 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).

N/A

#### C. Product and service information

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

N/A

#### D. Flow rate information

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

Process Wastewater:

Discharge, in gallons/day: N/A

Discharge Type: ☐ Continuous ☐ Batch ☐ Intermittent

Non-Process Wastewater:

Discharge, in gallons/day: N/A

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.

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 92)

**1. TCEQ Program Area**

Program Area (PST, VCP, IHW, etc.): [Click to enter text.](#)

Program ID: [Click to enter text.](#)

Contact Name: [Click to enter text.](#)

Phone Number: [Click to enter text.](#)

**2. Agent/Consultant Contact Information**

Contact Name: [Click to enter text.](#)

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

City, State, and Zip Code: [Click to enter text.](#)

Phone Number: [Click to enter text.](#)

**3. Owner/Operator Contact Information**

☐ Owner ☐ Operator

Owner/Operator Name: [Click to enter text.](#)

Contact Name: [Click to enter text.](#)

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

City, State, and Zip Code: [Click to enter text.](#)

Phone Number: [Click to enter text.](#)

**4. Facility Contact Information**

Facility Name: [Click to enter text.](#)

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

City, State, and Zip Code: [Click to enter text.](#)

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

Facility Contact Person: [Click to enter text.](#)

Phone Number: [Click to enter text.](#)

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

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

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

Method of determination (GPS, TOPO, etc.): [Click to enter text.](#)

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:

[Click to enter text.](#)

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         |      |               |  |           |                           |
| Tubing         |      |               |  |           |                           |
| Screen         |      |               |  |           |                           |

### Section 3. Proposed Trench System, Subsurface Fluid Distribution System, or Infiltration Gallery

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

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

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

### Section 4. Site Hydrogeological and Injection Zone Data

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

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 WTP 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)

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| Attachment 5 – USGS Map (Full Size) (Admin. Rpt. 1.0, 13; SPIF, 5)                       |
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**Attachment 1 – TCEQ Core Data Form**  
**(Admin. Rpt. 1.0, 3c)**



# 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

|  |   |   |
|--|---|---|
| <b>1. Reason for Submission</b> (If other is checked please describe in space provided.)   |   |   |
| <input checked="" type="checkbox"/> New Permit, Registration or Authorization (Core Data Form should be submitted with the program application.) |   |   |
| <input type="checkbox"/> Renewal (Core Data Form should be submitted with the renewal form)  |   | <input type="checkbox"/> Other                          |
| <b>2. Customer Reference Number</b> (if issued)  | <a href="#">Follow this link to search for CN or RN numbers in Central Registry**</a> | <b>3. Regulated Entity Reference Number</b> (if issued) |
| CN 602463333   |   | RN  |

## SECTION II: Customer Information

|   |                    |  |                              |  |  |
|---|--------------------|--|------------------------------|--|--|
| <b>4. General Customer Information</b>  |                    | <b>5. Effective Date for Customer Information Updates</b> (mm/dd/yyyy) |                              |  |  |
| <input checked="" type="checkbox"/> New Customer <input type="checkbox"/> Update to Customer Information <input type="checkbox"/> Change in Regulated Entity Ownership                                  |                    |  |                              |  |  |
| <input type="checkbox"/> Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)  |                    |  |                              |  |  |
| <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>         |                    |  |                              |  |  |
| <b>6. Customer Legal Name</b> (If an individual, print last name first: eg: Doe, John)  |                    |  |                              | <i>If new Customer, enter previous Customer below:</i>   |  |
| Woodmere Development Co., LTD   |                    |  |                              |  |  |
| <b>7. TX SOS/CPA Filing Number</b>  |                    | <b>8. TX State Tax ID</b> (11 digits)                                  |                              | <b>9. Federal Tax ID</b><br>(9 digits)                   | <b>10. DUNS Number</b> (if applicable)   |
|   |                    |  |                              |  |  |
| <b>11. Type of Customer:</b>  |                    | <input checked="" type="checkbox"/> Corporation                        |                              | <input type="checkbox"/> Individual                      | Partnership: <input type="checkbox"/> General <input type="checkbox"/> Limited |
| Government: <input type="checkbox"/> City <input type="checkbox"/> County <input type="checkbox"/> Federal <input type="checkbox"/> Local <input type="checkbox"/> State <input type="checkbox"/> Other |                    | <input type="checkbox"/> Sole Proprietorship                           |                              | <input type="checkbox"/> Other:                          |  |
| <b>12. Number of Employees</b>  |                    |  |                              | <b>13. Independently Owned and Operated?</b>             |  |
| <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 type="checkbox"/> Yes <input type="checkbox"/> No |  |
| <b>14. Customer Role</b> (Proposed or Actual) – as it relates to the Regulated Entity listed on this form. Please check one of the following  |                    |  |                              |  |  |
| <input type="checkbox"/> Owner <input type="checkbox"/> Operator <input type="checkbox"/> Owner & Operator <input checked="" type="checkbox"/> Other: Developer   |                    |  |                              |  |  |
| <input type="checkbox"/> Occupational Licensee <input type="checkbox"/> Responsible Party <input type="checkbox"/> VCP/BSA Applicant  |                    |  |                              |  |  |
| <b>15. Mailing Address:</b>   | 15915 Katy Freeway |  |                              |  |  |
|   | Suite 405          |  |                              |  |  |
|   | City               | Houston  | State                        | TX   | ZIP 77094  |
|   |                    |  | ZIP + 4                      |  |  |
| <b>16. Country Mailing Information</b> (if outside USA)   |                    |  |                              | <b>17. E-Mail Address</b> (if applicable)                |  |
|   |                    |  |                              | aalford@LongLakeLTD.com                                  |  |
| <b>18. Telephone Number</b>   |                    |  | <b>19. Extension or Code</b> |  | <b>20. Fax Number</b> (if applicable)  |
|   |                    |  |                              |  |  |

## SECTION III: Regulated Entity Information

|   |      |  |       |  |     |  |         |
|---|------|--|-------|--|-----|--|---------|
| <b>21. General Regulated Entity Information</b> <i>(If 'New Regulated Entity' is selected, a new permit application is also required.)</i>  |      |  |       |  |     |  |         |
| <input checked="" type="checkbox"/> New Regulated Entity <input type="checkbox"/> Update to Regulated Entity Name <input 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>                 |      |  |       |  |     |  |         |
| <b>22. Regulated Entity Name</b> <i>(Enter name of the site where the regulated action is taking place.)</i>  |      |  |       |  |     |  |         |
| Haris County Municipal District No. 606 Wastewater Treatment Plant  |      |  |       |  |     |  |         |
| <b>23. Street Address of the Regulated Entity:</b><br><br><i>(No PO Boxes)</i>  |      |  |       |  |     |  |         |
|   |      |  |       |  |     |  |         |
|   | City |  | State |  | ZIP |  | ZIP + 4 |
| <b>24. County</b>   |      |  |       |  |     |  |         |

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

|  |   |                               |         |  |                         |                                 |         |
|--|---|-------------------------------|---------|--|-------------------------|---------------------------------|---------|
| <b>25. Description to Physical Location:</b>   | 0.6 miles northwest of the intersection of West Road and Katy Hockley Cutoff Road |                               |         |  |                         |                                 |         |
| <b>26. Nearest City</b>  | <b>State</b>  |                               |         |  | <b>Nearest ZIP Code</b> |                                 |         |
| Cypress  | TX  |                               |         |  | 77433                   |                                 |         |
| <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> |   |                               |         |  |                         |                                 |         |
| <b>27. Latitude (N) In Decimal:</b>  |   | 29.906205                     |         | <b>28. Longitude (W) In Decimal:</b>         |                         | 95.817716                       |         |
| Degrees  | Minutes   | Seconds                       | Degrees | Minutes                                      | Seconds                 |                                 |         |
| 29   | 54  | 22.34                         | 95      | 49   | 3.78                    |                                 |         |
| <b>29. Primary SIC Code</b>  |   | <b>30. Secondary SIC Code</b> |         | <b>31. Primary NAICS Code</b>                |                         | <b>32. Secondary NAICS Code</b> |         |
| (4 digits)   |   | (4 digits)                    |         | (5 or 6 digits)                              |                         | (5 or 6 digits)                 |         |
|  |   |                               |         |  |                         |                                 |         |
| <b>33. What is the Primary Business of this entity?</b> <i>(Do not repeat the SIC or NAICS description.)</i>   |   |                               |         |  |                         |                                 |         |
|  |   |                               |         |  |                         |                                 |         |
| <b>34. Mailing Address:</b>  |   |                               |         |  |                         |                                 |         |
|  |   |                               |         |  |                         |                                 |         |
|  | City  |                               | State   |  | ZIP                     |                                 | ZIP + 4 |
| <b>35. E-Mail Address:</b>   |   |                               |         |  |                         |                                 |         |
| <b>36. Telephone Number</b>  |   | <b>37. Extension or Code</b>  |         | <b>38. Fax Number</b> <i>(if applicable)</i> |                         |                                 |         |
| (   )   -  |   |                               |         | (   )   -                                    |                         |                                 |         |

**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:                     |
|  |  |   |  |   |

## **SECTION IV: Preparer Information**

|                             |                      |                       |                           |                   |                 |
|-----------------------------|----------------------|-----------------------|---------------------------|-------------------|-----------------|
| <b>40. Name:</b>            | Valeria Gomez        |                       |                           | <b>41. Title:</b> | Design Engineer |
| <b>42. Telephone Number</b> | <b>43. Ext./Code</b> | <b>44. Fax Number</b> | <b>45. E-Mail Address</b> |                   |                 |
| ( 832 ) 590-7149            |                      | (   ) -               | VGomez@idseg.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.

|                         |   |                   |                          |            |
|-------------------------|---|-------------------|--------------------------|------------|
| <b>Company:</b>         | Woodmere Development Co., LTD   | <b>Job Title:</b> | Executive Vice President |            |
| <b>Name (In Print):</b> | Aaron Alford  | <b>Phone:</b>     | ( 832 ) 859- 4305        |            |
| <b>Signature:</b>       |  |                   | <b>Date:</b>             | 11/26/2024 |

**Attachment 2 – Plain Language Summary**  
**(Admin. Rpt. 1.0, 8f)**



## TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

### PLAIN LANGUAGE SUMMARY FOR TPDES OR TLAP PERMIT APPLICATIONS

#### Plain Language Summary Template and Instructions for Texas Pollutant Discharge Elimination System (TPDES) and Texas Land Application (TLAP) Permit Applications

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

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

If you are subject to the alternative language notice requirements in [30 TAC Section 39.426](#), **you must provide a translated copy of the completed plain language summary in the appropriate alternative language as part of your application package**. For your convenience, a Spanish template has been provided below.

#### ENGLISH TEMPLATE FOR TPDES or TLAP NEW/RENEWAL/AMENDMENT APPLICATIONS DOMESTIC WASTEWATER/STORMWATER

*The following summary is provided for this pending water quality permit application being reviewed by the Texas Commission on Environmental Quality as required by 30 TAC Chapter 39. The information provided in this summary may change during the technical review of the application and is not a federal enforceable representation of the permit application.*

Woodmere Development Co., LTD (CN 602463333) proposes to operate Harris County MUD No. 606 (RN not yet provided), a wastewater treatment plant to serve HCMUD No. 606. The facility will be located at 0.6 miles northwest of the intersection of West Road and Katy Hockley Cutoff Road, in Cypress, Harris County, Texas 77433. New TPDES permit for a facility flowing at an average 240,000 gallons per day to ultimately discharge in Bear Creek.

Discharges from the facility are expected to contain Biochemical Oxygen Demand, 10 mg/L, Total Suspended Solids, 15 mg/L, Ammonia Nitrogen, 2 mg/L, Dissolved Oxygen, 4 mg/L. Domestic wastewater will be treated by a single stage nitrification process, wastewater will pass through screening, into aeration, then to clarification, after this process effluent will be disinfected with chlorine and discharged ultimately to Bear Creek.

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

### AGUAS RESIDUALES DOMESTICAS /AGUAS PLUVIALES

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

Woodmere Development Co., LTD (CN602463333) propone operar Harris County MUD No. 606 (numero de entidad todavia no se ha proporcionado), una planta de tratamiento de aguas residuales. La instalación estará ubicada en 0.6 millas noroeste de la interseccion de West Road y Katy Hockley Cutoff Road, en Cypress, Condado de Harris, Texas 77433. Nuevo permiso de TPDES para una instalación que fluye a un promedio de 240,000 galones por día para descargar finalmente en Bear Creek.

Se espera que las descargas de la instalación contengan Demanda Bioquímica de Oxígeno, 10 mg/L, Sólidos Suspendidos Totales, 15 mg/L, Nitrógeno Amoniacal, 2 mg/L, Oxígeno Disuelto, 4 mg/L. Aguas residuales domésticas. **estará** tratado por un proceso de nitrificación de una sola etapa, las aguas residuales pasarán a través de la criba, a la aireación, luego a la clarificación, después de este proceso, el efluente se desinfectará con cloro y se descargará finalmente a Bear Creek.

**Attachment 3 – Public Involvement Plan Form**  
**(Admin. Rpt. 1.0, 8g)**



Texas Commission on Environmental Quality

## Public Involvement Plan Form for Permit and Registration Applications

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

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

### Section 1. Preliminary Screening

New Permit or Registration Application

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

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

### Section 2. Secondary Screening

Requires public notice,

Considered to have significant public interest, and

Located within any of the following geographical locations:

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

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

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

### Section 3. Application Information

#### Type of Application (check all that apply):

Air      Initial      Federal      Amendment      Standard Permit      Title V  
Waste      Municipal Solid Waste      Industrial and Hazardous Waste      Scrap Tire  
Radioactive Material Licensing      Underground Injection Control

#### Water Quality

Texas Pollutant Discharge Elimination System (TPDES)  
Texas Land Application Permit (TLAP)  
State Only Concentrated Animal Feeding Operation (CAFO)  
Water Treatment Plant Residuals Disposal Permit  
Class B Biosolids Land Application Permit  
Domestic Septage Land Application Registration

#### Water Rights New Permit

New Appropriation of Water  
New or existing reservoir

#### Amendment to an Existing Water Right

Add a New Appropriation of Water  
Add a New or Existing Reservoir  
Major Amendment that could affect other water rights or the environment

### Section 4. Plain Language Summary

Provide a brief description of planned activities.

## Section 5. Community and Demographic Information

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

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

(City)

(County)

(Census Tract)

Please indicate which of these three is the level used for gathering the following information.

City

County

Census Tract

- (a) Percent of people over 25 years of age who at least graduated from high school
- (b) Per capita income for population near the specified location
- (c) Percent of minority population and percent of population by race within the specified location
- (d) Percent of Linguistically Isolated Households by language within the specified location
- (e) Languages commonly spoken in area by percentage
- (f) Community and/or Stakeholder Groups
- (g) Historic public interest or involvement



## Section 6. Planned Public Outreach Activities

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

Yes      No

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

Yes      No

If Yes, please describe.

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

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

Yes      No

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

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

Publish in alternative language newspaper

Posted on Commissioner's Integrated Database Website

Mailed by TCEQ's Office of the Chief Clerk

Other (specify)

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

Yes      No

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

Yes      No

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

TCEQ Regional Office

TCEQ Central Office

Public Place (specify)

## Section 7. Voluntary Submittal

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

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

Yes      No

What types of notice will be provided?

Publish in alternative language newspaper

Posted on Commissioner's Integrated Database Website

Mailed by TCEQ's Office of the Chief Clerk

Other (specify)

**Attachment 4 – Supplemental Permit Information Form**  
**(Admin. Rpt. 1.1, 1)**

# TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

## SUPPLEMENTAL PERMIT INFORMATION FORM (SPIF)

### FOR AGENCIES REVIEWING DOMESTIC OR INDUSTRIAL TPDES WASTEWATER PERMIT APPLICATIONS

#### TCEQ USE ONLY:

Application type: \_\_\_\_Renewal \_\_\_\_Major Amendment \_\_\_\_Minor Amendment \_\_\_\_New

County: \_\_\_\_\_ Segment Number: \_\_\_\_\_

Admin Complete Date: \_\_\_\_\_

Agency Receiving SPIF:

\_\_\_\_ Texas Historical Commission

\_\_\_\_ U.S. Fish and Wildlife

\_\_\_\_ Texas Parks and Wildlife Department

\_\_\_\_ U.S. Army Corps of Engineers

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

Complete this form as a separate document. TCEQ will mail a copy to each agency as required by our agreement with EPA. If any of the items are not completely addressed or further information is needed, we will contact you to provide the information before issuing the permit. Address each item completely.

**Do not refer to your response to any item in the permit application form.** Provide each attachment for this form separately from the Administrative Report of the application. The application will not be declared administratively complete without this SPIF form being completed in its entirety including all attachments. Questions or comments concerning this form may be directed to the Water Quality Division's Application Review and Processing Team by email at [WQ-ARPTeam@tceq.texas.gov](mailto:WQ-ARPTeam@tceq.texas.gov) or by phone at (512) 239-4671.

The following applies to all applications:

1. Permittee: Woodmere Development Co., LTD

Permit No. WQ00

EPA ID No. TX

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

0.6 miles northwest of the intersection of West Road and Katy Hockley Cutoff Road

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

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

First and Last Name: Kameron Pugh

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

Title: Senior Project Manager

Mailing Address: 13430 Northwest Freeway, Suite 700

City, State, Zip Code: Houston, TX 77040

Phone No.: 832-590-7187 Ext.:

Fax No.:

E-mail Address: kpugh@idseg.com

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

Woodmere Development Co., LTD - This property will be transferred to Harris County Municipal Utility District No. 606 upon MUD creation.

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

The discharge of the WWTP will exit the site to west into the adjacent conveyance pond until it exists the site in the southeast corner. From there it will enter the proposed offsite drainage channel which outfalls into an adjacent development's existing outfall channel and ultimately discharge into Bear Creek Segment No. U102-00-00.

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

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

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

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

☐ Disturbance of vegetation or wetlands

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

Area of construction is a presently cleared area and flat elevation.

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

This location is currently unused, the site is lightly wooded with several small commercial sheds.

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

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

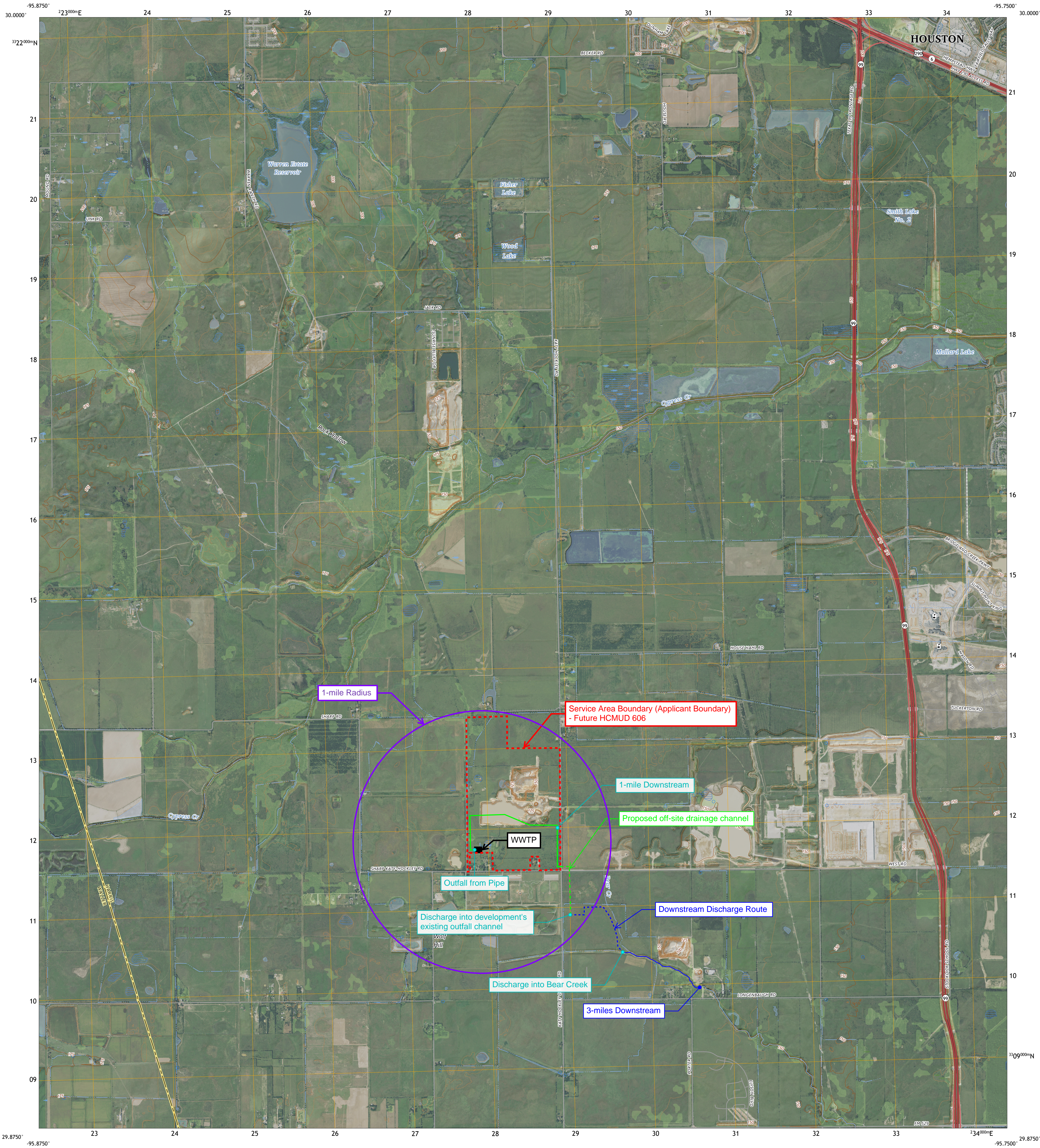
Historically there have been no structures on this site. Confirmed via satellite and airborne imaging going back to 1944.

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

The property has been used for a sand mining operation onsite. No previous developments.

**Attachment 5 – USGS Map (Full Size)**  
**(Admin. Rpt. 1.0, 13; SPIF, 5)**



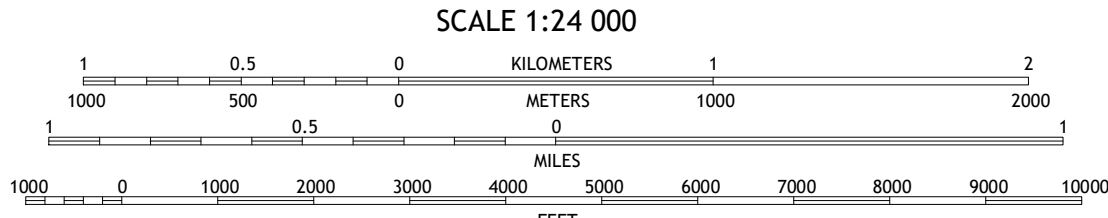
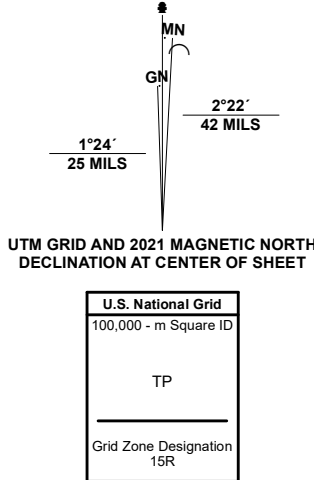


Produced by the United States Geological Survey

North American Datum of 1983 (NAD83)  
World Geodetic System of 1984 (WGS84)  
Projection and 1 000-meter grid/Universal Transverse Mercator, Zone 15R  
Data is provided by The National Map (TNM), is the best available at the time of map generation, and includes data content from supporting themes of Elevation, Hydrography, Geographic Names, Boundaries, Transportation, Structures, Land Cover, and Orthoimagery. Refer to associated Federal Geographic Data Committee (FGDC) Metadata for additional source data information.

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. Temporal changes may have occurred since these data were collected and some data may no longer represent actual surface conditions.

Learn About The National Map: <https://nationalmap.gov>



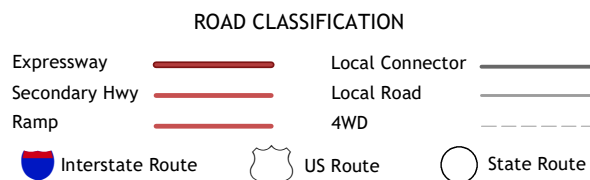
CONTOUR INTERVAL 5 FEET  
NORTH AMERICAN VERTICAL DATUM OF 1988  
CONTOUR SMOOTHNESS = Medium



QUADRANGLE LOCATION

|               |             |           |
|---------------|-------------|-----------|
| Waller        | Hockley     | Rose Hill |
| Hockley Round | Warren Lake | Cypress   |
| Brookshire    | Katy        | Addicks   |

ADJOINING QUADRANGLES



WARREN LAKE, TX  
2024



**Attachment 6 – Description of Treatment**  
**(Tech. Rpt. 1.0, 2a)**



## Technical Report 1.0

### Section 2. Treatment Process

#### A. Current Operating Phase

##### Proposed Phase I

The proposed phase 1 plant operates as a single stage nitrification activated sludge process. It includes a headworks with manual bar screen, three (3) 60-foot length steel basin package plant split into 38-foot aeration basin and 22-foot digester with a 35-foot diameter clarifier. The total aeration capacity of 14,597 CF is capable of treating 0.245 MGD average daily flow. Chlorine contact basin capacity of 1,998 CF provides over 20 minutes of contact time at peak flow of the plant. 6-inch return sludge airlifts are to be included to provide 75 to 200 percent of average daily flow. Disinfected effluent flows from the plant to the outfall via an 18-inch pipe. Three (3) aerobic digester basins with a volume of 8,451 CF provide adequate capacity for sludge digestion. Sludge is to be disposed by a contract hauler.

##### Interim Phase

The interim phase 2 plant will be operated as a single stage nitrification activated sludge process. It will include a headworks with manual bar screens, six (6) 60-foot length steel basin package plants split into 38-foot length aeration basins and 22-foot digesters with two (2) 35-foot diameter clarifiers. Total aeration basin capacity of 29,193 CF capable of treating 0.490 MGD average daily flow, chlorine contact basin with 3,996 CF capacity which provides over 20 minutes of contact time at peak flow. 6-inch return sludge airlifts are to be included to provide 75 to 200 percent of average daily flow. Disinfected effluent flows from the plant to the outfall via an 18-inch pipe. Six (6) aerobic digester basins with a volume of 16,901 CF provide adequate capacity for sludge digestion. Sludge is to be disposed by a contract hauler.

##### Final Phase

The final phase 3 plant will be operated as a single stage nitrification activated sludge process. It will include a headworks with manual bar screens, nine (9) 60-foot length steel basin package plants split into 38-foot aeration basins and 22-foot digesters with three (3) 35-foot diameter clarifier. Total aeration basin capacity of 43,790 CF capable of treating 0.735 MGD average daily flow, three (3) chlorine contact basins with 5,994 CF capacity which provides over 20 minutes of contact time at peak flow. 6-inch return sludge airlifts are to be included to provide 75 to 200 percent of average daily flow. Disinfected effluent flows from the plant to the outfall via an 18-inch pipe. Nine (9) aerobic digester basins with a total volume of 25,352 CF provide adequate capacity for sludge digestion. Sludge is to be disposed of by a contract hauler.

**Attachment 7 – Treatment Unit Dimensions**  
**(Tech. Rpt. 1.0, 2b)**

Technical Report 1.0  
Section 2. Treatment Process  
B. Treatment Units

**Phase 1 - 0.24 MGD**

|                  | No. of Basins | Diameter (ft) | Length (ft) | Width (ft) | Height (ft) | SWD (ft-in) | Volume (Cu. Ft) |
|------------------|---------------|---------------|-------------|------------|-------------|-------------|-----------------|
| Clarifier        | 1             | 35            | -           | -          | 14.167      | 10.5        | 10102.18        |
| Aeration         | 3             | -             | 38          | 12         | 12.167      | 10.667      | 14592.46        |
| Chlorine Contact | 1             |               | 18.75       | 12         | 10.167      | 8.5         | 1912.50         |
| Digester         | 3             | -             | 22          | 12         | 12.167      | 10.667      | 8448.26         |

**Phase 2 - 0.40 MGD**

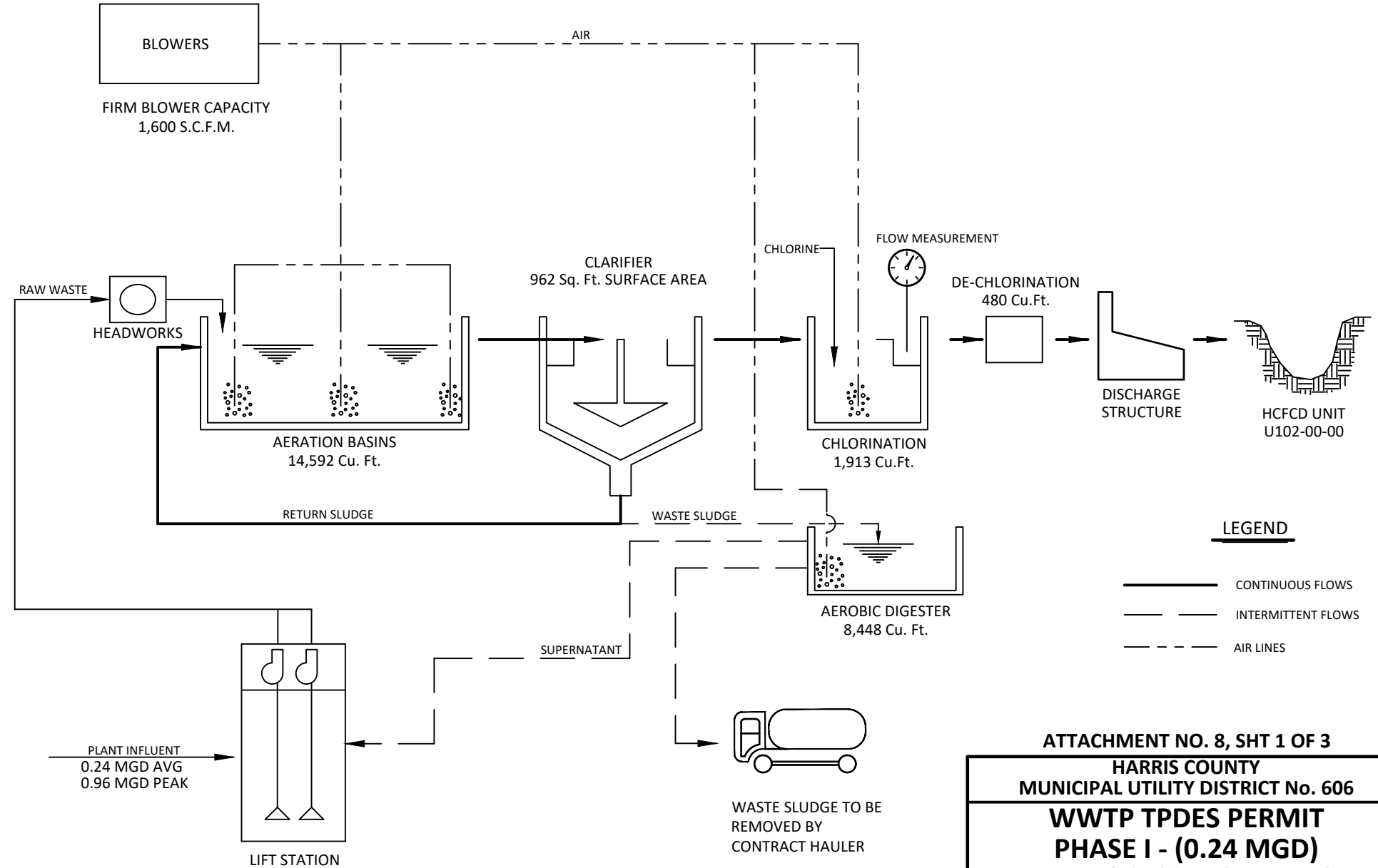
|                  | No. of Basins | Diameter (ft) | Length (ft) | Width (ft) | Height (ft) | SWD (ft-in) | Volume (Cu. Ft) |
|------------------|---------------|---------------|-------------|------------|-------------|-------------|-----------------|
| Clarifier        | 2             | 35            | -           | -          | 14.167      | 10.5        | 20204.37        |
| Aeration         | 6             | -             | 38          | 12         | 12.167      | 10.667      | 29184.91        |
| Chlorine Contact | 2             |               | 18.75       | 12         | 10.167      | 8.5         | 3825.00         |
| Digester         | 6             | -             | 22          | 12         | 12.167      | 10.667      | 16896.53        |

**Final Phase - 0.60 MGD**

|                  | No. of Basins | Diameter (ft) | Length (ft) | Width (ft) | Height (ft) | SWD (ft-in) | Volume (Cu. Ft) |
|------------------|---------------|---------------|-------------|------------|-------------|-------------|-----------------|
| Clarifier        | 3             | 35            | -           | -          | 14.167      | 10.5        | 30306.55        |
| Aeration         | 9             | -             | 38          | 12         | 12.167      | 10.667      | 43777.37        |
| Chlorine Contact | 3             |               | 18.75       | 12         | 10.167      | 8.5         | 5737.50         |
| Digester         | 9             | -             | 22          | 12         | 12.167      | 10.667      | 25344.79        |
| Dechlorination   | 1             |               | 5           | 12         | 10.167      | 8.5         | 480.00          |

**Attachment 8 – Process Flow Diagrams**  
**(Tech. Rpt. 1.0, 2c)**

# MODE OF TREATMENT COMPLETE MIX ACTIVATED SLUDGE WITH NITRIFICATION



ATTACHMENT NO. 8, SHT 1 OF 3

HARRIS COUNTY  
MUNICIPAL UTILITY DISTRICT No. 606

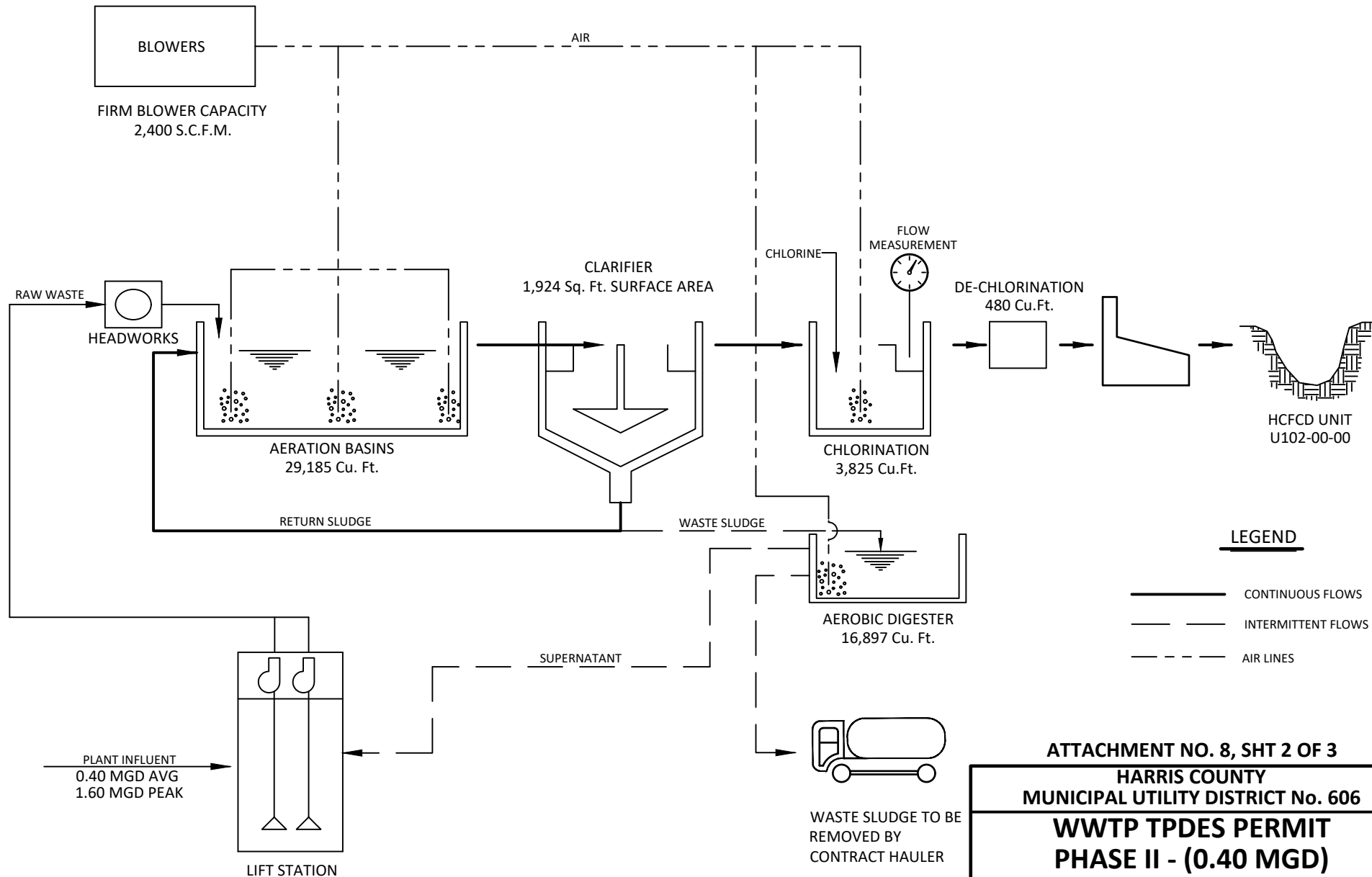
**WWTP TPDES PERMIT  
PHASE I - (0.24 MGD)  
WWTP PROCESS FLOW DIAGRAM**



13430 NW Freeway  
Suite 700  
Houston, Tx. 77040  
713.462.3178  
TxEng Firm 2726  
TxSurv Firm 10110700

SCALE: N.T.S.  
DATE: NOVEMBER 2024  
PROJECT No. 2436-003-00

# MODE OF TREATMENT COMPLETE MIX ACTIVATED SLUDGE WITH NITRIFICATION



ATTACHMENT NO. 8, SHT 2 OF 3

HARRIS COUNTY  
MUNICIPAL UTILITY DISTRICT No. 606

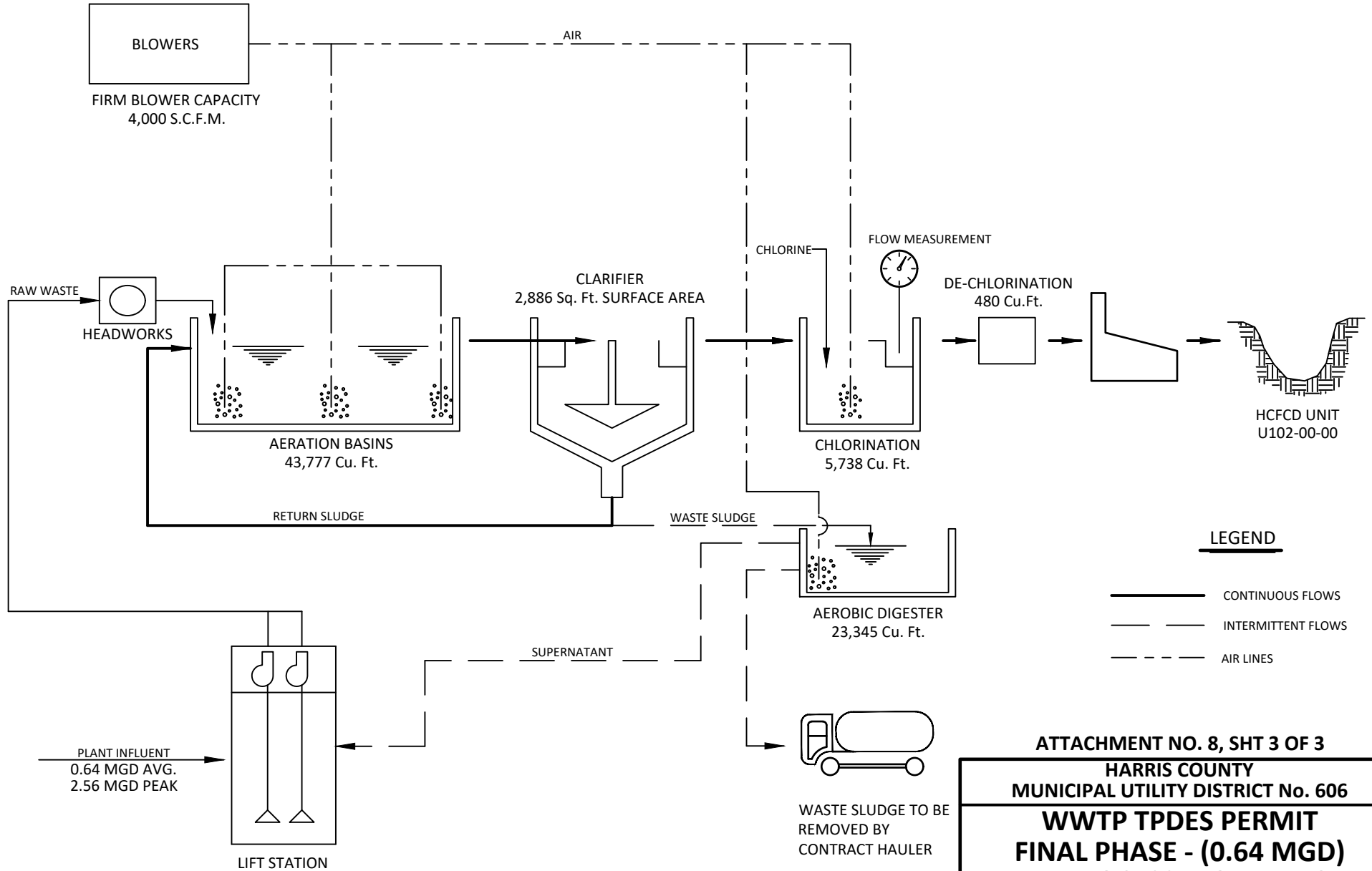
**WWTP TPDES PERMIT  
PHASE II - (0.40 MGD)  
WWTP PROCESS FLOW DIAGRAM**



13430 NW Freeway  
Suite 700  
Houston, Tx. 77040  
713.462.3178  
TxEng Firm 2726  
TxSurv Firm 10110700

SCALE: N.T.S.  
DATE: NOVEMBER 2024  
PROJECT No. 2436-003-00

# MODE OF TREATMENT COMPLETE MIX ACTIVATED SLUDGE WITH NITRIFICATION



ATTACHMENT NO. 8, SHT 3 OF 3

HARRIS COUNTY  
MUNICIPAL UTILITY DISTRICT No. 606

**WWTP TPDES PERMIT  
FINAL PHASE - (0.64 MGD)  
WWTP PROCESS FLOW DIAGRAM**

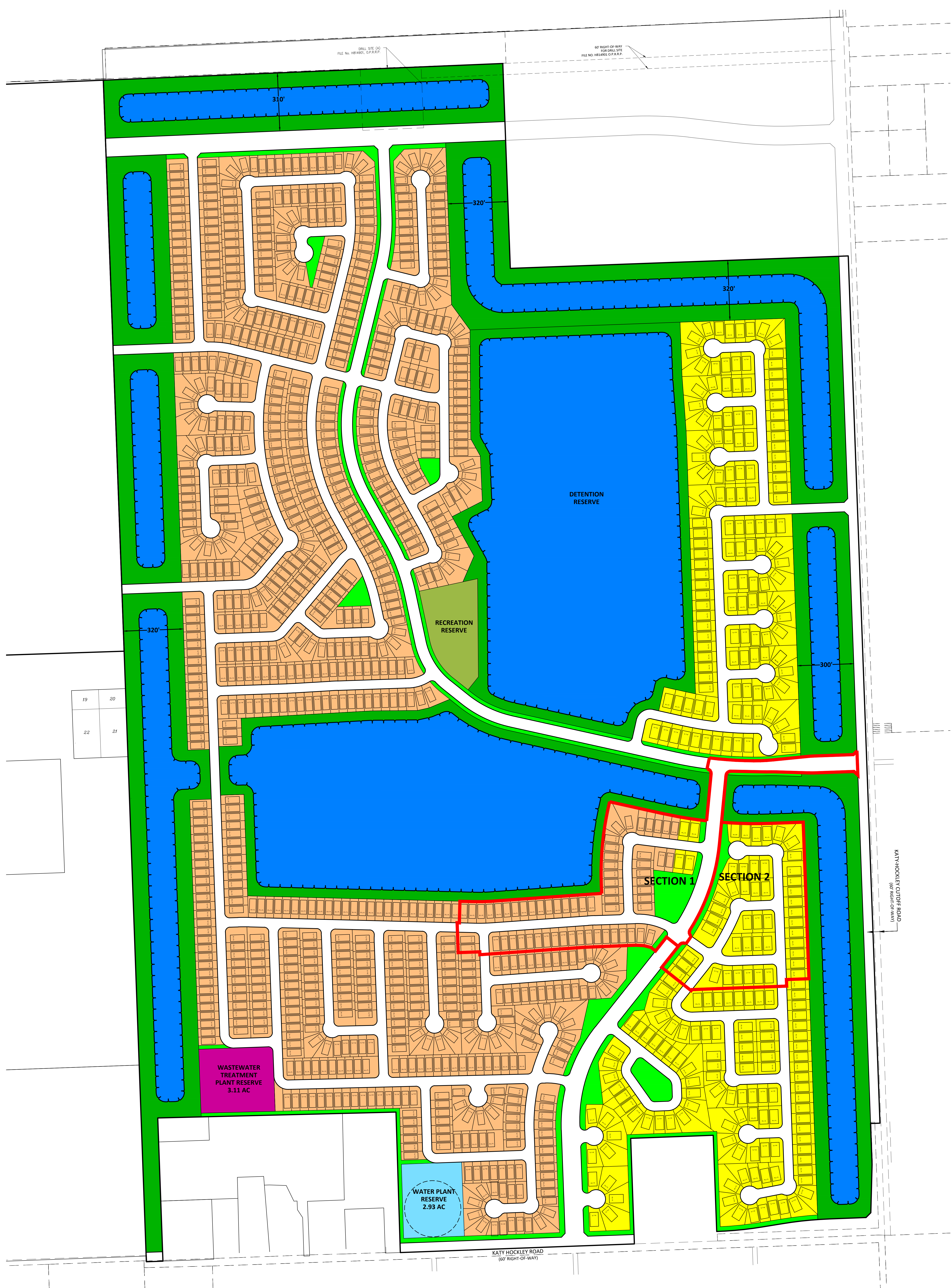


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**Attachment 9 – Site Drawings**  
**(Tech. Rpt. 1.0, 3)**





|    |    |
|----|----|
| 19 | 20 |
| 22 | 21 |

**KATY HOCKLEY ROAD**  
(60' RIGHT-OF-WAY)

| <u>LEGEND</u>   |                             |   |                                    |
|---|-----------------------------|---|------------------------------------|
|  | 962 - 45' x 115' LOTS (77%) |  | RECREATION RESERVE                 |
|  | 295 - 55' x 120' LOTS (23%) |  | DETENTION RESERVES                 |
|  | MODEL HOMES                 |  | WASTEWATER TREATMENT PLANT RESERVE |
|  | OPEN SPACE RESERVES         |  | WATER PLANT RESERVE                |

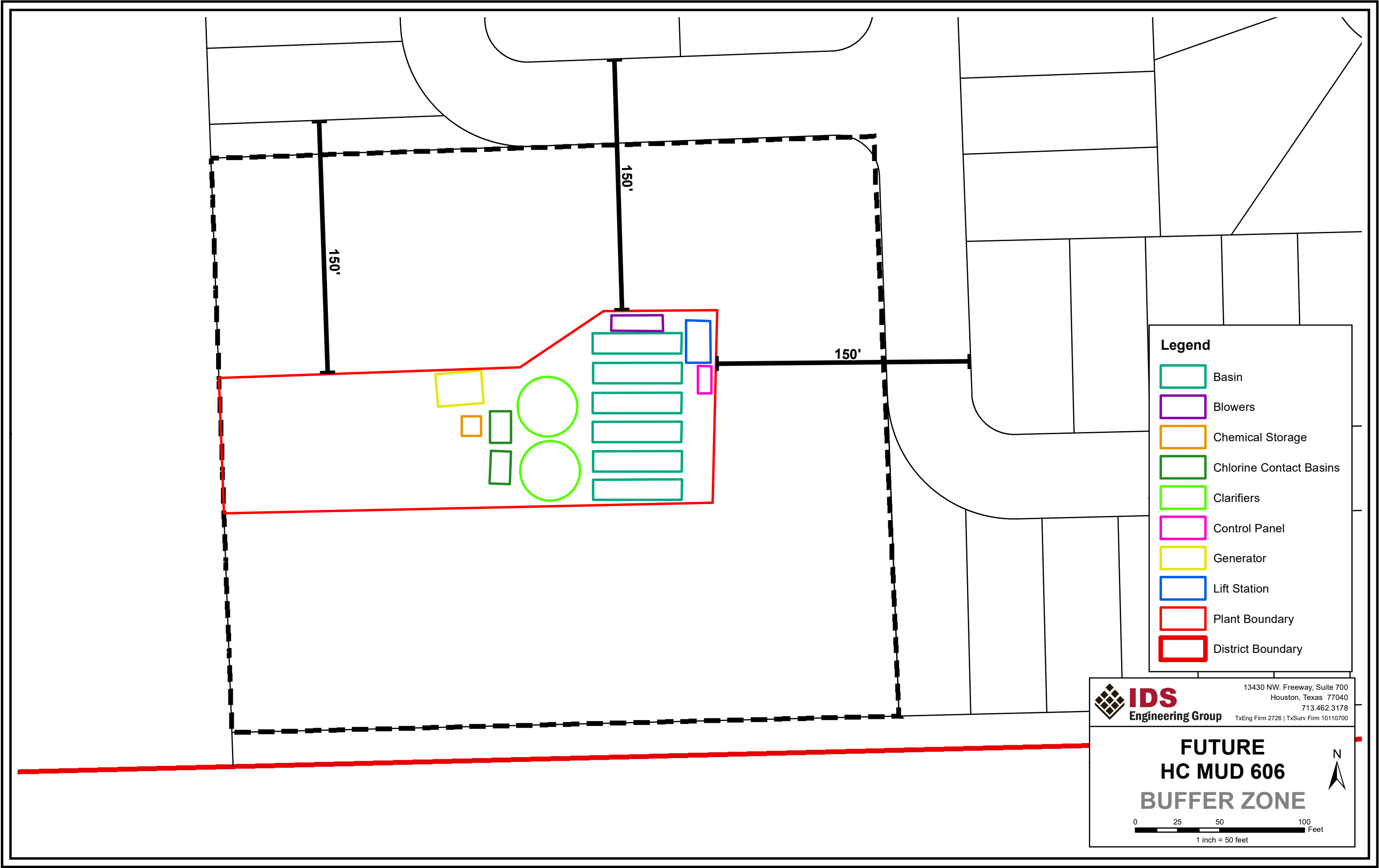
**LAND PLAN 10**  
**1,257 LOTS**

13430 NW. Freeway  
Suite 700  
Houston, Tx. 77040  
713.462.3178  
TxEng Firm 2726  
Tolman Firm 10110705

|                      |
|----------------------|
| SCALE: 1" = 200'     |
| DATE: MAY 2024       |
| PROJECT No. 0808-165 |




**Attachment 10 – Buffer Zone Map**  
**(Admin Rpt. 1.1, 3a)**



**Legend**

- Basin
- Blowers
- Chemical Storage
- Chlorine Contact Basins
- Clarifiers
- Control Panel
- Generator
- Lift Station
- Plant Boundary
- District Boundary




**IDS**  
Engineering Group

13430 NW. Freeway, Suite 700  
Houston, Texas 77040  
713.462.3178  
TxEng Firm 2726 | TxSurv Firm 10110700

**FUTURE  
HC MUD 606  
BUFFER ZONE**

0 25 50 100  
Feet  
1 inch = 50 feet

N



**Attachment 11 – Justification for Treatment  
(Tech. Rpt. 1.1, 1a)**

## Technical Report 1.1

### Section 1. Justification for Permit

#### A. Justification of permit need

Woodmere Development Co., LTD is proposing to develop a 494.4-acre tract of land within Harris County that will include the addition of a single-family residential community. Included in the development will be roads, drainage, wastewater collection system, wastewater treatment facilities, water distribution system, and water treatment facilities to serve the developed areas. Flow projections are based upon information provided by the developer that included the ability to serve approximately the first sections of the 1,200+ lot subdivision with 800 equivalent single family connections (ESFCs) at 300 gallons per day (gpd) with the Interim Phase I Wastewater Treatment Plant (WWTP), approximately 1,300 ESFCs with the Interim Phase II WWTP and ultimately serve 2,100 ESFCs with the Final Phase WWTP.

The Interim Phase I WWTP would be required to treat an average daily flow of 160,000 gpd. Multiplying the 160,000 gpd times a factor of 1.5 for the WWTP's less than 1 MGD in size would require a plant size to treat an average daily flow of 240,000 gpd. The proposed Interim Phase I WWTP is sized to treat an average daily flow of 240,000 gpd with a peak flow of 960,000 gpd. The proposed Interim Phase II WWTP is sized to treat an average daily flow of 400,000 gpd with a peak flow of 1,600,000 gpd. The proposed Final Phase WWTP is sized to add 640,000 gpd of treatment to the Interim Phase II WWTP. The combined phases will have the ability to treat 640,000 gpd with a peak flow of 2,560,000 gpd.

**Attachment 12 – Wastewater Plant Design Calculations**  
**(Tech. Rpt. 1.1, 4)**

HCMUD No. 606  
Wastewater Treatment Plant - Steel Package  
IDS Project No. 2436-004-00  
10/29/2024  
Completed by: ENW  
Checked by:

### FINAL PROCESS CALCULATIONS

|   |              |                             |              |  |
|---|--------------|-----------------------------|--------------|--|
| Avrg Design Flow                            | 0.24 MGD     | Influent BOD <sub>5</sub>   | 250 mg/L     | Location and date of Influent Data/ List any assumptions made to this section here |
| Peak Factor                                 | 4            |                             | 500 lbs/day  |  |
| Peak Flow                                   | 0.96 MGD     | Influent TSS                | 200 mg/L     |  |
|   | 666.6667 gpm |                             | 400 lbs/day  |  |
| Effluent Characteristics                    |              | Influent NH <sub>3</sub> -N | 25 mg/L      |  |
| BOD <sub>5</sub> S <sub>e</sub> (Apr-Oct)   | 10 mg/L      |                             | 50 lbs/day   |  |
| BOD <sub>5</sub> S <sub>e</sub> (Nov-Mar)   | 10 mg/L      | Influent TKN                | mg/L         |  |
| TSS TSS <sub>e</sub>                        | 15 mg/L      | Influent Phosphorus         | mg/L         |  |
| NH <sub>3</sub> -N N <sub>e</sub> (Apr-Oct) | 2 mg/L       | Reactor temp                | 20 °C        |  |
| NH <sub>3</sub> -N N <sub>e</sub> (Nov-Mar) | 2 mg/L       | Elevation                   | 125 feet ASL |  |

### Aeration Basin

|                              |        |                  |                                     |                                     |                       |
|------------------------------|--------|------------------|-------------------------------------|-------------------------------------|-----------------------|
| TCEQ Maximum Organic Loading |        | 35               | lbs BOD/day/1000 c.f.               | Regulation<br>217.154(b)(Table F.1) |                       |
| Aeration Volume Required     |        | 14297            | c.f.                                |                                     |                       |
| MLSS                         |        | 3000             | mg/L                                |                                     |                       |
| MLVSS/MLSS                   |        | 0.7              |                                     |                                     |                       |
| MLVSS                        |        | 2100             | mg/L                                |                                     |                       |
|                              |        |                  |                                     |                                     |                       |
| <u>Proposed</u>              |        |                  | <u>Existing</u>                     | Aeration Basin No. 1                | Aeration Basins No. 2 |
| Length                       | 38     | ft               | Length                              |                                     |                       |
| Width                        | 12     | ft               | Width                               |                                     |                       |
| Height                       | 12.167 | ft               | Height                              |                                     |                       |
| SWD                          | 10.67  | ft               | SWD                                 |                                     |                       |
| # Tanks                      | 3      |                  | # Tanks                             |                                     | 0                     |
| Volume                       | 14,597 | c.f.             | Volume                              | 0                                   | c.f.                  |
| Capacity                     | 0.245  | MGD Average Flow | Total Existing Aeration Volume      |                                     | 0 c.f.                |
|                              |        |                  |                                     |                                     |                       |
| Total Volume                 |        | 14,597           | c.f.                                | Total Proposed Aeration Capacity    | 0.245026 MGD          |
| Volume greater than required |        | YES              |                                     |                                     |                       |
| Organic Loading              |        | 34.28            | lbs BOD <sub>5</sub> /day           |                                     |                       |
|                              |        |                  |                                     |                                     |                       |
| Hydraulic Retention Time     |        | 10.92            | hours                               |                                     |                       |
| Solids Retention Time, SRT   |        | 15.5968425       | days                                |                                     |                       |
| f:m                          |        | 0.11904762       | lbs BOD <sub>5</sub> /lbs MLVSS/day |                                     |                       |

## Clarifier Basin

|  |                                |                                    |                       |
|--|--------------------------------|------------------------------------|-----------------------|
|  |                                | Regulation                         |                       |
| TCEQ Maximum Surface Loading (Qpk)                                       | 1200 gal/day/s.f. at peak flow | 217.154(c)(Table F.2)              |                       |
| TCEQ Minimum Detention Time (Qpk)  | 1.8 hours at peak flow         | 217.154(c)(Table F.2)              |                       |
| TCEQ Maximum Weir Loading (Qpk)  | 30000 gal/day/ft               | 217.152(c)(4)                      |                       |
| TCEQ Minimum Side Water Depth (SWD)                                      | 10 ft                          | 217.152(g)(2)(A)/(B)               |                       |
| TCEQ Maximum Stilling Well Velocity                                      | 0.15 ft/sec                    | 217.152(a)(4)                      |                       |
| Surface Area Required  | 800 s.f.                       | 31.9 ft min dia for one clarifier  |                       |
| Volume Required  | 9625 c.f.                      | 22.6 ft min dia for two clarifiers |                       |
| Stilling Well Diameter   | 7 feet                         | 15-20% of total tank diameter      |                       |
| Stilling Well Qpk  | 1.49 cfs                       | plus 0.446583687 cfs recycle flow  |                       |
| Stilling Well Velocity at Qpk  | 0.003 fps                      | Meets req? YES                     |                       |
| Clarifiers Provided  | 1 tanks(s)                     | Existing Clarifiers                | tanks(s)              |
| Diameter   | 35 ft                          | Diameter                           | ft                    |
| Height   | 14.167 ft                      | Height                             | ft                    |
| Static WL  | 10.50 ft                       | Static WL                          | ft                    |
| SWD  | 10.792 ft                      | SWD                                | ft                    |
| Surface Area   | 962 s.f.                       | Surface Area                       | 0 s.f.                |
| Volume   | 10383.1 c.f.                   | Volume                             | 0.0 c.f.              |
| Total Surface Area   | 962 s.f.                       | Greater than req?                  | YES                   |
| Total Volume   | 10383.1 c.f.                   | Greater than req?                  | YES                   |
|  |                                | Qavg                               | Qpk                   |
| Clarifier Surface Loading  | 549 gpd/s.f.                   | 998                                | Less than max? YES    |
| Clarifier Detention Time   | 3.53 Hours                     | 1.94                               | Greater than req? YES |
| This currently uses the average RAS flowrate to calculate detention time |                                |                                    |                       |
| Clarifier Wall to Weir Length  | 12 in                          |                                    |                       |
| Weir Length  | 103.7 ft                       |                                    |                       |
| Weir Loading   | 9260 gpd/ft                    | Less than max?                     | YES                   |

## RAS/WAS Pumping and Piping

|                                       |          |                 |                    |
|---------------------------------------|----------|-----------------|--------------------|
|                                       |          | Regulation      |                    |
| TCEQ minimum sludge pipe diameter     | 4 in     | 217.152(e)(2-3) |                    |
| Clarifier Surface Area                | 962 s.f. |                 |                    |
| TCEQ min RAS pump capacity @200gpd/sf | 134 gpm  | Qr/Q =          | 0.80 217.152(j)(3) |
| TCEQ max RAS pump capacity @400gpd/sf | 267 gpm  | Qr/Q =          | 1.60 217.152(j)(3) |
| RAS/WAS pipe diameter                 | 6 in     |                 |                    |
| Velocity in RAS/WAS pipe @ min rate   | 1.82 fps |                 |                    |
| Velocity in RAS/WAS pipe @ max rate   | 3.64 fps |                 |                    |



**Chlorine Contact Basin**

|  |            |                   | Regulation    |
|--|------------|-------------------|---------------|
| Minimum Contact Time at Peak Flow          | 20 min     |                   | 217.281(b)(1) |
| Required Volume for Chlorine Contact Basin | 13333 gal  |                   |               |
| Required Volume for Chlorine Contact Basin | 1783 c.f.  |                   |               |
| <u>Proposed</u>                            |            | <u>Existing</u>   |               |
| Length                                     | 18.75 ft   | Length            | ft            |
| Width                                      | 12 ft      | Width             | ft            |
| Height                                     | 10.167 ft  | Height            | ft            |
| SWD  | 8.5 ft     | SWD               | ft            |
| # Tanks                                    | 1          | # Tanks           |               |
| Volume                                     | 1,913 c.f. | Volume            | 0 c.f.        |
| Total Volume Provided                      | 1,913 c.f. | Greater than req? | Yes           |
| Contact Time Provided                      |            |                   |               |
| at Peak Flow                               | 21.46 min  | Greater than req? | Yes           |

**Dechlorination Basin**

|  |                |                   | Regulation    |
|--|----------------|-------------------|---------------|
| Minimum Contact Time at Peak Flow          | 20 Seconds     |                   | 217.281(c)(2) |
| Required Volume for Chlorine Contact Basin | 222 gal        |                   |               |
| Required Volume for Chlorine Contact Basin | 30 c.f.        |                   |               |
| <u>Proposed</u>                            |                | <u>Existing</u>   |               |
| Length                                     | 5 ft           | Length            | ft            |
| Width                                      | 12 ft          | Width             | ft            |
| Height                                     | 10.167 ft      | Height            | ft            |
| SWD  | 8 ft           | SWD               | ft            |
| # Tanks                                    | 1              | # Tanks           |               |
| Volume                                     | 480 c.f.       | Volume            | 0 c.f.        |
| Total Volume Provided                      | 480 c.f.       | Greater than req? | Yes           |
| Contact Time Provided                      |                |                   |               |
| at Peak Flow                               | 323.16 Seconds | Greater than req? | Yes           |

**Aerobic Digester Basin**

|   |                         |   | Regulation   |
|---|-------------------------|---|--|
| Does the Plant Have a Primary Clarifier?                  | No                      |   |  |
| Average Basin Temperature                                 | 20 deg C                | (about 68 degrees fahrenheit year round in houston) |  |
| Volatile Solids Reduction Percentage                      | 45 %                    | See figure 14-31 Metcalf &Eddy                      |  |
| Waste Activated Sludge Suspended Solids Concentration, Xw | 8500 mg/L               |   |  |
| Fraction of Influent BOD consisting of Raw Primary Solids | 0.5 decimal             | expressed as a                                      | Only Applicable For Plant's With Primary Clarification |
| Influent BOD Concentration                                | 250 mg/L                |   | Only Applicable For Plant's With Primary Clarification |
| Digester Suspended Solids Concentration                   | 20000 mg/L              | this value is assumed                               |  |
| Reaction Rate Constant, kd                                | 0.06 d <sup>-1</sup>    | This value is assumed                               | needs to be backchecked                                |
| Reaction Rate Constant Nitrification, kd n                | 0.30 d <sup>-1</sup>    |   |  |
| Volatile Fraction of Digester BOD, Y                      | 0.60 lbs VSS /lbs BOD   |   |  |
| Volatile Fraction of Digester Ammonia, Yn                 | 0.15 lbs VSS /lbs NH3-N |   |  |
| Volatile Fraction of Digester Suspended Solids, Pn        | 0.7 decimal             | This value is assumed                               | needs to be backchecked                                |

|   |        |                        |  |
|---|--------|------------------------|--|
| Fraction of MLVSS to MLSS                 | 0.7    | expressed as a decimal |  |
| Solids Retention Time (SRT)               | 40     | days                   |  |
| Density of Water                          | 62.32  | lbs/c.f.               |  |
| Percent Solids of Waste Activated Sludge  | 0.01   | expressed as a decimal | This value is assumed  |
| Percent Solids of Sludge in Digester      | 0.02   | expressed as a decimal |  |
| Specific Gravity of Sludge                | 1.005  |                        | This value is assumed  |
| Carbonaceous Yield Coefficient            | 0.58   |                        | Incorporates the reaction rate constant with the yield coefficient |
| Carbonaceous Sludge Production            | 280.57 | lb MLVSS / day         |  |
|   | 401    | lb MLSS / day          |  |
| Nitrogenous Yield Coefficient             | 0.13   |                        |  |
| Nitrogenous Sludge Production             | 6      | lb MLVSS / day         |  |
|   | 9      | lb MLSS / day          |  |
| Inert Sludge Production (TSS), Dry Solids | 167    | lb / day               |  |
| Volatile Sludge Production                | 287    | lbs / day              |  |
| Total Sludge Production                   | 576    | lbs / day              |  |

|  |              |                 |
|--|--------------|-----------------|
| Volumetric Flow Rate of Sludge Per Day | 920 c.f./day | 4.778219037 GPM |
| Digester Volume Required               | 5835 c.f.    |                 |

|                                       |     |  |                  |
|---------------------------------------|-----|--|------------------|
| Minimum Digester Volatile Solids Rate | 100 | lb volatile solids per 1000 cf per day | 217.249(t)(7)(D) |
| Maximum Digester Volatile Solids Rate | 200 | lb volatile solids per 1000 cf per day | 217.249(t)(7)(D) |
| Actual Digester Volatile Solids Rate  | 36  | lb volatile solids per 1000 cf per day |                  |

|                                  |           |
|----------------------------------|-----------|
| Maximum Digester Volume Allowed  | 2866 c.f. |
| Minimum Digester Volume Required | 1433 c.f. |

| Proposed |            | Existing     |        | Existing     |        |
|----------|------------|--------------|--------|--------------|--------|
| Length   | 22 ft      | Diameter     | ft     | Diameter     | ft     |
| Width    | 12 ft      | Surface Area | ft     | Surface Area | ft     |
| Height   | 12.167 ft  | Height       | ft     | Height       | ft     |
| SWD      | 10 ft      | SWD          | ft     | SWD          | ft     |
| # Tanks  | 3          | # Tanks      |        | # Tanks      |        |
| Volume   | 7,920 c.f. | Volume       | 0 c.f. | Volume       | 0 c.f. |

|   |     |
|---|-----|
| Digester Capacity Capable of Meeting SRT? | Yes |
|---|-----|

|                       |            |   |     |
|-----------------------|------------|---|-----|
| Total Volume Provided | 7,920 c.f. | Digester Capacity Capable of Handling Required Range? | Yes |
|-----------------------|------------|---|-----|

### Sludge Thickening Basin

|  |                               | Regulation       |
|--|-------------------------------|------------------|
| TCEQ Maximum Surface Loading (Qpk)       | 800 gal/day/s.f. at peak flow | 217.248(b)(2)(C) |
| TCEQ Minimum Surface Loading (Qpk)       | 400 gal/day/s.f. at peak flow | 217.248(b)(2)(C) |
| TCEQ Minimum Side Water Depth (SWD)      | 10 ft                         | 217.248(b)(2)(D) |
| TCEQ Minimum Bottom Slope                | 1.5 inches/ft                 | 217.248(b)(2)(E) |
| TCEQ Min. Peripheral Velocity of Scraper | 15 ft/min                     | 217.248(b)(2)(F) |
| TCEQ Max. Peripheral Velocity of Scraper | 20 ft/min                     | 217.248(b)(2)(F) |
| Volumetric Flow Rate of Sludge Per Day   | 6881 gal/day                  |                  |

|                               |            |                                   |
|-------------------------------|------------|-----------------------------------|
| Minimum Surface Area Required | 8.60 s.f.  | 4.7 ft min dia for one Thickener  |
| Maximum Surface Area Allowed  | 17.20 s.f. | 3.3 ft min dia for two Thickeners |

|                     |     |          |
|---------------------|-----|----------|
| Thickeners Provided |     | tanks(s) |
| Diameter            |     | ft       |
| Height              |     | ft       |
| Static WL           |     | ft       |
| SWD                 |     | ft       |
| Surface Area        | 0.0 | s.f.     |
| Volume              | 0.0 | c.f.     |

it's the existing small clarifier

|                    |          |                        |    |
|--------------------|----------|------------------------|----|
| Total Surface Area | 0 s.f.   | Within Required Range? | NO |
| Total Volume       | 0.0 c.f. |                        |    |

## Aeration Equipment Sizing

|  |  | Regulation                               |
|--|--|--|
| Oxygen Requirement per Equation F.2  | 1.63 lbs O <sub>2</sub> /lb BOD <sub>5</sub> | 217.155(a)(2)(Equation F.2)              |
| Oxygen Requirement per Table F.3   | 2.2 lbs O <sub>2</sub> /lb BOD <sub>5</sub>  | 217.155(a)(2)(Table F.3)                 |
| Oxygen Requirement for Use in Air Requirements                                 | 2.2 lbs O <sub>2</sub> /lb BOD <sub>5</sub>  | 217.155(a)(2)                            |
| <i>Aeration System Airflow Design Based on 217.155(b)(1) Table F.4</i>         |  |  |
| Minimum Air Flow Requirement for Diffused Air                                  | 3200 SCF/day/lb BOD <sub>5</sub>             | 217.155(b)(1)(Table F.4)                 |
| Design Airflow Rate  | 1112 SCFM                                    | 217.155(b)(1)(Table F.4)                 |
| <i>Aeration System Airflow Design Based on 217.155(b)(2) Equation F.3</i>      |  |  |
| Clean Water Oxygen Transfer Efficiency   | 11 %   | 217.155(b)(2) *Based on Single Drop Diff |
| Standard Diffuser Depth  | 12 ft  | 217.155(b)(2)(D)                         |
| Type of Diffuser   | Coarse Bubble                                |  |
| Wastewater Oxygen Transfer Efficiency  | 7.15 %                                       | 217.155(b)(2)(B)(i)                      |
| Required Air Flow Rate   | 620 SCFM                                     | 217.155(B)(2)©                           |
| Actual Diffuser Depth  | 9.67 ft                                      | 217.155(b)(2)(D)                         |
| Is a Correction Factor Require?  | Yes  | 217.155(b)(2)(D)                         |
| Diffuser Submergence Correction Factor Used                                    | 1.6029                                       | 217.155(b)(2)(D)(Table F.5)              |
| Corrected Required Air Flow Rate   | 994 SCFM                                     | 217.155(b)(2)(D)                         |
| Design Airflow Requirements for Aeration Process                               | 994 SCFM                                     | 217.155(b)                               |
| <i>Mixing Requirements for Diffused Air Based on 217.155(b)(3)(B)</i>          |  |  |
| Type of Diffuser   | Coarse Bubble                                |  |
| Minimum Airflow Requirement Diffused Air                                       | 20 SCFM/1000 c.f.                            | 217.155(b)(3)                            |
| Design Airflow Requirements for Aeration Mixing                                | 291.9312 SCFM                                | 217.155(b)(3)                            |
| <b>Design Airflow Requirements for Aeration Basins</b>                         | <b>994 SCFM</b>                              |  |
| <i>Digester Aeration System Airflow Design</i>                                 |  |  |
| Amount of Oxygen Required  | 2.3 lbs O <sub>2</sub> /lb VSS reduction     |  |
| Density of Air   | 0.0749 lbs Air/c.f.                          |  |
| Required Amount of Oxygen for Digestion  | 659 lbs O <sub>2</sub> /day                  |  |
| Wastewater Oxygen Transfer Efficiency for Digester Diffusers                   | 7.15 %                                       |  |
| Required Amount of Air for Digestion   | 369 SCFM                                     |  |
| Minimum Airflow Requirements for Diffused Air Mixing in Digester               | 30 SCFM/1000 c.f.                            | 217.251(d)(1)(C)                         |
| Required Amount of Air for Digester Mixing                                     | 237.6 SCFM                                   |  |
| <b>Design Airflow Requirements for Digester Basins</b>                         | <b>369 SCFM</b>                              | 217.251(d)(1)(C)                         |
| Minimum Airflow Requirements for Diffused Air Mixing in Chlorine Contact Basin | 20 SCFM/1000 c.f.                            |  |
| <b>Design Airflow Requirements for Chlorine Contact Mixing</b>                 | <b>38.25 SCFM</b>                            |  |
| <b>Design Airflow Requirements for Airlift Pumps</b>                           | SCFM   | per manufacturer recommendation          |
| Minimum Airflow Requirement for Equalization Basin Mixing                      | 0 SCFM/s.f.                                  | 217.128(d)                               |
| <b>Design Airflow Requirements for Equalization Basin Mixing</b>               | <b>0 SCFM</b>                                |  |
| <b>Total Airflow Requirements for WWTP Systems</b>                             | <b>1400 SCFM</b>                             | 6548                                     |

**Process Air Blower Capacity**

---

|  |      |      |
|--|------|------|
| No. of Existing Blowers  | 0    |      |
| Existing Blower Capacity   | 0    | SCFM |
| No. of Prop. Blowers   | 3    |      |
| Prop. Blower Capacity  | 800  | SCFM |
| Prop. Blower Firm Capacity   | 1600 | SCFM |
| Prop. Blower Total Capacity  | 2400 | SCFM |
| (Blower firm capacity is blower capacity with largest blower out of service) |      |      |
| Prop. Blower Firm Capacity Greater Than Required                             | Yes  |      |
| Prop. Blower Total Capacity Greater Than Required                            | Yes  |      |

**Pounds Per Day of Chlorine Required for Treatment**

---

|                        |         |         |                      |
|------------------------|---------|---------|----------------------|
| Chlorine Concentration | 8       | mg/L    | Regulation           |
| Lbs of Chlorine / Day  | 64.0512 | lbs/day | 217.272(b) Table K.1 |

**Maximum Withdrawal Rate From Gas Cylinder**

---

|  |     |                 |                            |
|--|-----|-----------------|----------------------------|
| Low Ambient Temperature                  | 65  | deg Farenheit   | Regulation                 |
| Threshold Temperature                    | 0   | deg Farenheit   | 217.273(a)(1)              |
| Withdrawal Factor                        | 8   | lbs/deg Far/day | 217.273(a)(1) Table K.2    |
| Maximum gas withdrawal rate per cylinder | 520 | lbs/day         | 217.273(a)(1) Equation K.2 |

**Minimum Number of Cylinders Required per Bank**

---

|   |   |               |            |
|---|---|---------------|------------|
| Minimum number of cylinders required per bank | 0 | No. Cylinders | Regulation |
|   |   |               | 217.273(b) |

HCMUD No. 606  
Wastewater Treatment Plant - Steel Package  
IDS Project No. 2436-004-00  
10/29/2024  
Completed by: ENW  
Checked by:

### FINAL PROCESS CALCULATIONS

|   |              |                             |              |  |
|---|--------------|-----------------------------|--------------|--|
| Avrg Design Flow                            | 0.4 MGD      | Influent BOD <sub>5</sub>   | 250 mg/L     | Location and date of Influent Data/ List any assumptions made to this section here |
| Peak Factor                                 | 4            |                             | 834 lbs/day  |  |
| Peak Flow                                   | 1.6 MGD      | Influent TSS                | 200 mg/L     |  |
|   | 1111.111 gpm |                             | 667 lbs/day  |  |
| Effluent Characteristics                    |              | Influent NH <sub>3</sub> -N | 25 mg/L      |  |
| BOD <sub>5</sub> S <sub>e</sub> (Apr-Oct)   | 10 mg/L      |                             | 83 lbs/day   |  |
| BOD <sub>5</sub> S <sub>e</sub> (Nov-Mar)   | 10 mg/L      | Influent TKN                | mg/L         |  |
| TSS TSS <sub>e</sub>                        | 15 mg/L      | Influent Phosphorus         | mg/L         |  |
| NH <sub>3</sub> -N N <sub>e</sub> (Apr-Oct) | 2 mg/L       | Reactor temp                | 20 °C        |  |
| NH <sub>3</sub> -N N <sub>e</sub> (Nov-Mar) | 2 mg/L       | Elevation                   | 125 feet ASL |  |

### Aeration Basin

|                              |  |                                  |                                     |                       |
|------------------------------|--|----------------------------------|-------------------------------------|-----------------------|
| TCEQ Maximum Organic Loading |  | 35 lbs BOD/day/1000 c.f.         | Regulation<br>217.154(b)(Table F.1) |                       |
| Aeration Volume Required     |  | 23829 c.f.                       |                                     |                       |
| MLSS                         |  | 3000 mg/L                        |                                     |                       |
| MLVSS/MLSS                   |  | 0.7                              |                                     |                       |
| MLVSS                        |  | 2100 mg/L                        |                                     |                       |
|                              |  |                                  |                                     |                       |
| <u>Proposed</u>              |  | <u>Existing</u>                  | Aeration Basin No. 1                | Aeration Basins No. 2 |
| Length                       | 38 ft  | Length                           | 38 ft                               | ft                    |
| Width                        | 12 ft  | Width                            | 12 ft                               | ft                    |
| Height                       | 12.167 ft                                      | Height                           | 12.167 ft                           | ft                    |
| SWD                          | 10.67 ft                                       | SWD                              | 10.67 ft                            | ft                    |
| # Tanks                      | 3  | # Tanks                          | 3                                   | 0                     |
| Volume                       | 14,597 c.f.                                    | Volume                           | 14,597 c.f.                         | 0 c.f.                |
| Capacity                     | 0.245 MGD Average Flow                         | Total Existing Aeration Volume   |                                     | 14,597 c.f.           |
|                              |  |                                  |                                     |                       |
| Total Volume                 | 29,193 c.f.                                    | Total Proposed Aeration Capacity |                                     | 0.490052 MGD          |
| Volume greater than required | YES  |                                  |                                     |                       |
| Organic Loading              | 28.57 lbs BOD <sub>5</sub> /day                |                                  |                                     |                       |
|                              |  |                                  |                                     |                       |
| Hydraulic Retention Time     | 13.10 hours                                    |                                  |                                     |                       |
| Solids Retention Time, SRT   | 15.5968425 days                                |                                  |                                     |                       |
| f:m                          | 0.11904762 lbs BOD <sub>5</sub> /lbs MLVSS/day |                                  |                                     |                       |

## Clarifier Basin

|  |                                |                                    |                       |
|--|--------------------------------|------------------------------------|-----------------------|
|  |                                | Regulation                         |                       |
| TCEQ Maximum Surface Loading (Qpk)                                       | 1200 gal/day/s.f. at peak flow | 217.154(c)(Table F.2)              |                       |
| TCEQ Minimum Detention Time (Qpk)  | 1.8 hours at peak flow         | 217.154(c)(Table F.2)              |                       |
| TCEQ Maximum Weir Loading (Qpk)  | 30000 gal/day/ft               | 217.152(c)(4)                      |                       |
| TCEQ Minimum Side Water Depth (SWD)                                      | 10 ft                          | 217.152(g)(2)(A)/(B)               |                       |
| TCEQ Maximum Stilling Well Velocity                                      | 0.15 ft/sec                    | 217.152(a)(4)                      |                       |
| Surface Area Required  | 1333.33333 s.f.                | 41.2 ft min dia for one clarifier  |                       |
| Volume Required  | 16042 c.f.                     | 29.1 ft min dia for two clarifiers |                       |
| Stilling Well Diameter   | 7 feet                         | 15-20% of total tank diameter      |                       |
| Stilling Well Qpk  | 2.48 cfs                       | plus 0.893167374 cfs recycle flow  |                       |
| Stilling Well Velocity at Qpk  | 0.005 fps                      | Meets req? YES                     |                       |
| Clarifiers Provided  | 1 tanks(s)                     | Existing Clarifiers                | 1 tanks(s)            |
| Diameter   | 35 ft                          | Diameter                           | 35 ft                 |
| Height   | 14.167 ft                      | Height                             | 14.167 ft             |
| Static WL  | 10.50 ft                       | Static WL                          | 10.50 ft              |
| SWD  | 10.792 ft                      | SWD                                | 10.667 ft             |
| Surface Area   | 962 s.f.                       | Surface Area                       | 962 s.f.              |
| Volume   | 10383.1 c.f.                   | Volume                             | 10262.9 c.f.          |
| Total Surface Area   | 1924 s.f.                      | Greater than req?                  | YES                   |
| Total Volume   | 20646.0 c.f.                   | Greater than req?                  | YES                   |
|  |                                | Qavg                               | Qpk                   |
| Clarifier Surface Loading  | 508 gpd/s.f.                   | 832                                | Less than max? YES    |
| Clarifier Detention Time   | 3.79 Hours                     | 2.32                               | Greater than req? YES |
| This currently uses the average RAS flowrate to calculate detention time |                                |                                    |                       |
| Clarifier Wall to Weir Length  | 12 in                          |                                    |                       |
| Weir Length  | 207.3 ft                       |                                    |                       |
| Weir Loading   | 7717 gpd/ft                    | Less than max?                     | YES                   |

## RAS/WAS Pumping and Piping

|                                       |           |                 |                    |
|---------------------------------------|-----------|-----------------|--------------------|
|                                       |           | Regulation      |                    |
| TCEQ minimum sludge pipe diameter     | 4 in      | 217.152(e)(2-3) |                    |
| Clarifier Surface Area                | 1924 s.f. |                 |                    |
| TCEQ min RAS pump capacity @200gpd/sf | 267 gpm   | Qr/Q =          | 0.96 217.152(j)(3) |
| TCEQ max RAS pump capacity @400gpd/sf | 535 gpm   | Qr/Q =          | 1.92 217.152(j)(3) |
| RAS/WAS pipe diameter                 | 6 in      |                 |                    |
| Velocity in RAS/WAS pipe @ min rate   | 3.64 fps  |                 |                    |
| Velocity in RAS/WAS pipe @ max rate   | 7.28 fps  |                 |                    |

**Chlorine Contact Basin**

|  |            |                   | Regulation    |
|--|------------|-------------------|---------------|
| Minimum Contact Time at Peak Flow          | 20 min     |                   | 217.281(b)(1) |
| Required Volume for Chlorine Contact Basin | 22222 gal  |                   |               |
| Required Volume for Chlorine Contact Basin | 2971 c.f.  |                   |               |
| <u>Proposed</u>                            |            | <u>Existing</u>   |               |
| Length                                     | 18.75 ft   | Length            | 18.75 ft      |
| Width                                      | 12 ft      | Width             | 12 ft         |
| Height                                     | 10.167 ft  | Height            | 10.167 ft     |
| SWD  | 8.5 ft     | SWD               | 8.5 ft        |
| # Tanks                                    | 1          | # Tanks           | 1             |
| Volume                                     | 1,913 c.f. | Volume            | 1912.5 c.f.   |
| Total Volume Provided                      | 3,825 c.f. | Greater than req? | Yes           |
| Contact Time Provided                      |            |                   |               |
| at Peak Flow                               | 25.75 min  | Greater than req? | Yes           |

**Dechlorination Basin**

|  |                |                   | Regulation    |
|--|----------------|-------------------|---------------|
| Minimum Contact Time at Peak Flow          | 20 Seconds     |                   | 217.281(c)(2) |
| Required Volume for Chlorine Contact Basin | 370 gal        |                   |               |
| Required Volume for Chlorine Contact Basin | 50 c.f.        |                   |               |
| <u>Proposed</u>                            |                | <u>Existing</u>   |               |
| Length                                     | 5 ft           | Length            | ft            |
| Width                                      | 12 ft          | Width             | ft            |
| Height                                     | 10.167 ft      | Height            | ft            |
| SWD  | 8 ft           | SWD               | ft            |
| # Tanks                                    | 1              | # Tanks           |               |
| Volume                                     | 480 c.f.       | Volume            | 0 c.f.        |
| Total Volume Provided                      | 480 c.f.       | Greater than req? | Yes           |
| Contact Time Provided                      |                |                   |               |
| at Peak Flow                               | 193.89 Seconds | Greater than req? | Yes           |

**Aerobic Digester Basin**

|   |                         |  | Regulation   |
|---|-------------------------|--|--|
| Does the Plant Have a Primary Clarifier?                  | No                      |  |  |
| Average Basin Temperature                                 | 20 deg C                | (about 68 degrees farenheit year round in houston) |  |
| Volatile Solids Reduction Percentage                      | 45 %                    | See figure 14-31 Metcalf &Eddy                     |  |
| Waste Activated Sludge Suspended Solids Concentration, Xw | 8500 mg/L               |  |  |
| Fraction of Influent BOD consisting of Raw Primary Solids | 0.5 decimal             | expressed as a                                     | Only Applicable For Plant's With Primary Clarification |
| Influent BOD Concentration                                | 250 mg/L                |  | Only Applicable For Plant's With Primary Clarification |
| Digester Suspended Solids Concentration                   | 20000 mg/L              | this value is assumed                              |  |
| Reaction Rate Constant, kd                                | 0.06 d <sup>-1</sup>    | This value is assumed                              | needs to be backchecked                                |
| Reaction Rate Constant Nitrification, kd n                | 0.30 d <sup>-1</sup>    |  |  |
| Volatile Fraction of Digester BOD, Y                      | 0.60 lbs VSS /lbs BOD   |  |  |
| Volatile Fraction of Digester Ammonia, Yn                 | 0.15 lbs VSS /lbs NH3-N |  |  |
| Volatile Fraction of Digester Suspended Solids, Pn        | 0.7 decimal             | This value is assumed                              | needs to be backchecked                                |



|   |        |                        |  |
|---|--------|------------------------|--|
| Fraction of MLVSS to MLSS                 | 0.7    | expressed as a decimal |  |
| Solids Retention Time (SRT)               | 40     | days                   |  |
| Density of Water                          | 62.32  | lbs/c.f.               |  |
| Percent Solids of Waste Activated Sludge  | 0.01   | expressed as a decimal | This value is assumed  |
| Percent Solids of Sludge in Digester      | 0.02   | expressed as a decimal |  |
| Specific Gravity of Sludge                | 1.005  |                        | This value is assumed  |
| Carbonaceous Yield Coefficient            | 0.58   |                        | Incorporates the reaction rate constant with the yield coefficient |
| Carbonaceous Sludge Production            | 465.15 | lb MLVSS / day         |  |
|   | 664    | lb MLSS / day          |  |
| Nitrogenous Yield Coefficient             | 0.13   |                        |  |
| Nitrogenous Sludge Production             | 10     | lb MLVSS / day         |  |
|   | 14     | lb MLSS / day          |  |
| Inert Sludge Production (TSS), Dry Solids | 278    | lb / day               |  |
| Volatile Sludge Production                | 475    | lbs / day              |  |
| Total Sludge Production                   | 956    | lbs / day              |  |

|  |               |                 |
|--|---------------|-----------------|
| Volumetric Flow Rate of Sludge Per Day | 1527 c.f./day | 7.931595835 GPM |
| Digester Volume Required               | 9686 c.f.     |                 |

|                                       |     |  |                  |
|---------------------------------------|-----|--|------------------|
| Minimum Digester Volatile Solids Rate | 100 | lb volatile solids per 1000 cf per day | 217.249(t)(7)(D) |
| Maximum Digester Volatile Solids Rate | 200 | lb volatile solids per 1000 cf per day | 217.249(t)(7)(D) |
| Actual Digester Volatile Solids Rate  | 30  | lb volatile solids per 1000 cf per day |                  |

|                                  |           |
|----------------------------------|-----------|
| Maximum Digester Volume Allowed  | 4750 c.f. |
| Minimum Digester Volume Required | 2375 c.f. |

| Proposed |            | Existing     |            | Existing     |        |
|----------|------------|--------------|------------|--------------|--------|
| Length   | 22 ft      | Diameter     | 22 ft      | Diameter     | ft     |
| Width    | 12 ft      | Surface Area | 12 ft      | Surface Area | ft     |
| Height   | 12.167 ft  | Height       | 12.167 ft  | Height       | ft     |
| SWD      | 10 ft      | SWD          | 10 ft      | SWD          | ft     |
| # Tanks  | 3          | # Tanks      | 3          | # Tanks      |        |
| Volume   | 7,920 c.f. | Volume       | 7,920 c.f. | Volume       | 0 c.f. |

|   |     |
|---|-----|
| Digester Capacity Capable of Meeting SRT? | Yes |
|---|-----|

|                       |             |   |     |
|-----------------------|-------------|---|-----|
| Total Volume Provided | 15,840 c.f. | Digester Capacity Capable of Handling Required Range? | Yes |
|-----------------------|-------------|---|-----|

#### Sludge Thickening Basin

|  |                               | Regulation       |
|--|-------------------------------|------------------|
| TCEQ Maximum Surface Loading (Qpk)       | 800 gal/day/s.f. at peak flow | 217.248(b)(2)(C) |
| TCEQ Minimum Surface Loading (Qpk)       | 400 gal/day/s.f. at peak flow | 217.248(b)(2)(C) |
| TCEQ Minimum Side Water Depth (SWD)      | 10 ft                         | 217.248(b)(2)(D) |
| TCEQ Minimum Bottom Slope                | 1.5 inches/ft                 | 217.248(b)(2)(E) |
| TCEQ Min. Peripheral Velocity of Scraper | 15 ft/min                     | 217.248(b)(2)(F) |
| TCEQ Max. Peripheral Velocity of Scraper | 20 ft/min                     | 217.248(b)(2)(F) |
| Volumetric Flow Rate of Sludge Per Day   | 11422 gal/day                 |                  |

|                               |            |                                   |
|-------------------------------|------------|-----------------------------------|
| Minimum Surface Area Required | 14.28 s.f. | 6.0 ft min dia for one Thickener  |
| Maximum Surface Area Allowed  | 28.56 s.f. | 4.3 ft min dia for two Thickeners |

|                     |     |          |                                   |
|---------------------|-----|----------|-----------------------------------|
| Thickeners Provided |     | tanks(s) |                                   |
| Diameter            |     | ft       | it's the existing small clarifier |
| Height              |     | ft       |                                   |
| Static WL           |     | ft       |                                   |
| SWD                 |     | ft       |                                   |
| Surface Area        | 0.0 | s.f.     |                                   |
| Volume              | 0.0 | c.f.     |                                   |

|                    |          |                        |    |
|--------------------|----------|------------------------|----|
| Total Surface Area | 0 s.f.   | Within Required Range? | NO |
| Total Volume       | 0.0 c.f. |                        |    |

## Aeration Equipment Sizing

|  |  |  | Regulation                               |
|--|--|--|--|
| Oxygen Requirement per Equation F.2  | 1.63 lbs O <sub>2</sub> /lb BOD <sub>5</sub> |  | 217.155(a)(2)(Equation F.2)              |
| Oxygen Requirement per Table F.3   | 2.2 lbs O <sub>2</sub> /lb BOD <sub>5</sub>  |  | 217.155(a)(2)(Table F.3)                 |
| Oxygen Requirement for Use in Air Requirements                                 | 2.2 lbs O <sub>2</sub> /lb BOD <sub>5</sub>  |  | 217.155(a)(2)                            |
| <i>Aeration System Airflow Design Based on 217.155(b)(1) Table F.4</i>         |  |  |  |
| Minimum Air Flow Requirement for Diffused Air                                  | 3200 SCF/day/lb BOD <sub>5</sub>             |  | 217.155(b)(1)(Table F.4)                 |
| Design Airflow Rate  | 1853.333333 SCFM                             |  | 217.155(b)(1)(Table F.4)                 |
| <i>Aeration System Airflow Design Based on 217.155(b)(2) Equation F.3</i>      |  |  |  |
| Clean Water Oxygen Transfer Efficiency   | 11 %   |  | 217.155(b)(2) *Based on Single Drop Diff |
| Standard Diffuser Depth  | 12 ft  |  | 217.155(b)(2)(D)                         |
| Type of Diffuser   | Coarse Bubble                                |  |  |
| Wastewater Oxygen Transfer Efficiency  | 7.15 %                                       |  | 217.155(b)(2)(B)(i)                      |
| Required Air Flow Rate   | 1033 SCFM                                    |  | 217.155(B)(2)©                           |
| Actual Diffuser Depth  | 9.67 ft                                      |  | 217.155(b)(2)(D)                         |
| Is a Correction Factor Require?  | Yes  |  | 217.155(b)(2)(D)                         |
| Diffuser Submergence Correction Factor Used                                    | 1.6029                                       |  | 217.155(b)(2)(D)(Table F.5)              |
| Corrected Required Air Flow Rate   | 1656 SCFM                                    |  | 217.155(b)(2)(D)                         |
| Design Airflow Requirements for Aeration Process                               | 1656 SCFM                                    |  | 217.155(b)                               |
| <i>Mixing Requirements for Diffused Air Based on 217.155(b)(3)(B)</i>          |  |  |  |
| Type of Diffuser   | Coarse Bubble                                |  |  |
| Minimum Airflow Requirement Diffused Air                                       | 20 SCFM/1000 c.f.                            |  | 217.155(b)(3)                            |
| Design Airflow Requirements for Aeration Mixing                                | 583.8624 SCFM                                |  | 217.155(b)(3)                            |
| <b>Design Airflow Requirements for Aeration Basins</b>                         | <b>1656 SCFM</b>                             |  |  |
| <i>Digester Aeration System Airflow Design</i>                                 |  |  |  |
| Amount of Oxygen Required  | 2.3 lbs O <sub>2</sub> /lb VSS reduction     |  |  |
| Density of Air   | 0.0749 lbs Air/c.f.                          |  |  |
| Required Amount of Oxygen for Digestion  | 1093 lbs O <sub>2</sub> /day                 |  |  |
| Wastewater Oxygen Transfer Efficiency for Digester Diffusers                   | 7.15 %                                       |  |  |
| Required Amount of Air for Digestion   | 611 SCFM                                     |  |  |
| Minimum Airflow Requirements for Diffused Air Mixing in Digester               | 30 SCFM/1000 c.f.                            |  | 217.251(d)(1)(C)                         |
| Required Amount of Air for Digester Mixing                                     | 475.2 SCFM                                   |  |  |
| <b>Design Airflow Requirements for Digester Basins</b>                         | <b>611 SCFM</b>                              |  | 217.251(d)(1)(C)                         |
| Minimum Airflow Requirements for Diffused Air Mixing in Chlorine Contact Basin | 20 SCFM/1000 c.f.                            |  |  |
| <b>Design Airflow Requirements for Chlorine Contact Mixing</b>                 | <b>76.5 SCFM</b>                             |  |  |
| <b>Design Airflow Requirements for Airlift Pumps</b>                           | SCFM   |  | per manufacturer recommendation          |
| Minimum Airflow Requirement for Equalization Basin Mixing                      | 0 SCFM/s.f.                                  |  | 217.128(d)                               |
| <b>Design Airflow Requirements for Equalization Basin Mixing</b>               | <b>0 SCFM</b>                                |  |  |
| <b>Total Airflow Requirements for WWTP Systems</b>                             | <b>2343 SCFM</b>                             |  | 6548                                     |

**Process Air Blower Capacity**

---

|  |      |      |
|--|------|------|
| No. of Existing Blowers  | 0    |      |
| Existing Blower Capacity   | 0    | SCFM |
| No. of Prop. Blowers   | 4    |      |
| Prop. Blower Capacity  | 800  | SCFM |
| Prop. Blower Firm Capacity   | 2400 | SCFM |
| Prop. Blower Total Capacity  | 3200 | SCFM |
| (Blower firm capacity is blower capacity with largest blower out of service) |      |      |
| Prop. Blower Firm Capacity Greater Than Required                             | Yes  |      |
| Prop. Blower Total Capacity Greater Than Required                            | Yes  |      |

**Pounds Per Day of Chlorine Required for Treatment**

---

|                        |         |         |                      |
|------------------------|---------|---------|----------------------|
| Chlorine Concentration | 8       | mg/L    | Regulation           |
| Lbs of Chlorine / Day  | 106.752 | lbs/day | 217.272(b) Table K.1 |

**Maximum Withdrawal Rate From Gas Cylinder**

---

|  |     |                 |                            |
|--|-----|-----------------|----------------------------|
| Low Ambient Temperature                  | 65  | deg Farenheit   | Regulation                 |
| Threshold Temperature                    | 0   | deg Farenheit   | 217.273(a)(1)              |
| Withdrawal Factor                        | 8   | lbs/deg Far/day | 217.273(a)(1) Table K.2    |
| Maximum gas withdrawal rate per cylinder | 520 | lbs/day         | 217.273(a)(1) Equation K.2 |

**Minimum Number of Cylinders Required per Bank**

---

|   |   |               |            |
|---|---|---------------|------------|
| Minimum number of cylinders required per bank | 0 | No. Cylinders | Regulation |
|   |   |               | 217.273(b) |

HCMUD No. 606  
Wastewater Treatment Plant - Steel Package  
IDS Project No. 2436-004-00  
10/29/2024  
Completed by: ENW  
Checked by:

### FINAL PROCESS CALCULATIONS

|   |              |                             |              |  |
|---|--------------|-----------------------------|--------------|--|
| Avrg Design Flow                            | 0.64 MGD     | Influent BOD <sub>5</sub>   | 250 mg/L     | Location and date of Influent Data/ List any assumptions made to this section here |
| Peak Factor                                 | 4            |                             | 1334 lbs/day |  |
| Peak Flow                                   | 2.56 MGD     | Influent TSS                | 200 mg/L     |  |
|   | 1777.778 gpm |                             | 1068 lbs/day |  |
| Effluent Characteristics                    |              | Influent NH <sub>3</sub> -N | 25 mg/L      |  |
| BOD <sub>5</sub> S <sub>e</sub> (Apr-Oct)   | 10 mg/L      |                             | 133 lbs/day  |  |
| BOD <sub>5</sub> S <sub>e</sub> (Nov-Mar)   | 10 mg/L      | Influent TKN                | mg/L         |  |
| TSS TSS <sub>e</sub>                        | 15 mg/L      | Influent Phosphorus         | mg/L         |  |
| NH <sub>3</sub> -N N <sub>e</sub> (Apr-Oct) | 2 mg/L       | Reactor temp                | 20 °C        |  |
| NH <sub>3</sub> -N N <sub>e</sub> (Nov-Mar) | 2 mg/L       | Elevation                   | 125 feet ASL |  |

### Aeration Basin

|                              |                        |  |                                  |                             |
|------------------------------|------------------------|--|----------------------------------|-----------------------------|
| TCEQ Maximum Organic Loading |                        | 35 lbs BOD/day/1000 c.f.                       | Regulation 217.154(b)(Table F.1) |                             |
| Aeration Volume Required     |                        | 38126 c.f.                                     |                                  |                             |
| MLSS                         |                        | 3000 mg/L                                      |                                  |                             |
| MLVSS/MLSS                   |                        | 0.7  |                                  |                             |
| MLVSS                        |                        | 2100 mg/L                                      |                                  |                             |
| <u>Proposed</u>              |                        |  | <u>Existing</u>                  | <u>Aeration Basin No. 1</u> |
| Length                       | 38 ft                  |  | Length                           | 38 ft                       |
| Width                        | 12 ft                  |  | Width                            | 12 ft                       |
| Height                       | 12.167 ft              |  | Height                           | 12.167 ft                   |
| SWD                          | 10.67 ft               |  | SWD                              | 10.67 ft                    |
| # Tanks                      | 3                      |  | # Tanks                          | 6                           |
| Volume                       | 14,597 c.f.            |  | Volume                           | 29,193 c.f.                 |
| Capacity                     | 0.245 MGD Average Flow |  | Total Existing Aeration Volume   | 29,193 c.f.                 |
| Total Volume                 |                        | 43,790 c.f.                                    | Total Proposed Aeration Capacity |                             |
| Volume greater than required |                        | YES  | 0.735079 MGD                     |                             |
| Organic Loading              |                        | 30.47 lbs BOD <sub>5</sub> /day                |                                  |                             |
| Hydraulic Retention Time     |                        | 12.28 hours                                    |                                  |                             |
| Solids Retention Time, SRT   |                        | 15.5968425 days                                |                                  |                             |
| f:m                          |                        | 0.11904762 lbs BOD <sub>5</sub> /lbs MLVSS/day |                                  |                             |

## Clarifier Basin

|  |                                |                                    |                       |
|--|--------------------------------|------------------------------------|-----------------------|
|  |                                | Regulation                         |                       |
| TCEQ Maximum Surface Loading (Qpk)                                       | 1200 gal/day/s.f. at peak flow | 217.154(c)(Table F.2)              |                       |
| TCEQ Minimum Detention Time (Qpk)  | 1.8 hours at peak flow         | 217.154(c)(Table F.2)              |                       |
| TCEQ Maximum Weir Loading (Qpk)  | 30000 gal/day/ft               | 217.152(c)(4)                      |                       |
| TCEQ Minimum Side Water Depth (SWD)                                      | 10 ft                          | 217.152(g)(2)(A)/(B)               |                       |
| TCEQ Maximum Stilling Well Velocity                                      | 0.15 ft/sec                    | 217.152(a)(4)                      |                       |
| Surface Area Required  | 2133.33333 s.f.                | 52.1 ft min dia for one clarifier  |                       |
| Volume Required  | 25667 c.f.                     | 36.9 ft min dia for two clarifiers |                       |
| Stilling Well Diameter   | 7 feet                         | 15-20% of total tank diameter      |                       |
| Stilling Well Qpk  | 3.96 cfs                       | plus 1.339751061 cfs recycle flow  |                       |
| Stilling Well Velocity at Qpk  | 0.009 fps                      | Meets req? YES                     |                       |
| Clarifiers Provided  | 1 tanks(s)                     | Existing Clarifiers                | 2 tanks(s)            |
| Diameter   | 35 ft                          | Diameter                           | 35 ft                 |
| Height   | 14.167 ft                      | Height                             | 14.167 ft             |
| Static WL  | 10.50 ft                       | Static WL                          | 10.50 ft              |
| SWD  | 10.792 ft                      | SWD                                | 10.792 ft             |
| Surface Area   | 962 s.f.                       | Surface Area                       | 1924 s.f.             |
| Volume   | 10383.1 c.f.                   | Volume                             | 20766.2 c.f.          |
| Total Surface Area   | 2886 s.f.                      | Greater than req?                  | YES                   |
| Total Volume   | 31149.4 c.f.                   | Greater than req?                  | YES                   |
|  |                                | Qavg                               | Qpk                   |
| Clarifier Surface Loading  | 522 gpd/s.f.                   | 887                                | Less than max? YES    |
| Clarifier Detention Time   | 3.71 Hours                     | 2.18                               | Greater than req? YES |
| This currently uses the average RAS flowrate to calculate detention time |                                |                                    |                       |
| Clarifier Wall to Weir Length  | 12 in                          |                                    |                       |
| Weir Length  | 311.0 ft                       |                                    |                       |
| Weir Loading   | 8231 gpd/ft                    | Less than max?                     | YES                   |

## RAS/WAS Pumping and Piping

|                                       |           |                 |                    |
|---------------------------------------|-----------|-----------------|--------------------|
|                                       |           | Regulation      |                    |
| TCEQ minimum sludge pipe diameter     | 4 in      | 217.152(e)(2-3) |                    |
| Clarifier Surface Area                | 2886 s.f. |                 |                    |
| TCEQ min RAS pump capacity @200gpd/sf | 401 gpm   | Qr/Q =          | 0.90 217.152(j)(3) |
| TCEQ max RAS pump capacity @400gpd/sf | 802 gpm   | Qr/Q =          | 1.80 217.152(j)(3) |
| RAS/WAS pipe diameter                 | 6 in      |                 |                    |
| Velocity in RAS/WAS pipe @ min rate   | 5.46 fps  |                 |                    |
| Velocity in RAS/WAS pipe @ max rate   | 10.93 fps |                 |                    |

**Chlorine Contact Basin**

|                                   |        |                             |
|-----------------------------------|--------|-----------------------------|
| Minimum Contact Time at Peak Flow | 20 min | Regulation<br>217.281(b)(1) |
|-----------------------------------|--------|-----------------------------|

|  |           |
|--|-----------|
| Required Volume for Chlorine Contact Basin | 35556 gal |
| Required Volume for Chlorine Contact Basin | 4754 c.f. |

Proposed

|         |             |
|---------|-------------|
| Length  | 18.75 ft    |
| Width   | 12 ft       |
| Height  | 10.167 ft   |
| SWD     | 8.5 ft      |
| # Tanks | 1           |
| Volume  | 1912.5 c.f. |

Existing

|         |           |
|---------|-----------|
| Length  | 18.75 ft  |
| Width   | 12 ft     |
| Height  | 10.167 ft |
| SWD     | 8.5 ft    |
| # Tanks | 2         |
| Volume  | 3825 c.f. |

|                                       |            |                   |     |
|---------------------------------------|------------|-------------------|-----|
| Total Volume Provided                 | 5,738 c.f. | Greater than req? | Yes |
| Contact Time Provided<br>at Peak Flow | 24.14 min  | Greater than req? | Yes |

**Dechlorination Basin**

|                                   |            |                             |
|-----------------------------------|------------|-----------------------------|
| Minimum Contact Time at Peak Flow | 20 Seconds | Regulation<br>217.281(c)(2) |
|-----------------------------------|------------|-----------------------------|

|  |         |
|--|---------|
| Required Volume for Chlorine Contact Basin | 593 gal |
| Required Volume for Chlorine Contact Basin | 80 c.f. |

Proposed

|         |           |
|---------|-----------|
| Length  | 5 ft      |
| Width   | 12 ft     |
| Height  | 10.167 ft |
| SWD     | 8 ft      |
| # Tanks | 1         |
| Volume  | 480 c.f.  |

Existing

|         |        |
|---------|--------|
| Length  | ft     |
| Width   | ft     |
| Height  | ft     |
| SWD     | ft     |
| # Tanks |        |
| Volume  | 0 c.f. |

|                                       |                |                   |     |
|---------------------------------------|----------------|-------------------|-----|
| Total Volume Provided                 | 480 c.f.       | Greater than req? | Yes |
| Contact Time Provided<br>at Peak Flow | 121.18 Seconds | Greater than req? | Yes |

**Aerobic Digester Basin**

|  |                         |  |
|--|-------------------------|--|
|  |                         | Regulation   |
| Does the Plant Have a Primary Clarifier?                     | No                      |  |
| Average Basin Temperature                                    | 20 deg C                | (about 68 degrees fahrenheit year round in houston)                      |
| Volatile Solids Reduction Percentage                         | 45 %                    | See figure 14-31 Metcalf &Eddy   |
| Waste Activated Sludge Suspended Solids<br>Concentration, Xw | 8500 mg/L               |  |
| Fraction of Influent BOD consisting of Raw<br>Primary Solids | 0.5 decimal             | expressed as a<br>Only Applicable For Plant's With Primary Clarification |
| Influent BOD Concentration                                   | 250 mg/L                | Only Applicable For Plant's With Primary Clarification                   |
| Digester Suspended Solids Concentration                      | 20000 mg/L              | this value is assumed  |
| Reaction Rate Constant, kd                                   | 0.06 d <sup>-1</sup>    | This value is assumed needs to be backchecked                            |
| Reaction Rate Constant Nitrification, kd n                   | 0.30 d <sup>-1</sup>    |  |
| Volatile Fraction of Digester BOD, Y                         | 0.60 lbs VSS /lbs BOD   |  |
| Volatile Fraction of Digester Ammonia, Yn                    | 0.15 lbs VSS /lbs NH3-N |  |
| Volatile Fraction of Digester Suspended<br>Solids, Pn        | 0.7 decimal             | This value is assumed needs to be backchecked                            |

|   |        |                        |  |
|---|--------|------------------------|--|
| Fraction of MLVSS to MLSS                 | 0.7    | expressed as a decimal |  |
| Solids Retention Time (SRT)               | 40     | days                   |  |
| Density of Water                          | 62.32  | lbs/c.f.               |  |
| Percent Solids of Waste Activated Sludge  | 0.01   | expressed as a decimal | This value is assumed  |
| Percent Solids of Sludge in Digester      | 0.02   | expressed as a decimal |  |
| Specific Gravity of Sludge                | 1.005  |                        | This value is assumed  |
| Carbonaceous Yield Coefficient            | 0.58   |                        | Incorporates the reaction rate constant with the yield coefficient |
| Carbonaceous Sludge Production            | 745.71 | lb MLVSS / day         |  |
|   | 1065   | lb MLSS / day          |  |
| Nitrogenous Yield Coefficient             | 0.13   |                        |  |
| Nitrogenous Sludge Production             | 16     | lb MLVSS / day         |  |
|   | 23     | lb MLSS / day          |  |
| Inert Sludge Production (TSS), Dry Solids | 444    | lb / day               |  |
| Volatile Sludge Production                | 762    | lbs / day              |  |
| Total Sludge Production                   | 1532   | lbs / day              |  |



|  |               |                 |
|--|---------------|-----------------|
| Volumetric Flow Rate of Sludge Per Day | 2447 c.f./day | 12.70973172 GPM |
| Digester Volume Required               | 15521 c.f.    |                 |

|                                       |     |  |                  |
|---------------------------------------|-----|--|------------------|
| Minimum Digester Volatile Solids Rate | 100 | lb volatile solids per 1000 cf per day | 217.249(t)(7)(D) |
| Maximum Digester Volatile Solids Rate | 200 | lb volatile solids per 1000 cf per day | 217.249(t)(7)(D) |
| Actual Digester Volatile Solids Rate  | 32  | lb volatile solids per 1000 cf per day |                  |

|                                  |           |
|----------------------------------|-----------|
| Maximum Digester Volume Allowed  | 7617 c.f. |
| Minimum Digester Volume Required | 3808 c.f. |

| Proposed |            | Existing |             | Existing     |        |
|----------|------------|----------|-------------|--------------|--------|
| Length   | 22 ft      | Length   | 22 ft       | Diameter     | ft     |
| Width    | 12 ft      | Width    | 12 ft       | Surface Area | ft     |
| Height   | 12.167 ft  | Height   | 12.167 ft   | Height       | ft     |
| SWD      | 10 ft      | SWD      | 10 ft       | SWD          | ft     |
| # Tanks  | 3          | # Tanks  | 6           | # Tanks      |        |
| Volume   | 7,920 c.f. | Volume   | 15,840 c.f. | Volume       | 0 c.f. |

|                       |   |     |
|-----------------------|---|-----|
|                       | Digester Capacity Capable of Meeting SRT?             | Yes |
|                       | Digester Capacity Capable of Handling Required Range? | Yes |
| Total Volume Provided | 23,760 c.f.   |     |

### Sludge Thickening Basin

|  |                               | Regulation       |
|--|-------------------------------|------------------|
| TCEQ Maximum Surface Loading (Qpk)       | 800 gal/day/s.f. at peak flow | 217.248(b)(2)(C) |
| TCEQ Minimum Surface Loading (Qpk)       | 400 gal/day/s.f. at peak flow | 217.248(b)(2)(C) |
| TCEQ Minimum Side Water Depth (SWD)      | 10 ft                         | 217.248(b)(2)(D) |
| TCEQ Minimum Bottom Slope                | 1.5 inches/ft                 | 217.248(b)(2)(E) |
| TCEQ Min. Peripheral Velocity of Scraper | 15 ft/min                     | 217.248(b)(2)(F) |
| TCEQ Max. Peripheral Velocity of Scraper | 20 ft/min                     | 217.248(b)(2)(F) |
| Volumetric Flow Rate of Sludge Per Day   | 18303 gal/day                 |                  |

|                               |            |                                   |
|-------------------------------|------------|-----------------------------------|
| Minimum Surface Area Required | 22.88 s.f. | 7.6 ft min dia for one Thickener  |
| Maximum Surface Area Allowed  | 45.76 s.f. | 5.4 ft min dia for two Thickeners |

|                     |          |                                   |
|---------------------|----------|-----------------------------------|
| Thickeners Provided | tanks(s) |                                   |
| Diameter            | ft       | it's the existing small clarifier |
| Height              | ft       |                                   |
| Static WL           | ft       |                                   |
| SWD                 | ft       |                                   |
| Surface Area        | 0.0 s.f. |                                   |
| Volume              | 0.0 c.f. |                                   |

|                    |          |                        |    |
|--------------------|----------|------------------------|----|
| Total Surface Area | 0 s.f.   | Within Required Range? | NO |
| Total Volume       | 0.0 c.f. |                        |    |

## Aeration Equipment Sizing

|  |  |  | Regulation                               |
|--|--|--|--|
| Oxygen Requirement per Equation F.2  | 1.63 lbs O <sub>2</sub> /lb BOD <sub>5</sub> |  | 217.155(a)(2)(Equation F.2)              |
| Oxygen Requirement per Table F.3   | 2.2 lbs O <sub>2</sub> /lb BOD <sub>5</sub>  |  | 217.155(a)(2)(Table F.3)                 |
| Oxygen Requirement for Use in Air Requirements                                 | 2.2 lbs O <sub>2</sub> /lb BOD <sub>5</sub>  |  | 217.155(a)(2)                            |
| <i>Aeration System Airflow Design Based on 217.155(b)(1) Table F.4</i>         |  |  |  |
| Minimum Air Flow Requirement for Diffused Air                                  | 3200 SCF/day/lb BOD <sub>5</sub>             |  | 217.155(b)(1)(Table F.4)                 |
| Design Airflow Rate  | 2965.333333 SCFM                             |  | 217.155(b)(1)(Table F.4)                 |
| <i>Aeration System Airflow Design Based on 217.155(b)(2) Equation F.3</i>      |  |  |  |
| Clean Water Oxygen Transfer Efficiency   | 11 %   |  | 217.155(b)(2) *Based on Single Drop Diff |
| Standard Diffuser Depth  | 12 ft  |  | 217.155(b)(2)(D)                         |
| Type of Diffuser   | Coarse Bubble                                |  |  |
| Wastewater Oxygen Transfer Efficiency  | 7.15 %                                       |  | 217.155(b)(2)(B)(i)                      |
| Required Air Flow Rate   | 1653 SCFM                                    |  | 217.155(B)(2)©                           |
| Actual Diffuser Depth  | 9.67 ft                                      |  | 217.155(b)(2)(D)                         |
| Is a Correction Factor Require?  | Yes  |  | 217.155(b)(2)(D)                         |
| Diffuser Submergence Correction Factor Used                                    | 1.6029                                       |  | 217.155(b)(2)(D)(Table F.5)              |
| Corrected Required Air Flow Rate   | 2649 SCFM                                    |  | 217.155(b)(2)(D)                         |
| Design Airflow Requirements for Aeration Process                               | 2649 SCFM                                    |  | 217.155(b)                               |
| <i>Mixing Requirements for Diffused Air Based on 217.155(b)(3)(B)</i>          |  |  |  |
| Type of Diffuser   | Coarse Bubble                                |  |  |
| Minimum Airflow Requirement Diffused Air                                       | 20 SCFM/1000 c.f.                            |  | 217.155(b)(3)                            |
| Design Airflow Requirements for Aeration Mixing                                | 875.7936 SCFM                                |  | 217.155(b)(3)                            |
| <b>Design Airflow Requirements for Aeration Basins</b>                         | <b>2649 SCFM</b>                             |  |  |
| <i>Digester Aeration System Airflow Design</i>                                 |  |  |  |
| Amount of Oxygen Required  | 2.3 lbs O <sub>2</sub> /lb VSS reduction     |  |  |
| Density of Air   | 0.0749 lbs Air/c.f.                          |  |  |
| Required Amount of Oxygen for Digestion  | 1752 lbs O <sub>2</sub> /day                 |  |  |
| Wastewater Oxygen Transfer Efficiency for Digester Diffusers                   | 7.15 %                                       |  |  |
| Required Amount of Air for Digestion   | 979 SCFM                                     |  |  |
| Minimum Airflow Requirements for Diffused Air Mixing in Digester               | 30 SCFM/1000 c.f.                            |  | 217.251(d)(1)(C)                         |
| Required Amount of Air for Digester Mixing                                     | 712.8 SCFM                                   |  |  |
| <b>Design Airflow Requirements for Digester Basins</b>                         | <b>979 SCFM</b>                              |  | 217.251(d)(1)(C)                         |
| Minimum Airflow Requirements for Diffused Air Mixing in Chlorine Contact Basin | 20 SCFM/1000 c.f.                            |  |  |
| <b>Design Airflow Requirements for Chlorine Contact Mixing</b>                 | <b>114.75 SCFM</b>                           |  |  |
| <b>Design Airflow Requirements for Airlift Pumps</b>                           | SCFM   |  | per manufacturer recommendation          |
| Minimum Airflow Requirement for Equalization Basin Mixing                      | 0 SCFM/s.f.                                  |  | 217.128(d)                               |
| <b>Design Airflow Requirements for Equalization Basin Mixing</b>               | <b>0 SCFM</b>                                |  |  |
| <b>Total Airflow Requirements for WWTP Systems</b>                             | <b>3743 SCFM</b>                             |  | 6548                                     |

**Process Air Blower Capacity**

---

|  |      |      |
|--|------|------|
| No. of Existing Blowers  | 0    |      |
| Existing Blower Capacity   | 0    | SCFM |
| No. of Prop. Blowers   | 6    |      |
| Prop. Blower Capacity  | 800  | SCFM |
| Prop. Blower Firm Capacity   | 4000 | SCFM |
| Prop. Blower Total Capacity  | 4800 | SCFM |
| (Blower firm capacity is blower capacity with largest blower out of service) |      |      |
| Prop. Blower Firm Capacity Greater Than Required                             | Yes  |      |
| Prop. Blower Total Capacity Greater Than Required                            | Yes  |      |

**Pounds Per Day of Chlorine Required for Treatment**

---

|                        |          |         |                      |
|------------------------|----------|---------|----------------------|
| Chlorine Concentration | 8        | mg/L    | Regulation           |
| Lbs of Chlorine / Day  | 170.8032 | lbs/day | 217.272(b) Table K.1 |

**Maximum Withdrawal Rate From Gas Cylinder**

---

|  |     |                 |                            |
|--|-----|-----------------|----------------------------|
| Low Ambient Temperature                  | 65  | deg Farenheit   | Regulation                 |
| Threshold Temperature                    | 0   | deg Farenheit   | 217.273(a)(1)              |
| Withdrawal Factor                        | 8   | lbs/deg Far/day | 217.273(a)(1) Table K.2    |
| Maximum gas withdrawal rate per cylinder | 520 | lbs/day         | 217.273(a)(1) Table K.2    |
|  |     |                 | 217.273(a)(1) Equation K.2 |

**Minimum Number of Cylinders Required per Bank**

---

|   |   |               |            |
|---|---|---------------|------------|
| Minimum number of cylinders required per bank | 0 | No. Cylinders | Regulation |
|   |   |               | 217.273(b) |

| HYDRAULIC CALCULATIONS |   |  |  |                            |  |           |           |           |         |
|------------------------|---|--|--|----------------------------|--|-----------|-----------|-----------|---------|
| HCMUD 606 WWTP         |   |  |  |                            |  |           |           |           |         |
| Steel Package Plant    |   |  |  |                            |  |           |           |           |         |
|                        |   |  |  |                            |  | Avg Flow  | Peak Flow | Ult Flow  | Units   |
|                        |   |  |  |                            |  | 0.24      | 0.96      | 2.56      | MGD     |
|                        |   |  |  |                            |  | 167       | 667       | 1778      | gpm     |
|                        |   |  |  |                            |  | 0.37      | 1.49      | 3.96      | cfs     |
| 1                      | Losses Through Aeration Influent Pipe Orifice |  |  |                            |  |           |           |           |         |
| 2                      |   |  |  |                            |  |           |           |           |         |
| 3                      |   |  | Pipe Diameter                          |                            |  | 10        | 10        | 10        | Inch    |
| 4                      |   |  | Headworks Bottom Elevation             |                            |  | 178.167   | 178.167   | 178.167   | Feet    |
| 5                      |   |  | Downstream WSE                         |                            |  | 175.05    | 175.09    | 175.17    | Feet    |
| 5                      |   |  | C (Weir Coefficient)                   |                            |  | 0.6       | 0.6       | 0.6       |         |
| 6                      |   |  | Flow Factor                            |                            |  | 1         | 1         | 1         |         |
| 6                      |   |  | Effluent Flowrate                      |                            |  | 0.19      | 0.74      | 1.98      | cfs     |
| 6                      |   |  | Diameter                               |                            |  | 0.8333333 | 0.8333333 | 0.8333333 | Feet    |
| 7                      |   |  | Headloss                               |                            |  | 0.001     | 0.008     | 0.059     | Feet    |
| 8                      |   |  | Upstream Water Surface Elevation       |                            |  | 175.05    | 175.10    | 175.23    | Feet    |
| 9                      | Headworks Weir                                |  |  |                            |  |           |           |           |         |
| 10                     |   |  |  |                            |  |           |           |           |         |
| 11                     |   |  | Flow Factor                            |                            |  | 1         | 1         | 1         |         |
| 12                     |   |  | Flowrate                               |                            |  | 0.19      | 0.74      | 1.98      | cfs     |
| 13                     | Weir Constants                                |  |  |                            |  |           |           |           |         |
| 14                     |   |  | Angle                                  |                            |  | 180       | 180       | 180       |         |
| 15                     |   |  | Weir Elevation                         |                            |  | 179.667   | 179.667   | 179.667   | Feet    |
| 16                     |   |  | C (Weir Coefficient)                   |                            |  | 3.3       | 3.3       | 3.3       |         |
| 17                     |   |  | Weir Length                            |                            |  | 2.50      | 2.50      | 2.50      | Feet    |
| 18                     |   |  | Head on Weir                           |                            |  | 0.08      | 0.20      | 0.39      | Feet    |
| 19                     |   |  | Upstream Water Surface Elevation       |                            |  | 179.75    | 179.87    | 180.05    | Feet    |
| 20                     | Loss Through 1" Bar Screen                    |  |  |                            |  |           |           |           |         |
| 21                     |   |  |  |                            |  |           |           |           |         |
| 22                     |   |  | Screen Width                           | 1" Bar Screen Opening      |  | 0.06      | 0.06      | 0.06      | Feet    |
| 23                     |   |  | Bar Width                              | (standard is 0.25")        |  | 0.02      | 0.02      | 0.02      | Feet    |
| 24                     |   |  | Headworks Screening Channel Width      |                            |  | 5.00      | 5.00      | 5.00      | Feet    |
| 25                     |   |  | Screen Angle                           | (typically between 35-55)  |  | 55.00     | 55.00     | 55.00     | deg     |
| 26                     |   |  | Clogging Factor                        |                            |  | 0.70      | 0.70      | 0.70      |         |
| 27                     |   |  | N-Value                                |                            |  | 0.01      | 0.01      | 0.01      |         |
| 28                     |   |  | Actual Openings                        |                            |  | 17.86     | 17.86     | 17.86     |         |
| 29                     |   |  | Channel Bottom Elevation               |                            |  | 178.17    | 178.17    | 178.17    | Feet    |
| 30                     |   |  | Side Water Depth                       |                            |  | 1.58      | 1.70      | 1.89      | Feet    |
| 31                     |   |  | Channel Length                         |                            |  | 1.11      | 1.19      | 1.32      | Feet    |
| 32                     |   |  | Cross Sectional Area of Water          |                            |  | 0.10      | 0.11      | 0.12      | Sq. Ft. |
| 33                     |   |  | Wetted Perimeter                       |                            |  | 3.22      | 3.46      | 3.84      | Feet    |
| 34                     |   |  | Flowrate (mgd)                         |                            |  | 0.01      | 0.05      | 0.14      | MGD     |
| 35                     |   |  | Flowrate (Cfs)                         |                            |  | 0.02      | 0.08      | 0.22      | CFS     |
| 36                     |   |  | Velocity through channel (fps)         |                            |  | 0.21      | 0.78      | 1.87      | FPS     |
| 37                     |   |  | Headloss due to friction               |                            |  |           |           |           |         |
| 38                     |   |  | $H = L*((Q*n)/(1.49*A*(R^{2/3})))^2$   |                            |  | 0.00      | 0.01      | 0.04      | Feet    |
| 39                     |   |  |  |                            |  |           |           |           |         |
| 40                     |   |  | Water Surface Elevation                | Upstream of Opening        |  | 179.75    | 179.87    | 180.09    | ft      |
| 41                     |   |  |  |                            |  |           |           |           |         |
| 42                     | Loss Through 3/4" Bar Screen                  |  |  |                            |  |           |           |           |         |
| 43                     |   |  |  |                            |  |           |           |           |         |
| 44                     |   |  | Screen Width                           | 3/4" Bar Screen Opening, 4 |  | 0.08      | 0.08      | 0.08      | Feet    |
| 45                     |   |  | Bar Width (standard is 0.25")          |                            |  | 0.02      | 0.02      | 0.02      | Feet    |
| 46                     |   |  | Headwork Screening Channel Width       |                            |  | 5.00      | 5.00      | 5.00      | Feet    |
| 47                     |   |  | Screen Angle (typically between 35-55) |                            |  | 55.00     | 55.00     | 55.00     | deg     |
| 48                     |   |  | Clogging Factor                        |                            |  | 0.70      | 0.70      | 0.70      |         |
| 49                     |   |  | N-Value                                |                            |  | 0.01      | 0.01      | 0.01      |         |
| 50                     |   |  | Actual Openings                        |                            |  | 14.42     | 14.42     | 14.42     |         |
| 51                     |   |  | Channel Bottom Elevation               |                            |  | 178.17    | 178.17    | 178.17    | Feet    |
| 52                     |   |  | Side Water Depth                       |                            |  | 1.58      | 1.71      | 1.92      | Feet    |
| 53                     |   |  | Channel Length                         |                            |  | 1.11      | 1.19      | 1.35      | Feet    |

|    |  |               |               |               |           |
|----|--|---------------|---------------|---------------|-----------|
| 54 | Cross Sectional Area of Water                            | 0.13          | 0.14          | 0.16          | Sq. Ft.   |
| 55 | Wetted Perimeter   | 3.24          | 3.50          | 3.93          | Feet      |
| 56 | Flowrate (mgd)   | 0.02          | 0.07          | 0.18          | MGD       |
| 57 | Flowrate (Cfs)   | 0.03          | 0.10          | 0.27          | CFS       |
| 58 | Velocity through channel (fps)                           | 0.20          | 0.73          | 1.72          | FPS       |
| 59 | Headloss due to friction                                 |               |               |               |           |
| 60 | $H = L * ((Q * n) / (1.49 * A * (R^{2/3})))^2$           | 0.00          | 0.00          | 0.03          | Feet      |
| 61 |  |               |               |               |           |
| 62 | <b>Water Surface Elevation Upstream of Opening</b>       | <b>179.75</b> | <b>179.88</b> | <b>180.12</b> | <b>ft</b> |
| 63 |  |               |               |               |           |
| 64 | <b>Emergency Bypass Weir</b>                             |               |               |               |           |
| 65 |  |               |               |               |           |
| 66 | Length of Weir   | 2.00          | 2.00          | 2.00          | Feet      |
| 67 | Flow over Weir, MGD                                      | 0.24          | 0.96          | 2.56          | MGD       |
| 68 | Flow over Weir, Cfs                                      | 0.37          | 1.49          | 3.96          | CFS       |
| 69 | Water Surface Downstream                                 | 175.05        | 179.88        | 180.12        | Feet      |
| 70 | Channel Bottom Elevation                                 | 178.17        | 178.17        | 178.17        | Feet      |
| 71 | Headworks TOW Elevation                                  | 181.67        | 181.67        | 181.67        | Feet      |
| 72 | Weir Elevation   | 180.17        | 180.17        | 180.17        | Feet      |
| 73 | Cw   | 3.33          | 3.33          | 3.33          |           |
| 74 | Head over Weir, $H = (Q / Cw * L)^{2/3}$                 | 0.15          | 0.37          | 0.71          | Feet      |
| 75 | Head over Weir, Inches                                   | 1.75          | 4.41          | 8.49          | Inches    |
| 76 | Water Depth in Channel Upstream of Weir, Feet            | 2.15          | 2.37          | 2.71          | Feet      |
| 77 | Headloss over Weir                                       | 5.27          | 0.66          | 0.76          | Feet      |
| 78 |  |               |               |               |           |
| 79 | <b>Water Surface Elevation Upstream of Overflow Weir</b> | <b>180.31</b> | <b>180.53</b> | <b>180.87</b> | <b>ft</b> |

**HYDRAULIC CALCULATIONS**  
**HCMUD 606 WWTP**  
**Steel Package Plant**

|   |   |  |  |  |  | Avg Flow      | Peak Flow     | Ult Flow      | Units       |
|---|---|--|--|--|--|---------------|---------------|---------------|-------------|
|   |   |  |  |  |  | 0.08          | 0.32          | 0.8533333     | MGD         |
|   |   |  |  |  |  | 56            | 222           | 593           | gpm         |
|   |   |  |  |  |  | 0.12          | 0.50          | 1.32          | cfs         |
| <b>1 Aeration Basin Effluent Line to Upstream End of Aeration Basin</b> |   |  |  |  |  |               |               |               |             |
| 2   |   |  |  |  |  |               |               |               |             |
| 3   | Channel Width                           |  |  |  |  | 12            | 12            | 12            | Feet        |
| 4   | Aeration Basin Bottom Elevation         |  |  |  |  | 165           | 165           | 165           | Feet        |
| 5   | Top of Wall Elevation                   |  |  |  |  | 177.127       | 177.127       | 177.127       | Feet        |
| 5   | Downstream WSE                          |  |  |  |  | 175.05        | 175.08        | 175.14        | Feet        |
| 6   | Sidewater Depth                         |  |  |  |  | 10.05         | 10.08         | 10.14         | Feet        |
| 6   | Channel Length                          |  |  |  |  | 38.00         | 38.00         | 38.00         | Feet        |
| 6   | Cross Sectional Area                    |  |  |  |  | 120.56254     | 121.00742     | 121.63952     | SF          |
| 7   | Flow Factor                             |  |  |  |  | 1             | 1             | 1             |             |
| 8   | Flowrate                                |  |  |  |  | 0.72          | 1.09          | 1.92          | cfs         |
| 9   | Wetted Perimeter                        |  |  |  |  | 32.093757     | 32.167903     | 32.273254     | Feet        |
| 10  | Hydraulic Radius                        |  |  |  |  | 3.756573      | 13.75         | 13.75         | Feet        |
| 11  | Velocity                                |  |  |  |  | 0.0059656     | 0.0090123     | 0.0157494     | fps         |
| 12  | N-value                                 |  |  |  |  | 0.015         | 0.015         | 0.015         | Feet        |
| 10  | <b>Headloss</b>                         |  |  |  |  | <b>0.000</b>  | <b>0.000</b>  | <b>0.000</b>  | Feet        |
| 11  | <b>Upstream Water Surface Elevation</b> |  |  |  |  | <b>175.05</b> | <b>175.08</b> | <b>175.14</b> | <b>Feet</b> |
| <b>12 Influent Line from Headworks to Upstream of Aeration Basin 2</b>  |   |  |  |  |  |               |               |               |             |
| 13  |   |  |  |  |  |               |               |               |             |
| 14  | Pipe Diameter                           |  |  |  |  | 12            | 12            | 12            | Inch        |
| 15  | Downstream WSE                          |  |  |  |  | 175.05        | 175.08        | 175.14        | Feet        |
| 16  | Number of Pipes (Parallel)              |  |  |  |  | 1             | 1             | 1             |             |
| 17  | N-Value                                 |  |  |  |  | 0.012         | 0.012         | 0.012         |             |
| 18  | Flow Factor                             |  |  |  |  | 1             | 1             | 1             |             |
| 19  | Flowrate                                |  |  |  |  | 0.12          | 0.50          | 1.32          | cfs         |
| 20  | Diameter                                |  |  |  |  | 1             | 1             | 1             | Feet        |
| 21  | Reach Length                            |  |  |  |  | 30            | 30            | 30            | Feet        |
| 22  | Cross Sectional Area                    |  |  |  |  | 0.785         | 0.785         | 0.785         | SF          |
| 23  | Velocity                                |  |  |  |  | 0.158         | 0.630         | 1.681         | fps         |
| 24  | Wetted Perimeter                        |  |  |  |  | 3.142         | 3.142         | 3.142         | Feet        |
| 25  | Hydraulic Radius                        |  |  |  |  | 0.25          | 0.25          | 0.25          | Feet        |
| 26  | Friction Slope                          |  |  |  |  | 0.000         | 0.000         | 0.001         | Ft/Ft       |
| 27  |   |  |  |  |  |               |               |               |             |
| 28  | <b>Friction Loss</b>                    |  |  |  |  | 0.00          | 0.00          | 0.03          | Feet        |
| 29  |   |  |  |  |  |               | Vel Head      |               |             |
| 30  | Minor Losses                            |  |  |  |  | Minimum       | Avg           | Avg           |             |

|    |   |               |              |                   |                   |                   |             |
|----|---|---------------|--------------|-------------------|-------------------|-------------------|-------------|
| 31 | Assume Pipe Flowing Full                |               |              | 0.000             | 0.006             | 0.044             | Feet        |
| 32 |   |               |              |                   |                   |                   |             |
| 33 | <u>Minor Losses</u>                     | <u>Number</u> | <u>Koeff</u> | <u>Minor Loss</u> | <u>Minor Loss</u> | <u>Minor Loss</u> |             |
| 34 | Exit Loss                               | 1             | 1            | 0.000             | 0.000             | 0.000             | Feet        |
| 35 | 22 Degree Bend                          | 0             | 0.2          | 0.000             | 0.000             | 0.000             | Feet        |
| 36 | 45 Degree Bend                          | 1             | 0.2          | 0.000             | 0.000             | 0.000             | Feet        |
| 37 | Entrance Loss                           | 1             | 0.5          | 0.000             | 0.000             | 0.000             | Feet        |
| 38 | <b>Total Minor Losses</b>               |               |              | <b>0.000</b>      | <b>0.000</b>      | <b>0.000</b>      | Feet        |
| 39 | <b>Total Losses</b>                     |               |              | <b>0.000</b>      | <b>0.005</b>      | <b>0.035</b>      | Feet        |
| 40 | <b>Upstream Water Surface Elevation</b> |               |              | <b>175.05</b>     | <b>175.09</b>     | <b>175.17</b>     | <b>Feet</b> |

**HYDRAULIC CALCULATIONS**  
**HCMUD 606 WWTP**  
**Steel Package Plant**

|   |   |  |  |  |  | Avg Flow      | Peak Flow     | Ult Flow      | Units       |
|---|---|--|--|--|--|---------------|---------------|---------------|-------------|
|   |   |  |  |  |  | 0.24          | 0.96          | 2.56          | MGD         |
|   |   |  |  |  |  | 167           | 667           | 1778          | gpm         |
|   |   |  |  |  |  | 0.37          | 1.49          | 3.96          | cfs         |
| <b>1 Losses Through Clarifier Effluent Pipe Orifice</b> |   |  |  |  |  |               |               |               |             |
| 2   |   |  |  |  |  |               |               |               |             |
| 3   | Pipe Diameter                           |  |  |  |  | 12            | 12            | 12            | Inch        |
| 4   | Launder Bottom Elevation                |  |  |  |  | 174           | 174           | 174           | Feet        |
| 5   | Downstream WSE                          |  |  |  |  | 174.29        | 174.51        | 174.78        | Feet        |
| 6   | C (Weir Coefficient)                    |  |  |  |  | 0.6           | 0.6           | 0.6           |             |
| 7   | Flow Factor                             |  |  |  |  | 1             | 1             | 1             |             |
| 8   | Effluent Flowrate                       |  |  |  |  | 0.37          | 1.49          | 3.96          | cfs         |
| 9   | Diameter                                |  |  |  |  | 1             | 1             | 1             | Feet        |
| 10  | <b>Headloss</b>                         |  |  |  |  | <b>0.001</b>  | <b>0.016</b>  | <b>0.113</b>  | Feet        |
| 11  | <b>Upstream Water Surface Elevation</b> |  |  |  |  | <b>174.29</b> | <b>174.53</b> | <b>174.89</b> | <b>Feet</b> |
| <b>12 Clarifier V-notch Weir</b>                        |   |  |  |  |  |               |               |               |             |
| 13  |   |  |  |  |  |               |               |               |             |
| 14  | Flow Factor                             |  |  |  |  | 1             | 1             | 1             |             |
| 15  | Flowrate                                |  |  |  |  | 0.37          | 1.49          | 3.96          | cfs         |
| 16  | <b>Weir Constants</b>                   |  |  |  |  |               |               |               |             |
| 17  | Angle                                   |  |  |  |  | 90            | 90            | 90            |             |
| 18  | Weir Elevation                          |  |  |  |  | 175           | 175           | 175           | Feet        |
| 19  | C (Weir Coefficient)                    |  |  |  |  | 2.5           | 2.5           | 2.5           |             |
| 20  | Clarifier Diameter                      |  |  |  |  | 35.00         | 35.00         | 35.00         | Feet        |
| 21  | Spacing b/w Inner Wall and Weir         |  |  |  |  | 2.00          | 2.00          | 2.00          | Feet        |
| 22  | Weir Length                             |  |  |  |  | 103.67        | 103.67        | 103.67        | Feet        |
| 23  | Spacing b/w V-notches                   |  |  |  |  | 0.50          | 0.50          | 0.50          | Feet        |
| 24  | Number of Weirs                         |  |  |  |  | 207           | 207           | 207           |             |
| 25  | Flow Through Each Weir                  |  |  |  |  | 0.002         | 0.007         | 0.019         | cfs         |
| 26  | Head on Weir                            |  |  |  |  | 0.05          | 0.08          | 0.12          | Feet        |
| 27  | <b>Upstream Water Surface Elevation</b> |  |  |  |  | <b>175.05</b> | <b>175.08</b> | <b>175.12</b> | <b>Feet</b> |
| <b>28 Clarifier Losses</b>                              |   |  |  |  |  |               |               |               |             |
| 29  |   |  |  |  |  |               |               |               |             |
| 30  | Basin Diameter                          |  |  |  |  | 420           | 420           | 420           | Inch        |
| 31  | N-Value                                 |  |  |  |  | 0.012         | 0.012         | 0.012         |             |
| 32  | Flow Factor                             |  |  |  |  | 1             | 1             | 1             |             |
| 33  | Effluent Flowrate                       |  |  |  |  | 0.37          | 1.49          | 3.96          | cfs         |
| 34  | Diameter                                |  |  |  |  | 35            | 35            | 35            | Feet        |
| 35  | Basin Floor Elevation                   |  |  |  |  | 165           | 165           | 165           | Feet        |
| 36  | Reach Length                            |  |  |  |  | 10.79         | 10.79         | 10.79         | Feet        |



|    |   |               |              |                   |                   |                   |             |
|----|---|---------------|--------------|-------------------|-------------------|-------------------|-------------|
| 37 | Cross Sectional Area                    |               |              | 962.113           | 962.113           | 962.113           | SF          |
| 38 | Velocity                                |               |              | 0.000             | 0.002             | 0.004             | fps         |
| 39 | Wetted Perimeter                        |               |              | 109.956           | 109.956           | 109.956           | Feet        |
| 40 | Hydraulic Radius                        |               |              | 8.75              | 8.75              | 8.75              | Feet        |
| 41 | Friction Slope                          |               |              | 0.000             | 0.000             | 0.000             | Ft/Ft       |
| 42 |   |               |              |                   |                   |                   |             |
| 43 | <b>Friction Loss</b>                    |               |              | 0.00              | 0.00              | 0.00              | Feet        |
| 44 |   |               |              |                   | Vel Head          |                   |             |
| 45 | Minor Losses                            |               |              | Minimum           | Avg               | Avg               |             |
| 46 | Assume Pipe Flowing Full                |               |              | 0.000             | 0.000             | 0.000             | Feet        |
| 47 |   |               |              |                   |                   |                   |             |
| 48 | <u>Minor Losses</u>                     | <u>Number</u> | <u>Koeff</u> | <u>Minor Loss</u> | <u>Minor Loss</u> | <u>Minor Loss</u> |             |
| 49 | Exit Loss                               | 1             | 1            | 0.000             | 0.000             | 0.000             | Feet        |
| 50 | 22 Degree Bend                          | 0             | 0.2          | 0.000             | 0.000             | 0.000             | Feet        |
| 51 | 45 Degree Bend                          | 0             | 0.2          | 0.000             | 0.000             | 0.000             | Feet        |
| 52 | Entrance Loss                           | 1             | 0.5          | 0.000             | 0.000             | 0.000             | Feet        |
| 53 | <b>Total Minor Losses</b>               |               |              | <b>0.000</b>      | <b>0.000</b>      | <b>0.000</b>      | Feet        |
| 54 | <b>Total Losses</b>                     |               |              | <b>0.000</b>      | <b>0.000</b>      | <b>0.000</b>      | Feet        |
| 55 | <b>Upstream Water Surface Elevation</b> |               |              | <b>175.05</b>     | <b>175.08</b>     | <b>175.12</b>     | <b>Feet</b> |
| 56 | <b>Clarifier Center Well Losses</b>     |               |              |                   |                   |                   |             |
| 57 |   |               |              |                   |                   |                   |             |
| 58 | Basin Diameter                          |               |              | 84                | 84                | 84                | Inch        |
| 59 | N-Value                                 |               |              | 0.012             | 0.012             | 0.012             |             |
| 60 | Flow Factor                             |               |              | 1                 | 1                 | 1                 |             |
| 61 | Flowrate                                |               |              | 0.84              | 1.56              | 3.16              | cfs         |
| 62 | Diameter                                |               |              | 7                 | 7                 | 7                 | Feet        |
| 63 | Reach Length                            |               |              | 4.25              | 4.25              | 4.25              | Feet        |
| 64 | Cross Sectional Area                    |               |              | 38.485            | 38.485            | 38.485            | SF          |
| 65 | Velocity                                |               |              | 0.022             | 0.040             | 0.082             | fps         |
| 66 | Wetted Perimeter                        |               |              | 21.99             | 21.99             | 21.99             | Feet        |
| 67 | Hydraulic Radius                        |               |              | 1.750             | 1.750             | 1.750             | Feet        |
| 68 | Friction Slope                          |               |              | 0.000             | 0.000             | 0.000             | Ft/Ft       |
| 69 |   |               |              |                   |                   |                   |             |
| 70 | <b>Friction Loss</b>                    |               |              | 0.00              | 0.00              | 0.00              | Feet        |
| 71 |   |               |              |                   | Vel Head          |                   |             |
| 72 | Minor Losses                            |               |              | Minimum           | Avg               | Avg               |             |
| 73 | Assume Pipe Flowing Full                |               |              | 0.000             | 0.000             | 0.000             | Feet        |
| 74 |   |               |              |                   |                   |                   |             |
| 75 | <u>Minor Losses</u>                     | <u>Number</u> | <u>Koeff</u> | <u>Minor Loss</u> | <u>Minor Loss</u> | <u>Minor Loss</u> |             |
| 76 | Exit Loss                               | 1             | 1            | 0.000             | 0.000             | 0.000             | Feet        |
| 77 | 22 Degree Bend                          | 0             | 0.2          | 0.000             | 0.000             | 0.000             | Feet        |
| 78 | 45 Degree Bend                          | 0             | 0.2          | 0.000             | 0.000             | 0.000             | Feet        |
| 79 | Entrance Loss                           | 1             | 0.5          | 0.000             | 0.000             | 0.000             | Feet        |
| 80 | <b>Total Minor Losses</b>               |               |              | <b>0.000</b>      | <b>0.000</b>      | <b>0.000</b>      | Feet        |
| 81 | <b>Total Losses</b>                     |               |              | <b>0.000</b>      | <b>0.000</b>      | <b>0.000</b>      | Feet        |
| 82 | <b>Upstream Water Surface Elevation</b> |               |              | <b>175.05</b>     | <b>175.08</b>     | <b>175.12</b>     | <b>Feet</b> |

|     |   |               |              |                   |                   |                   |             |
|-----|---|---------------|--------------|-------------------|-------------------|-------------------|-------------|
| 83  | Top of Basin Elevation                                |               |              | 179.17            | 179.17            | 179.17            | Feet        |
| 84  | Freeboard   |               |              | 4.12              | 4.09              | 4.05              | Feet        |
| 85  | <b>Clarifier Feed Pipe From Aeration to Clarifier</b> |               |              |                   |                   |                   |             |
| 86  |   |               |              |                   |                   |                   |             |
| 87  | Pipe Diameter   |               |              | 18                | 18                | 18                | Inch        |
| 88  | Downstream WSE  |               |              | 175.05            | 175.08            | 175.12            | Feet        |
| 89  | Number of Pipes (Parallel)                            |               |              | 1                 | 1                 | 1                 |             |
| 90  | N-Value   |               |              | 0.012             | 0.012             | 0.012             |             |
| 91  | Flow Factor   |               |              | 1                 | 1                 | 1                 |             |
| 92  | Flowrate  |               |              | 0.8354449         | 1.5554449         | 3.1554449         | cfs         |
| 93  | Diameter  |               |              | 1.5               | 1.5               | 1.5               | Feet        |
| 94  | Reach Length  |               |              | 25                | 25                | 25                | Feet        |
| 95  | Cross Sectional Area                                  |               |              | 1.767             | 1.767             | 1.767             | SF          |
| 96  | Velocity  |               |              | 0.473             | 0.880             | 1.786             | fps         |
| 97  | Wetted Perimeter                                      |               |              | 4.712             | 4.712             | 4.712             | Feet        |
| 98  | Hydraulic Radius                                      |               |              | 0.375             | 0.375             | 0.375             | Feet        |
| 99  | Friction Slope  |               |              | 0.000             | 0.000             | 0.001             | Ft/Ft       |
| 100 |   |               |              |                   |                   |                   |             |
| 101 | <b>Friction Loss</b>                                  |               |              | 0.00              | 0.00              | 0.02              | Feet        |
| 102 |   |               |              |                   | Vel Head          |                   |             |
| 103 | Minor Losses  |               |              | Minimum           | Avg               | Avg               |             |
| 104 | Assume Pipe Flowing Full                              |               |              | 0.003             | 0.012             | 0.050             | Feet        |
| 105 |   |               |              |                   |                   |                   |             |
| 106 | <u>Minor Losses</u>                                   | <u>Number</u> | <u>Koeff</u> | <u>Minor Loss</u> | <u>Minor Loss</u> | <u>Minor Loss</u> |             |
| 107 | Exit Loss   | 1             | 1            | 0.000             | 0.000             | 0.000             | Feet        |
| 108 | 22 Degree Bend  | 0             | 0.2          | 0.000             | 0.000             | 0.000             | Feet        |
| 109 | 90 Degree Bend  | 1             | 0.39         | 0.000             | 0.000             | 0.000             | Feet        |
| 110 | Entrance Loss   | 1             | 0.5          | 0.000             | 0.000             | 0.000             | Feet        |
| 111 | <b>Total Minor Losses</b>                             |               |              | <b>0.000</b>      | <b>0.000</b>      | <b>0.000</b>      | Feet        |
| 112 | <b>Total Losses</b>                                   |               |              | <b>0.001</b>      | <b>0.005</b>      | <b>0.019</b>      | Feet        |
| 113 | <b>Upstream Water Surface Elevation</b>               |               |              | <b>175.05</b>     | <b>175.08</b>     | <b>175.14</b>     | <b>Feet</b> |

**HYDRAULIC CALCULATIONS**  
**HCMUD 606 WWTP**  
**Steel Package Plant**

|   |                                  |        |  |       |            | Avg Flow   | Peak Flow  | Ult Flow | Units |
|---|----------------------------------|--------|--|-------|------------|------------|------------|----------|-------|
|   |                                  |        |  |       |            | 0.24       | 0.96       | 2.56     | MGD   |
|   |                                  |        |  |       |            | 167        | 667        | 1778     | gpm   |
|   |                                  |        |  |       |            | 0.37       | 1.49       | 3.96     | cfs   |
| 1 Outfall at Storm Sewer Manhole          |                                  |        |  |       |            |            |            |          |       |
| 2 100-Yr W.S.E. of Receiving Stream       |                                  |        |  |       |            | 160.54     | 160.54     | 160.54   | Feet  |
| 3 Pipe from Most Downstream MH to Outfall |                                  |        |  |       |            |            |            |          |       |
| 4   |                                  |        |  |       |            |            |            |          |       |
| 5   | Pipe Diameter                    |        |  |       |            | 24         | 24         | 24       | Inch  |
| 6   | Downstream WSE (Worst Case)      |        |  |       |            | 160.54     | 160.54     | 160.54   | Feet  |
| 7   | Number of Pipes (Parallel)       |        |  |       |            | 1          | 1          | 1        |       |
| 8   | N-Value                          |        |  |       |            | 0.024      | 0.024      | 0.024    |       |
| 9   | Flow Factor                      |        |  |       |            | 1          | 1          | 1        |       |
| 10  | Effluent Flowrate                |        |  |       |            | 0.24       | 0.96       | 2.56     | MGD   |
| 11  | Onsite Storm Flowrate (Q100)     |        |  |       |            | 16.090     | 16.090     | 16.090   | cfs   |
| 12  | Total Flowrate                   |        |  |       |            | 16.461     | 17.575     | 20.051   | cfs   |
| 13  | Diameter                         |        |  |       |            | 2          | 2          | 2        | Feet  |
| 14  | Reach Length                     |        |  |       |            | 30         | 30         | 30       | Feet  |
| 15  | Cross Sectional Area             |        |  |       |            | 3.142      | 3.142      | 3.142    | SF    |
| 16  | Velocity                         |        |  |       |            | 5.240      | 5.594      | 6.382    | fps   |
| 17  | Wetted Perimeter                 |        |  |       |            | 6.283      | 6.283      | 6.283    | Feet  |
| 18  | Hydraulic Radius                 |        |  |       |            | 0.5        | 0.5        | 0.5      | Feet  |
| 19  | Friction Slope                   |        |  |       |            | 0.018      | 0.020      | 0.027    | Ft/Ft |
| 20  |                                  |        |  |       |            |            |            |          |       |
| 21  | Friction Loss                    |        |  |       |            | 0.54       | 0.61       | 0.80     | Feet  |
| 22  |                                  |        |  |       |            |            | Vel Head   |          |       |
| 23  | Minor Losses                     |        |  |       |            | Minimum    | Avg        | Avg      |       |
| 24  | Assume Pipe Flowing Full         |        |  |       |            | 0.426      | 0.486      | 0.633    | Feet  |
| 25  |                                  |        |  |       |            |            |            |          |       |
| 26  | Minor Losses                     | Number |  | Koeff | Minor Loss | Minor Loss | Minor Loss |          |       |
| 27  | Exit Loss                        | 1      |  | 1     | 0.426      | 0.486      | 0.633      | Feet     |       |
| 28  | 22 Degree Bend                   | 0      |  | 0.2   | 0.000      | 0.000      | 0.000      | Feet     |       |
| 29  | 45 Degree Bend                   | 0      |  | 0.2   | 0.000      | 0.000      | 0.000      | Feet     |       |
| 30  | Entrance Loss                    | 1      |  | 0.5   | 0.213      | 0.243      | 0.316      | Feet     |       |
| 31  | Total Minor Losses               |        |  |       |            | 0.639      | 0.729      | 0.949    | Feet  |
| 32  | Total Losses                     |        |  |       |            | 1.178      | 1.343      | 1.748    | Feet  |
| 33  | Upstream Water Surface Elevation |        |  |       |            | 161.72     | 161.88     | 162.29   | Feet  |
| 34 Sampling Manhole to outfall manhole    |                                  |        |  |       |            |            |            |          |       |
| 35  |                                  |        |  |       |            |            |            |          |       |
| 36  | Pipe Diameter                    |        |  |       |            | 12         | 12         | 12       | Inch  |

|  |                                  |        |       |            |            |            |       |
|--|----------------------------------|--------|-------|------------|------------|------------|-------|
| 37                                       | Downstream WSE (Worst Case)      |        |       | 161.72     | 161.88     | 162.29     | Feet  |
| 38                                       | Number of Pipes (Parallel)       |        |       | 1          | 1          | 1          |       |
| 39                                       | N-Value                          |        |       | 0.013      | 0.013      | 0.013      |       |
| 40                                       | Flow Factor                      |        |       | 1          | 1          | 1          |       |
| 41                                       | Effluent Flowrate                |        |       | 0.24       | 0.96       | 2.56       | MGD   |
| 42                                       | Onsite Storm Flowrate (Q100)     |        |       | 0.000      | 0.000      | 0.000      | cfs   |
| 43                                       | Total Flowrate                   |        |       | 0.371      | 1.485      | 1.485      | cfs   |
| 44                                       | Diameter                         |        |       | 1          | 1          | 1          | Feet  |
| 45                                       | Reach Length                     |        |       | 38         | 38         | 38         | Feet  |
| 46                                       | Cross Sectional Area             |        |       | 0.785      | 0.785      | 0.785      | SF    |
| 47                                       | Velocity                         |        |       | 0.473      | 1.891      | 1.891      | fps   |
| 48                                       | Wetted Perimeter                 |        |       | 3.142      | 3.142      | 3.142      | Feet  |
| 49                                       | Hydraulic Radius                 |        |       | 0.25       | 0.25       | 0.25       | Feet  |
| 50                                       | Friction Slope                   |        |       | 0.000      | 0.002      | 0.002      | Ft/Ft |
| 51                                       |                                  |        |       |            |            |            |       |
| 52                                       | Friction Loss                    |        |       | 0.00       | 0.07       | 0.07       | Feet  |
| 53                                       |                                  |        |       |            | Vel Head   |            |       |
| 54                                       | Minor Losses                     |        |       | Minimum    | Avg        | Avg        |       |
| 55                                       | Assume Pipe Flowing Full         |        |       | 0.003      | 0.056      | 0.056      | Feet  |
| 56                                       |                                  |        |       |            |            |            |       |
| 57                                       | Minor Losses                     | Number | Koeff | Minor Loss | Minor Loss | Minor Loss |       |
| 58                                       | Exit Loss                        | 1      | 1     | 0.003      | 0.056      | 0.056      | Feet  |
| 59                                       | 22 Degree Bend                   | 0      | 0.2   | 0.000      | 0.000      | 0.000      | Feet  |
| 60                                       | 45 Degree Bend                   | 0      | 0.2   | 0.000      | 0.000      | 0.000      | Feet  |
| 61                                       | Entrance Loss                    | 1      | 0.5   | 0.002      | 0.028      | 0.028      | Feet  |
| 62                                       | Total Minor Losses               |        |       | 0.005      | 0.083      | 0.083      | Feet  |
| 63                                       | Total Losses                     |        |       | 0.009      | 0.149      | 0.149      | Feet  |
| 64                                       | Upstream Water Surface Elevation |        |       | 161.73     | 162.03     | 162.44     | Feet  |
| 65 CCB 1 to Sampling Manhole (Pipe Only) |                                  |        |       |            |            |            |       |
| 66                                       |                                  |        |       |            |            |            |       |
| 67                                       | Pipe Diameter                    |        |       | 12         | 12         | 12         | Inch  |
| 68                                       | Downstream WSE (Worst Case)      |        |       | 161.73     | 162.03     | 162.44     | Feet  |
| 69                                       | Number of Pipes (Parallel)       |        |       | 1          | 1          | 1          |       |
| 70                                       | N-Value                          |        |       | 0.013      | 0.013      | 0.013      |       |
| 71                                       | Flow Factor                      |        |       | 1          | 1          | 1          |       |
| 72                                       | Effluent Flowrate                |        |       | 0.24       | 0.96       | 2.56       | MGD   |
| 73                                       | Onsite Storm Flowrate (Q100)     |        |       | 0.000      | 0.000      | 0.000      | cfs   |
| 74                                       | Total Flowrate                   |        |       | 0.371      | 1.485      | 1.485      | cfs   |
| 75                                       | Diameter                         |        |       | 1          | 1          | 1          | Feet  |
| 76                                       | Reach Length                     |        |       | 70         | 70         | 70         | Feet  |
| 77                                       | Cross Sectional Area             |        |       | 0.785      | 0.785      | 0.785      | SF    |
| 78                                       | Velocity                         |        |       | 0.473      | 1.891      | 1.891      | fps   |
| 79                                       | Wetted Perimeter                 |        |       | 3.142      | 3.142      | 3.142      | Feet  |
| 80                                       | Hydraulic Radius                 |        |       | 0.25       | 0.25       | 0.25       | Feet  |
| 81                                       | Friction Slope                   |        |       | 0.000      | 0.002      | 0.002      | Ft/Ft |
| 82                                       |                                  |        |       |            |            |            |       |

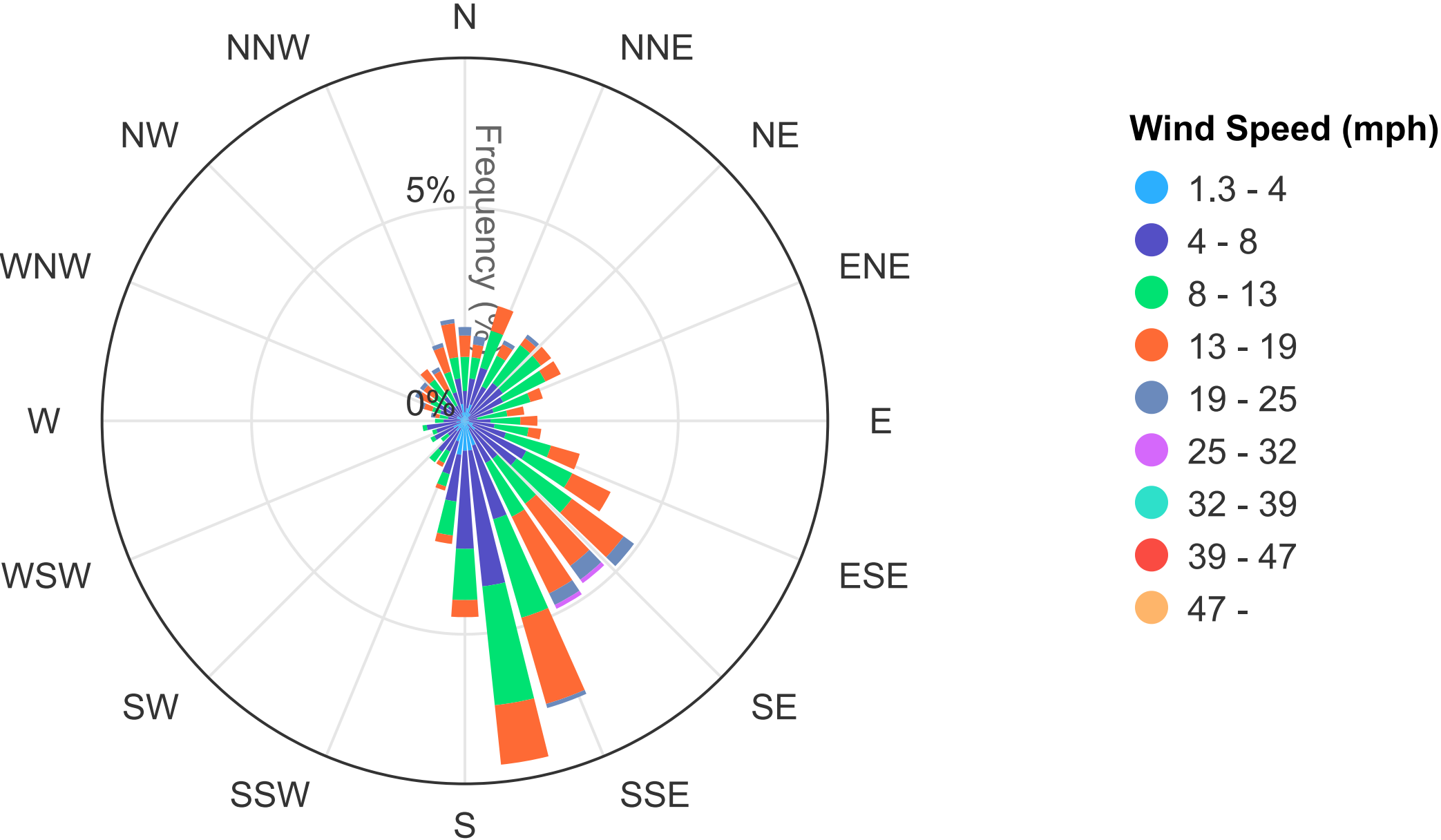
|     |   |               |              |                   |                   |                   |             |
|-----|---|---------------|--------------|-------------------|-------------------|-------------------|-------------|
| 83  | <b>Friction Loss</b>                    |               |              | 0.01              | 0.12              | 0.12              | Feet        |
| 84  |   |               |              |                   | Vel Head          |                   |             |
| 85  | Minor Losses                            |               |              | Minimum           | Avg               | Avg               |             |
| 86  | Assume Pipe Flowing Full                |               |              | 0.003             | 0.056             | 0.056             | Feet        |
| 87  |   |               |              |                   |                   |                   |             |
| 88  | <u>Minor Losses</u>                     | <u>Number</u> | <u>Koeff</u> | <u>Minor Loss</u> | <u>Minor Loss</u> | <u>Minor Loss</u> |             |
| 89  | Exit Loss                               | 1             | 1            | 0.003             | 0.056             | 0.056             | Feet        |
| 90  | Tee - thru flow                         | 1             | 0.24         | 0.001             | 0.013             | 0.013             | Feet        |
| 91  | Gate Valve                              | 1             | 0.1          | 0.000             | 0.006             | 0.006             | Feet        |
| 92  | 22 Degree Bend                          | 0             | 0.2          | 0.000             | 0.000             | 0.000             | Feet        |
| 93  | 45 Degree Bend                          | 0             | 0.2          | 0.000             | 0.000             | 0.000             | Feet        |
| 94  | 90 Degree Bend                          | 3             | 0.39         | 0.004             | 0.065             | 0.065             | Feet        |
| 95  | Entrance Loss                           | 1             | 0.5          | 0.002             | 0.028             | 0.028             | Feet        |
| 96  | <b>Total Minor Losses</b>               |               |              | <b>0.010</b>      | <b>0.167</b>      | <b>0.167</b>      | Feet        |
| 97  | <b>Total Losses</b>                     |               |              | <b>0.018</b>      | <b>0.288</b>      | <b>0.288</b>      | Feet        |
| 98  | <b>Upstream Water Surface Elevation</b> |               |              | <b>161.75</b>     | <b>162.32</b>     | <b>162.72</b>     | <b>Feet</b> |
| 99  | <b>V-Notch Weir in CCB 1</b>            |               |              |                   |                   |                   |             |
| 100 |   |               |              |                   |                   |                   |             |
| 101 | Number of Weirs                         |               |              | 1                 | 1                 | 1                 |             |
| 102 | Flow Factor                             |               |              | 1                 | 1                 | 1                 |             |
| 103 | Max Flow Rate Through Weir              |               |              | 0.19              | 0.74              | 1.98              | cfs         |
| 104 | <b>Weir Constants</b>                   |               |              |                   |                   |                   |             |
| 105 | Angle                                   |               |              | 90                | 90                | 90                |             |
| 106 | Weir Elevation                          |               |              | 174               | 174               | 174               | Feet        |
| 107 | C (Weir Coefficient)                    |               |              | 2.5               | 2.5               | 2.5               |             |
| 108 | Downstream WSE                          |               |              | 161.72            | 161.88            | 162.29            | Feet        |
| 109 | Headloss Through Weir                   |               |              | 0.29              | 0.51              | 0.75              | Feet        |
| 110 | <b>Upstream Water Surface Elevation</b> |               |              | <b>174.29</b>     | <b>174.51</b>     | <b>174.75</b>     | <b>Feet</b> |
| 111 | <b>CCB 1 Channel to Effluent Weir</b>   |               |              |                   |                   |                   |             |
| 112 |   |               |              |                   |                   |                   |             |
| 113 | Channel Width                           |               |              | 12                | 12                | 12                | Feet        |
| 114 | Channel Bottom Elevation                |               |              | 165               | 165               | 165               | Feet        |
| 115 | Channel Length                          |               |              | 18                | 18                | 18                | Feet        |
| 116 | Flowrate                                |               |              | 0.37              | 1.49              | 3.96              | cfs         |
| 117 | Sidewater Depth                         |               |              | 9.29              | 9.51              | 9.75              | Feet        |
| 118 | Cross Sectional Area of Water           |               |              | 111.50            | 114.09            | 117.01            | SF          |
| 119 | Wetted Perimeter                        |               |              | 30.58             | 31.01             | 31.50             | Feet        |
| 120 | Hydraulic Radius                        |               |              | 3.65              | 3.68              | 3.71              | Feet        |
| 121 | Velocity Through Channel                |               |              | 0.00              | 0.01              | 0.03              | fps         |
| 122 | Roughness Coefficient (n)               |               |              | 0.015             | 0.015             | 0.015             |             |
| 123 | Headloss                                |               |              | 3.61E-09          | 5.45E-08          | 3.63E-07          | Feet        |
| 124 | <b>Upstream Water Surface Elevation</b> |               |              | <b>174.29</b>     | <b>174.51</b>     | <b>174.75</b>     | <b>Feet</b> |
| 125 | Top of CCB 1                            |               |              | 175.17            | 175.17            | 175.17            | Feet        |
| 126 | Freeboard                               |               |              | 0.88              | 0.66              | 0.42              | Feet        |
| 127 | <b>Settled Effluent Pipe to CCB 1</b>   |               |              |                   |                   |                   |             |
| 128 |   |               |              |                   |                   |                   |             |

|     |   |               |              |                   |                   |                   |             |
|-----|---|---------------|--------------|-------------------|-------------------|-------------------|-------------|
| 129 | Pipe Diameter                           |               |              | 18                | 18                | 18                | Inch        |
| 130 | Downstream WSE                          |               |              | 174.29            | 174.51            | 174.75            | Feet        |
| 131 | Number of Pipes (Parallel)              |               |              | 1                 | 1                 | 1                 |             |
| 132 | N-Value                                 |               |              | 0                 | 0                 | 0                 |             |
| 133 | Flow Factor                             |               |              | 1                 | 1                 | 1                 |             |
| 134 | Effluent Flowrate                       |               |              | 0.1856679         | 0.7426717         | 1.9804578         | cfs         |
| 135 | Diameter                                |               |              | 1.5               | 1.5               | 1.5               | Feet        |
| 136 | Reach Length                            |               |              | 12                | 12                | 12                | Feet        |
| 137 | Cross Sectional Area                    |               |              | 1.767             | 1.767             | 1.767             | SF          |
| 138 | Velocity                                |               |              | 0.105             | 0.420             | 1.121             | fps         |
| 139 | Wetted Perimeter                        |               |              | 4.712             | 4.712             | 4.712             | Feet        |
| 140 | Hydraulic Radius                        |               |              | 0.375             | 0.375             | 0.375             | Feet        |
| 141 | Friction Slope                          |               |              | 0.000             | 0.000             | 0.000             | Ft/Ft       |
| 142 |   |               |              |                   |                   |                   |             |
| 143 | <b>Friction Loss</b>                    |               |              | 0.00              | 0.00              | 0.00              | Feet        |
| 144 |   |               |              |                   | Vel Head          |                   |             |
| 145 | Minor Losses                            |               |              | Minimum           | Avg               | Avg               |             |
| 146 | Assume Pipe Flowing Full                |               |              | 0.000             | 0.003             | 0.020             | Feet        |
| 147 |   |               |              |                   |                   |                   |             |
| 148 | <u>Minor Losses</u>                     | <u>Number</u> | <u>Koeff</u> | <u>Minor Loss</u> | <u>Minor Loss</u> | <u>Minor Loss</u> |             |
| 149 | Exit Loss                               | 1             | 1            | 0.000             | 0.003             | 0.020             | Feet        |
| 150 | 22 Degree Bend                          | 0             | 0.2          | 0.000             | 0.000             | 0.000             | Feet        |
| 151 | 45 Degree Bend                          | 0             | 0.2          | 0.000             | 0.000             | 0.000             | Feet        |
| 152 | Entrance Loss                           | 1             | 0.5          | 0.000             | 0.001             | 0.010             | Feet        |
| 153 | <b>Total Minor Losses</b>               |               |              | <b>0.000</b>      | <b>0.004</b>      | <b>0.029</b>      | Feet        |
| 154 | <b>Total Losses</b>                     |               |              | <b>0.000</b>      | <b>0.004</b>      | <b>0.029</b>      | Feet        |
| 155 | <b>Upstream Water Surface Elevation</b> |               |              | <b>174.29</b>     | <b>174.51</b>     | <b>174.78</b>     | <b>Feet</b> |

**Attachment 13 – Wind Rose**  
**(Tech. Rpt. 1.1, 5b)**

# HOUSTON INTERCONTINENTAL AP (TX) Wind Rose

January 01, 2024 - September 19, 2024  
Sub-Interval: January 1 - December 31, 0 - 24



Click and drag to zoom



**Attachment 14 – Sludge Management Plan**  
**(Tech. Rpt. 1.1, 7)**

# Technical Report 1.1

## 12. Sewage Sludge Solids Management Plan

### Interim I Phase - Capacity of Digester

|                                |                                     |
|--------------------------------|-------------------------------------|
| Design Flow                    | 0.24 MGD Influent Flow              |
| Minimum Retention Time         | 15 days                             |
| Digester Volume                | 5,378 ft <sup>3</sup>               |
| Digester Dimensions            | 3 @ 22'-0" L x 12'-0" W x 12'-2"SWD |
| Side Water Depth               | 11 ft.                              |
| Digester Sludge Retention Time | 15 days                             |

|                      |                        |            |
|----------------------|------------------------|------------|
| <b>CBOD5 Removal</b> | Influent concentration | 250.0 mg/l |
|                      | Effluent concentration | 10.0 mg/l  |
|                      | Net removal            | 240.0 mg/l |

| <b>Solids Generated</b>                          | <b>100% Flow</b> | <b>75% Flow</b> | <b>50% Flow</b> | <b>25% Flow</b> |
|--|------------------|-----------------|-----------------|-----------------|
| Pounds BOD5/day removed                          | 480              | 360             | 240             | 120             |
| Pounds of dry sludge produced*                   | 151              | 113             | 76              | 38              |
| Pounds of wet sludge produced**                  | 10088            | 7566            | 5044            | 2522            |
| Volume of wet sludge produced in gals.           | 1213             | 909             | 606             | 303             |
| Volume of wet sludge produced in ft <sup>3</sup> | 162              | 122             | 81              | 41              |

\*Assuming 0.315 pounds of dry sludge produced per pound of BOD5 removed.

\*\*Assuming 1.5% solids.

MLSS operating range = 3000 mg/l

The sludge is wasted from the clarifier to the aerobic digester. At the digester the sludge is further processed to achieve sludge stabilization.

| <b>Removal Schedule (days)</b> | <b>100% Flow</b> | <b>75% Flow</b> | <b>50% Flow</b> | <b>25% Flow</b> |
|--------------------------------|------------------|-----------------|-----------------|-----------------|
| Days between sludge removal    | 33               | 44              | 66              | 133             |

Following stabilization the sludge is periodically removed from the digester and hauled offsite by a registered hauler to a registered site.

# Technical Report 1.1

## 12. Sewage Sludge Solids Management Plan

### Interim II Phase - Capacity of Digester

|                                |                                     |
|--------------------------------|-------------------------------------|
| Design Flow                    | 0.40 MGD Influent Flow              |
| Minimum Retention Time         | 15 days                             |
| Digester Volume                | 16,901 ft <sup>3</sup>              |
| Digester Dimensions            | 6 @ 22'-0" L x 12'-0" W x 12'-2"SWD |
| Side Water Depth               | 10.67 ft.                           |
| Digester Sludge Retention Time | 15 days                             |

|                      |                        |            |
|----------------------|------------------------|------------|
| <b>CBOD5 Removal</b> | Influent concentration | 250.0 mg/l |
|                      | Effluent concentration | 10.0 mg/l  |
|                      | Net removal            | 240.0 mg/l |

| <b>Solids Generated</b>                          | <b>100% Flow</b> | <b>75% Flow</b> | <b>50% Flow</b> | <b>25% Flow</b> |
|--|------------------|-----------------|-----------------|-----------------|
| Pounds BOD5/day removed                          | 801              | 600             | 400             | 200             |
| Pounds of dry sludge produced*                   | 252              | 189             | 126             | 63              |
| Pounds of wet sludge produced**                  | 16813            | 12610           | 8407            | 4203            |
| Volume of wet sludge produced in gals.           | 2021             | 1516            | 1010            | 505             |
| Volume of wet sludge produced in ft <sup>3</sup> | 270              | 203             | 135             | 68              |

\*Assuming 0.315 pounds of dry sludge produced per pound of BOD5 removed.

\*\*Assuming 1.5% solids.

MLSS operating range = 3000 mg/l

The sludge is wasted from the clarifier to the aerobic digester. At the digester the sludge is further processed to achieve sludge stabilization.

| <b>Removal Schedule (days)</b> | <b>100% Flow</b> | <b>75% Flow</b> | <b>50% Flow</b> | <b>25% Flow</b> |
|--------------------------------|------------------|-----------------|-----------------|-----------------|
| Days between sludge removal    | 63               | 83              | 125             | 250             |

Following stabilization the sludge is periodically removed from the digester and hauled offsite by a registered hauler to a registered site.

12. Sewage Sludge Solids Management Plan

**Final Phase - Capacity of Digester**

|                                |                                     |
|--------------------------------|-------------------------------------|
| Design Flow                    | 0.64 MGD Influent Flow              |
| Minimum Retention Time         | 15 days                             |
| Digester Volume                | 25,352 ft <sup>3</sup>              |
| Digester Dimensions            | 9 @ 22'-0" L x 12'-0" W x 12'-2"SWD |
| Side Water Depth               | 11 ft.                              |
| Digester Sludge Retention Time | 15 days                             |

|                      |                        |            |
|----------------------|------------------------|------------|
| <b>CBOD5 Removal</b> | Influent concentration | 250.0 mg/l |
|                      | Effluent concentration | 10.0 mg/l  |
|                      | Net removal            | 240.0 mg/l |

| <b>Solids Generated</b>                          | <b>100% Flow</b> | <b>75% Flow</b> | <b>50% Flow</b> | <b>25% Flow</b> |
|--|------------------|-----------------|-----------------|-----------------|
| Pounds BOD5/day removed                          | 1281             | 961             | 641             | 320             |
| Pounds of dry sludge produced*                   | 404              | 303             | 202             | 101             |
| Pounds of wet sludge produced**                  | 26902            | 20176           | 13451           | 6725            |
| Volume of wet sludge produced in gals.           | 3233             | 2425            | 1617            | 808             |
| Volume of wet sludge produced in ft <sup>3</sup> | 432              | 324             | 216             | 108             |

\*Assuming 0.315 pounds of dry sludge produced per pound of BOD5 removed.

\*\*Assuming 1.5% solids.

MLSS operating range = 3000 mg/l

The sludge is wasted from the clarifier to the aerobic digester. At the digester the sludge is further processed to achieve sludge stabilization.

| <b>Removal Schedule (days)</b> | <b>100% Flow</b> | <b>75% Flow</b> | <b>50% Flow</b> | <b>25% Flow</b> |
|--------------------------------|------------------|-----------------|-----------------|-----------------|
| Days between sludge removal    | 59               | 78              | 117             | 235             |

Following stabilization the sludge is periodically removed from the digester and hauled offsite by a registered hauler to a registered site.

## **Attachment 15 – FIRM Panel**

[illegible]

NGS Information Services  
 NOAA, NNGS12  
 National Geodetic Survey  
 SSMC-3 #202  
 1315 East-West Highway  
 Silver Spring, Maryland 20910-3282  
 Tel: 301-731-3342

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 731-3242**, or visit their website at **[www.ngs.noaa.gov](http://www.ngs.noaa.gov)**

**Base map** information shown on this FIRM was provided in digital format by the Harris Galveston Area Council and was revised and enhanced by Harris County. This map reflects more detailed and up-to-date stream channel configurations than those shown on the previous FIRM for this jurisdiction. The floodplains and floodway areas were transferred from the previous FIRM to the Flood Insurance Study. Profiles and Floodway Data tables in the Flood Insurance Study report which contain authoritative hydraulic data may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels, community map repository addresses, and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Information eXchange** at 1-877-536-2627 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Information eXchange may also be reached by Fax at 1-800-358-9620 and their website at [http://www.fema.gov](http://www.fema.gov/fema.gov).

Vertical Datum Adjustment due to subsidence is the 2001 adjustment.

Benchmarks shown on this map were provided by either Harris County or the National Geodetic Survey. To obtain elevation, description, and location information for benchmarks provided by Harris County, please contact the Permit Office of the Public Infrastructure Department at (713) 956-300 or visit their website at <http://www.eng.hctx.net/permits>. For information regarding the benchmarks provided by the National Geodetic Survey, please see note above.

[illegible]

NGS Information Services  
 NOAA, NNGS12  
 National Geodetic Survey  
 SSMC-3 #202  
 1315 East-West Highway  
 Silver Spring, Maryland 20910-3282  
 Tel: 301-731-3342

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Vertical Datum Adjustment due to subsidence is the 2001 adjustment.

[illegible]

NGS Information Services  
 NOAA, NNGS12  
 National Geodetic Survey  
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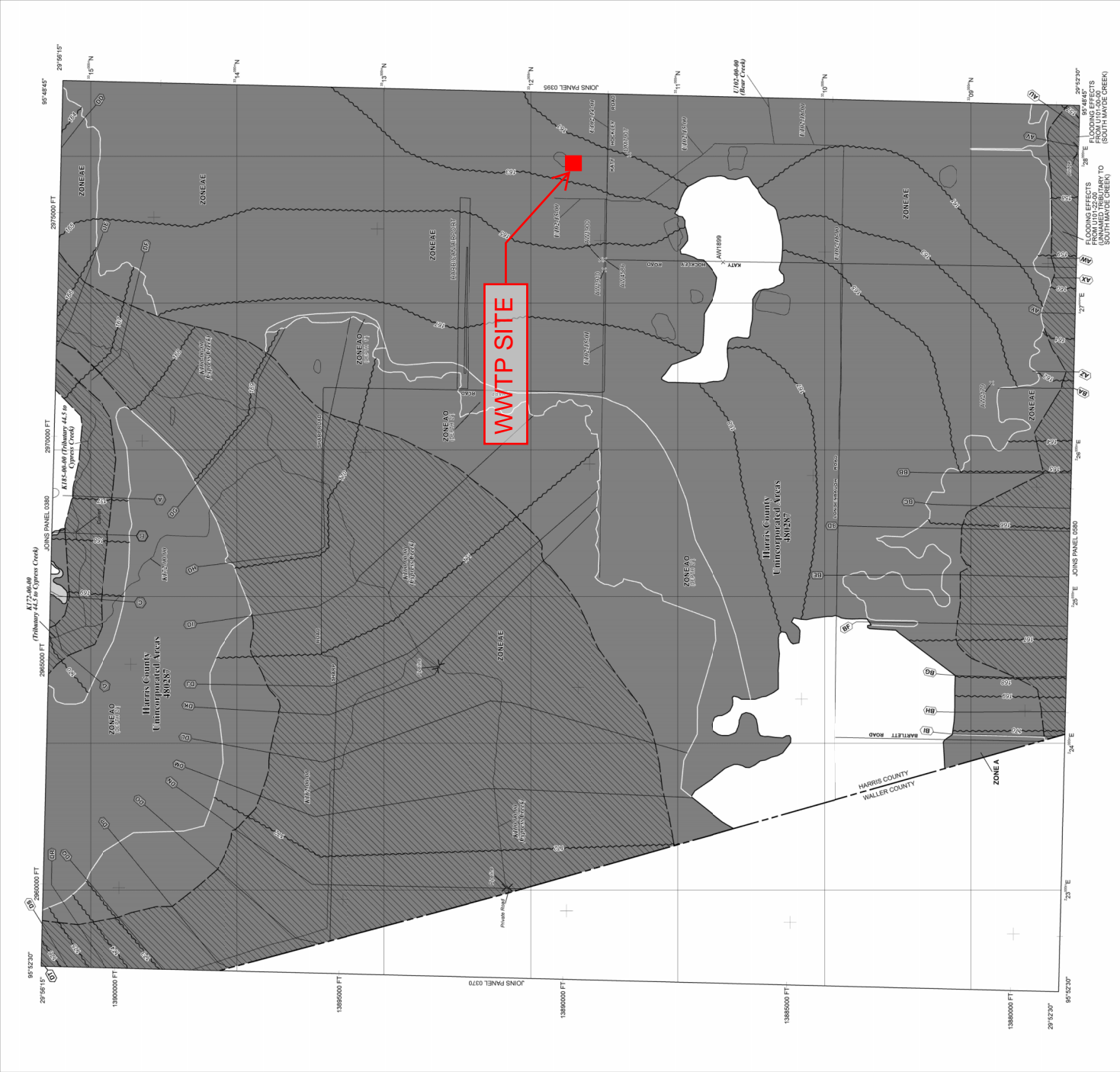
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Vertical Datum Adjustment due to subsidence is the 2001 adjustment.

[illegible]

————— Floodplain boundary

Flood boundary  
 Zone B boundary  
 Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities.  
 Base Flood Elevation line and value; elevation in feet\*  
 Base Flood Elevation line where uniform within zone; elevation in feet\*  
 \* Referenced to the North American Vertical Datum of 1988  
 (E.L. 487)

87°07'45", 32°22'30"

Transect line

Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere

600000 FT  
5000-foot grid values: Texas State Plane coordinate system,  
South Central zone (1983ZONE 4204), Lambert Conformal Conic  
projection

DX5510 x  
● M1.5  
River Mile  
MAP REPOSITORY

EFFECTIVE DATE OF COUNTYWIDE  
FLOOD INSURANCE RATE MAP  
September 28, 1990

SEPTEMBER 30, 1992  
NOVEMBER 6, 1996  
APRIL 20, 2000  
JUNE 18, 2007  
OCTOBER 16, 2013

FOR REASON OF REVISION  
SEE NOTICE TO FLOOD INSURANCE USERS IN THE FIS REPORT

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

 To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'

0 1000 2000 FEET

0 500 1000 METERS

1000 JOURNAL OF POST KEYNESIAN ECONOMICS

|   |              |
|---|--------------|
| W | FIPM         |
| W | PANEL 0330IN |

FLOOD INSURANCE RATE MA

**HARRIS COUNTY,  
TEXAS  
AND INCORPORATED AREAS**

## PANEL 390 OF 1150

| <u>SORT TAG:</u> | <u>NUMBER</u> | <u>PANEL</u> | <u>SHEET</u> |
|------------------|---------------|--------------|--------------|
| <u>COMMUNITY</u> | 483287        | 0390         | N            |
| HARRIS COUNTY    |               |              |              |

ENI C

007

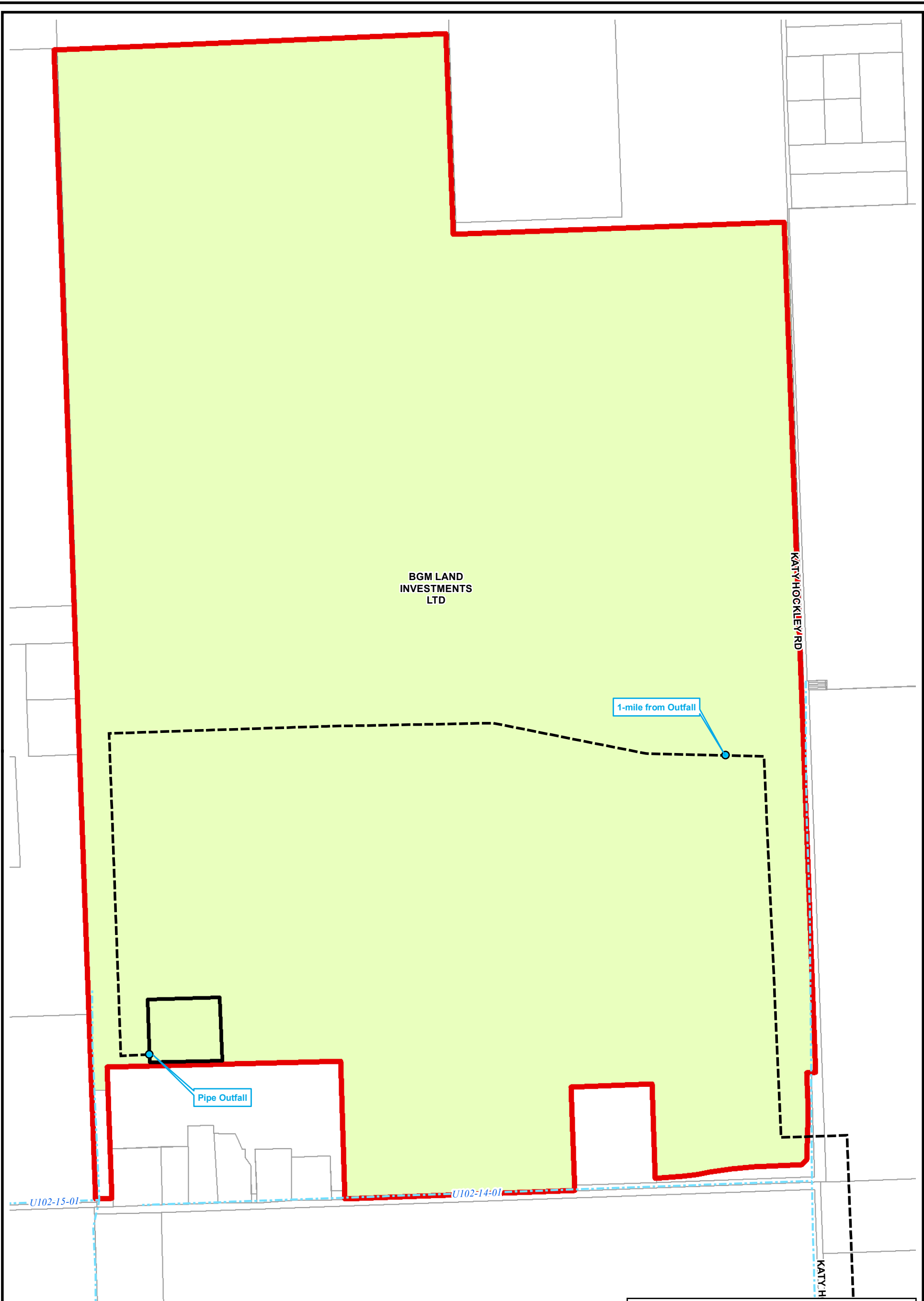
MAP NUMBER  
48201C0390

MAP REVISED  
NOVEMBER 15, 2011

**Federal Emergency Management Agency**

**Attachment 16 –  
Affected Landowners Map and Cross Reference List  
(Admin Rpt. 1.1, 1a)**

IDS Engineering Group \\houvgisdb1\Projects\2400\24-36-003-00\_HCMUD606\_TPDESPermit\AffectedLandowner\_11X17.mxd Plotted: 10/17/2024 at 8:53:27 AM by vtreveno



Legend

- Discharge Point
- Discharge Route
- Rivers & Ditches
- WWTP
- DistrictBoundary
- Parcels (HCAD 2024-01)
- Affected Parcels



**IDS**  
Engineering Group

13430 NW. Freeway, Suite 700  
Houston, Texas 77040  
713.462.3178  
TxEng Firm 2726 | TxSurv Firm 10110700

**FUTURE  
HC MUD 606  
AFFECTED PARCELS**

0 250 500 1,000  
Feet  
1 inch = 500 feet





## Cross-Reference List

| Landowner                | Mailing Address | City    | State | Zip Code   |
|--------------------------|-----------------|---------|-------|------------|
| BGM LAND INVESTMENTS LTD | 15915 KATY FWY  | HOUSTON | TX    | 77094-1708 |

**Attachment 17 – Site Image**  
**(Admin Rpt. 1.1, 2)**




- Legend**
- Harris Co  
Parcels (2023-04)
  - Low Resolution  
15m Imagery
  - High Resolution  
60cm Imagery
  - High Resolution  
30cm Imagery
  - Citations
  - 60cm  
Resolution  
Metadata

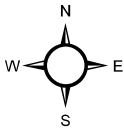


# WASTEWATER TREATMENT PLANT SITE

Print Date: 9/19/2024 3:55:37 PM    IDS Engineering Group

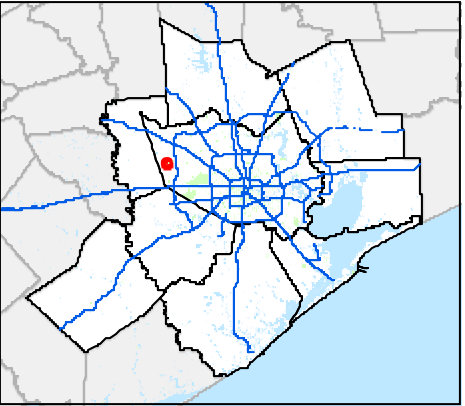


1 inch = 263 feet



Disclaimer: This web site represents the information that has been made available for the use of this system and does not necessarily include the most complete and/or accurate data. IDS Engineering Group does not warrant its accuracy or completeness. Verification should be done as necessary.

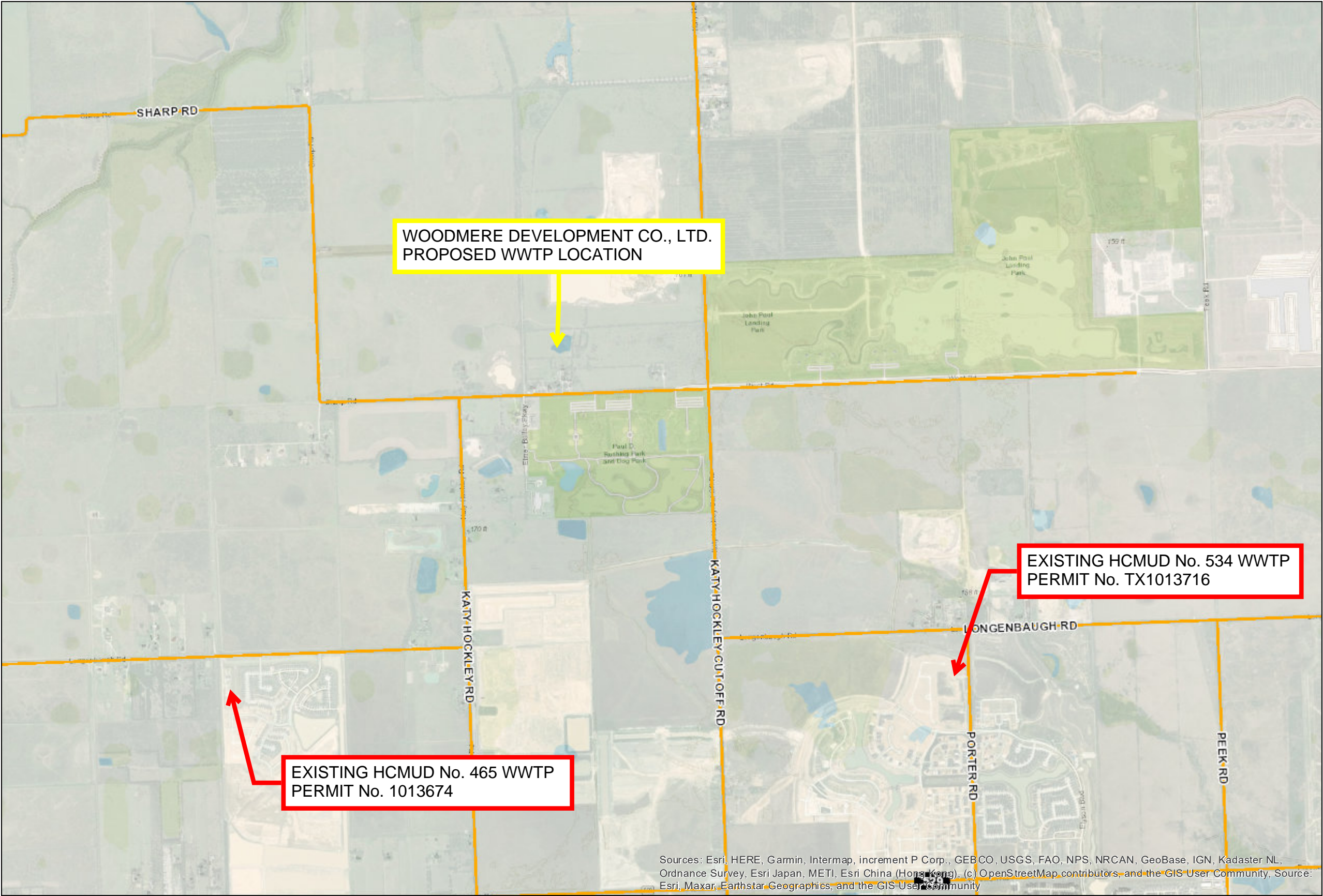
This GIS Exhibit may include copyrighted material (aerial photos) by either NearMap or H-GAC. All Rights Reserved.





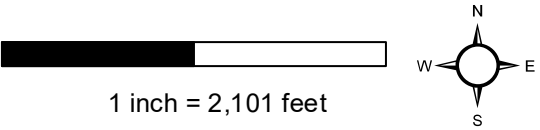
**Attachment 18 – Area WWTP Info**  
**(Tech. Rpt. 1.1, 1.3)**

- Legend**
- IDS MUDs
  - Low Resolution  
15m Imagery
  - High Resolution  
60cm Imagery
  - High Resolution  
30cm Imagery
  - Citations
  - 4.8m Resolution  
Metadata



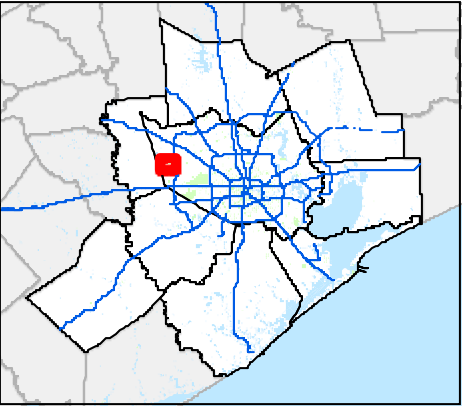
Area Wastewater Treatment Plants

Print Date: 9/19/2024 4:09:40 PM    IDS Engineering Group



Disclaimer: This web site represents the information that has been made available for the use of this system and does not necessarily include the most complete and/or accurate data. IDS Engineering Group does not warrant its accuracy or completeness. Verification should be done as necessary.

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**Permitee Name: Harris County Municipal Utility District No. 465**

Permit No.: 1013674

Address: 27018 Winward Creek Trail, Katy, TX 77493

**Permitee Name: Harris County Municipal Utility District No. 534**

Permit No.: TX1013716

Address: 7614 Swooping Swallow Lane, Katy, TX 77493

**Attachment 19 – Area WWTP Capacity Request Letters  
(Tech. Rpt. 1.1, 1.3)**



September 23, 2024

Harris County Municipal Utility District No. 465  
c/o Elevation Land Solutions  
Attn: Mr. Travis Harrison  
2445 Technology Forest Blvd, Suite 200  
The Woodlands, TX 77381

Mr. Harrison,

We are writing to you on behalf of Woodmere Development Co., LTD, which is seeking a TPDES discharge permit for a proposed wastewater treatment plant. We are in the process of preparing the permit application for this operation. The projected ultimate flow is 0.480 MGD and Woodmere Development Co., LTD currently owns a site sufficient in size for the facility.

As part of the TPDES discharge permit process, the TCEQ requires that we contact each wastewater discharge permit holder within a three-mile radius of the proposed facility to solicit information about available treatment capacity. The wastewater plant located within your district is within the three-mile radius and we are therefore inquiring about the availability of capacity.

Please complete the short questionnaire below and return within 5 days to our office. You may also email your response to [vgomez@idseg.com](mailto:vgomez@idseg.com). Please call me at (832) 590-7149 if you have any questions or need additional information. Thank you for your timely response to this matter.

Sincerely,

A handwritten signature in cursive script that reads "Val gomez".

Valeria Gomez, E.I.T  
Design Engineer

| Reply   |   |
|---|---|
| Date: <u>9/23/2024</u>                          | Terms (if capacity available): _____                |
| Name of Permittee: <u>Harris County MUD 465</u> | _____   |
| Address: _____                                  | Name of Person Responding: <u>Daniel Hayden, PE</u> |
| _____   | Title: <u>District Engineer</u>                     |
| Capacity Available Now (Yes/No)? <u>No</u>      | Telephone: <u>832-823-2200</u>                      |
| Willing to Expand Plant (Yes/No)? <u>No</u>     | Fax: _____  |
| Date Available: _____                           |   |

\\IDSEG\F5\PROJECTS\2400\243600300 HCMUD 606 TPDES PERMIT\ENG-PM\FORMS\ATTACHMENTS\CAPACITY LETTERS.DOCX





September 23, 2024

Harris County Municipal Utility District No. 534  
c/o BGE, Inc.  
Attn: Miss Melinda Salazar  
10777 Westheimer Road, Suite 400  
Houston, TX 77042

Miss Salazar,

We are writing to you on behalf of Woodmere Development Co., LTD, which is seeking a TPDES discharge permit for a proposed wastewater treatment plant. We are in the process of preparing the permit application for this operation. The projected ultimate flow is 0.480 MGD and Woodmere Development Co., LTD currently owns a site sufficient in size for the facility.

As part of the TPDES discharge permit process, the TCEQ requires that we contact each wastewater discharge permit holder within a three-mile radius of the proposed facility to solicit information about available treatment capacity. The wastewater plant located within your district is within the three-mile radius and we are therefore inquiring about the availability of capacity.

Please complete the short questionnaire below and return within 5 days to our office. You may also email your response to [vgomez@idseg.com](mailto:vgomez@idseg.com). Please call me at (832) 590-7149 if you have any questions or need additional information. Thank you for your timely response to this matter.

Sincerely,

A handwritten signature in cursive script that reads "Val gomez".

Valeria Gomez, E.I.T  
Design Engineer

| Reply  |   |
|--|---|
| Date: <u>9/26/24</u>   | Terms (if capacity available): _____              |
| Name of Permittee: <u>HCMUD 533</u>  | _____   |
| Address: <u>c/o ABNA 3200 Southwest</u><br><u>Freeway Suite 2600 Houston, TX</u> | _____   |
| Capacity Available Now (Yes/No)? <u>No</u>                                       | Name of Person Responding: <u>Melinda Salazar</u> |
| Willing to Expand Plant (Yes/No)? <u>No</u>                                      | Title: _____                                      |
| Date Available: <u>N/A</u>   | Telephone: _____                                  |
|  | Fax: _____  |

\\IDSEG\FS\PROJECTS\2400\243600300 HCMUD 606 TPDES PERMIT\ENG-PM\FORMS\ATTACHMENTS\CAPACITY LETTERS.DOCX