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Texas Commission on Environmental Quality

Edwards Aquifer Application Cover Page

Our Review of Your Application

The Edwards Aquifer Program staff conducts an administrative and technical review of all applications. The turnaround time for administrative review can be up to 30 days as outlined in 30 TAC 213.4(e). Generally administrative completeness is determined during the intake meeting or within a few days of receipt. The turnaround time for technical review of an administratively complete Edwards Aquifer application is 90 days as outlined in 30 TAC 213.4(e). Please know that the review and approval time is directly impacted by the quality and completeness of the initial application that is received. In order to conduct a timely review, it is imperative that the information provided in an Edwards Aquifer application include final plans, be accurate, complete, and in compliance with [30 TAC 213](#).

Administrative Review

1. [Edwards Aquifer applications](#) must be deemed administratively complete before a technical review can begin. To be considered administratively complete, the application must contain completed forms and attachments, provide the requested information, and meet all the site plan requirements. The submitted application and plan sheets should be final plans. Please submit one full-size set of plan sheets with the original application, and half-size sets with the additional copies.

To ensure that all applicable documents are included in the application, the program has developed tools to guide you and web pages to provide all forms, checklists, and guidance. Please visit the below website for assistance: <http://www.tceq.texas.gov/field/eapp>.

2. This Edwards Aquifer Application Cover Page form (certified by the applicant or agent) must be included in the application and brought to the administrative review meeting.
3. Administrative reviews are scheduled with program staff who will conduct the review. Applicants or their authorized agent should call the appropriate regional office, according to the county in which the project is located, to schedule a review. The average meeting time is one hour.
4. In the meeting, the application is examined for administrative completeness. Deficiencies will be noted by staff and emailed or faxed to the applicant and authorized agent at the end of the meeting, or shortly after. Administrative deficiencies will cause the application to be deemed incomplete and returned.

An appointment should be made to resubmit the application. The application is re-examined to ensure all deficiencies are resolved. The application will only be deemed administratively complete when all administrative deficiencies are addressed.

5. If an application is received by mail, courier service, or otherwise submitted without a review meeting, the administrative review will be conducted within 30 days. The applicant and agent will be contacted with the results of the administrative review. If the application is found to be administratively incomplete, it can be retrieved from the regional office or returned by regular mail. If returned by mail, the regional office may require arrangements for return shipping.
6. If the geologic assessment was completed before October 1, 2004 and the site contains “possibly sensitive” features, the assessment must be updated in accordance with the *Instructions to Geologists* (TCEQ-0585 Instructions).

Technical Review

1. When an application is deemed administratively complete, the technical review period begins. The regional office will distribute copies of the application to the identified affected city, county, and groundwater conservation district whose jurisdiction includes the subject site. These entities and the public have 30 days to provide comments on the application to the regional office. All comments received are reviewed by TCEQ.
2. A site assessment is usually conducted as part of the technical review, to evaluate the geologic assessment and observe existing site conditions. The site must be accessible to our staff. The site boundaries should be

clearly marked, features identified in the geologic assessment should be flagged, roadways marked and the alignment of the Sewage Collection System and manholes should be staked at the time the application is submitted. If the site is not marked the application may be returned.

3. We evaluate the application for technical completeness and contact the applicant and agent via Notice of Deficiency (NOD) to request additional information and identify technical deficiencies. There are two deficiency response periods available to the applicant. There are 14 days to resolve deficiencies noted in the first NOD. If a second NOD is issued, there is an additional 14 days to resolve deficiencies. If the response to the second notice is not received, is incomplete or inadequate, or provides new information that is incomplete or inadequate, the application must be withdrawn or will be denied. Please note that because the technical review is underway, whether the application is withdrawn or denied **the application fee will be forfeited.**
4. The program has 90 calendar days to complete the technical review of the application. If the application is technically adequate, such that it complies with the Edwards Aquifer rules, and is protective of the Edwards Aquifer during and after construction, an approval letter will be issued. Construction or other regulated activity may not begin until an approval is issued.

Mid-Review Modifications

It is important to have final site plans prior to beginning the permitting process with TCEQ to avoid delays.

Occasionally, circumstances arise where you may have significant design and/or site plan changes after your Edwards Aquifer application has been deemed administratively complete by TCEQ. This is considered a “Mid-Review Modification”. Mid-Review Modifications may require redistribution of an application that includes the proposed modifications for public comment.

If you are proposing a Mid-Review Modification, two options are available:

- If the technical review has begun your application can be denied/withdrawn, your fees will be forfeited, and the plan will have to be resubmitted.
- TCEQ can continue the technical review of the application as it was submitted, and a modification application can be submitted at a later time.

If the application is denied/withdrawn, the resubmitted application will be subject to the administrative and technical review processes and will be treated as a new application. The application will be redistributed to the affected jurisdictions.

Please contact the regional office if you have questions. If your project is located in Williamson, Travis, or Hays County, contact TCEQ’s Austin Regional Office at 512-339-2929. If your project is in Comal, Bexar, Medina, Uvalde, or Kinney County, contact TCEQ’s San Antonio Regional Office at 210-490-3096

Please fill out all required fields below and submit with your application.

1. Regulated Entity Name: New Westinghouse Investors tract				2. Regulated Entity No.: 110424017					
3. Customer Name: Horizontal Westinghouse Investors, LLC				4. Customer No.: 604914127					
5. Project Type: (Please circle/check one)	New	Modification		<u>Extension</u>	Exception				
6. Plan Type: (Please circle/check one)	WPAP	CZP	<u>SCS</u>	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures
7. Land Use: (Please circle/check one)	Residential		<u>Non-residential</u>		8. Site (acres):		5.27		
9. Application Fee:	\$1,827.50		10. Permanent BMP(s):						
11. SCS (Linear Ft.):	3,655		12. AST/UST (No. Tanks):						

13. County:	Williamson	14. Watershed:	Chandler Branch of Brushy Creek
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Application Distribution

Instructions: Use the table below to determine the number of applications required. One original and one copy of the application, plus additional copies (as needed) for each affected incorporated city, county, and groundwater conservation district are required. Linear projects or large projects, which cross into multiple jurisdictions, can require additional copies. Refer to the “Texas Groundwater Conservation Districts within the EAPP Boundaries” map found at:

http://www.tceq.texas.gov/assets/public/compliance/field_ops/eapp/EAPP%20GWCD%20map.pdf

For more detailed boundaries, please contact the conservation district directly.

Austin Region			
County:	Hays	Travis	Williamson
Original (1 req.)	—	—	—
Region (1 req.)	—	—	—
County(ies)	—	—	—
Groundwater Conservation District(s)	<input type="checkbox"/> Edwards Aquifer Authority <input type="checkbox"/> Barton Springs/ Edwards Aquifer <input type="checkbox"/> Hays Trinity <input type="checkbox"/> Plum Creek	<input type="checkbox"/> Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	<input type="checkbox"/> Austin <input type="checkbox"/> Buda <input type="checkbox"/> Dripping Springs <input type="checkbox"/> Kyle <input type="checkbox"/> Mountain City <input type="checkbox"/> San Marcos <input type="checkbox"/> Wimberley <input type="checkbox"/> Woodcreek	<input type="checkbox"/> Austin <input type="checkbox"/> Bee Cave <input type="checkbox"/> Pflugerville <input type="checkbox"/> Rollingwood <input type="checkbox"/> Round Rock <input type="checkbox"/> Sunset Valley <input type="checkbox"/> West Lake Hills	<input type="checkbox"/> Austin <input type="checkbox"/> Cedar Park <input type="checkbox"/> Florence <input checked="" type="checkbox"/> Georgetown <input type="checkbox"/> Jerrell <input type="checkbox"/> Leander <input type="checkbox"/> Liberty Hill <input type="checkbox"/> Pflugerville <input type="checkbox"/> Round Rock

San Antonio Region					
County:	Bexar	Comal	Kinney	Medina	Uvalde
Original (1 req.)	—	—	—	—	—
Region (1 req.)	—	—	—	—	—
County(ies)	—	—	—	—	—
Groundwater Conservation District(s)	<input type="checkbox"/> Edwards Aquifer Authority <input type="checkbox"/> Trinity-Glen Rose	<input type="checkbox"/> Edwards Aquifer Authority	<input type="checkbox"/> Kinney	<input type="checkbox"/> EAA <input type="checkbox"/> Medina	<input type="checkbox"/> EAA <input type="checkbox"/> Uvalde
City(ies) Jurisdiction	<input type="checkbox"/> Castle Hills <input type="checkbox"/> Fair Oaks Ranch <input type="checkbox"/> Helotes <input type="checkbox"/> Hill Country Village <input type="checkbox"/> Hollywood Park	<input type="checkbox"/> Bulverde <input type="checkbox"/> Fair Oaks Ranch <input type="checkbox"/> Garden Ridge <input type="checkbox"/> New Braunfels <input type="checkbox"/> Schertz	NA	<input type="checkbox"/> San Antonio ETJ (SAWS)	NA

<input type="checkbox"/> San Antonio (SAWS)				
<input type="checkbox"/> Shavano Park				

I certify that to the best of my knowledge, that the application is complete and accurate. This application is hereby submitted to TCEQ for administrative review and technical review.

Thomas J. Groll, P.E.

Print Name of Customer/Authorized Agent
Thomas J. Groll, P.E.

Signature of Customer/Authorized Agent 8/11/20
Date

FOR TCEQ INTERNAL USE ONLY			
Date(s) Reviewed:		Date Administratively Complete:	
Received From:		Correct Number of Copies:	
Received By:		Distribution Date:	
EAPP File Number:		Complex:	
Admin. Review(s) (No.):		No. AR Rounds:	
Delinquent Fees (Y/N):		Review Time Spent:	
Lat./Long. Verified:		SOS Customer Verification:	
Agent Authorization Complete/Notarized (Y/N):		Fee Check:	Payable to TCEQ (Y/N):
Core Data Form Complete (Y/N):			Signed (Y/N):
Core Data Form Incomplete Nos.:			Less than 90 days old (Y/N):

General Information Form

Texas Commission on Environmental Quality

For Regulated Activities on the Edwards Aquifer Recharge and Transition Zones and Relating to 30 TAC §213.4(b) & §213.5(b)(2)(A), (B) Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **General Information Form** is hereby submitted for TCEQ review. The application was prepared by:

Print Name of Customer/Agent: Thomas J. Groll, P.E.

Date: August 11, 2020

Signature of Customer/Agent:

Thomas J. Groll, P.E.

Project Information

1. Regulated Entity Name: New Westinghouse Investors tract

2. County: Williamson

3. Stream Basin: Chandler Branch of Brushy Creek

4. Groundwater Conservation District (If applicable): NA

5. Edwards Aquifer Zone:

- Recharge Zone
 Transition Zone

6. Plan Type:

- | | |
|---|--|
| <input type="checkbox"/> WPAP | <input type="checkbox"/> AST |
| <input checked="" type="checkbox"/> SCS | <input type="checkbox"/> UST |
| <input type="checkbox"/> Modification | <input type="checkbox"/> Exception Request |

7. Customer (Applicant):

Contact Person: Matt Dickey

Entity: Horizontal Westinghouse Investors, LLC

Mailing Address: 20 E. Congress, Suite 300

City, State: Tucson, AZ

Zip: 85701

Telephone: (520) 323-1005

FAX: NA

Email Address: mdickey@bourncompanies.com

8. Agent/Representative (If any):

Contact Person: Thomas J. Groll, P.E.

Entity: Tom Groll Engineering, PC

Mailing Address: 5208 Pryor Lane

City, State: Austin, TX

Zip: 78734

Telephone: (512) 848-5796

FAX: NA

Email Address: tomg@tg-eng.com

9. Project Location:

The project site is located inside the city limits of Georgetown.

The project site is located outside the city limits but inside the ETJ (extra-territorial jurisdiction) of _____.

The project site is not located within any city's limits or ETJ.

10. The location of the project site is described below. The description provides sufficient detail and clarity so that the TCEQ's Regional staff can easily locate the project and site boundaries for a field investigation.

1 mile east of IH 35 & 1,000 feet south of Mays Street in Georgetown

11. **Attachment A – Road Map.** A road map showing directions to and the location of the project site is attached. The project location and site boundaries are clearly shown on the map.

12. **Attachment B - USGS / Edwards Recharge Zone Map.** A copy of the official 7 ½ minute USGS Quadrangle Map (Scale: 1" = 2000') of the Edwards Recharge Zone is attached. The map(s) clearly show:

Project site boundaries.

USGS Quadrangle Name(s).

Boundaries of the Recharge Zone (and Transition Zone, if applicable).

Drainage path from the project site to the boundary of the Recharge Zone.

13. **The TCEQ must be able to inspect the project site or the application will be returned.** Sufficient survey staking is provided on the project to allow TCEQ regional staff to locate the boundaries and alignment of the regulated activities and the geologic or manmade features noted in the Geologic Assessment.

Survey staking will be completed by this date: August 30, 2020

14. **Attachment C – Project Description.** Attached at the end of this form is a detailed narrative description of the proposed project. The project description is consistent throughout the application and contains, at a minimum, the following details:

- Area of the site
- Offsite areas
- Impervious cover
- Permanent BMP(s)
- Proposed site use
- Site history
- Previous development
- Area(s) to be demolished

15. Existing project site conditions are noted below:

- Existing commercial site
- Existing industrial site
- Existing residential site
- Existing paved and/or unpaved roads
- Undeveloped (Cleared)
- Undeveloped (Undisturbed/Uncleared)
- Other: South Regional Lift Station

Prohibited Activities

16. I am aware that the following activities are prohibited on the Recharge Zone and are not proposed for this project:

- (1) Waste disposal wells regulated under 30 TAC Chapter 331 of this title (relating to Underground Injection Control);
- (2) New feedlot/concentrated animal feeding operations, as defined in 30 TAC §213.3;
- (3) Land disposal of Class I wastes, as defined in 30 TAC §335.1;
- (4) The use of sewage holding tanks as parts of organized collection systems; and
- (5) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41(b), (c), and (d) of this title (relating to Types of Municipal Solid Waste Facilities).
- (6) New municipal and industrial wastewater discharges into or adjacent to water in the state that would create additional pollutant loading.

17. I am aware that the following activities are prohibited on the Transition Zone and are not proposed for this project:

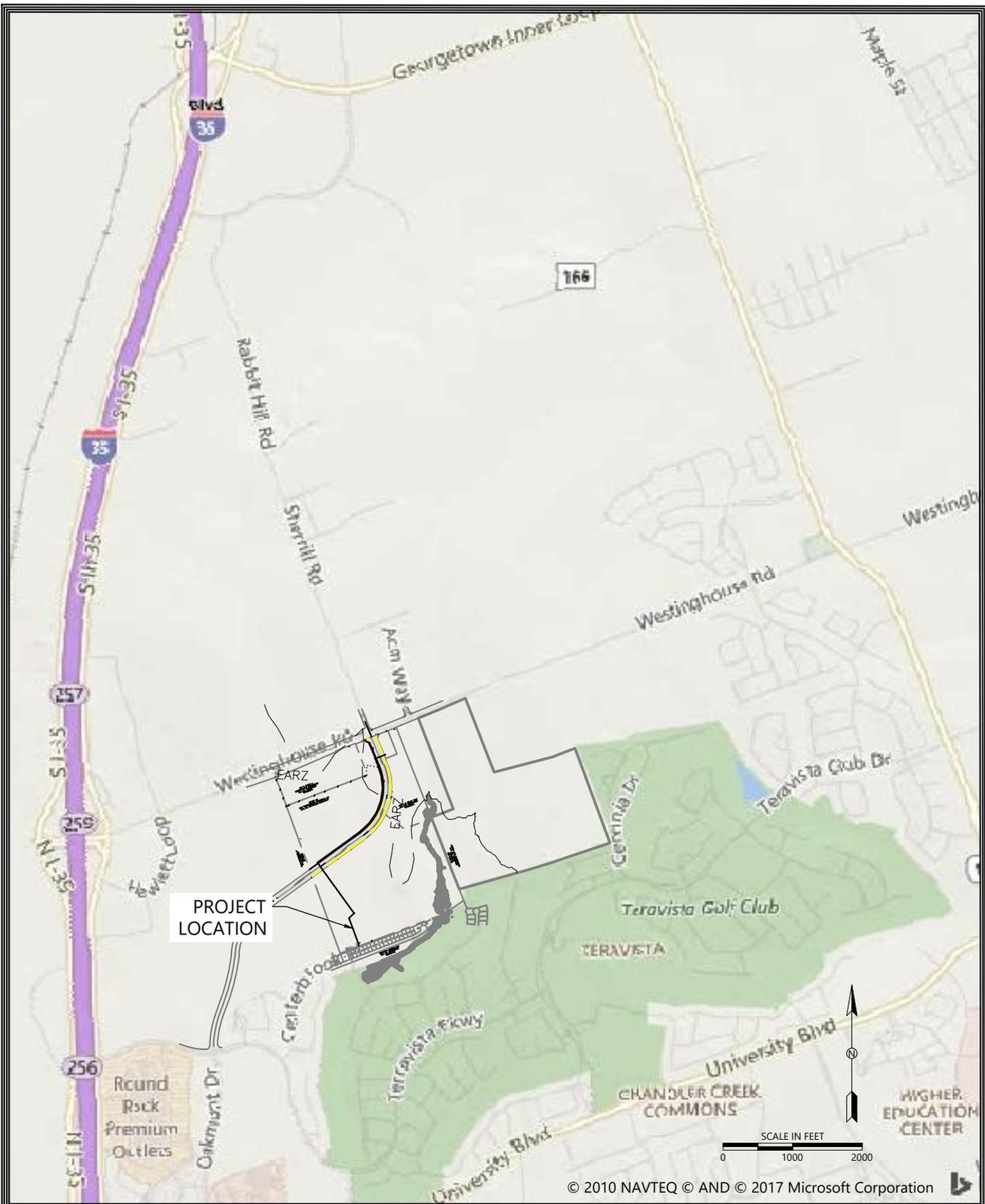
- (1) Waste disposal wells regulated under 30 TAC Chapter 331 (relating to Underground Injection Control);
- (2) Land disposal of Class I wastes, as defined in 30 TAC §335.1; and

- (3) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41 (b), (c), and (d) of this title.

Administrative Information

18. The fee for the plan(s) is based on:

- For a Water Pollution Abatement Plan or Modification, the total acreage of the site where regulated activities will occur.
 - For an Organized Sewage Collection System Plan or Modification, the total linear footage of all collection system lines.
 - For a UST Facility Plan or Modification or an AST Facility Plan or Modification, the total number of tanks or piping systems.
 - A request for an exception to any substantive portion of the regulations related to the protection of water quality.
 - A request for an extension to a previously approved plan.
19. Application fees are due and payable at the time the application is filed. If the correct fee is not submitted, the TCEQ is not required to consider the application until the correct fee is submitted. Both the fee and the Edwards Aquifer Fee Form have been sent to the Commission's:
- TCEQ cashier
 - Austin Regional Office (for projects in Hays, Travis, and Williamson Counties)
 - San Antonio Regional Office (for projects in Bexar, Comal, Kinney, Medina, and Uvalde Counties)
20. Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.
21. No person shall commence any regulated activity until the Edwards Aquifer Protection Plan(s) for the activity has been filed with and approved by the Executive Director.



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DOCUMENT IS FOR INTERIM REVIEW AND NOT INTENDED FOR CONSTRUCTION BIDDING OR PERMIT PURPOSES

		NEW WESTINGHOUSE INVESTORS TRACT			
		ATTACHMENT A - PROJECT LOCATION MAP			
Sheet Index:	MAP				
Date:	5/15/2020				
Scale:	1" = 2,000'				
Check by:	TJG				
Drawn By:	TJG	▲	###	###	###
Sheet No.	1 of 1	▲	###	###	###
Project No.	0749-001	▲	###	###	###
		No.	DATE	DESCRIPTION	BY

TOM GROLL
ENGINEERING
 5208 PRYOR LANE, AUSTIN, TEXAS 78734 • (512) 848-5796 •
 TBPE FIRM # F-9799 • TOMG@TG-ENG.COM

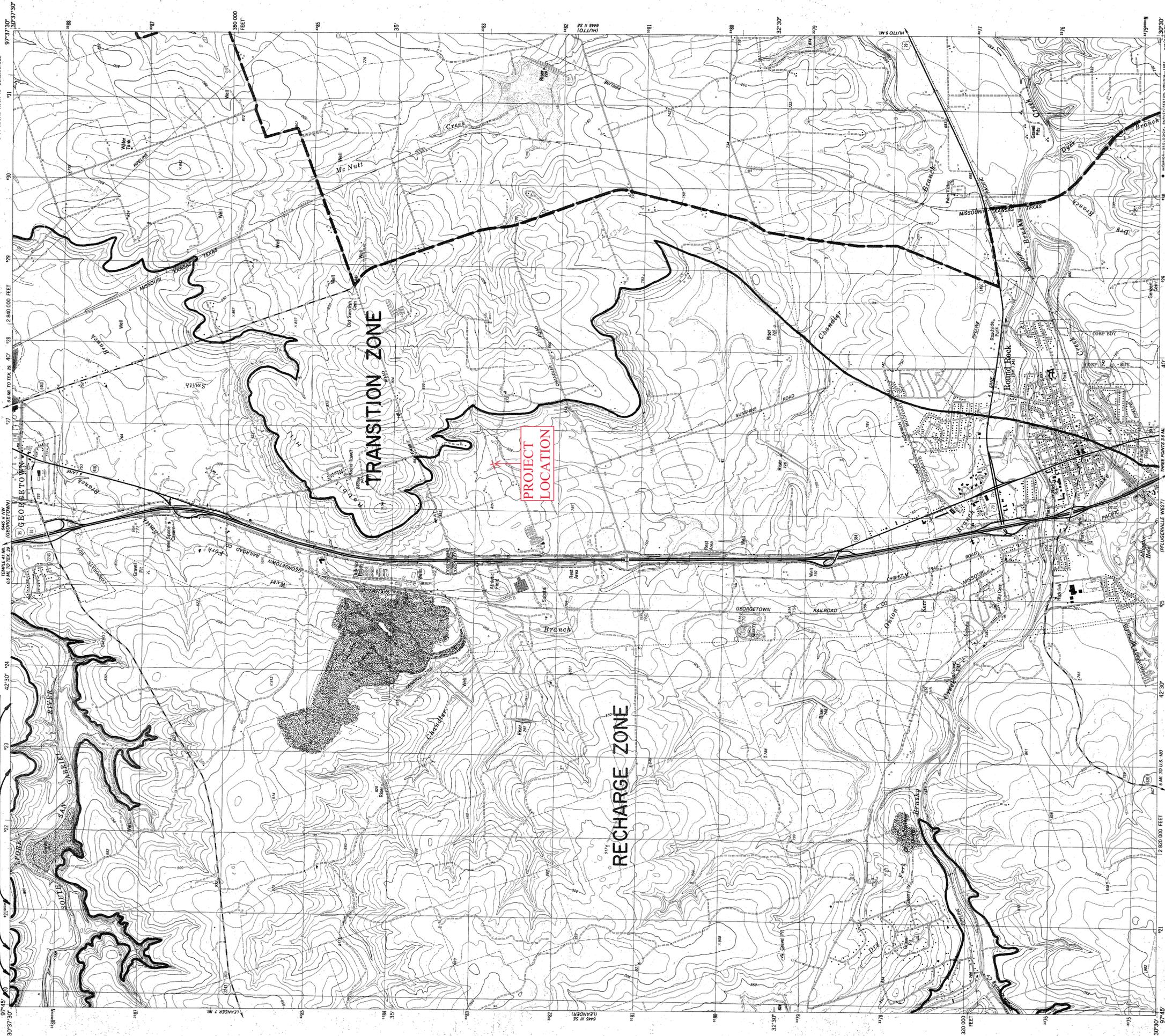
PREPARED FOR:
NEW WESTINGHOUSE INVESTORS, LLC
 20 E. CONGRESS, SUITE 300
 TUCSON, AZ 85701

FILE DATA: LOCATION OF PROJECT 0749-001 NEW WESTINGHOUSE INVESTORS ENGINEERING WATER PLANT LOCATION MAP.DWG Layer: GP-001, Saved: 5/15/2020 10:24 AM, R OF DATA - User: Tom Groll, Scale: 4000000, Size: 4800, Full Record: 8,830 X 11,010 Inches, Title: 105158, Date: 5/15/2020 10:24 AM

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

EDWARDS AQUIFER RECHARGE ZONE

ROUND ROCK QUADRANGLE
TEXAS-WILMAMSON CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
SW 4, ROUND ROCK 19 QUADRANGLE



Maped, edited, and published by the Geological Survey
Control by USGS and NOS/NOAA
Topography by photogrammetric methods from aerial photographs
taken 1974. Field checked 1975. Map edited 1982.
Projection and 10,000-foot grid ticks: Texas
coordinate system, central zone (Lambert conformal conic)
1000-meter Universal Transverse Mercator grid, zone 14
1927 North American datum
1000-meter grid ticks
28 meters east as shown by dashed corner ticks
Fine red dashed lines indicate selected fence lines
Red tint indicates areas in which only landmark buildings are shown
Areas covered by dashed light-blue pattern are subject
to controlled foundation

SCALE 1:24,000
ACTUAL STATE CONTOUR 1/8" = 1 MILE
CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

ROAD CLASSIFICATION
Primary highway, hard surface
Secondary highway, hard surface
Unimproved road, hard surface
Interstate Route
U.S. Route
State Route

DD FORM 16
MAY 1964 EDITION
GSA FPMR (41 CFR) 101-11.6

ROUND ROCK, TEX.
SW 4, ROUND ROCK
N8330-W9737-57.5
1982
DMA 6448 II SW-SERIES 7682

QUADRANGLE LOCATION
3097-312

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

ATTACHMENT C

NEW WESTINGHOUSE INVESTORS TRACT

PROJECT DESCRIPTION

This Project Description pertains to the development of the New Westinghouse Investors tract located on Mays Street in the City of Georgetown.

The current development plans for the New Westinghouse Investors tract is to install the necessary infrastructure for future development, which currently includes the extension of a wastewater collection system through the site. The future development plans for the property primarily includes multi-family & commercial development. The site consists of approximately 52.4 acres of currently undeveloped land located on the south side of Westinghouse Road (CR 111) approximately one mile east of IH 35 in Georgetown, Williamson County, Texas (Mapsco page 346, Grid C). The property is bound by Westinghouse Road to the north, the Teravista subdivision to the south, the Verde and Western Rim tracts to the east, and the Novak tract to the west.

In its current configuration the New Westinghouse Investors tract consists of three parcels of land described as follows: Parcel No. 1 is 24.3 acres, Parcel No. 2 is 26.6 acres, and Parcel No. 3 is 1.47 acres, all out of the Barney C. Low Survey, Abstract No. 385, in Williamson County, Texas, and part of the 94.387 acre described in a Deed (Doc. #2015005809) from New Westinghouse Investors, LLC to Horizontal Westinghouse Investors, LLC. The recently constructed Mays Street extension bisects the tract such that Parcel No's. 1 & 3 are on the south and east side, and Parcel No. 2 is on the north & west side of the roadway. The entire tract is within the full purpose jurisdiction of the City of Georgetown and is currently zoned as a Planned Unit Development (PUD) with an underlying base zoning of C-3 & MF-2. The entire tract will ultimately be further subdivided and platted as development occurs.

The work proposed in this Organized Sewage Collection System Plan application is located on all three parcels within the parent tract. The scope of the project consists of installation of 536 LF of 12" SDR 26 PVC and 2,819 LF of 8" SDR 26 PVC wastewater line extending northward from the existing section of wastewater line that was installed under EAPP ID# 11001148, which connects to the City of Georgetown's South Regional Lift Station (EAPP ID #11000567, RN108873340). This section of the project is being constructed in order to complete the primary collection system within the site.

EXISTING CONDITIONS

The subject property is covered with native grasses and underbrush, with lesser numbers of cedar, ash and oak trees occurring over the northern and eastern portion of the property. Slopes are generally within the 2% - 10% range. According to the Williamson County Soil Survey, on-site and up gradient surface soils consist of Houston Black clay (HuB), Heiden clay (HeD2), Ferris-Heiden clay (FhE), and Heiden stony clay (HsE), all of which are in Hydrologic Group D. The existing ground coverage is considered to be a brush, weed, and grass mix in fair condition; therefore, the existing conditions Run-off Curve Numbers for the D-type soils is 77.

The existing drainage basin is approximately 225 acres of primarily undeveloped agricultural land. The local topography slopes generally from north to south, causing drainage from the site and the contributing up gradient area to discharge to an unnamed tributary of the Chandler Branch of Brushy Creek.

According to FEMA FIRM Panel 48491C0485E, dated September 26, 2008, the subject tract is located within Zone X and a 100-year floodplain does not encroach onto the property. A 100-year flood plain model has been produced by the Upper Brushy Creek WCID for Tributary #2 of Chandler Branch which shows the floodplain to be contained within the adjacent Mansions 54 and Toolman tracts.

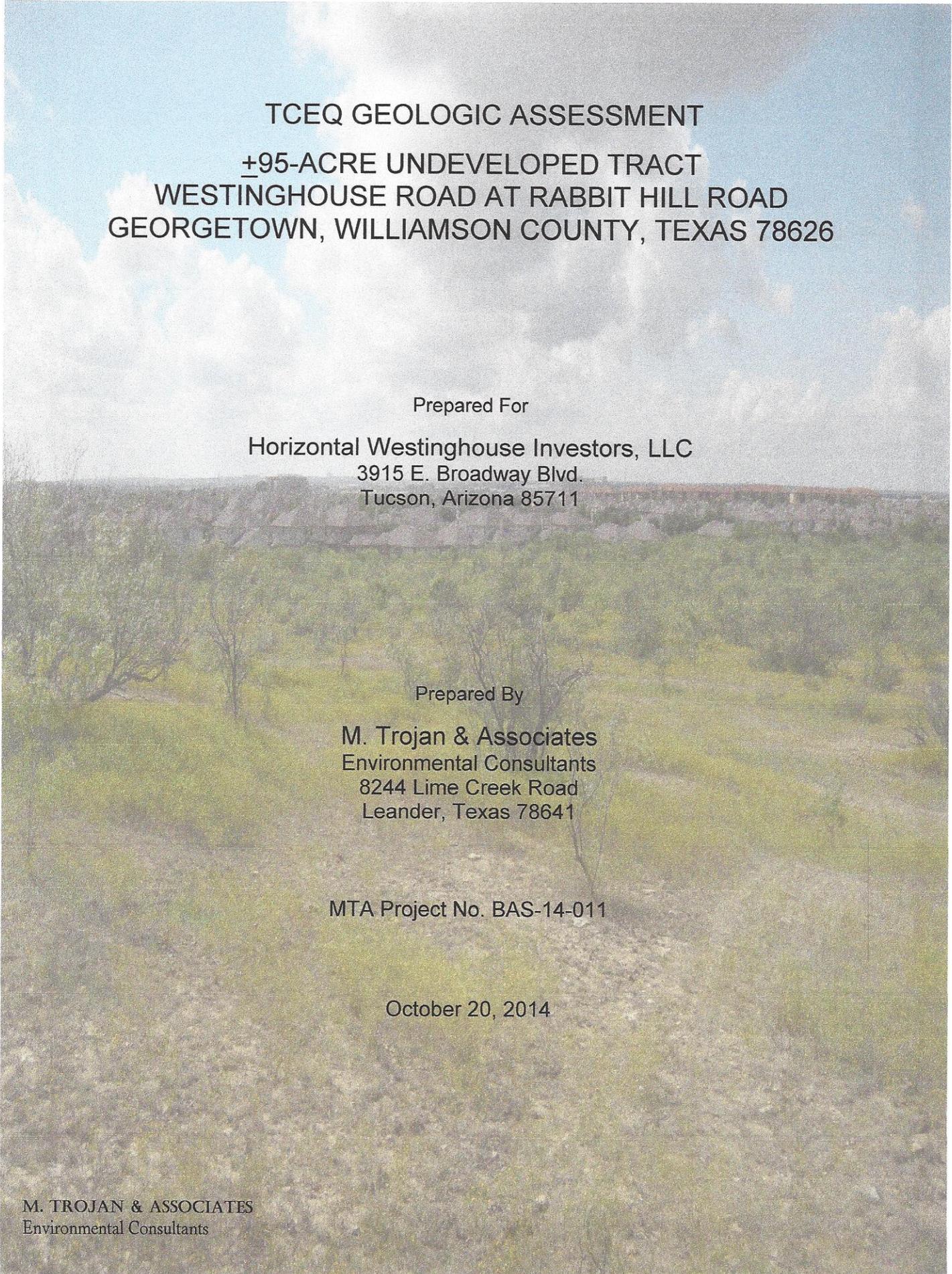
Most of the site is located within the Edwards Aquifer Recharge Zone with a small portion being within the Transition Zone, therefore the proposed development activities are subject to 30 TAC Chapter 213.

PROPOSED CONDITIONS

The New Westinghouse Investors tract is ultimately planned to consist of commercial and residential components. The commercial development is anticipated to be for an office complex. The residential component will consist of multi-family dwelling units and can be developed at 24 units/acre density. The allowable impervious cover is dictated by the City of Georgetown's Unified Development Code for development over the Edwards Aquifer, which allows for 70% IC for the first 5 acres and then 55% IC on the remainder of the site.

Development within the site will have curb and gutter drives, water, wastewater, storm drainage, and other utilities within public and private easements, constructed to City of Georgetown standard specifications. Drainage conveyance will consist of direct run off toward storm inlets, open channels, and culverts, all of which will convey the proposed on-site water quality and detention pond.

All storm water runoff from the site ultimately drains to the unnamed tributary of the Chandler Branch of Brushy Creek. After leaving the site, the drainage passes an improved channel in a dedicated drainage easement within the Teravista subdivision. Since the site is located on the Edwards Aquifer Transition and Recharge Zones, the development is subject to 30 TAC Chapter 213. A Water Pollution Abatement Plan (WPAP) must be reviewed and approved by the Texas Commission on Environmental Quality (TCEQ) prior to any regulated activity occurring on site. A WPAP requires temporary and permanent Best Management Practices (BMP's) to control the increase in pollutant loading caused by the development. One objective of these BMP's is to "ensure that at least 80% of the incremental increase in the annual mass loading of Total Suspended Solids (TSS) from the site caused by the development is removed." The City of Georgetown has adopted more stringent criteria for this purpose and requires that at least 85% of TSS is removed. Temporary measures for removal of TSS include structural controls be implemented during construction such as silt fence, stabilized construction access, rock berms, and temporary sediment basins. The proposed permanent structural measures include the installation of full sedimentation/sand filtration detention/water quality ponds as prescribed by City of Georgetown and TCEQ requirements.



TCEQ GEOLOGIC ASSESSMENT
+95-ACRE UNDEVELOPED TRACT
WESTINGHOUSE ROAD AT RABBIT HILL ROAD
GEORGETOWN, WILLIAMSON COUNTY, TEXAS 78626

Prepared For

Horizontal Westinghouse Investors, LLC
3915 E. Broadway Blvd.
Tucson, Arizona 85711

Prepared By

M. Trojan & Associates
Environmental Consultants
8244 Lime Creek Road
Leander, Texas 78641

MTA Project No. BAS-14-011

October 20, 2014

M. TROJAN & ASSOCIATES
Environmental Consultants

October 20, 2014

Horizontal Westinghouse Investors, LLC
3915 E. Broadway Blvd.
Tucson, Arizona 85711

Subject: Report of TCEQ *Geologic Assessment*
+93-Acre Undeveloped Tract
Westinghouse Road at Rabbit Hill Road
Georgetown, Williamson County, Texas 78626
MTA Project No. BAS-14-011

Dear Madam or Sir:

M. Trojan & Associates is pleased to submit this report of a Texas Commission on Environmental Quality (TCEQ) *Geologic Assessment* for the above referenced property. This *Geologic Assessment* was performed in accordance with the TCEQ *Water Pollution Abatement Plan* (WPAP) requirements and instructions for completing TCEQ Form 0585.

I appreciate the opportunity to assist you in your environmental matters associated with the subject property and trust that the contents of this report are satisfactory. Should you have any questions or require additional information, please feel free to contact me at (512) 258-6606, or forward an email to mtrojan@austin.rr.com.

Respectfully,



Michael Trojan, PG
M. TROJAN & ASSOCIATES



Certified Professional Geoscientist #1109 (TX)

c: MTA Project File BAS-14-011

TCEQ GEOLOGIC ASSESSMENT
±95-ACRE UNDEVELOPED TRACT
WESTINGHOUSE ROAD AT RABBIT HILL ROAD
GEORGETOWN, WILLIAMSON COUNTY, TEXAS 78626

Prepared For

Horizontal Westinghouse Investors, LLC
3915 E. Broadway Blvd.
Tucson, Arizona 85711

Prepared By

M. Trojan & Associates
Environmental Consultants
8244 Lime Creek Road
Leander, Texas 78641

MTA Project No. BAS-14-011

October 20, 2014

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APPENDICES

APPENDIX A: FIGURES

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APPENDIX B: SITE PHOTOGRAPHS

APPENDIX C: GEOLOGIC ASSESSMENT TABLE

1.0 TCEQ FORM 0585

This section provides the required TCEQ Form (Form 0585, Rev. 10-01-2010) that summarizes the information of this *Geologic Assessment* for regulated activities on the Edwards Aquifer Recharge/Transition Zones and relating to 30 TAC 213.5(b)(3), effective June 1, 1999. The required "Narrative Description" is included in Sections 2.0 through 6.0. Sections 7.0 and 8.0 include Additional Remarks and References, respectively.

REGULATED ENTITY NAME: +95-Acre Undeveloped Tract
Westinghouse Road at Rabbit Hill Road
Georgetown, Williamson County, Texas 78626

TYPE OF PROJECT: WPAP AST SCS UST (tentative at this time)

LOCATION OF PROJECT: Recharge Zone Transition Zone
 Contributing Zone within the Transition Zone

PROJECT INFORMATION

- Geologic or manmade features are described and evaluated using the attached **GEOLOGIC ASSESSMENT TABLE.**

2. Soil cover on the project site is summarized in the table below and uses the SCS Hydrologic Soil Groups* (*Urban Hydrology for Small Watersheds, Technical Release No. 55, Appendix A, Soil Conservation Service, 1986*). If there is more than one soil type on the project site, show each soil type on the site Geologic Map or a separate soils map.

Soil Units, Infiltration Characteristics & Thickness		
Soil Name	Group*	Thickness (feet)
Doss silty clay, 1 – 5% slopes (DoC)	B/C	1.6
Ferris-Heiden complex, 5 – 20% slopes, severely eroded (FhE)	D	*up to 5.0
Heiden clay, 5 – 8% slopes, eroded (HeD2)	D	*up to 5.0
Heiden extremely stony clay, 3 – 12% slopes (HsE)	D	*up to 5.0
Houston Black Clay, 1 – 3% slopes (HuB)	D	*up to 5.0
Houston Black clay, 3 – 5% slopes, eroded (HuC2)	D	*up to 5.0

* Soil Group Definitions (Abbreviated)

A. Soils having a high infiltration rate when thoroughly wetted.

B. Soils having a moderate infiltration rate when thoroughly wetted.

C. Soils having a slow infiltration rate when thoroughly wetted.

D. Soils having a very slow infiltration rate when thoroughly wetted.

* Based on the County Soil Survey

3. X A **STRATIGRAPHIC COLUMN** is attached at the end of this form that shows formations, members, and thicknesses. The outcropping unit should be at the top of the stratigraphic column.
4. X A **NARRATIVE DESCRIPTION OF SITE SPECIFIC GEOLOGY** is attached at the end of this form. The description must include a discussion of the potential for fluid movement to the Edwards Aquifer, stratigraphy, structure, and karst characteristics of the site.
5. X Appropriate **SITE GEOLOGIC MAP(S)** are attached:

The Site Geologic Map must be the same scale as the applicant's Site Plan. The minimum scale is 1": 400'

Applicant's Site Plan Scale

1" = unknown at this time

Site Geologic Map Scale

1" = 330 and 370'

Site Soils Map Scale (if more than 1 soil type)

1" = 330 and 370'

-
6. Method of collecting positional data:
 Global Positioning System (GPS) technology.
 Other method(s).
7. The project site is shown and labeled on the Site Geologic Map.
8. Surface geologic units are shown and labeled on the Site Geologic Map.
9. Geologic or manmade features were discovered on the project site during the field investigation. They are shown and labeled on the Site Geologic Map and are described in the attached Geologic Assessment Table.
 Geologic or manmade features were not discovered on the project site during the field investigation.
10. The Recharge Zone boundary is shown and labeled, if appropriate.
11. All known wells (test holes, water, oil, unplugged, capped and/or abandoned, etc.):
 There are 1 (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply.)
 The wells are not in use and have been properly abandoned.
 The wells are not in use and will be properly abandoned.
 The wells are in use and comply with 16 TAC Chapter 76.
 There are no wells or test holes of any kind known to exist on the project site.
- Note: The onsite water well is the one and only "feature" identified on the tract.

ADMINISTRATIVE INFORMATION

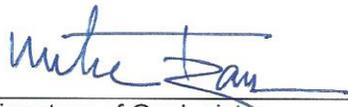
12. X Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

Date(s) Geologic Assessment was performed: October 9, 2014
Date(s)

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Michael Trojan, PG
Print Name of Geologist

(512) 258-6606
Telephone

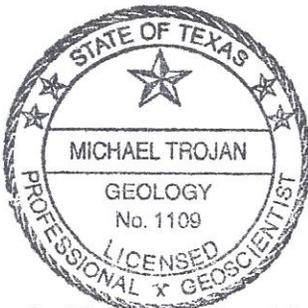

Signature of Geologist

Fax

October 20, 2014
Date

Representing: M. Trojan & Associates
(Name of Company)

8244 Lime Creek Road
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Certified Professional Geoscientist #1109 (TX)

2.0 OVERVIEW

M. Trojan & Associates was retained to conduct a *Geologic Assessment* for a proposed commercial development on a ±95-acre undeveloped tract located along Westinghouse Road at approximately Rabbit Hill Road in Georgetown, Williamson County, Texas (refer to Figures 1 and 2 of Appendix A). All aspects of the *Geologic Assessment* were conducted by Mr. Michael Trojan, PG (Certified Professional Geoscientist #1109 in Texas), and the assessment was performed in accordance with Texas Commission on Environmental Quality (TCEQ) Water Pollution Abatement (WPAP) and Sewage Collection System (SCS) Plan requirements and instructions for completing TCEQ Form 0585. The assessment included reconnaissance of the entire property as well as bordering portions of all neighboring properties.

Based on information obtained from the TCEQ, the subject property is located on the Edwards Aquifer Recharge Zone and the Edwards Aquifer Transition Zone. Accordingly, the objective of the *Geologic Assessment* was to identify any naturally occurring geologic (karst) or manmade features that may significantly contribute to recharge of the subsurface. The Edwards Aquifer rules define sensitive features as:

“ . . . those that have potential for interconnectedness between the surface and the Edwards Aquifer and where rapid infiltration to the subsurface may occur.”

The scope of the *Geologic Assessment* included the following general components:

- Review of published soils and geologic/hydrogeologic information;
- Field evaluation of topographic features;
- Field evaluation of soil types and horizons, relative thicknesses, and hydrologic characteristics (visual only);
- General description of the subsurface geologic units beneath the property as well as a description of the geologic units exposed at the surface (if visible);
- Field evaluation of geologic conditions to determine the presence or absence of caves, solution cavities, solution-enlarged fractures, faults, other natural bedrock features, sinkholes, swallets or swallow holes in drainage features, non-karst closed depressions, manmade features in bedrock, and any other natural or manmade features, and evaluation of such features with respect to their potential ability to convey infiltrating surface water to the underlying subsurface;

- Preparation of TCEQ Form 0585 for presentation of the findings of this assessment;
- Preparation of a site map that depicts the locations of any field-identified surface features and other features relevant to this *Geologic Assessment*; and
- Preparation of the Geologic Assessment Table for description of field-identified surface features and other features relevant to this *Geologic Assessment* (if applicable).

3.0 GENERAL PROPERTY DESCRIPTION AND SITE DEVELOPMENT

3.1 Study Area

The subject property is located just south-southeast of Westinghouse Road and approximately 0.75 miles east of the Westinghouse Road and IH-35 intersection (refer to Figures 1 and 2 of Appendix A). The property consists of approximately 95 acres of undeveloped land that has been used historically for agricultural purposes (former crop production) and pastureland. With the exception of densely wooded areas on the eastern component of the tract, majority of the property is generally cleared of large vegetation and exhibits sparse to dense new-growth of mesquite and small shrubs. A dilapidated single-family home and several old shed structures are located on the east-central portion of the tract. The tract lies in an area of relatively new residential and commercial development along the Westinghouse Road corridor.

3.2 Proposed Site Development

Based on review of a conceptual Site Plan provided by Horizontal Westinghouse Investors, LLC, as of the writing of this *Geologic Assessment* the proposed development on the subject property will entail construction of 10 office building structures and associated paved driveways and parking areas (refer to Figure 3 of Appendix A). In addition, Oakmont Drive is proposed to cross the northern half of the tract. This proposed development covers the central and northwest portions of the tract (refer to Figures 9 and 10 of Appendix A). Moreover, the entire development lies over the Edwards Aquifer Recharge Zone.

3.3 Previously Published Reports

No previously published, site-specific technical reports were available for review during this *Geologic Assessment*.

4.0 ENVIRONMENTAL ELEMENTS

4.1 Topography and Surface Water Hydrology

According to a USGS topographic map, Williamson County GIS and site reconnaissance, the tract slopes relatively gently in multiple directions, but generally to the south (refer to Figure 4 of Appendix A). Topographic elevations on the tract range between approximately 895 and 790 feet above mean sea level (msl), with the highest elevations located at the northern-most extent of the tract – at Westinghouse Road – and the lowest elevations near the southwest corner within an ephemeral drainage way. A northeast-southwest trending mesa feature occurs on the east-central part of the tract.

As is depicted on Figure 4 of Appendix A, stormwater runoff generated on the tract flows generally toward the south and discharges to two onsite ephemeral drainage ways, as well as directly offsite. These wet-weather drainage features channel runoff to the south-southeast. The tract lies in the Chandler Branch of the Brushy Creek watershed. Chandler Branch lies approximately two miles southwest of the tract and flows toward the southeast for approximately five miles and discharges to Brushy Creek. According to review of a FEMA Flood Insurance Rate Map and Williamson County GIS, no portion of the tract lies within the 100-year floodplain. Moreover, no portion of the property lies within an area designated as a waterway setback zone.

4.2 Soils

According to the *Soil Survey of Williamson County, Texas*, the soils that are reported to cover the tract are described below (also refer to Figures 5 and 6 of Appendix A for soil type locations).

Major Soil Types

Soil Component Name:	Doss silty clay, 1 – 5% slopes (DoC)
Soil Surface Texture:	Dark grayish-brown silty clay to approximately 9 inches, underlain by brown silty clay loam to about 19 inches
Hydrologic Group:	Permeability is moderately slow; available water capacity is low
Soil Drainage Class:	Well drained
Soil Component Name:	Ferris-Heiden complex, 5 – 20% slopes, severely eroded (FhE)
Soil Surface Texture:	Approximately 55% Ferris clay, 30% Heiden clay, 5% other soils and 10% gullied areas

	Ferris soils: grayish brown clay to approximately 8 inches; underlain by mottled grayish brown and olive yellow clay to about 34 inches; underlain by light brownish gray shaly clay to about 60 inches Heiden soils: dark grayish brown clay to approximately 22 inches; underlain by grayish brown clay with olive mottles to about 44 inches; underlain by pale olive shaly clay to about 60 inches
Hydrologic Group:	Permeability is very slow; available water capacity is high
Soil Drainage Class:	Well drained
Soil Name:	Heiden clay, 5 – 8% slopes, eroded (HeD2)
Soil Surface Texture:	Dark grayish brown clay to approximately 22 inches (surface soils crack when dry); underlain by grayish brown clay to about 44 inches; underlain by pale olive shaly clay to about 60 inches
Hydrologic Group:	Very slow permeability; available water capacity is high; surface runoff is rapid
Soil Drainage Class:	Moderately well drained
Soil Component Name:	Houston Black Clay, 1 – 3% slopes (HuB)
Soil Surface Texture:	Dark gray clay surface layer to approximately 32 inches, underlain by dark grayish-brown clay to about 54 inches and mottled grayish-brown clay to about 62 inches
Hydrologic Group:	Permeability is very slow; surface runoff is medium
Soil Drainage Class:	Moderately well drained

Minor Soil Types

Soil Name:	Heiden extremely stony clay, 3 – 12% slopes (HsE)
Soil Surface Texture:	Very dark grayish brown extremely stony clay to approximately 18 inches; underlain by light olive brown clay to about 40 inches; underlain by a mixture of olive yellow and gray clay to about 60 inches
Hydrologic Group:	Very slow permeability; available water capacity is high; surface runoff is rapid
Soil Drainage Class:	Well drained
Soil Name:	Houston Black clay, 3 – 5% slopes, eroded (HuC2)
Soil Surface Texture:	Dark gray clay to approximately 22 inches (surface

	soil cracks when dry); underlain by gray clay to about 38 inches; underlain by mottled yellow and light brownish gray silty clay to about 60 inches
Hydrologic Group:	Very slow permeability; available water capacity is high; surface runoff is medium
Soil Drainage Class:	Moderately well drained

Based on the *Soil Survey* and as is depicted on Figures 5 and 6 of Appendix A, the Doss, Heiden and Houston Black clay soils cover large areas of the tract, while Heiden extremely stony clay and Houston Black clay (eroded) soils occupy a small portion of the northern-most part of the tract.

Shallow excavations were made at various locations across the tract and observations of the soil characteristics confirmed the presence of soils similar to those described in the *Soil Survey*. The soils were found to be very fine-grained (clay-rich) and thick. Some soils were found to have a minor to modest amount of embedded gravel-size rock fragments. Overall, soils on the tract were observed to exhibit minor erosion; however, soils on the downhill portions of the mesa were observed to exhibit moderate erosion.

4.3 Geology

According to the *Geologic Map of the West Half of the Taylor, Texas 30X60 Minute Quadrangle*, Bureau of Economic Geology (dated 2005) and other on-line information sources provided by the TCEQ, the subject property is reported to be underlain by the Eagle Ford Formation (Kef), Buda Limestone (Kbu), Del Rio Formation (Kdr) and Georgetown Formation (Kgt) (refer to Figure 7 of Appendix A for a regional geologic map, Figure 8 for a stratigraphic column, and Figures 9 and 10 for the site geologic maps). The *Geologic Atlas of Texas – Austin Sheet* describes these formations as follows:

Eagle Ford Formation (Kef)

The Eagle Ford Formation is overlain by the Austin Group (Kau) and underlain by the Buda Limestone (Kbu). The Eagle Ford is comprised of three general strata: (1) upper layer of compacted clay/shale, (2) middle layer of medium gray silty limestone grading to calcareous siltstone, and (3) lower layer of dark gray calcareous shale. A complete section of the Eagle Ford may range up to approximately 65 feet in thickness.

Buda Limestone (Kbu)

The Buda Limestone is overlain by the Eagle Ford Formation (Kef) and underlain by the Del Rio Clay (Kdr). The Buda Limestone is comprised of light gray to pale orange, hard, massively-bedded limestone that is interbedded

with thin clay layers. A complete section of the Buda Limestone may range up to approximately 50 feet in thickness.

Del Rio Formation (Kdr)

The Del Rio Formation (commonly referred to as the Del Rio Clay) is overlain by the Buda Limestone (Kbu) and underlain by the Georgetown Formation (Kgt). The Del Rio Formation is comprised of medium gray to blue-gray clay with thin beds of highly calcareous sandstone and siltstone. A complete section of the Del Rio Formation may range up to approximately 70 feet in thickness.

Georgetown Formation (Kgt)

The Georgetown Formation is overlain by the Del Rio Formation (Kdr) and underlain by the Edwards Formation (Ked). The Georgetown Formation consists of limestone and marl (mostly limestone). The limestone is light gray, fine grained, nodular, and moderately indurated. Some limestone is white, hard, brittle, and thick bedded. The Georgetown also includes some shale that is light gray to yellowish gray, marly, and soft. The thickness is reported to range 30 to 80 feet, and the formation thins southward.

As is depicted on Figures 7, 9 and 10 of Appendix A, the Del Rio Formation is reported to underlie majority of the tract, while the Buda Formation outcrops beneath the mesa area of the tract and the Georgetown Formation occurs on the west-central portion. The Edwards Aquifer Recharge Zone and Transition Zone boundary has been established at the outcropping contact of the Del Rio Formation and Buda Formation.

Given the thick soil cover on nearly the entire tract, no true geologic outcrops were observed at ground surface. However, a modest amount of loose bedrock fragments imbedded in surface soils were observed along the downhill slopes of the mesa area as well as within portions of the onsite ephemeral drainage ways (refer to the photographs in Appendix B). Majority of the fragments are believed to represent the Del Rio Formation.

4.4 Sensitive Karst and Manmade Features

4.4.1 Onsite Features

The field reconnaissance of the subject property included search for and identification of sensitive karst and manmade features, as defined by TCEQ, and to note potential ground recharge points that may be associated with such features. The field reconnaissance entailed walking 50- to 100-foot spaced transects across the entire tract. The results of the reconnaissance are provided below.

Caves

According to TCEQ criteria, a cave is a natural underground open (or filled) space formed by dissolution of limestone that is large enough for an average-sized person to enter. When a surface cave opening is encountered, then the subsurface extent of the cave is relevant in terms of subsurface recharge.

Based on observations made across the entire tract, no cave openings/caves were identified.

Solution Cavities

According to TCEQ criteria, a solution cavity is a natural cavity or depression formed as a result of dissolution of limestone. This category is designed to capture features that are not large enough for a normal-sized person to enter but appear to be part of a system of interconnected voids that connect the surface with the subsurface. The size and geometry of the feature is defined by in-place bedrock. Solution cavities also include areas where dissolution has increased the opening size and permeability along bedding planes as well as fractures.

Based on observations made across the entire tract, no solution cavities were identified.

Solution-Enlarged Fractures

According to TCEQ criteria, a solution-enlarged fracture is one that shows evidence of being locally enlarged by dissolution of limestone, recognized by measurable (larger than hairline) openings and miss-matched fracture surface shapes.

Based on observations made across the entire tract, no solution-enlarged fractures were identified.

Faults

According to TCEQ criteria, a fault is defined as a fracture along which there has been displacement of one side of the fracture relative to the other side. Displaced geologic materials and/or an abrupt change in surface topography can both be indicative of the presence of a fault.

Based on observations made across the entire study area, no faults were identified. However, it should be noted that geologic publications reviewed as part of this *Geologic Assessment* indicate potential presence of a fault located on the western portion of the tract (refer to Figures 7, 9 and 10 of Appendix A). The fault is reported to be oriented northeast-southwest and to cross the tract from approximately the midpoint of the western property boundary to the northern-most part of the tract. Reconnaissance of landform on the subject property where the fault is reported to be located did not identify any obvious field evidence that could either confirm or refute surface expression of the fault. Moreover, no karst features were encountered at ground surface along the potential fault zone. Due to absence of field evidence that would positively identify a fault surface expression, this feature is not included in the Geologic Assessment Table in Appendix C.

Manmade Features in Bedrock

According to TCEQ criteria, manmade features in bedrock may include water wells, sanitary sewer lines, storm sewer lines, trenches, quarries, and other cultural features that intersect bedrock and can potentially increase the rate of recharge to the subsurface.

Based on observations made across the entire tract, one manmade feature in bedrock was identified. The feature (Feature MB-1) is an old water well on the east-central part of the tract – adjacent to the single-family home (refer to Figure 10 of Appendix A). The well was observed to be nonfunctional. Moreover, the well structure was observed to be sound (sealed) at ground surface and was not determined to serve as a potential conduit regarding recharge to the subsurface. Although the well poses no significance, for completeness this manmade feature is included on the Geologic Assessment Table of Appendix C.

Swallet or Swallow Holes

According to TCEQ criteria, a swallet or swallow hole may include a focused recharge feature in an intermittent drainage or stream in karst terrain. Some swallow holes have a surface expression, for example, a cave opening or formation of a whirlpool in the stream at high flow. The general case is that fine soil and sediment as well as gravel are deposited over the bedrock feature during falling stages of flow, thereby intermittently or frequently obscuring the feature.

Based on observations made across the entire tract, no swallets or swallow holes were identified.

Sinkholes

According to TCEQ criteria, a sinkhole represents a shallow, broad topographic depression formed in response to karst processes. Sinkholes are pragmatically defined as features greater than six (6) feet in diameter with more than six (6) inches of topographic relief. Sinkholes are usually circular in map view. In cross section they may be subtle swales or funnel-shaped pits and some have exposed rimrock at the perimeter. The presence of a sinkhole implies that processes including collapse, subsidence, and soil sapping over geologic time have caused the land surface to sink below the surrounding area.

Based on observations made across the entire tract, no sinkholes were identified.

Other Natural Bedrock Features

According to TCEQ criteria, other natural bedrock features include vuggy rock and reef deposits that may contain large holes or vugs.

Based on observations made across the entire tract, no other natural bedrock features were identified.

Non-karst Closed Depressions

According to TCEQ criteria, a non-karst closed depression is a natural or non-natural topographic depression that is not formed by karst processes and is not bedrock floored. A feature larger than six (6) feet in at least one direction and with six (6) inches or more of topographic relief should be considered as a feature.

Based on observations made across the entire tract, no non-karst closed depressions were identified.

Zones

According to TCEQ criteria, a zone is an area in which any type of karst feature occurs along a trend or in a cluster. Clustered or aligned features are more likely to be an indicator of an integrated flow system at depth than isolated features. Alignment is expected in areas where conduit flow

is strongly influenced by structurally controlled fractures.

Based on observations made across the entire tract, no zones were identified.

4.4.2 Offsite Features

The field reconnaissance also included inspection of neighboring properties a distance of approximately 150 to 200 feet (as practicable) from all boundaries of the subject property for identification of offsite sensitive karst and manmade features that could be deemed as significant in terms of development on the property. The inspection did not identify any offsite features that would require consideration.

5.0 POTENTIAL FOR FLUID MOVEMENT TO THE SUBSURFACE

Based on review of available information and visual observations made during the field reconnaissance, this *Geologic Assessment* presents the following observations regarding the potential for recharge of the subsurface at the subject property:

- Characteristics of soils that cover the tract are the primary factors that influence potential subsurface recharge on the property. Presence of primarily Heiden and Houston Black clay soils that are thick, clay-rich and have reported very slow permeability suggests an overall low recharge potential over majority of the tract.
- No "defined" karst recharge points with focused recharge potential were observed to be located on the tract.

6.0 CONCLUSIONS

M. Trojan & Associates has conducted a *Geologic Assessment* for a proposed commercial development on a ±95-acre undeveloped tract located along Westinghouse Road at approximately Rabbit Hill Road in Georgetown, Williamson County, Texas. Based on research and field reconnaissance conducted as part of this *Geologic Assessment*, this report provides the following conclusions and recommendations:

- Given the thick cover of clay-rich soils on majority of the tract, the overall potential for recharge via soils is assessed to be low.
- No “defined” karst recharge points were found to be located on the subject property that would require protection in light of future development.
- Manmade feature in bedrock MB-1 represents an old water well on the east-central part of the tract – adjacent to the single-family home. The well was observed to be nonfunctional; however, the well structure was observed to be sound (sealed) at ground surface and was not determined to serve as a potential conduit regarding recharge to the subsurface. This *Geologic Assessment* suggests that the water well is not a significant feature.
- Based on inspection of neighboring properties a distance of approximately 150 to 200 feet from all boundaries of the subject property, no offsite sensitive karst and manmade features were identified that could be deemed as significant in terms of development on the property.

7.0 ADDITIONAL REMARKS

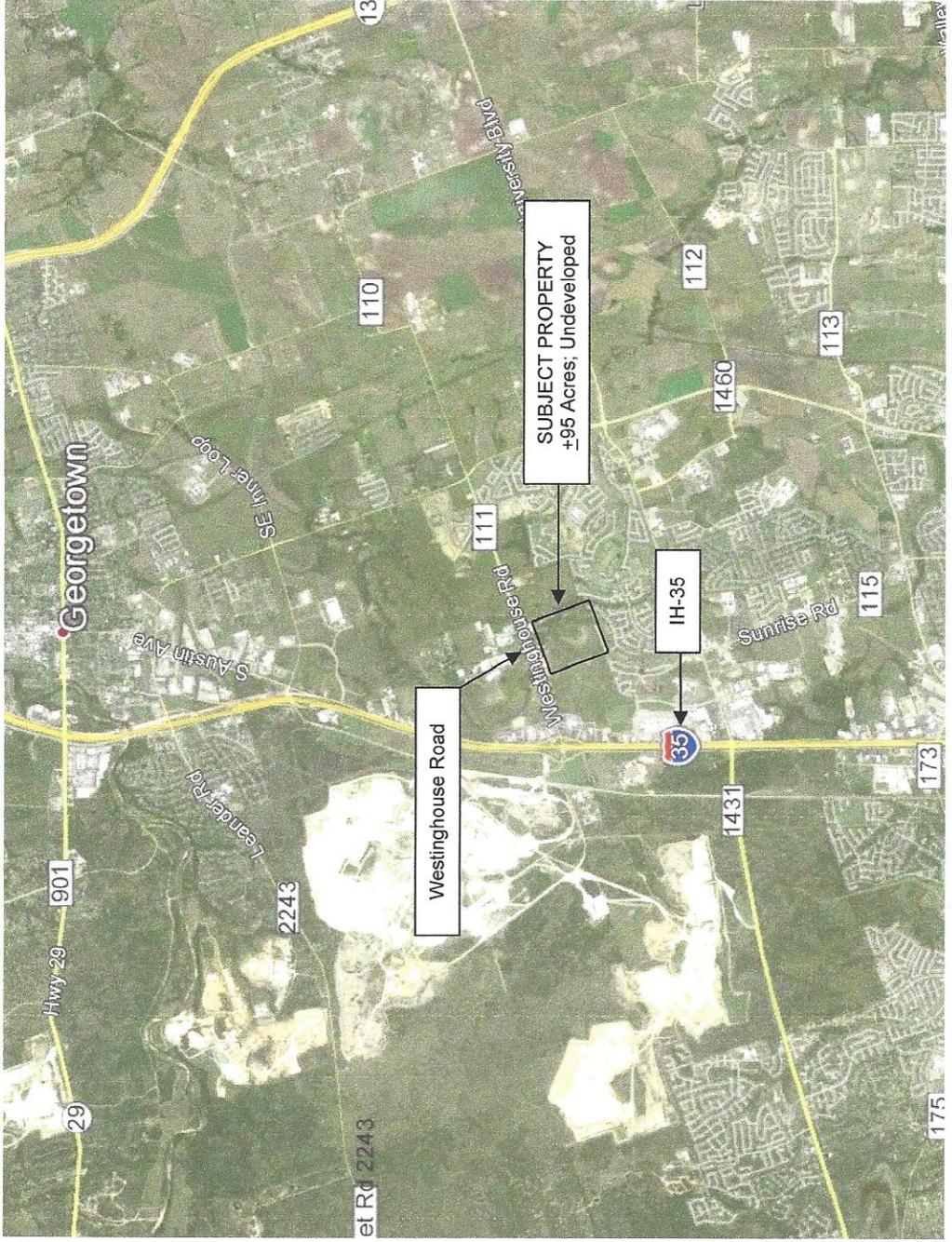
This (limited scope) assessment attempted to identify the geologic conditions/features on the subject property. Given the site conditions, potential environmentally sensitive features may have escaped detection as a result of the limitations of this study, soil cover on the subject property, and/or the presence of undetected and unreported environmental and geologic conditions. Should additional information regarding any actual or potential geologic conditions/features at the subject property be discovered that differs from that presented in this report, M. Trojan & Associates should be notified so that proper review of the information can be conducted.

8.0 REFERENCES

The following primary references/resources were utilized during the course of conducting this *Geologic Assessment*.

- Bureau of Economic Geology. 1974; Reprinted 1995. Geologic Atlas of Texas, Austin Sheet.
- Bureau of Economic Geology. 2005. Geologic Map of the West Half of the Taylor, Texas 30X60 Minute Quadrangle.
- Edwards Aquifer Recharge Zone information – Texas Commission on Environmental Quality online information sources.
- FEMA Flood Insurance Rate Map.
- Groundwater hydrogeologic information – Texas Water Development Board online information resources.
- Personal communications with representatives of Horizontal Westinghouse Investors, LLC.
- Site development plan – provided by Horizontal Westinghouse Investors, LLC.
- Soil Survey of Williamson County. 1980. Department of Agriculture – Natural Resources Conservation Service.
- TCEQ Edwards Aquifer Map Viewer (online).
- U.S. Geological Survey Map.
- Williamson County GIS (online).

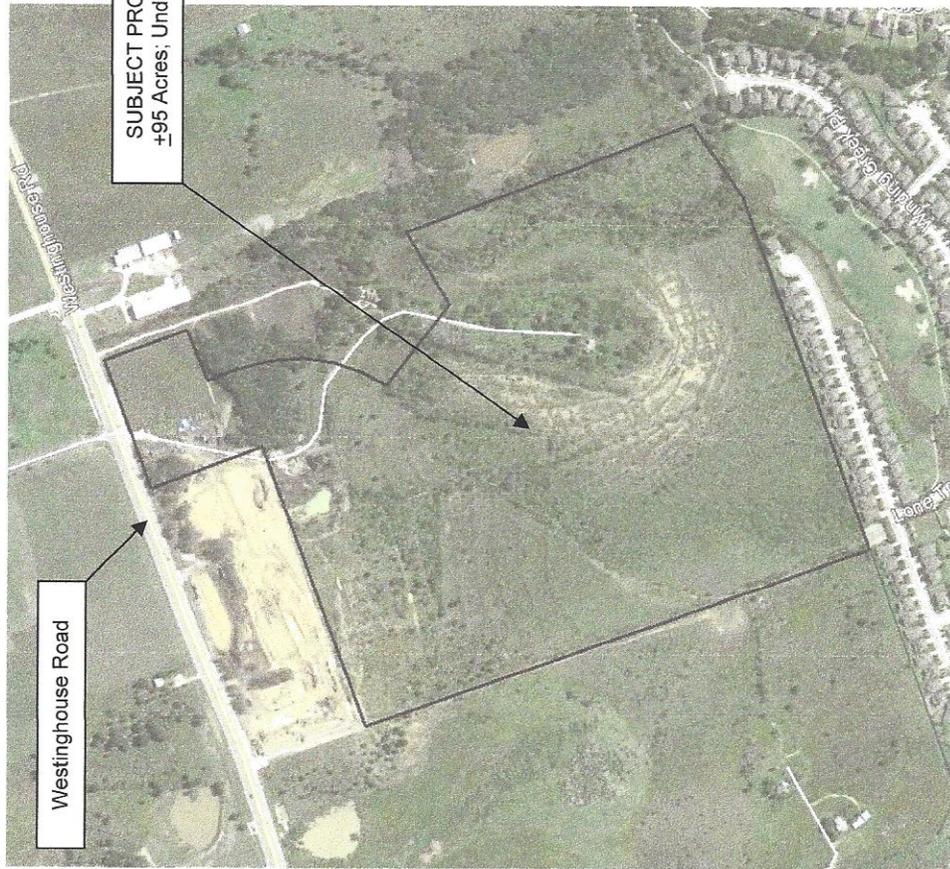
APPENDIX A
FIGURES



M. TROJAN & ASSOCIATES
 Environmental Consultants
 8244 Lime Creek Road
 Leander, Texas 78641
 (512) 258-6606

Scale: No Scale
 Date: October 20, 2014
 Project: TCEQ Geologic Assessment
 MTA Project: BAS-14-011

FIGURE 1
SITE LOCATION MAP
 +95-ACRE UNDEVELOPED TRACT
 WESTINGHOUSE ROAD AT RABBIT HILL ROAD
 GEORGETOWN, WILLIAMSON COUNTY, TEXAS 78626

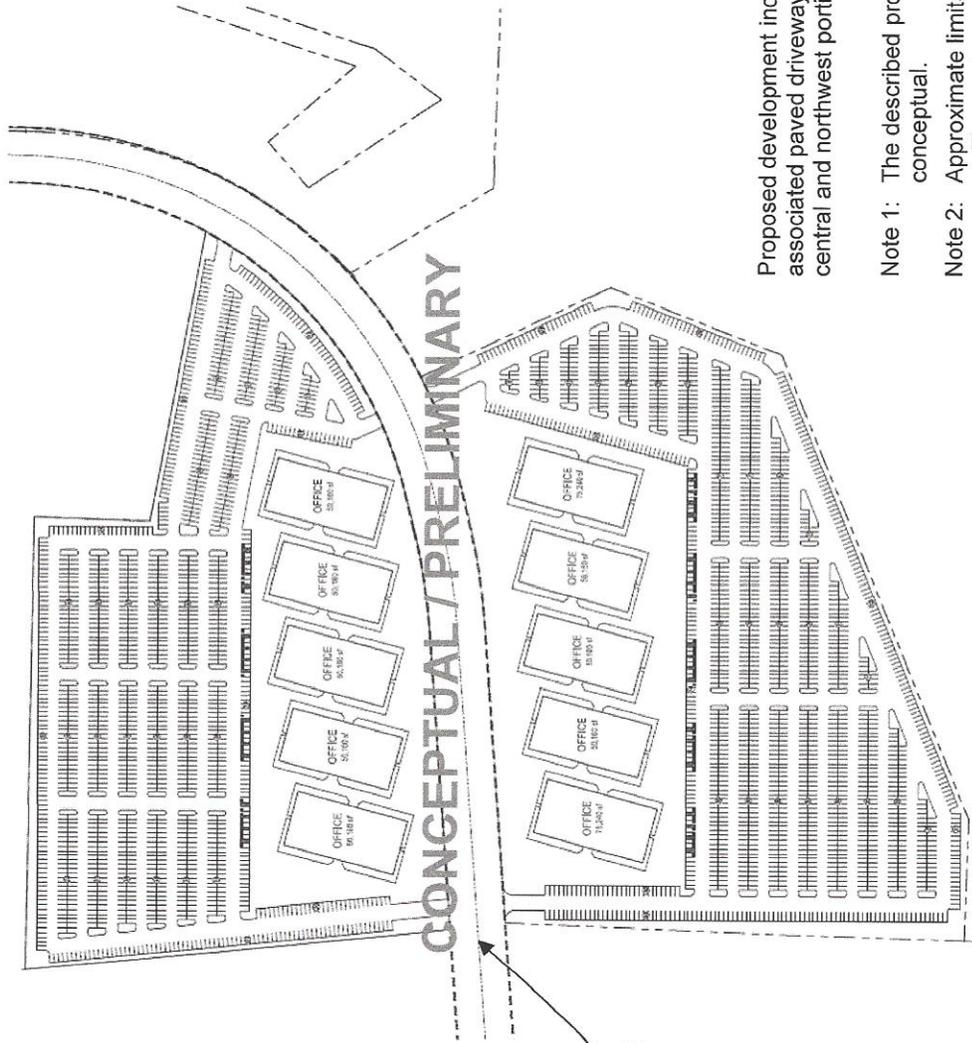


Note: October 31, 2013 Photograph

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Scale: No Scale
 Date: October 20, 2014
 Project: TCEQ Geologic Assessment
 MTA Project: BAS-14-011

FIGURE 2
SITE AERIAL PHOTOGRAPH
 +95-ACRE UNDEVELOPED TRACT
 WESTINGHOUSE ROAD AT RABBIT HILL ROAD
 GEORGETOWN, WILLIAMSON COUNTY, TEXAS 78626



Proposed development includes 10 office buildings and associated paved driveways and parking areas on the central and northwest portions of the tract.

Note 1: The described proposed development is conceptual.

Note 2: Approximate limits of construction are depicted on Figures 9 and 10.

Source: Horizontal Westinghouse Investors, LLC

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 Leander, Texas 78641
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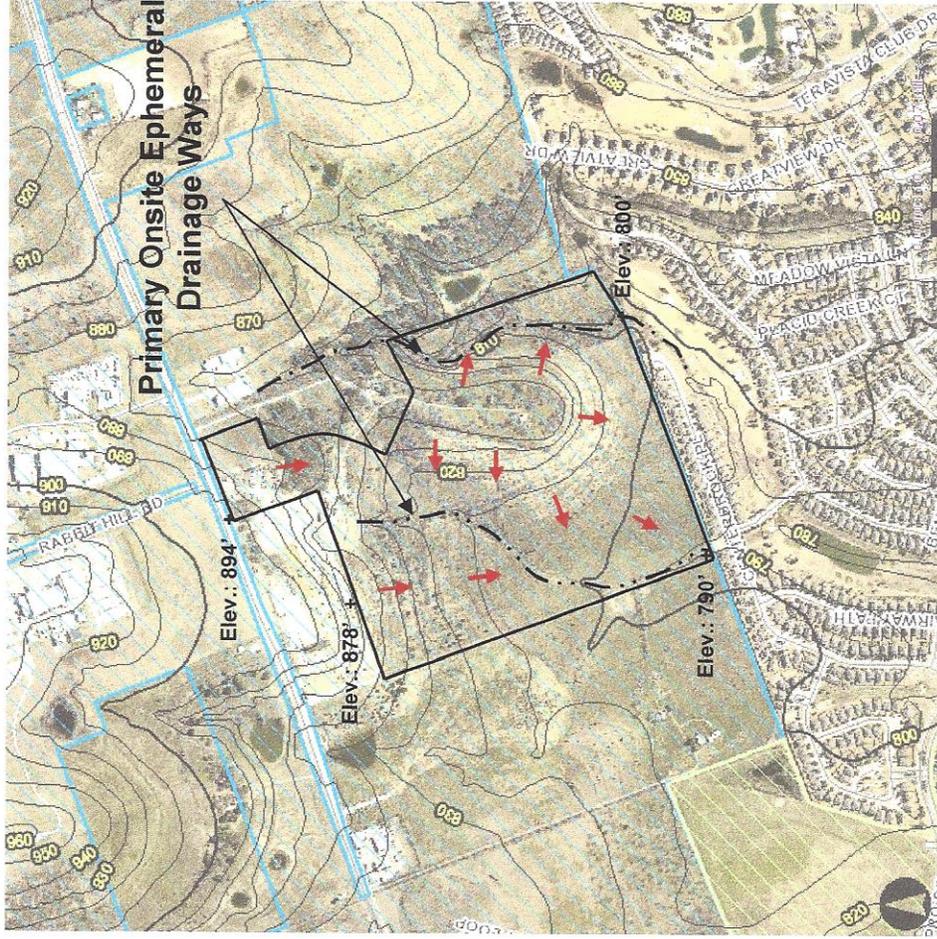
FIGURE 3

SITE DEVELOPMENT PLAN

+95-ACRE UNDEVELOPED TRACT
 WESTINGHOUSE ROAD AT RABBIT HILL ROAD
 GEORGETOWN, WILLIAMSON COUNTY, TEXAS 78626

Scale: No Scale
 Date: October 20, 2014
 Project: TCEQ Geologic Assessment
 MTA Project: BAS-14-011

Chandler Branch of the
Brushy Creek Watershed



Source: Williamson County GIS

Stormwater Runoff

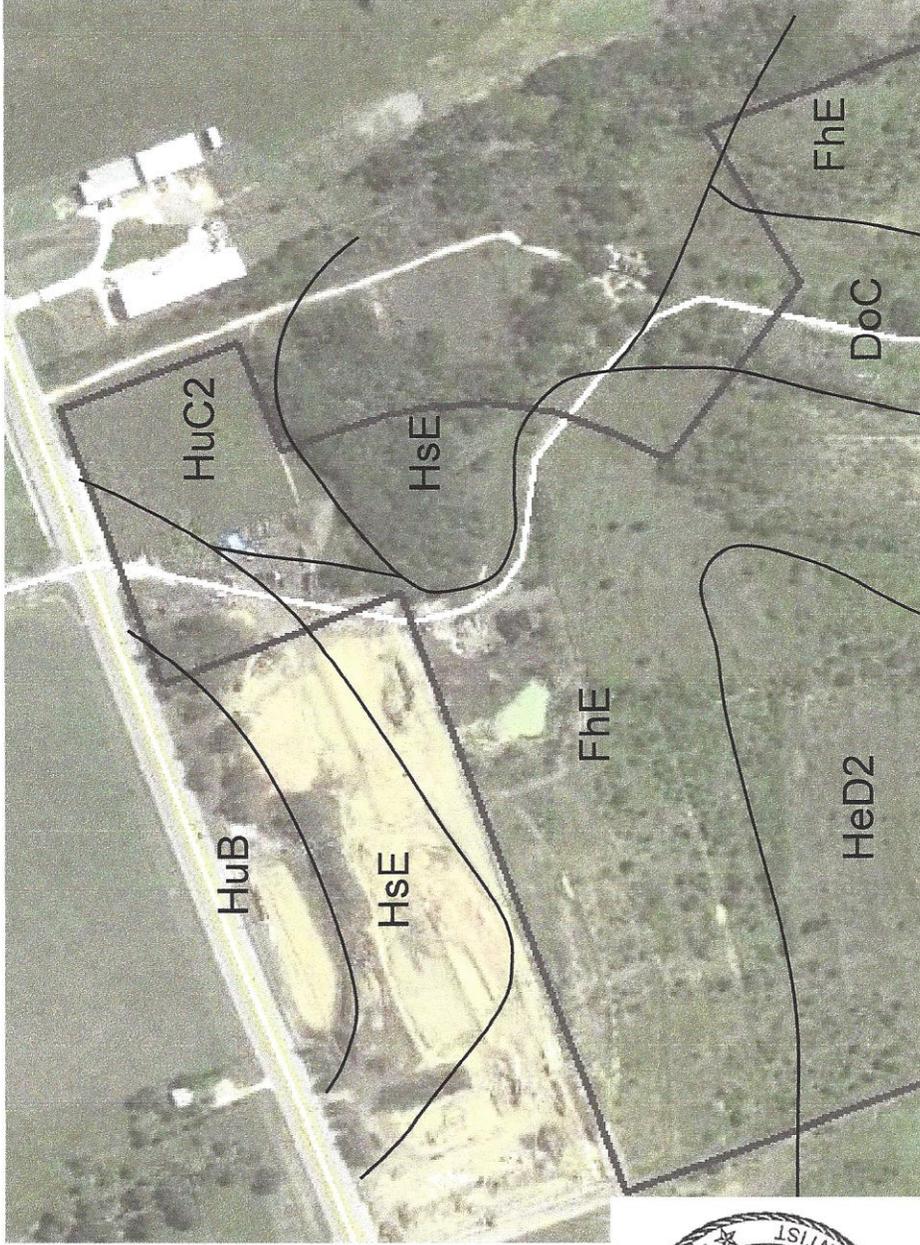
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Scale: No Scale
Date: October 20, 2014
Project: TCEQ Geologic Assessment
MTA Project: BAS-14-011

FIGURE 4

SURFACE WATER HYDROLOGY

±95-ACRE UNDEVELOPED TRACT
WESTINGHOUSE ROAD AT RABBIT HILL ROAD
GEORGETOWN, WILLIAMSON COUNTY, TEXAS 78626

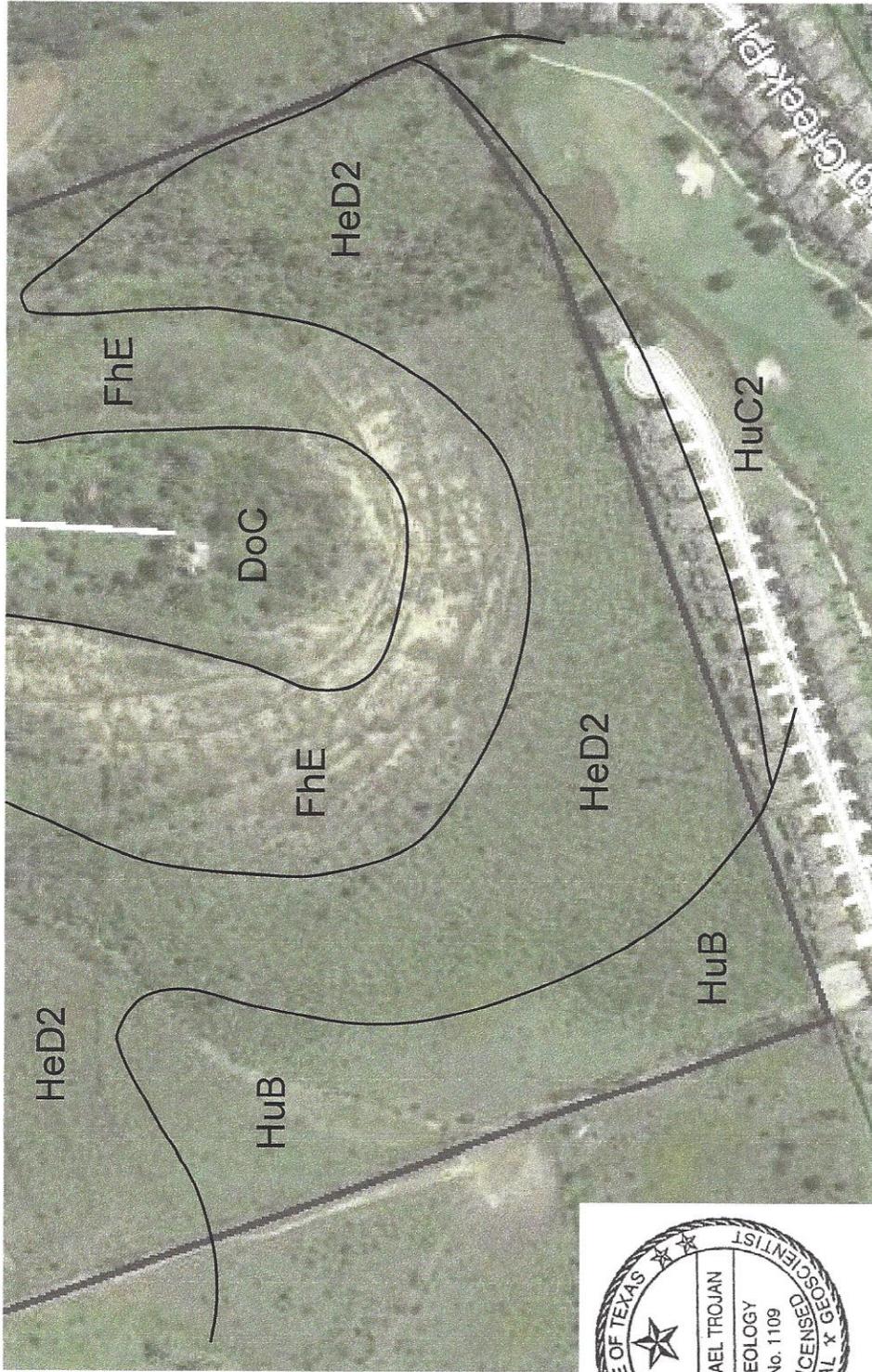


DoC: Doss silty clay, 1-5% slopes / FhE: Ferris-Heiden complex, 5-20% slopes, severely eroded / HeD2: Heiden clay, 5-8% slopes, eroded
 HsE: Heiden extremely stony clay, 3-12% slopes / HuB: Houston Black clay, 1-3% slopes / HuC2: Houston Black clay, 3-5% slopes, eroded

M. TROJAN & ASSOCIATES
 Environmental Consultants
 8244 Lime Creek Road
 Leander, Texas 78641
 (512) 258-6606

Scale: 1" = 370' (approx.)
 Date: October 20, 2014
 Project: TCEQ Geologic Assessment
 MTA Project: BAS-14-011

FIGURE 5
SITE SOILS MAP – NORTH COMPONENT
 ±95-ACRE UNDEVELOPED TRACT
 WESTINGHOUSE ROAD AT RABBIT HILL ROAD
 GEORGETOWN, WILLIAMSON COUNTY, TEXAS 78626

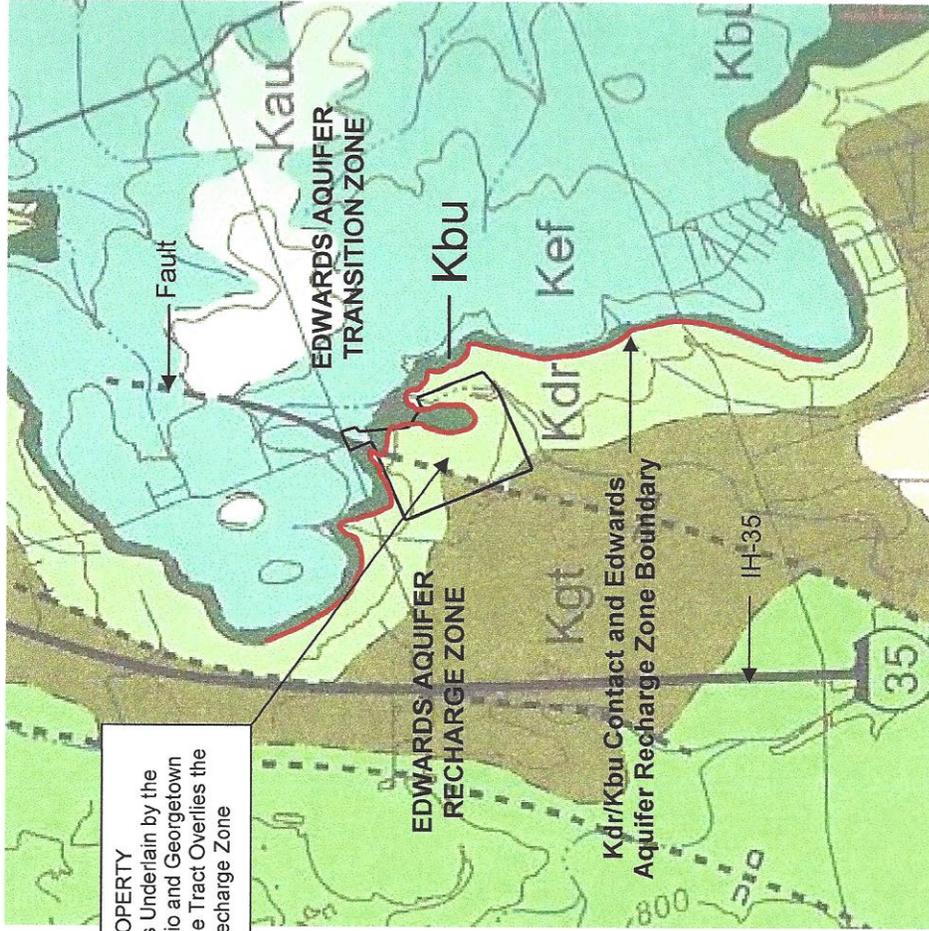


DoC: Doss silty clay, 1-5% slopes / FhE: Ferris-Heiden complex, 5-20% slopes, severely eroded / HeD2: Heiden clay, 5-8% slopes, eroded
 HuB: Houston Black clay, 1-3% slopes / HuC2: Houston Black clay, 3-5% slopes, eroded

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 Environmental Consultants
 8244 Lime Creek Road
 Leander, Texas 78641
 (512) 258-6606

Scale: 1" = 330' (approx.)
 Date: October 20, 2014
 Project: TCEQ Geologic Assessment
 MTA Project: BAS-14-011

FIGURE 6
SITE SOILS MAP – SOUTH COMPONENT
 +95-ACRE UNDEVELOPED TRACT
 WESTINGHOUSE ROAD AT RABBIT HILL ROAD
 GEORGETOWN, WILLIAMSON COUNTY, TEXAS 78626



SUBJECT PROPERTY
 The Subject Property is Underlain by the Eagle Ford, Buda, Del Rio and Georgetown Formations; Majority of the Tract Overlies the Edwards Aquifer Recharge Zone



NOTE: Subject property boundaries are approximate
 Source: (1) *Geologic Map of the West Half of the Taylor, Texas 30X60 Minute Quadrangle*, Bureau of Economic Geology, dated 2005; (2) TCEQ

M. TROJAN & ASSOCIATES
 Environmental Consultants
 8244 Lime Creek Road
 Leander, Texas 78641
 (512) 258-6606

Scale: No Scale
 Date: October 20, 2014
 Project: TCEQ Geologic Assessment
 MTA Project: BAS-14-011

FIGURE 7
GENERAL GEOLOGIC MAP
 +95-ACRE UNDEVELOPED TRACT
 WESTINGHOUSE ROAD AT RABBIT HILL ROAD
 GEORGETOWN, WILLIAMSON COUNTY, TEXAS 78626

SYSTEM	SERIES	GROUP	FORMATION	LITHOLOGY/ THICKNESS
QUATERNARY				TERRACE AND ALLUVIUM SAND, SILT, CLAY, AND GRAVEL THICKNESS NOT REPORTED
CRETACEOUS	UPPER CRETACEOUS (GULFIAN)	AUSTIN		CHALK, MARL, AND LIMESTONE 325-420 FEET THICK
		EAGLE FORD	EAGLE FORD	SHALE AND SILTY LIMESTONE TO CALCAREOUS SILTSTONE 25-65 FEET THICK
			BUDA	LIMESTONE UP TO 45 FEET THICK
			DEL RIO	CLAY 40-70 FEET THICK
CRETACEOUS	LOWER CRETACEOUS (COMANCHEAN)		GEORGETOWN	LIMESTONE AND MARL 30-80 FEET THICK
			EDWARDS	LIMESTONE AND DOLOSTONE 60-350 FEET THICK
			COMANCHE PEAK	LIMESTONE AND MARL UP TO 80 FEET THICK
			WALNUT FORMATION	LIMESTONE AND MARL UP TO 130 FEET THICK
			PALUXY SAND	SAND UP TO 10 FEET THICK



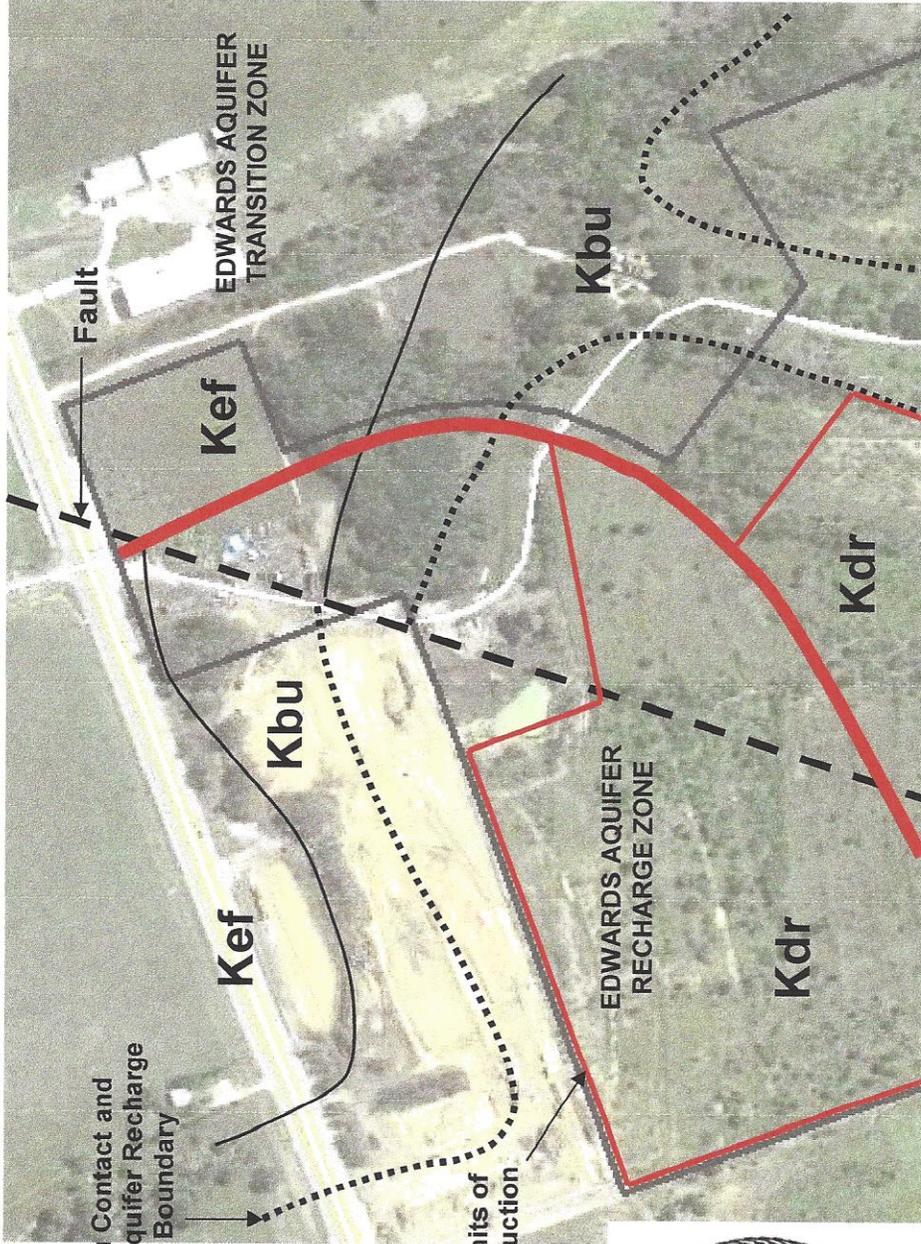
Geologic unit that directly underlies the subject property

Sources: *Geologic Map of the West Half of the Taylor, Texas 30X60 Minute Quadrangle*, Bureau of Economic Geology, dated 2005

M. TROJAN & ASSOCIATES
Environmental Consultants
8244 Lime Creek Road
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(512) 258-6606

Scale: No Scale
Date: October 20, 2014
Project: TCEQ Geologic Assessment
MTA Project: BAS-14-011

FIGURE 8
STRATIGRAPHIC COLUMN
+95-ACRE UNDEVELOPED TRACT
WESTINGHOUSE ROAD AT RABBIT HILL ROAD
GEORGETOWN, WILLIAMSON COUNTY, TEXAS 78626



Kdr/Kbu Contact and Edwards Aquifer Recharge Zone Boundary

Approximate Limits of Proposed Construction Project



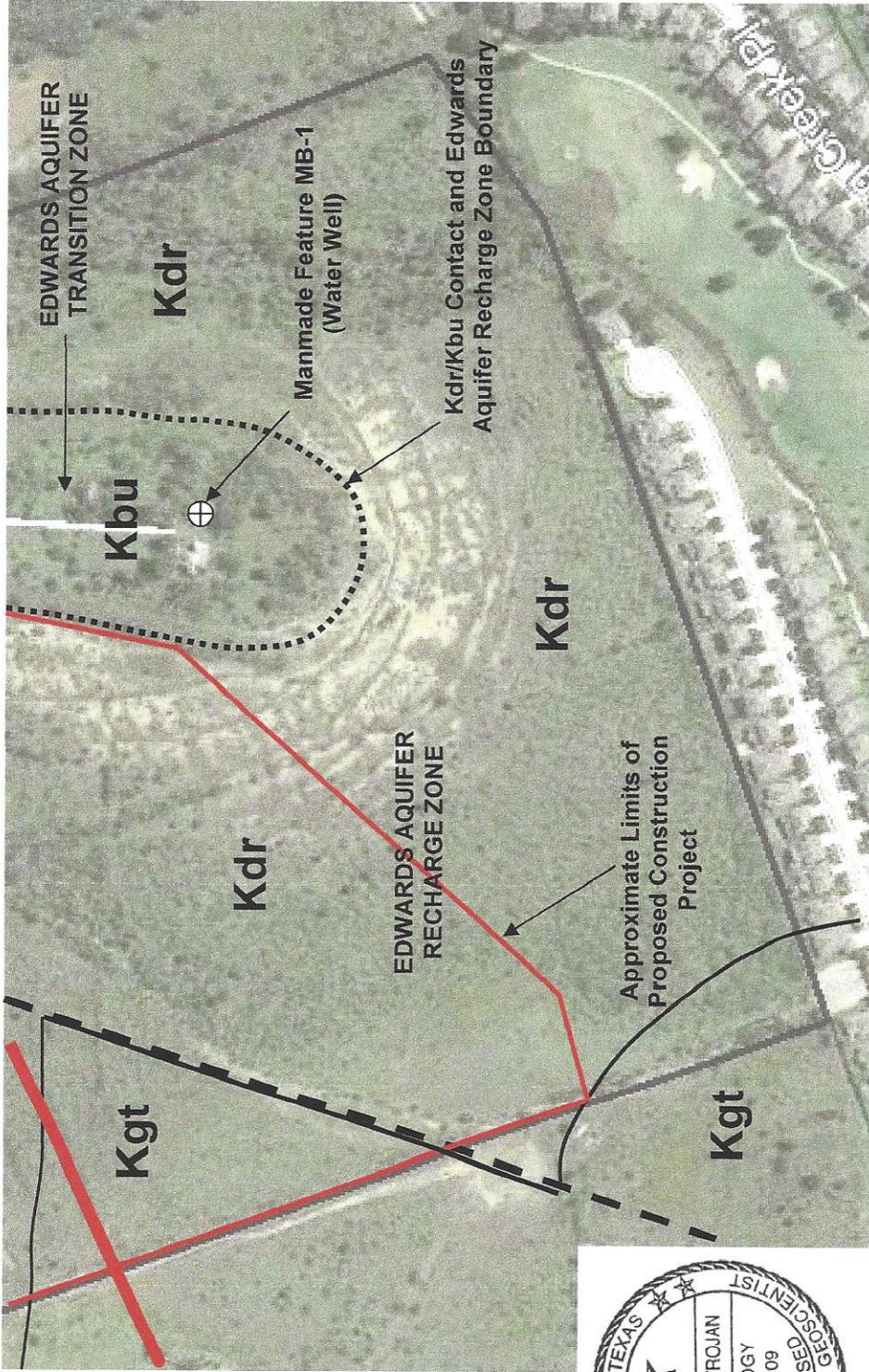
Kdr – Del Rio Formation / Kbu – Buda Limestone / Kef – Eagle Ford Formation

NO SENSITIVE GEOLOGIC FEATURES IDENTIFIED

M. TROJAN & ASSOCIATES
 Environmental Consultants
 8244 Lime Creek Road
 Leander, Texas 78641
 (512) 258-6606

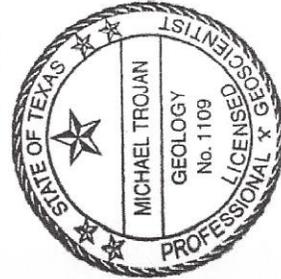
Scale: 1" = 370' (approx.)
 Date: October 20, 2014
 Project: TCEQ Geologic Assessment
 MTA Project BAS-14-011

FIGURE 9
SITE GEOLOGIC MAP –
NORTH COMPONENT
 +95-ACRE UNDEVELOPED TRACT
 WESTINGHOUSE ROAD AT RABBIT HILL ROAD
 GEORGETOWN, WILLIAMSON COUNTY, TEXAS 78626



Kdr – Del Rio Formation / Kbu – Buda Limestone / Kgt – Georgetown Formation

NO SENSITIVE GEOLOGIC FEATURES IDENTIFIED



M. TROJAN & ASSOCIATES
 Environmental Consultants
 8244 Lime Creek Road
 Leander, Texas 78641
 (512) 258-6606

FIGURE 10
SITE GEOLOGIC MAP –
SOUTH COMPONENT
 +95-ACRE UNDEVELOPED TRACT
 WESTINGHOUSE ROAD AT RABBIT HILL ROAD
 GEORGETOWN, WILLIAMSON COUNTY, TEXAS 78626

Scale: 1" = 330' (approx.)
 Date: October 20, 2014
 Project: TCEQ Geologic Assessment
 MTA Project BAS-14-011

APPENDIX B
SITE PHOTOGRAPHS

PHOTOGRAPHIC REPORTING DATA SHEET

[PHOTOGRAPH 1]



Project: TCEQ Geologic Assessment
Site: +95-Acre Undeveloped Tract
Location: Westinghouse Road at Rabbit Hill Road,
Georgetown, Williamson County, Texas 78626
Date Taken: October 9, 2014
Photographer: Michael Trojan, PG

Description: View of the northern-most portion of the tract along Westinghouse Road.
Photograph taken facing north-northwest.

PHOTOGRAPHIC REPORTING DATA SHEET

[PHOTOGRAPH 2]



Project: TCEQ Geologic Assessment
Site: +95-Acre Undeveloped Tract
Location: Westinghouse Road at Rabbit Hill Road,
Georgetown, Williamson County, Texas 78626
Date Taken: October 9, 2014
Photographer: Michael Trojan, PG

Description: View of the central and southern components of the tract. Photograph taken from near the center of the tract facing southwest.

PHOTOGRAPHIC REPORTING DATA SHEET

[PHOTOGRAPH 3]



Project: TCEQ Geologic Assessment
Site: +95-Acre Undeveloped Tract
Location: Westinghouse Road at Rabbit Hill Road,
Georgetown, Williamson County, Texas 78626
Date Taken: October 9, 2014
Photographer: Michael Trojan, PG

Description: View of the central, northeastern and northern components of the tract.
Photograph taken from near the center of the tract facing west-northwest.

PHOTOGRAPHIC REPORTING DATA SHEET

[PHOTOGRAPH 4]



Project: TCEQ Geologic Assessment
Site: +95-Acre Undeveloped Tract
Location: Westinghouse Road at Rabbit Hill Road,
Georgetown, Williamson County, Texas 78626
Date Taken: October 9, 2014
Photographer: Michael Trojan, PG

Description: View of the mesa area on the east-central portion of the tract. Photograph taken from near the single-family home on the mesa facing north-northeast.

PHOTOGRAPHIC REPORTING DATA SHEET

[PHOTOGRAPH 5]



Project: TCEQ Geologic Assessment
Site: +95-Acre Undeveloped Tract
Location: Westinghouse Road at Rabbit Hill Road,
Georgetown, Williamson County, Texas 78626
Date Taken: October 9, 2014
Photographer: Michael Trojan, PG

Description: View of typical, densely wooded landscape and ephemeral drainage way on the east-southeast component of the tract.

PHOTOGRAPHIC REPORTING DATA SHEET

[PHOTOGRAPH 6]



Project: TCEQ Geologic Assessment
Site: +95-Acre Undeveloped Tract
Location: Westinghouse Road at Rabbit Hill Road,
Georgetown, Williamson County, Texas 78626
Date Taken: October 9, 2014
Photographer: Michael Trojan, PG

Description: View of typical "loose" bedrock fragments scattered across the central portion of the tract – along steeper topographic grades downslope of the mesa area.

PHOTOGRAPHIC REPORTING DATA SHEET

[PHOTOGRAPH 7]



Project: TCEQ Geologic Assessment
Site: +95-Acre Undeveloped Tract
Location: Westinghouse Road at Rabbit Hill Road,
Georgetown, Williamson County, Texas 78626
Date Taken: October 9, 2014
Photographer: Michael Trojan, PG

Description: View of the onsite water well (Manmade Feature in Bedrock MB-1) located directly east of the single-family home on the mesa area of the tract.

APPENDIX C
GEOLOGIC ASSESSMENT TABLE

Organized Sewage Collection System Application

Texas Commission on Environmental Quality

For Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(c), Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Regulated Entity Name: New Westinghouse Investors tract

1. **Attachment A – SCS Engineering Design Report.** This Engineering Design Report is provided to fulfill the requirements of 30 TAC Chapter 217, including 217.10 of Subchapter A, §§217.51 – 217.70 of Subchapter C, and Subchapter D as applicable, and is required to be submitted with this SCS Application Form.

Customer Information

2. The entity and contact person responsible for providing the required engineering certification of testing for this sewage collection system upon completion (including private service connections) and every five years thereafter to the appropriate TCEQ region office pursuant to 30 TAC §213.5(c) is:

Contact Person: Matt Dickey

Entity: Horizontal Westinghouse Investors, LLC

Mailing Address: 20 E. congress, Suite 300

City, State: Tucson, AZ

Zip: 85701

Telephone: (520) 323-1005

Fax: _____

Email Address: mdickey@bourncompanies.com

The appropriate regional office must be informed of any changes in this information within 30 days of the change.

3. The engineer responsible for the design of this sewage collection system is:

Contact Person: Thomas J. Groll, P.E.

Texas Licensed Professional Engineer's Number: 90976

Entity: Tom Groll Engineering, PC

Mailing Address: 5208 PryorLane

City, State: Austin, TX

Zip: 78734

Telephone: (512) 848-5796

Fax: _____

Email Address: tomg@tg-eng.com

Project Information

4. Anticipated type of development to be served (estimated future population to be served, plus adequate allowance for institutional and commercial flows):

- Residential: Number of single-family lots: _____
 Multi-family: Number of residential units: Unknown
 Commercial
 Industrial
 Off-site system (not associated with any development)
 Other: _____

5. The character and volume of wastewater is shown below:

100% Domestic 1.5M gallons/day
 _____% Industrial _____ gallons/day
 _____% Commingled _____ gallons/day
 Total gallons/day: 1.5M

6. Existing and anticipated infiltration/inflow is 2,400 gallons/day. This will be addressed by: Designing to 30 TAC Chapter 213 and City of Georgetown standards.

7. A Water Pollution Abatement Plan (WPAP) is required for construction of any associated commercial, industrial or residential project located on the Recharge Zone.

- The WPAP application for this development was approved by letter dated _____. A copy of the approval letter is attached.
 The WPAP application for this development was submitted to the TCEQ on _____, but has not been approved.
 A WPAP application is required for an associated project, but it has not been submitted.
 There is no associated project requiring a WPAP application.

8. Pipe description:

Table 1 - Pipe Description

<i>Pipe Diameter(Inches)</i>	<i>Linear Feet (1)</i>	<i>Pipe Material (2)</i>	<i>Specifications (3)</i>
12	835	SDR 26 PVC	ASTM D3034
8	2820	SDR 26 PVC	ASTM D3034

Total Linear Feet: 3655

- (1) Linear feet - Include stub-outs and double service connections. Do not include private service laterals.
 (2) Pipe Material - If PVC, state SDR value.
 (3) Specifications - ASTM / ANSI / AWWA specification and class numbers should be included.

9. The sewage collection system will convey the wastewater to the Dove Springs (name) Treatment Plant. The treatment facility is:

- Existing
- Proposed

10. All components of this sewage collection system will comply with:

- The City of Georgetown standard specifications.
- Other. Specifications are attached.

11. No force main(s) and/or lift station(s) are associated with this sewage collection system.
- A force main(s) and/or lift station(s) is associated with this sewage collection system and the **Lift Station/Force Main System Application** form (TCEQ-0624) is included with this application.

Alignment

12. There are no deviations from uniform grade in this sewage collection system without manholes and with open cut construction.
13. There are no deviations from straight alignment in this sewage collection system without manholes.
- Attachment B - Justification and Calculations for Deviation in Straight Alignment without Manholes.** A justification for deviations from straight alignment in this sewage collection system without manholes with documentation from pipe manufacturer allowing pipe curvature is attached.
- For curved sewer lines, all curved sewer line notes (TCEQ-0596) are included on the construction plans for the wastewater collection system.

Manholes and Cleanouts

14. Manholes or clean-outs exist at the end of each sewer line(s). These locations are listed below: (Please attach additional sheet if necessary)

Table 2 - Manholes and Cleanouts

<i>Line</i>	<i>Shown on Sheet</i>	<i>Station</i>	<i>Manhole or Clean-out?</i>
WWL 'A'	7 Of 12	5+21	MH #4
WWL 'A'	7 Of 12	6+23	MH #5
WWL 'A'	7 Of 12	10+50	MH #6
WWL 'A'	8 Of 12	15+23	MH #7
WWL 'A'	8 Of 12	18+11	MH #8
WWL 'A'	9 Of 12	22+79	MH #9
WWL 'A'	9 Of 12	24+61	MH #10

<i>Line</i>	<i>Shown on Sheet</i>	<i>Station</i>	<i>Manhole or Clean-out?</i>
WWL 'A'	9 Of 12	26+43	MH #11
WWL 'A'	9 Of 12	28+25	MH #12
WWL 'A'	9 Of 12	30+07	MH #13

15. Manholes are installed at all Points of Curvature and Points of Termination of a sewer line.
16. The maximum spacing between manholes on this project for each pipe diameter is no greater than:

Pipe Diameter (inches)	Max. Manhole Spacing (feet)
6 - 15	500
16 - 30	800
36 - 48	1000
≥54	2000

- Attachment C – Justification for Variance from Maximum Manhole Spacing.** The maximum spacing between manholes on this project (for each pipe diameter used) is greater than listed in the table above. A justification for any variance from the maximum spacing is attached, and must include a letter from the entity which will operate and maintain the system stating that it has the capability to maintain lines with manhole spacing greater than the allowed spacing.
17. All manholes will be monolithic, cast-in-place concrete.
- The use of pre-cast manholes is requested for this project. The manufacturer's specifications and construction drawings, showing the method of sealing the joints, are attached.

Site Plan Requirements

Items 18 - 25 must be included on the Site Plan.

18. The Site Plan must have a minimum scale of 1" = 400'.
Site Plan Scale: 1" = 40'.
19. The Site Plan must include the sewage collection system general layout, including manholes with station numbers, and sewer pipe stub outs (if any). Site plan must be overlain by topographic contour lines, using a contour interval of not greater than ten feet and showing the area within both the five-year floodplain and the 100-year floodplain of any drainage way.
20. Lateral stub-outs:
- The location of all lateral stub-outs are shown and labeled.
- No lateral stub-outs will be installed during the construction of this sewer collection system.

21. Location of existing and proposed water lines:

- The entire water distribution system for this project is shown and labeled.
- If not shown on the Site Plan, a Utility Plan is provided showing the entire water and sewer systems.
- There will be no water lines associated with this project.

22. 100-year floodplain:

- After construction is complete, no part of this project will be in or cross a 100-year floodplain, either naturally occurring or manmade. (Do not include streets or concrete-lined channels constructed above of sewer lines.)
- After construction is complete, all sections located within the 100-year floodplain will have water-tight manholes. These locations are listed in the table below and are shown and labeled on the Site Plan. (Do not include streets or concrete-lined channels constructed above sewer lines.)

Table 3 - 100-Year Floodplain

<i>Line</i>	<i>Sheet</i>	<i>Station</i>
	of	to

23. 5-year floodplain:

- After construction is complete, no part of this project will be in or cross a 5-year floodplain, either naturally occurring or man-made. (Do not include streets or concrete-lined channels constructed above sewer lines.)
- After construction is complete, all sections located within the 5-year floodplain will be encased in concrete or capped with concrete. These locations are listed in the table below and are shown and labeled on the Site Plan. (Do not include streets or concrete-lined channels constructed above sewer lines.)

Table 4 - 5-Year Floodplain

<i>Line</i>	<i>Sheet</i>	<i>Station</i>
	of	to

24. Legal boundaries of the site are shown.

25. The ***final plans and technical specifications*** are submitted for the TCEQ's review. Each sheet of the construction plans and specifications are dated, signed, and sealed by the Texas Licensed Professional Engineer responsible for the design on each sheet.

Items 26 - 33 must be included on the Plan and Profile sheets.

26. All existing or proposed water line crossings and any parallel water lines within 9 feet of sewer lines are listed in the table below. These lines must have the type of pressure rated pipe to be installed shown on the plan and profile sheets. Any request for a variance from the required pressure rated piping at crossings must include a variance approval from 30 TAC Chapter 290.
- There will be no water line crossings.
- There will be no water lines within 9 feet of proposed sewer lines.

Table 5 - Water Line Crossings

<i>Line</i>	<i>Station or Closest Point</i>	<i>Crossing or Parallel</i>	<i>Horizontal Separation Distance</i>	<i>Vertical Separation Distance</i>
WWL'A'	15+09.69	CROSSING	0	1.5'
WWL'A'	37+03.12	CROSSING	0	1.6'
WWL'B'	1+14.25	CROSSING	0	1.0'

27. Vented Manholes:

- No part** of this sewer line is within the 100-year floodplain and vented manholes are not required by 30 TAC Chapter 217.
- A portion** of this sewer line is within the 100-year floodplain and vented manholes will be provided at less than 1500 foot intervals. These water-tight manholes are listed in the table below and labeled on the appropriate profile sheets.
- A portion** of this sewer line is within the 100-year floodplain and an alternative means of venting shall be provided at less than 1500 feet intervals. A description of the alternative means is described on the following page.
- A portion** of this sewer line is within the 100-year floodplain; however, there is no interval longer than 1500 feet located within. No vented manholes will be used.

Table 6 - Vented Manholes

<i>Line</i>	<i>Manhole</i>	<i>Station</i>	<i>Sheet</i>

<i>Line</i>	<i>Manhole</i>	<i>Station</i>	<i>Sheet</i>

28. Drop manholes:

- There are no drop manholes associated with this project.
- Sewer lines which enter new or existing manholes or "manhole structures" higher than 24 inches above the manhole invert are listed in the table below and labeled on the appropriate profile sheets. These lines meet the requirements of 30 TAC §217.55(l)(2)(H).

Table 7 - Drop Manholes

<i>Line</i>	<i>Manhole</i>	<i>Station</i>	<i>Sheet</i>

29. Sewer line stub-outs (For proposed extensions):

- The placement and markings of all sewer line stub-outs are shown and labeled.
- No sewer line stub-outs are to be installed during the construction of this sewage collection system.

30. Lateral stub-outs (For proposed private service connections):

- The placement and markings of all lateral stub-outs are shown and labeled.
- No lateral stub-outs are to be installed during the construction of this sewage collection system.

31. Minimum flow velocity (From Appendix A)

- Assuming pipes are flowing full; all slopes are designed to produce flows equal to or greater than 2.0 feet per second for this system/line.

32. Maximum flow velocity/slopes (From Appendix A)

- Assuming pipes are flowing full, all slopes are designed to produce maximum flows of less than or equal to 10 feet per second for this system/line.
- Attachment D – Calculations for Slopes for Flows Greater Than 10.0 Feet per Second.** Assuming pipes are flowing full, some slopes produce flows which are greater than 10 feet per second. These locations are listed in the table below. Calculations are attached.

Table 8 - Flows Greater Than 10 Feet per Second

<i>Line</i>	<i>Profile Sheet</i>	<i>Station to Station</i>	<i>FPS</i>	<i>% Slope</i>	<i>Erosion/Shock Protection</i>

33. Assuming pipes are flowing full, where flows are ≥ 10 feet per second, the provisions noted below have been made to protect against pipe displacement by erosion and/or shock under 30 TAC §217.53(l)(2)(B).

- Concrete encasement shown on appropriate Plan and Profile sheets for the locations listed in the table above.
- Steel-reinforced, anchored concrete baffles/retards placed every 50 feet shown on appropriate Plan and Profile sheets for the locations listed in the table above.
- N/A

Administrative Information

34. The final plans and technical specifications are submitted for TCEQ review. Each sheet of the construction plans and specifications are dated, signed, and sealed by the Texas Licensed Professional Engineer responsible for the design on each sheet.
35. Standard details are shown on the detail sheets, which are dated, signed, and sealed by the Texas Licensed Professional Engineer, as listed in the table below:

Table 9 - Standard Details

Standard Details	Shown on Sheet
Lateral stub-out marking [Required]	12 of 12
Manhole, showing inverts comply with 30 TAC §217.55(l)(2) [Required]	11 of 12
Alternate method of joining lateral to existing SCS line for potential future connections [Required]	NA of
Typical trench cross-sections [Required]	12 of 12
Bolted manholes [Required]	11 of 12
Sewer Service lateral standard details [Required]	NA of
Clean-out at end of line [Required, if used]	12 of 12
Baffles or concrete encasement for shock/erosion protection [Required, if flow velocity of any section of pipe >10 fps]	NA of
Detail showing Wastewater Line/Water Line Crossing [Required, if crossings are proposed]	12 of 12
Mandrel detail or specifications showing compliance with 30 TAC §217.57(b) and (c) [Required, if Flexible Pipe is used]	12 of 12

Standard Details	Shown on Sheet
Drop manholes [Required, if a pipe entering a manhole is more than 24 inches above manhole invert]	NA of

36. All organized sewage collection system general construction notes (TCEQ-0596) are included on the construction plans for this sewage collection system.
37. All proposed sewer lines will be sufficiently surveyed/staked to allow an assessment prior to TCEQ executive director approval. If the alignments of the proposed sewer lines are not walkable on that date, the application will be deemed incomplete and returned.
- Survey staking was completed on this date: 8/30/20
38. Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.
39. Any modification of this SCS application will require TCEQ approval, prior to construction, and may require submission of a revised application, with appropriate fees.

Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Organized Sewage Collection System Application** is hereby submitted for TCEQ review and executive director approval. The system was designed in accordance with the requirements of 30 TAC §213.5(c) and 30 TAC §217 and prepared by:

Print Name of Licensed Professional Engineer: Thomas J. Groll, P.E.

Date: 08/11/20

Place engineer's seal here:

Signature of Licensed Professional Engineer:

Thomas J. Groll, P.E.

Appendix A-Flow Velocity Table

Flow Velocity (Flowing Full) All gravity sewer lines on the Edwards Aquifer Recharge Zone shall be designed and constructed with hydraulic slopes sufficient to give a velocity when flowing full of not less than 2.0 feet per second, and not greater than 10 feet per second. The grades shown in the following table are based on Manning's formula and an n factor of 0.013 and shall be the minimum and maximum acceptable slopes unless provisions are made otherwise.

Table 10 - Slope Velocity

Pipe Diameter(Inches)	% Slope required for minimum flow velocity of 2.0 fps	% Slope which produces flow velocity of 10.0 fps
6	0.50	12.35
8	0.33	8.40
10	0.25	6.23
12	0.20	4.88
15	0.15	3.62
18	0.11	2.83
21	0.09	2.30
24	0.08	1.93
27	0.06	1.65
30	0.055	1.43
33	0.05	1.26
36	0.045	1.12
39	0.04	1.01
>39	*	*

*For lines larger than 39 inches in diameter, the slope may be determined by Manning's formula (as shown below) to maintain a minimum velocity greater than 2.0 feet per second when flowing full and a maximum velocity less than 10 feet per second when flowing full.

$$v = \frac{1.49}{n} \times R_h^{0.67} \times \sqrt{S}$$

Figure 1 - Manning's Formula

Where:

v = velocity (ft/sec)
n = Manning's roughness coefficient (0.013)
Rh = hydraulic radius (ft)
S = slope (ft/ft)

Temporary Stormwater Section

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(b)(4)(A), (B), (D)(I) and (G); Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This Temporary Stormwater Section is hereby submitted for TCEQ review and executive director approval. The application was prepared by:

Print Name of Customer/Agent: Thomas J. Groll, P.E.

Date: 08/11/20

Signature of Customer/Agent:

Thomas J. Groll, P.E.

Regulated Entity Name: New Westinghouse Investors tract

Project Information

Potential Sources of Contamination

Examples: Fuel storage and use, chemical storage and use, use of asphaltic products, construction vehicles tracking onto public roads, and existing solid waste.

1. Fuels for construction equipment and hazardous substances which will be used during construction:

The following fuels and/or hazardous substances will be stored on the site: _____

These fuels and/or hazardous substances will be stored in:

- Aboveground storage tanks with a cumulative storage capacity of less than 250 gallons will be stored on the site for less than one (1) year.

- Aboveground storage tanks with a cumulative storage capacity between 250 gallons and 499 gallons will be stored on the site for less than one (1) year.
- Aboveground storage tanks with a cumulative storage capacity of 500 gallons or more will be stored on the site. An Aboveground Storage Tank Facility Plan application must be submitted to the appropriate regional office of the TCEQ prior to moving the tanks onto the project.
- Fuels and hazardous substances will not be stored on the site.
- 2. **Attachment A - Spill Response Actions.** A site specific description of the measures to be taken to contain any spill of hydrocarbons or hazardous substances is attached.
- 3. Temporary aboveground storage tank systems of 250 gallons or more cumulative storage capacity must be located a minimum horizontal distance of 150 feet from any domestic, industrial, irrigation, or public water supply well, or other sensitive feature.
- 4. **Attachment B - Potential Sources of Contamination.** A description of any activities or processes which may be a potential source of contamination affecting surface water quality is attached.

Sequence of Construction

- 5. **Attachment C - Sequence of Major Activities.** A description of the sequence of major activities which will disturb soils for major portions of the site (grubbing, excavation, grading, utilities, and infrastructure installation) is attached.
 - For each activity described, an estimate (in acres) of the total area of the site to be disturbed by each activity is given.
 - For each activity described, include a description of appropriate temporary control measures and the general timing (or sequence) during the construction process that the measures will be implemented.
- 6. Name the receiving water(s) at or near the site which will be disturbed or which will receive discharges from disturbed areas of the project: Unnamed tributary of Chandler Branch of Brushy Creek

Temporary Best Management Practices (TBMPs)

Erosion control examples: tree protection, interceptor swales, level spreaders, outlet stabilization, blankets or matting, mulch, and sod. Sediment control examples: stabilized construction exit, silt fence, filter dikes, rock berms, buffer strips, sediment traps, and sediment basins. Please refer to the Technical Guidance Manual for guidelines and specifications. All structural BMPs must be shown on the site plan.

- 7. **Attachment D – Temporary Best Management Practices and Measures.** TBMPs and measures will prevent pollution of surface water, groundwater, and stormwater. The construction-phase BMPs for erosion and sediment controls have been designed to retain sediment on site to the extent practicable. The following information is attached:

- A description of how BMPs and measures will prevent pollution of surface water, groundwater or stormwater that originates upgradient from the site and flows across the site.
 - A description of how BMPs and measures will prevent pollution of surface water or groundwater that originates on-site or flows off site, including pollution caused by contaminated stormwater runoff from the site.
 - A description of how BMPs and measures will prevent pollutants from entering surface streams, sensitive features, or the aquifer.
 - A description of how, to the maximum extent practicable, BMPs and measures will maintain flow to naturally-occurring sensitive features identified in either the geologic assessment, TCEQ inspections, or during excavation, blasting, or construction.
8. The temporary sealing of a naturally-occurring sensitive feature which accepts recharge to the Edwards Aquifer as a temporary pollution abatement measure during active construction should be avoided.
- Attachment E - Request to Temporarily Seal a Feature.** A request to temporarily seal a feature is attached. The request includes justification as to why no reasonable and practicable alternative exists for each feature.
 - There will be no temporary sealing of naturally-occurring sensitive features on the site.
9. **Attachment F - Structural Practices.** A description of the structural practices that will be used to divert flows away from exposed soils, to store flows, or to otherwise limit runoff discharge of pollutants from exposed areas of the site is attached. Placement of structural practices in floodplains has been avoided.
10. **Attachment G - Drainage Area Map.** A drainage area map supporting the following requirements is attached:
- For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin will be provided.
 - For areas that will have more than 10 acres within a common drainage area disturbed at one time, a smaller sediment basin and/or sediment trap(s) will be used.
 - For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin or other equivalent controls are not attainable, but other TBMPs and measures will be used in combination to protect down slope and side slope boundaries of the construction area.
 - There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. A smaller sediment basin and/or sediment trap(s) will be used in combination with other erosion and sediment controls within each disturbed drainage area.

- There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. Erosion and sediment controls other than sediment basins or sediment traps within each disturbed drainage area will be used.
11. **Attachment H - Temporary Sediment Pond(s) Plans and Calculations.** Temporary sediment pond or basin construction plans and design calculations for a proposed temporary BMP or measure have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer. All construction plans and design information must be signed, sealed, and dated by the Texas Licensed Professional Engineer. Construction plans for the proposed temporary BMPs and measures are attached.
- N/A
12. **Attachment I - Inspection and Maintenance for BMPs.** A plan for the inspection of each temporary BMP(s) and measure(s) and for their timely maintenance, repairs, and, if necessary, retrofit is attached. A description of the documentation procedures, recordkeeping practices, and inspection frequency are included in the plan and are specific to the site and/or BMP.
13. All control measures must be properly selected, installed, and maintained in accordance with the manufacturer's specifications and good engineering practices. If periodic inspections by the applicant or the executive director, or other information indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations.
14. If sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain).
15. Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50%. A permanent stake will be provided that can indicate when the sediment occupies 50% of the basin volume.
16. Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges (e.g., screening outfalls, picked up daily).

Soil Stabilization Practices

Examples: establishment of temporary vegetation, establishment of permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, or preservation of mature vegetation.

17. **Attachment J - Schedule of Interim and Permanent Soil Stabilization Practices.** A schedule of the interim and permanent soil stabilization practices for the site is attached.

18. Records must be kept at the site of the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.
19. Stabilization practices must be initiated as soon as practicable where construction activities have temporarily or permanently ceased.

Administrative Information

20. All structural controls will be inspected and maintained according to the submitted and approved operation and maintenance plan for the project.
21. If any geologic or manmade features, such as caves, faults, sinkholes, etc., are discovered, all regulated activities near the feature will be immediately suspended. The appropriate TCEQ Regional Office shall be immediately notified. Regulated activities must cease and not continue until the TCEQ has reviewed and approved the methods proposed to protect the aquifer from any adverse impacts.
22. Silt fences, diversion berms, and other temporary erosion and sediment controls will be constructed and maintained as appropriate to prevent pollutants from entering sensitive features discovered during construction.

Temporary Stormwater Section Attachments

- Attachment A: Spill Response Actions
- Attachment B: Potential Sources of Contamination
- Attachment C: Sequence of Major Construction
- Attachment D: Best Management Practices
- Attachment E: Request to Temporarily Seal a Feature
- Attachment F: Structural Practices
- Attachment G: Drainage Area Map
- Attachment H: Temporary Sediment Pond Plans and Calculations
- Attachment I: Inspection and Maintenance of BMP's
- Attachment J: Schedule of Interim and Permanent Soil Stabilization

Attachment A - Spill Response Actions

Education

1. The contractor shall educate their employees about the following matters:
 - a. Different materials pollute in different amounts. The site Superintendent shall be knowledgeable about the types of materials (fuels, solvents, lubricants, coatings, piping, embedment) that will be used for construction of the pipeline and be prepared to respond appropriately to an unplanned release of materials.
 - b. Ensure that each employee knows what a "significant spill" is for each material they use, and what is the appropriate response for "significant" and "insignificant" spills. Employees should also be aware of when a spill must be reported to the TCEQ.
 - c. Educate employees and subcontractors on potential dangers to humans and the environment from spills and leaks.
 - d. Hold regular meetings to discuss and reinforce appropriate disposal procedures (incorporate into regular safety meetings).
 - e. Establish a continuing education program to indoctrinate new employees.
 - f. Have contractor's superintendent or representative oversee and enforce proper spill prevention and control measures.

General Measures

1. To the extent that the work can be accomplished safely, spills of oil, petroleum products, and substances listed under 40 CFR parts 110, 117, and 302, and sanitary and septic wastes should be contained and cleaned up immediately.
2. Store hazardous materials and wastes in covered containers and protect from vandalism.
3. Place a stockpile of spill cleanup materials where it will be readily accessible.
4. Train employees in spill prevention and cleanup.
5. Designate responsible individuals to oversee and enforce control measures.
6. Spills should be covered and protected from storm water run on during rainfall to the extent that it does not compromise cleanup activities.
7. Do not bury or wash spills with water.
8. Store and dispose of used clean up materials, contaminated materials, and recovered spill material that is no longer suitable for the intended purpose in conformance with the provisions in applicable BMPs.
9. Do not allow water used for cleaning and decontamination to enter storm drains or watercourses. Collect and dispose of contaminated water in accordance with applicable regulations.
10. Contain water overflow or minor water spillage and do not allow it to discharge into drainage facilities or watercourses.
11. Place Material Safety Data Sheets (MSDS), as well as proper storage, cleanup, and spill reporting instructions for hazardous materials stored or used on the project site in an open, conspicuous, and accessible location.
12. Keep waste storage areas clean, well organized, and equipped with ample cleanup supplies as appropriate for the materials being stored. Perimeter controls, containment structures, covers, and liners should be repaired or replaced as needed to maintain proper function.

Cleanup

1. Clean up leaks and spills immediately.
2. Use a rag for small spills on paved surfaces, a damp mop for general cleanup, and absorbent material for larger spills. If the spilled material is hazardous, then the used cleanup materials are also hazardous and must be disposed of as hazardous waste.
3. Never hose down or bury dry material spills. Clean up as much of the material as possible and dispose of properly. See the waste management BMPs in this section for specific information.

Minor Spills

1. Minor spills typically involve small quantities of oil, gasoline, paint, etc. which can be controlled by the first responder at the discovery of the spill.
2. Use absorbent materials on small spills rather than hosing down or burying the spill.
3. Absorbent materials should be promptly removed and disposed of properly.
4. Follow the practice below for a minor spill:
 - a. Contain the spread of the spill.
 - b. Recover spilled materials.
 - c. Clean the contaminated area and properly dispose of contaminated materials.

Semi-Significant Spills

Semi-significant spills still can be controlled by the first responder along with the aid of other personnel such as laborers and the supervisor, etc. This response may require the cessation of all other activities.

Spills should be cleaned up immediately:

1. Contain spread of the spill.
2. Notify the project supervisor immediately.
3. If the spill occurs on paved or impermeable surfaces, clean up using "dry" methods (absorbent materials, cat litter, and/or rags). Contain the spill by encircling with absorbent materials and do not let the spill spread widely.
4. If the spill occurs in dirt areas, immediately contain the spill by constructing an earthen dike. Dig up and properly dispose of contaminated soil.
5. If the spill occurs during rain, cover spill with tarps or other material to prevent contaminating runoff.

Significant/Hazardous Spills

For significant or hazardous spills that are in reportable quantities:

1. Notify the TCEQ by telephone as soon as possible and within 24 hours at 512-339-2929 (Austin) or 210-490-3096 (San Antonio) between 8 AM and 5 PM. After hours, contact the Environmental Release Hotline at 1-800-832-8224. It is the contractor's responsibility to have all emergency phone numbers at the construction site.
2. For spills of federal reportable quantities, in conformance with the requirements in 40 CFR parts 110,119, and 302, the contractor should notify the National Response Center at (800) 424-8802.
3. Notification should first be made by telephone and followed up with a written report.
4. The services of a spills contractor or a Haz-Mat team should be obtained immediately. Construction personnel should not attempt to clean up until the appropriate and qualified staffs have arrived at the job site.
5. Other agencies which may need to be consulted include, but are not limited to, the City Police Department, County Sheriff Office, Fire Departments, etc.

In the event of a reportable spill, the following Emergency Response Agencies can be contacted for assistance.

Always inform your supervisor of a reportable spill immediately. Follow company policy when responding to an emergency.

State Emergency Response Commission	(512) 463-7727
National Response Center	(800) 424-8802
US EP A Region 6, Dallas, 24-hr Number.....	(866) 372-7745
National Weather Service	(281) 337-5074
TCEQ 24-hr.....	(800) 832-8224
TCEQ Region 11 Austin.....	(512) 339-2929

DETAILED TELEPHONE SPILL REPORT FORM

Date of Incident: _____

Location of Incident: _____

Description of material spilled: _____

Quantity of material spilled: _____

Cause of spill: _____

Authorities notified: _____

Remediation/clean-up action: _____

Corrective measures taken for prevention of reoccurrence: _____

Notes: _____

Signature: _____

Emergency Number for the National Response Center 1-800-424-8802

Attachment B - Potential Sources of Contamination

Potential sources of contamination in the project area include the following:

1. soil, fuels, and lubricants from vehicles and equipment, construction materials and trash/debris items.
 - a. Excavation activities – Contractor shall cause all excavated materials to be properly stockpiled and secured within areas that are not subject to flooding. Excavated material stockpiles shall be within areas bordered with silt fence. All excavated materials shall be stabilized by revegetation if the stockpile is not used within 14 days.
 - b. Soil tracking – Contractor shall monitor the movement of equipment to and from public roadways (Mays Street and Westinghouse Road) to ensure that any soils tracked by haul vehicles is promptly removed.
 - c. Storm Inlet Protection – Contractor shall ensure that all storm inlet protections are installed and functioning properly. If sediments accumulate at inlet protections, they shall be cleaned or replaced as appropriate.
 - d. Equipment fueling and maintenance operations – Contractor shall ensure that all equipment fueling and maintenance operations are performed in a safe manner. Any spills shall be immediately remediated by capturing any contaminated soils and placing them in an appropriate container for disposal.
 - e. Importing piping and bedding materials – Contractor shall ensure that all imported piping and associated fittings are stored in a neat and orderly manner. Materials shall not be stored in areas prone to flooding. Bedding materials shall be stockpiled in areas not prone to flooding and shall be secured by perimeter silt fence.
 - f. Daily construction activities – Contractor shall provide employees with a designated parking area established to prevent tracking of soils on to roadways. Trash receptacles shall be provided at the parking area as well as other locations throughout the site where employees can properly dispose of trash. Portable toilets shall also be provided and maintained regularly commensurate with the number of workers on site throughout the construction process.
 - g. Project completion – Contractor shall return all excavated areas to planned grades. All disturbed areas shall be revegetated and water sufficiently to ensure adequate growth to stabilize any loose materials. All excess excavated material shall be promptly removed from the site and disposed at an approved location. All excess construction materials shall be promptly removed from the site and disposed of properly. All trash and debris shall be cleaned up and removed from the site prior to acceptance of the project.

Attachment C - Sequence of Major Activities

The sequence of major activities associated with this development includes 1) stripping the land of its vegetative cover, 2) utility trenching and installation, 3) final grading and site cleanup. Temporary storm water control measures such as silt fences, rock berms, mulch logs & stabilized construction entrances will be inspected regularly and adjusted as necessary in response to the expansion of the work area and changing site conditions.

Attachment D - Temporary Best Management Practices (TBMPs)

Temporary Best Management Practices proposed for this site address storm water runoff generated from the up-gradient offsite area, on-site construction activity, and downstream flows. These TBMPs include stabilized construction entrances, inlet protections, silt fencing, earthen berms, rock berms, concrete washout controls, and sedimentation basins.

7a. A description of how BMPs and measures will prevent pollution of surface water, groundwater or storm water that originates up gradient from the site and flows across the site:

An up-gradient area of approximately 26 acres drains to the site. This area as well as the construction area drain to an existing water quality and storm water detention pond. In the event of significant rainfall causing excessive sedimentation of the water quality and/or detention pond the contractor shall remove and dispose of the accumulated sediments. Silt fence will be installed to capture runoff from the construction of the pipeline and will remain in place until final stabilization of the excavated area is complete.

7b. A description of how BMPs and measures will prevent pollution of surface water or groundwater that originates on-site or flows off site, including pollution caused by contaminated storm water runoff from the site:

Proactive management of structural controls and construction activities includes regular inspection and maintenance of temporary BMP's, and appropriate planning of earth disturbing activities with respect to anticipated weather conditions. The contractor shall be responsible for securing all disturbed areas, material stockpiles, construction debris, and equipment prior to any anticipated storm events that could result in escape of contaminated runoff from the site.

7c. A description of how BMPs and measures will prevent pollutants from entering surface streams, sensitive features, or the aquifer:

In addition to the proposed TBMPs, the existing storm water quality and detention pond will capture sediments generated by the construction activity. The outfall of the storm water pond includes energy dissipators to mitigate flow velocity prior to exiting the site. By capturing all developed runoff and diverting it to the water quality/detention ponds the potential for pollutants to enter surface streams and the aquifer is significantly mitigated.

7d. A description of how, to the maximum extent practicable, BMPs and measures will maintain flow to naturally-occurring sensitive features identified in either the geologic assessment, TCEQ inspections, or during excavation, blasting, or construction:

There are no naturally occurring sensitive features identified on site at this time. However, in the event that a sensitive feature is discovered during construction and to the maximum extent practicable TBMPs will be installed and maintained as required to maintain flow to sensitive features while keeping sediments and other pollutants from entering. If necessary, flow will be maintained to naturally occurring sensitive features by using rock berms, silt fences, and mulch socks to separate out sediments and other pollutants and to direct flow to the feature. These types of BMP's slow the flow of water allowing for sedimentation while allowing the flow to be maintained.

Any sensitive geologic feature discovered during excavation will be handled in the following manner:

- Sediment that can be easily removed from the area adjacent to the feature without disturbing the feature will be removed.
- A rock berm will be placed around the feature to control and filter any potential flows into the feature.
- After placement of the rock berm, construction activities that could adversely affect the feature will cease.
- A Professional Geologist will be called to the site to observe and rate the feature. If the feature is determined to be sensitive in accordance with TAC 213 rules, the TCEQ will be notified and an appropriate method for addressing the feature will be formulated and submitted for TCEQ approval.
- Work will not resume in the area of the feature until the TCEQ approved method for addressing the feature has been carried out.

Attachment E - Request to Temporarily Seal a Feature

There are no geologic features needing to be temporarily sealed related to this application.

Attachment F - Structural Practices

Structural practices include the existing water quality and detention pond, silt fences, and stabilized construction entrances. All areas of the project where no grading activity is proposed to occur will be off limits to construction equipment and crews. The sedimentation/filtration ponds will serve to provide storm water control during and after construction.

Attachment G – Drainage Area Map

Please see the attached drainage area map.

Attachment H – Temporary Sediment Pond Plans and Calculations

The permanent sedimentation/filtration ponds proposed for this site are sufficiently sized to control the work proposed in this plan. Calculations for their sizing have been reviewed and approved by the TCEQ as part of the EAPP 11000117.

Attachment I - Inspection and Maintenance for BMPs

An inspection of all structural erosion control devices (silt fences, rock berms, earthen berms, mulch logs, etc...) shall occur weekly and after each rainfall event in excess of ¼". Written documentation of these inspections shall be maintained during the course of construction at the project site. Any erosion, rutting, and/or washout of the structural control devices shall be repaired by backfilling with clean, stable material from the site.

Sediment and other debris shall be removed from structural control devices when buildup reaches a depth of 6". The accumulated silt shall be disposed of in a manner that will not cause additional siltation. Structural control devices that no longer adequately filter sediment from storm water due to silt accumulation, washout, or other damage damages, shall be replaced.

The site is authorized to discharge storm water under the TPDES General Permit No. TXRO50000 for industrial activities. Requirements of the general permit include maintaining a Stormwater Pollution Prevention Plan (SWP3) which includes inspections of storm water best management practices and sampling of storm water discharged from the site. If necessary, dewatering will be performed in accordance with the numeric effluent limitations noted in the TPDES General Permit No. TXR050000.

If dewatering the excavation becomes necessary, it would be accomplished using a pump and filtration system to capture the solids prior to releasing the discharge from the site. Storm water runoff shall be tested to verify compliance with the numeric effluent limitations of TPDES General Permit No. TXR050000 Section J, (5)(ii) of 45 mg/L for a daily maximum and 25 mg/L for a daily average. These concentrations are lower than the estimated background concentration as stated in the Edwards Aquifer Technical Guidance Manual (RG-348) of 80 mg/L for undeveloped areas. The water would be discharged to a natural drainage area onto a rip rap pad such that soil erosion would be mitigated.

Attachment J - Schedule of Soil Stabilization Practices

Soil stabilization measures shall be initiated within 14 days after construction activity on any portion of the site has temporarily or permanently ceased. If the initiation of stabilization measures by the 14th day after construction activity has temporarily or permanently ceased is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable. Where construction activity on a portion of the site is temporarily ceased, and earth-disturbing activities will be resumed within 21 days, temporary stabilization measures do not have to be initiated on that portion of the site. In areas experiencing droughts where the initiation of stabilization measures by the 14th day after construction activity has temporarily or permanently ceased is precluded by seasonal arid conditions, stabilization measures shall be initiated as soon as practicable.

Examples of soil stabilization practices may include establishment of temporary vegetation, establishment of permanent vegetation, mulching, geotextiles, vegetative buffer strips, protection of trees, preservation of mature vegetation, and other appropriate measures. Soil stabilization practices to be implemented at this site, if necessary, include mulching, establishment of permanent vegetation by seeding native grasses, and/or preservation of existing vegetation. Other temporary measures to prevent soil from migrating offsite include the installation of inlet protections, and the completion of sedimentation basins. All temporary soil stabilization measures shall be inspected regularly to insure their proper function.

Agent Authorization Form
For Required Signature
Edwards Aquifer Protection Program
Relating to 30 TAC Chapter 213
Effective June 1, 1999

I Matt Dickey
Print Name

Authorized Agent
Title - Owner/President/Other

of Horizontal Westinghouse Investors, LLC, a Texas limited liability company
Corporation/Partnership/Entity Name

have authorized Thomas J. Groll, P.E.
Print Name of Agent/Engineer

of Tom Groll Engineering, PC
Print Name of Firm

to represent and act on the behalf of the above-named Corporation, Partnership, or Entity for the purpose of preparing and submitting this plan application to the Texas Commission on Environmental Quality (TCEQ) for the review and approval consideration of regulated activities.

I also understand that:

1. The applicant is responsible for compliance with 30 Texas Administrative Code Chapter 213 and any condition of the TCEQ's approval letter. The TCEQ is authorized to assess administrative penalties of up to \$10,000 per day per violation.
2. For those submitting an application who are not the property owner, but who have the right to control and possess the property, additional authorization is required from the owner.
3. Application fees are due and payable at the time the application is submitted. The application fee must be sent to the TCEQ cashier or to the appropriate regional office. The application will not be considered until the correct fee is received by the commission.
4. A notarized copy of the Agent Authorization Form must be provided for the person preparing the application, and this form must accompany the completed application.
5. No person shall commence any regulated activity on the Edwards Aquifer Recharge Zone, Contributing Zone or Transition Zone until the appropriate application for the activity has been filed with and approved by the Executive Director.

SIGNATURE PAGE:

[Handwritten Signature]
Applicant's Signature

6/6/18
Date

THE STATE OF ARIZONA §

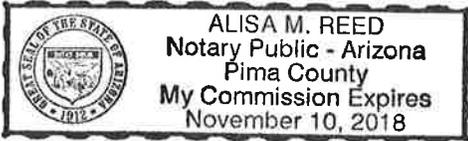
County of Pima §

BEFORE ME, the undersigned authority, on this day personally appeared Matt Dickey, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that (s)he executed same for the purpose and consideration therein expressed.

GIVEN under my hand and seal of office on this 6th day of June, 2018.

Alisa M. Reed
NOTARY PUBLIC

Alisa M. Reed
Typed or Printed Name of Notary



MY COMMISSION EXPIRES: 11/10/18

Application Fee Form

Texas Commission on Environmental Quality

Name of Proposed Regulated Entity: New Westinghouse Investors tract

Regulated Entity Location: May Street - Georgetown, TX

Name of Customer: Horizontal Westinghouse Investors, LLC

Contact Person: Matt Dickey

Phone: (520) 323-1005

Customer Reference Number (if issued):CN _____

Regulated Entity Reference Number (if issued):RN _____

Austin Regional Office (3373)

Hays

Travis

Williamson

San Antonio Regional Office (3362)

Bexar

Medina

Uvalde

Comal

Kinney

Application fees must be paid by check, certified check, or money order, payable to the **Texas Commission on Environmental Quality**. Your canceled check will serve as your receipt. **This form must be submitted with your fee payment.** This payment is being submitted to:

Austin Regional Office

San Antonio Regional Office

Mailed to: TCEQ - Cashier

Overnight Delivery to: TCEQ - Cashier

Revenues Section

12100 Park 35 Circle

Mail Code 214

Building A, 3rd Floor

P.O. Box 13088

Austin, TX 78753

Austin, TX 78711-3088

(512)239-0357

Site Location (Check All That Apply):

Recharge Zone

Contributing Zone

Transition Zone

Type of Plan	Size	Fee Due
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling	Acres	\$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	Acres	\$
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	Acres	\$
Sewage Collection System	3,655 L.F.	\$ 1,827.50
Lift Stations without sewer lines	Acres	\$
Underground or Aboveground Storage Tank Facility	Tanks	\$
Piping System(s)(only)	Each	\$
Exception	Each	\$
Extension of Time	Each	\$

Signature: Thomas J. Hall, P.E. Date: 09/21/20

Application Fee Schedule

Texas Commission on Environmental Quality

Edwards Aquifer Protection Program 30 TAC Chapter 213 (effective 05/01/2008)

Water Pollution Abatement Plans and Modifications

Contributing Zone Plans and Modifications

<i>Project</i>	<i>Project Area in Acres</i>	<i>Fee</i>
One Single Family Residential Dwelling	< 5	\$650
Multiple Single Family Residential and Parks	< 5	\$1,500
	5 < 10	\$3,000
	10 < 40	\$4,000
	40 < 100	\$6,500
	100 < 500	\$8,000
	≥ 500	\$10,000
Non-residential (Commercial, industrial, institutional, multi-family residential, schools, and other sites where regulated activities will occur)	< 1	\$3,000
	1 < 5	\$4,000
	5 < 10	\$5,000
	10 < 40	\$6,500
	40 < 100	\$8,000
	≥ 100	\$10,000

Organized Sewage Collection Systems and Modifications

<i>Project</i>	<i>Cost per Linear Foot</i>	<i>Minimum Fee- Maximum Fee</i>
Sewage Collection Systems	\$0.50	\$650 - \$6,500

Underground and Aboveground Storage Tank System Facility Plans and Modifications

<i>Project</i>	<i>Cost per Tank or Piping System</i>	<i>Minimum Fee- Maximum Fee</i>
Underground and Aboveground Storage Tank Facility	\$650	\$650 - \$6,500

Exception Requests

<i>Project</i>	<i>Fee</i>
Exception Request	\$500

Extension of Time Requests

<i>Project</i>	<i>Fee</i>
Extension of Time Request	\$150



TCEQ Use Only

TCEQ Core Data Form

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

SECTION I: General Information

1. Reason for Submission (If other is checked please describe in space provided.)		
<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	
2. Customer Reference Number (if issued)	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number (if issued)
CN 604914127		RN 110424017

SECTION II: Customer Information

4. General Customer Information		5. Effective Date for Customer Information Updates (mm/dd/yyyy)					
<input type="checkbox"/> New Customer		<input checked="" type="checkbox"/> Update to Customer Information					
<input type="checkbox"/> Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)		<input type="checkbox"/> Change in Regulated Entity Ownership					
The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).							
6. Customer Legal Name (If an individual, print last name first: eg: Doe, John)		If new Customer, enter previous Customer below:					
Horizontal Westinghouse Investors, LLC							
7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number (if applicable)				
802029036	32044642885						
11. Type of Customer:	<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"/> State <input type="checkbox"/> Other	<input type="checkbox"/> Sole Proprietorship	<input type="checkbox"/> Other:					
12. Number of Employees		13. Independently Owned and Operated?					
<input checked="" type="checkbox"/> 0-20 <input type="checkbox"/> 21-100 <input type="checkbox"/> 101-250 <input type="checkbox"/> 251-500 <input type="checkbox"/> 501 and higher		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					
14. Customer Role (Proposed or Actual) – as it relates to the Regulated Entity listed on this form. Please check one of the following							
<input checked="" type="checkbox"/> Owner <input type="checkbox"/> Operator <input type="checkbox"/> Owner & Operator							
<input type="checkbox"/> Occupational Licensee <input type="checkbox"/> Responsible Party <input type="checkbox"/> Voluntary Cleanup Applicant <input type="checkbox"/> Other:							
15. Mailing Address:	20 E. Congress St., Suite 300						
	City	Tucson	State	AZ	ZIP	85701	ZIP + 4
16. Country Mailing Information (if outside USA)				17. E-Mail Address (if applicable)			
18. Telephone Number			19. Extension or Code		20. Fax Number (if applicable)		
(520) 323-1005					(520) 323-5630		

SECTION III: Regulated Entity Information

21. General Regulated Entity Information (If "New Regulated Entity" is selected below this form should be accompanied by a permit application)	
<input type="checkbox"/> New Regulated Entity <input type="checkbox"/> Update to Regulated Entity Name <input checked="" type="checkbox"/> Update to Regulated Entity Information	
The Regulated Entity Name submitted may be updated in order to meet TCEQ Agency Data Standards (removal of organizational endings such as Inc, LP, or LLC).	
22. Regulated Entity Name (Enter name of the site where the regulated action is taking place.)	
New Westinghouse Investors Tract	

23. Street Address of the Regulated Entity: (No PO Boxes)	Mays Street						
	City	Georgetown	State	TX	ZIP	78626	ZIP + 4
24. County	Williamson						

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:	1/2 mile east of IH 35 on south side of Westinghouse Road							
26. Nearest City	Georgetown				State	TX	Nearest ZIP Code	78626
27. Latitude (N) In Decimal:	30.575925			28. Longitude (W) In Decimal:	97.681528			
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds			
30	34	33.3	97	40	53.5			
29. Primary SIC Code (4 digits)	30. Secondary SIC Code (4 digits)		31. Primary NAICS Code (5 or 6 digits)	32. Secondary NAICS Code (5 or 6 digits)				
6552			237210					
33. What is the Primary Business of this entity? (Do not repeat the SIC or NAICS description.)								
Real Estate Development								
34. Mailing Address:	20 E. Congress St., Suite 300							
	City	Tucson	State	AZ	ZIP	85701	ZIP + 4	
35. E-Mail Address:	mdickey@bourncompanies.com							
36. Telephone Number	37. Extension or Code			38. Fax Number (if applicable)				
(520) 323-1005				(520) 323-5630				

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 checked="" 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 type="checkbox"/> Waste Water	<input type="checkbox"/> Wastewater Agriculture	<input type="checkbox"/> Water Rights	<input type="checkbox"/> Other:

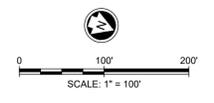
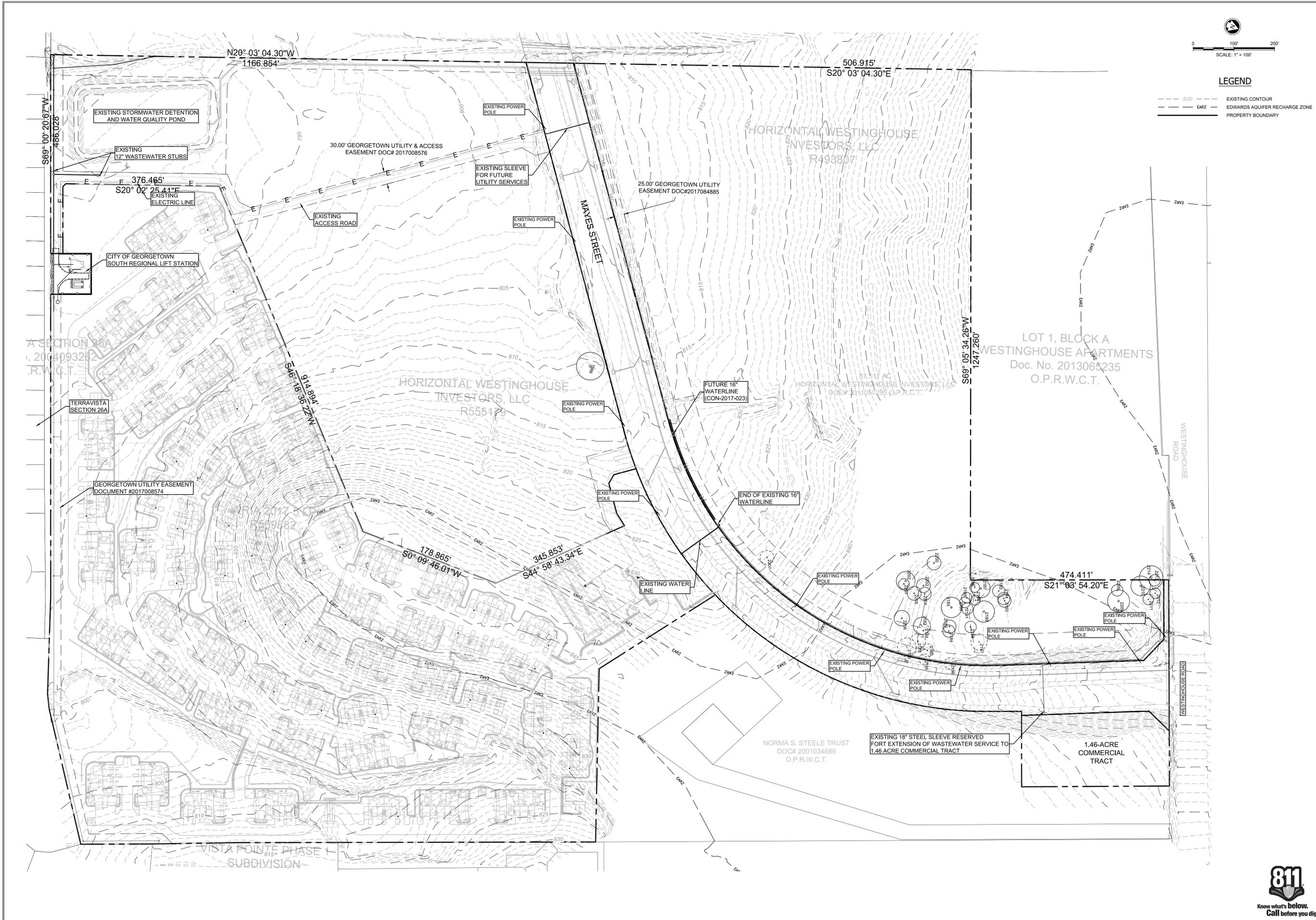
SECTION IV: Preparer Information

40. Name:	Thomas J. Groll, P.E.		41. Title:	Professional Engineer	
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address		
(512) 848-5796		() -	tomg@tg-eng.com		

SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	Horizontal Westinghouse Investors, LLC		Job Title:	Authorized Agent	
Name (In Print):	Matt Dickey			Phone:	(520) 323- 1005
Signature:	 <small>DocuSigned by: 9EE0731EC5684DA...</small>			Date:	9/21/2020



LEGEND

	EXISTING CONTOUR
	EDWARDS AQUIFER RECHARGE ZONE
	PROPERTY BOUNDARY

TOM GROLL
ENGINEERING
1508 PAVILION LANE, AUSTIN, TX 78704-5906 • TEL: 512.476.1477 • WWW.TG-ENG.COM

BOURN COMPANIES, LLC.
20 E. CONGRESS, SUITE 300
TUCSON, AZ 85701

PREPARED FOR:	
DATE:	
BY:	
CHECKED BY:	
DATE:	
DESCRIPTION:	

EXISTING CONDITIONS PLAN



Date:	9/21/2020
Check by:	TJG
Drawn by:	HNS
Sheet No.:	3 of 12
Project No.:	---



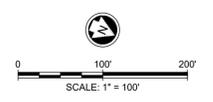
A SECTION 26A
I. 2004093262
R.V.G.T.

LOT 1, BLOCK A
WESTINGHOUSE APARTMENTS
Doc. No. 2013065235
O.P.R.W.C.T.

NORMA S. STEELE TRUST
DOC# 2001034689
O.P.R.W.C.T.

EXISTING 18" STEEL SLEEVE RESERVED
FORT EXTENSION OF WASTEWATER SERVICE TO
1.46 ACRE COMMERCIAL TRACT

1.46-ACRE
COMMERCIAL
TRACT



- LEGEND**
- 504 EXISTING CONTOUR
 - 505 PROPOSED CONTOUR
 - PROPOSED WASTEWATER LINE
 - PROPOSED WASTEWATER SERVICE
 - ⊙ PROPOSED WASTEWATER MANHOLE
 - FLOW ARROW

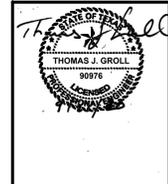
- NOTE:**
1. ALL FILL AREAS SHALL BE COMPACTED TO 95% PROCTOR DENSITY PRIOR TO INSTALLATION OF UTILITIES.
 2. ALL WASTEWATER AND WATERLINE CROSSINGS SHALL COMPLY WITH THE CONSTRUCTION REQUIREMENTS DEFINED IN TABLE C.1 OF 30 TAC CHAPTER 217.53(G)(3).



BOURN COMPANIES, LLC,
20 E. CONGRESS, SUITE 300
TUCSON, AZ 85701

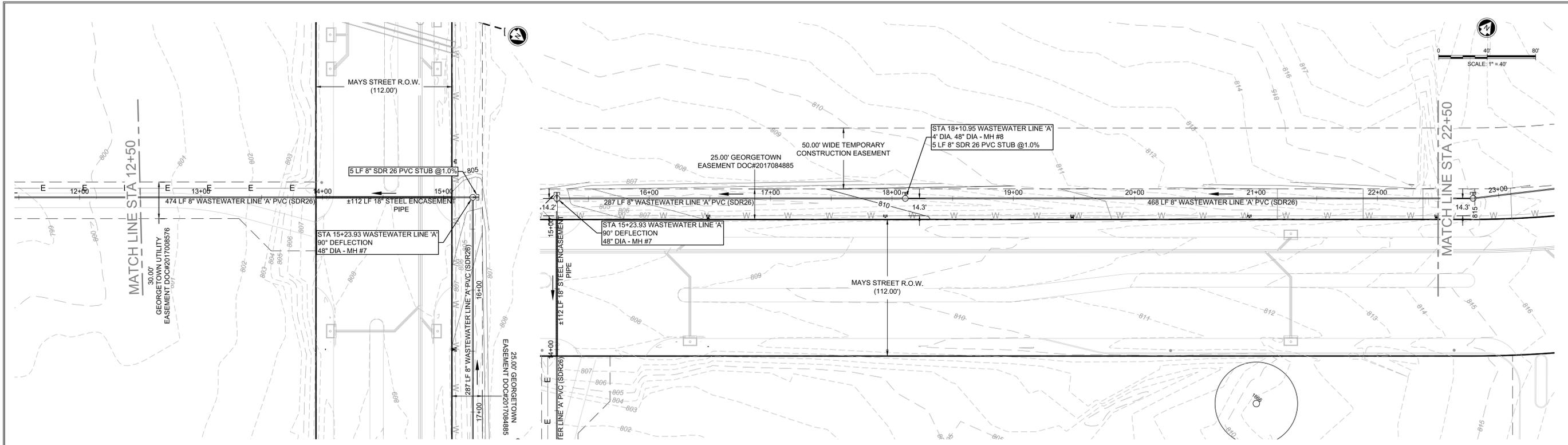
NO.	DATE	DESCRIPTION

OVERALL WASTEWATER PLAN

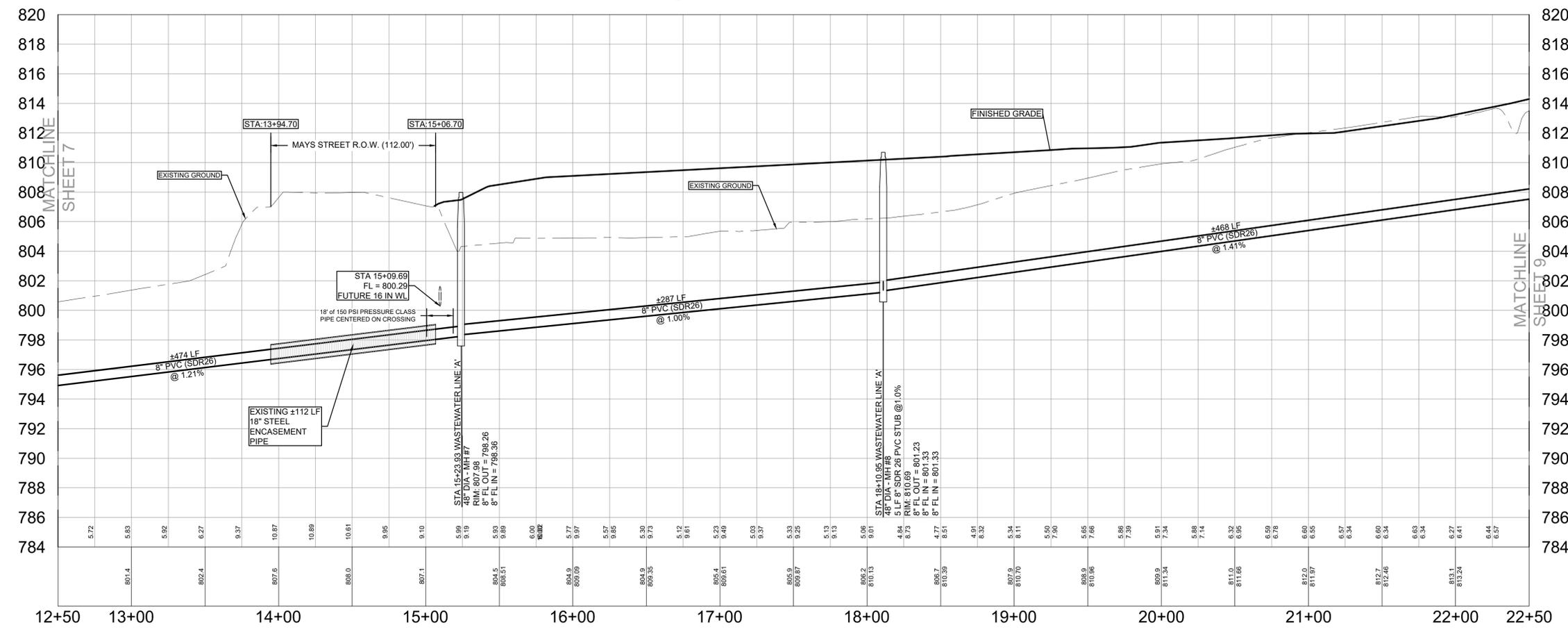


Date:	9/21/2020
Check by:	TJG
Drawn By:	HNS
Sheet No.	6 of 12
Project No.	---





WASTEWATER LINE 'A'



LEGEND

- 504 --- EXISTING CONTOUR
- 505 --- PROPOSED CONTOUR
- --- PROPOSED WASTEWATER LINE
- --- PROPOSED WASTEWATER SERVICE
- --- PROPOSED WASTEWATER MANHOLE
- ▲ --- FLOW ARROW

PROFILE LEGEND

- --- PROPOSED FINISHED GRADE
- --- PROPOSED SUBGRADE (CENTER)
- --- EXISTING GRADE (CENTER)

NOTE:

- ALL FILL AREAS SHALL BE COMPACTED TO 95% PROCTOR DENSITY PRIOR TO INSTALLATION OF UTILITIES.
- ALL WASTEWATER AND WATERLINE CROSSINGS SHALL COMPLY WITH THE CONSTRUCTION REQUIREMENTS DEFINED IN TABLE C.1 OF 30 TAC CHAPTER 217.53(d)(3).

DEPTH OF PIPE FROM EXISTING GRADE

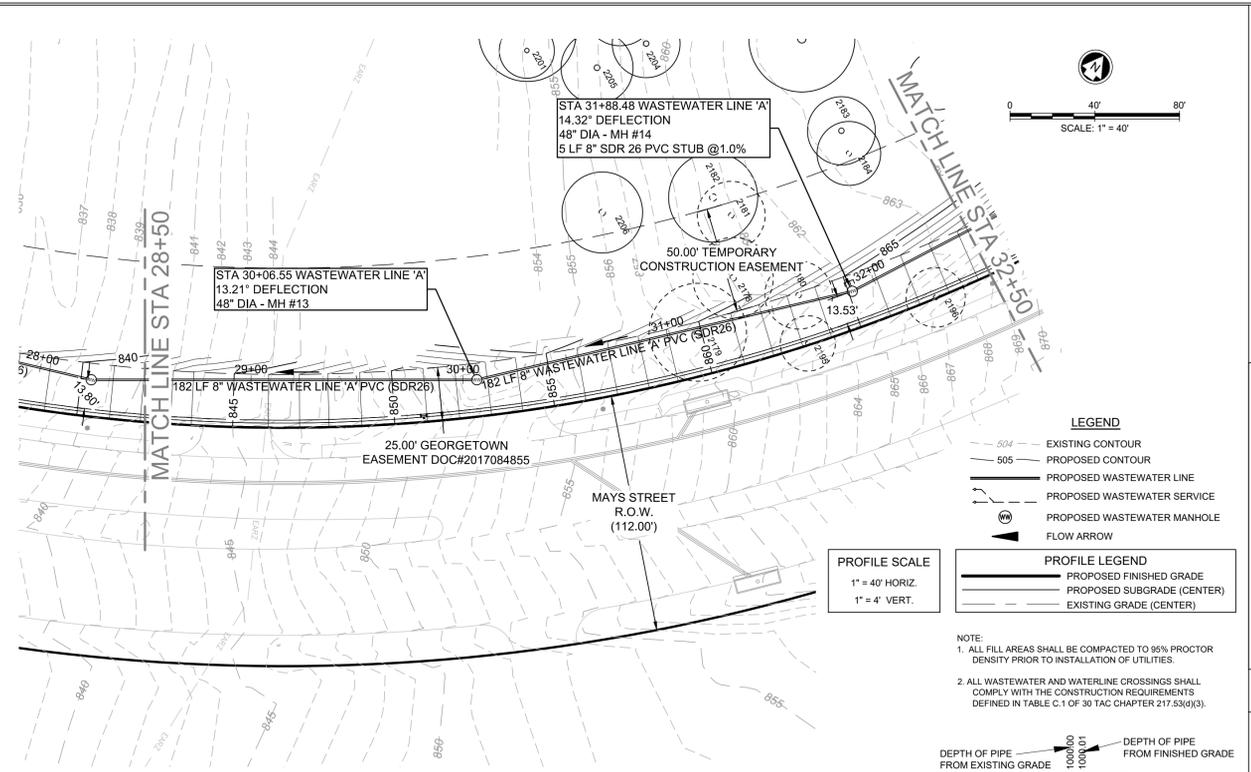
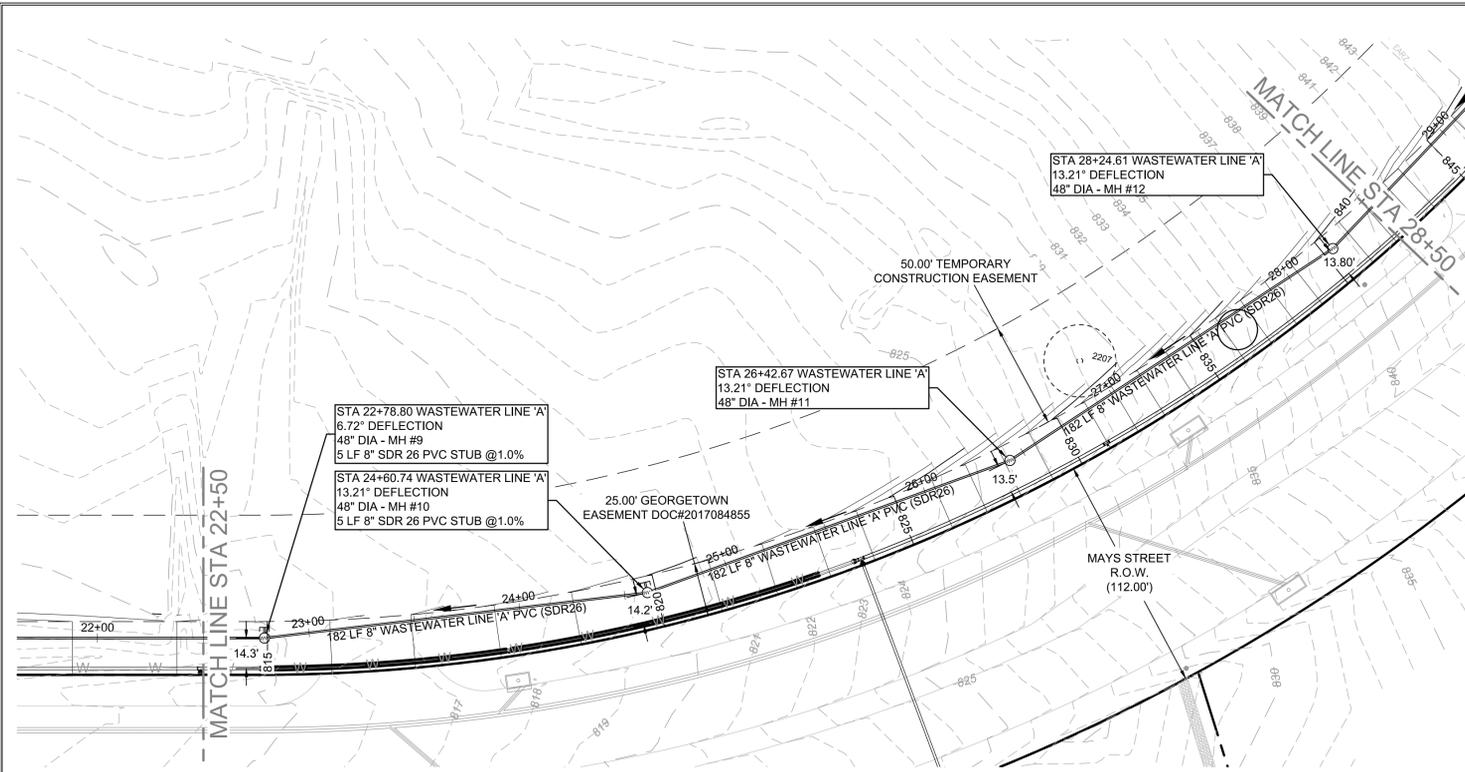
DEPTH OF PIPE FROM FINISHED GRADE

EXISTING GROUND **PROPOSED GRADE**

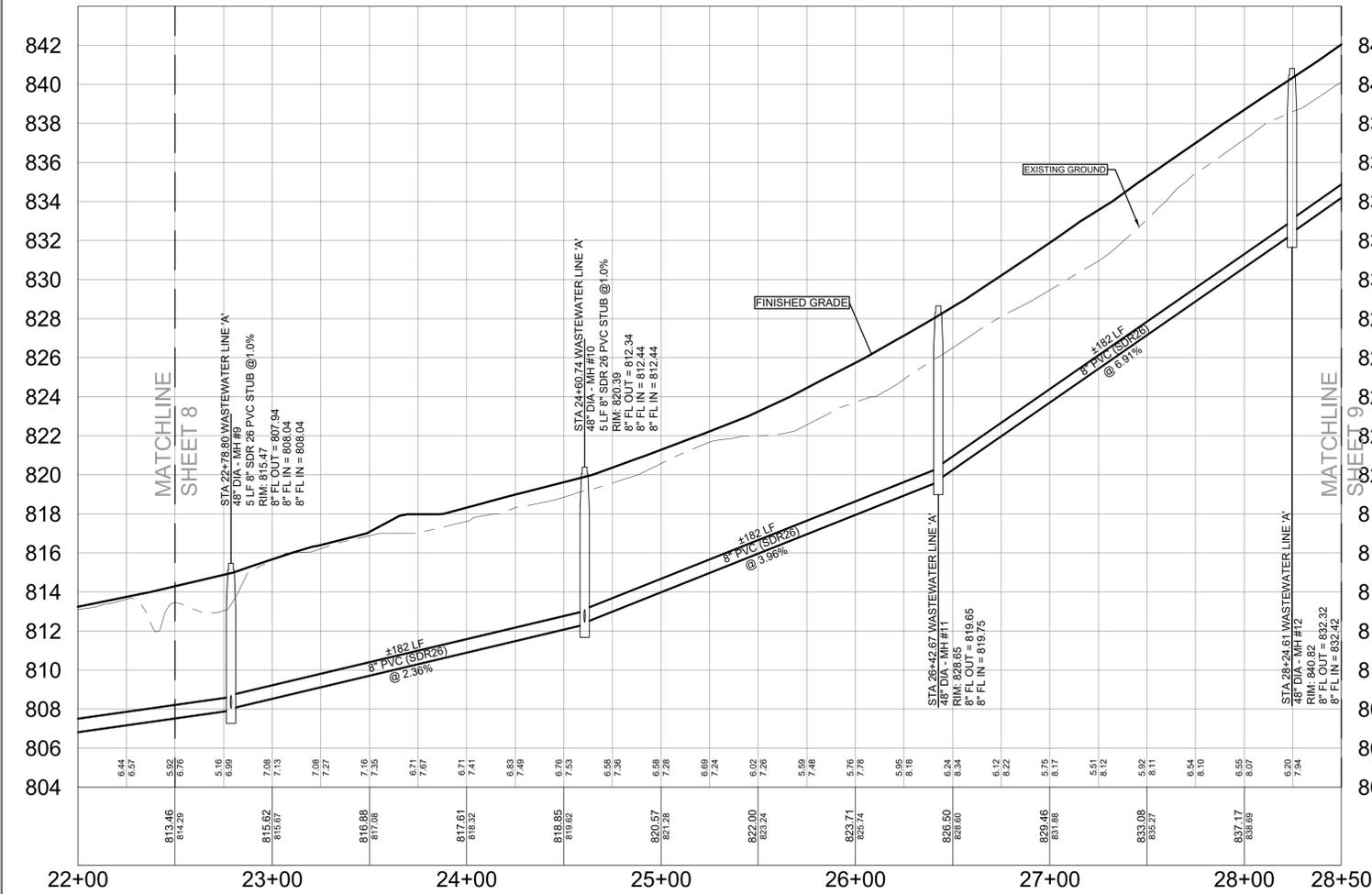
DATE	9/21/2020
BY	TJG
CHECKED BY	HNS
PROJECT NO.	---

WASTEWATER LINE A STA. 12+50-22+50

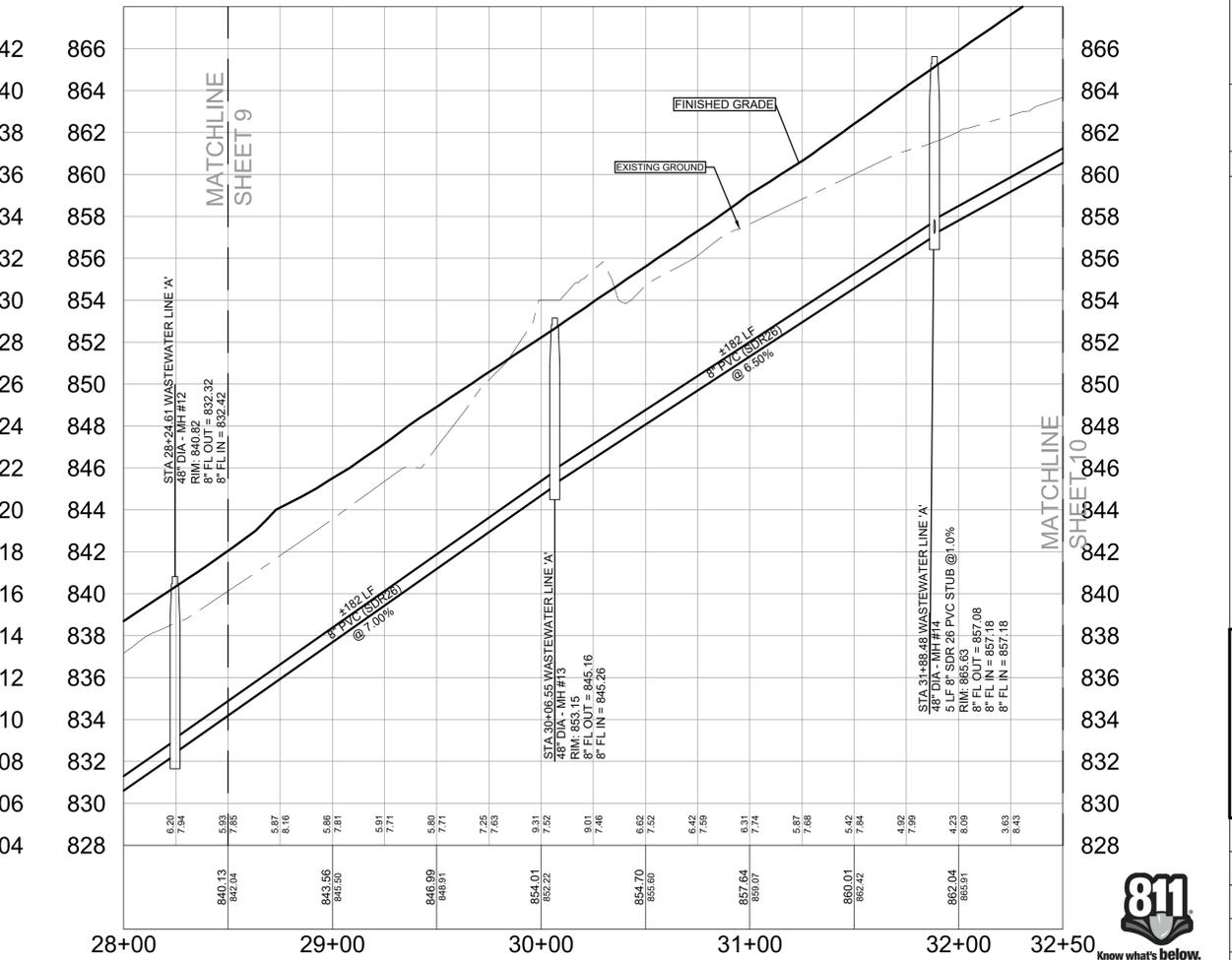




WASTEWATER LINE 'A'

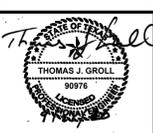


WASTEWATER LINE 'A'



DATE	
BY	
CHECKED	
DESCRIPTION	
NO.	

WASTEWATER LINE A STA. 22+50-32+50



NO.	DATE	DESCRIPTION



PLAN

SECTION A-A

CLASSIFICATION	ROW	B-B	PV.M.T.
LOCAL STREET	50'	28'	24'
RESIDENTIAL STREET	65'	37'	33'
MAJOR COLLECTOR	73'	45'	41'

UTILITIES UNDER ROADWAY - 30"	MINIMUM COVER BELOW FINISH-GRADE
ELECTRIC PRIMARY	36"
ELECTRIC SECONDARY	24"
WATER	36"
WASTEWATER	48"
STORM SEWER	36"
GAS	36"
TELECOMMUNICATIONS	36"

ADOPTED 6/21/2006

STANDARD CASTING AND COVER, AS SPECIFIED, (BOLTED WHERE SHOWN ON PLANS)

MANHOLE PLAN

SEE DETAIL WW-03

CITY OF GEORGETOWN NOTES:

MANHOLE DETAILS SHALL REFLECT THE CITY'S MINIMUM SPECIFICATIONS, AS STATED BELOW:

- ALL MANHOLES SHALL BE 48" I.D., R.C.P., CLASS III, WITH RUBBER PROFILE GASKET - SINGLE OFF-SET JOINT CONFORMING TO ASTM C478, C433 AND C76.
- ALL MANHOLES SHALL HAVE FRAME AND COVER, AS MANUFACTURED BY EAST JORDAN IRON WORKS (AS PER DETAIL # WW-07) OR APPROVED EQUIVALENT.
- ALL MANHOLES SHALL BE CONCRETE WITH CAST IRON FRAME AND COVER.
- ALL MANHOLES SHALL HAVE AN ECCENTRIC CONE.
- MANHOLES MAY HAVE A FLAT LID, IF APPROVED BY CITY OF GEORGETOWN, BEING 12" THICK WITH A MINIMUM 30" OPENING, AS MANUFACTURED BY HANSEN PIPE AND PRECAST OR APPROVED EQUAL M.F.G. CONFORMING TO ASTM C478, 5000 P.S.I. CONCRETE, TRAFFIC BEARING AND WITH PROFILE GASKET - SINGLE OFF-SET JOINT CONFORMING TO ASTM C443.
- INVERTS AND FLEXIBLE SEAL BOOTS, PER ASTM C-923, SHALL BE CAST INTO BASE SECTION.
- MINIMUM DROP BETWEEN INVERTS SHALL BE ONE-TENTH OF A FOOT (0.1').
- GRADE RINGS WITH AN I.D. TO MATCH FRAMES CLEAR OPENING WITH A MAXIMUM ADJUSTMENT OF 12" ARE ALLOWED.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

ADOPTED 6/21/2006

STANDARD MANHOLE - SECTION

DEPTH AS SHOWN ON THE PLANS

NOTES:

- MANHOLES SHALL BE PRECAST ASTM C-478 BELL AND SPIGOT WITH PROFILE GASKET - SINGLE OFF-SET JOINTS.
- SEE PLANS AND MANHOLE SCHEDULE, FOR MANHOLE SIZE, LOCATION, CONFIGURATION, TYPE OF TOP SECTION, VENTING REQUIREMENTS, PIPE SIZE AND TYPES.
- SEE SPECIFICATIONS ON MATERIALS AND CONSTRUCTION.
- AN 80 MIL. COAT OF RAVEN LINING SYSTEMS, RAVEN 405 ULTRA HIGH BUILD EPOXY COATING, OR SPRAY WALL EPOXY COATING, OR APPROVED EQUAL, TO BE APPLIED TO ENTIRE INTERIOR OF EACH WASTEWATER MANHOLE AND UNDERSIDE OF FLAT TOPS.
- ALL MANHOLE COVERS SHALL BE BOLTED AND GASKETED WHEN MANHOLES ARE LOCATED OUT FROM PAVEMENT.
- MANHOLES TO BE VENTED ARE IDENTIFIED ON MANHOLE SCHEDULE. REFERENCE MANHOLE VENT DETAIL.
- MANHOLES ARE TO BE DESIGNED TO RESIST LATERAL AND VERTICAL SOIL FORCES RESULTING FROM MANHOLE DEPTH. ADDITIONALLY, MANHOLES LOCATED IN PAVEMENT TO BE DESIGNED FOR HS-20 TRAFFIC LOADS.
- GROUT SHALL MEET THE REQUIREMENTS AS STATED BY THE COATING MANUFACTURER.
- MANHOLE BASE BEDDING MATERIAL SPECS. FOR 3/4" WASHED GRAVEL: SIEVE SIZE 2", PERCENT (%) RETAINED 0; SIEVE SIZE 1 1/2", % RETAINED 0-10; SIEVE SIZE 1", % RETAINED 45-80; SIEVE SIZE 3/4", % RETAINED 85-100; SIEVE SIZE 3/8", % RETAINED 95-100.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

ADOPTED 6/21/2006

DROP CONNECTION-PRECAST MANHOLE TYPE "A"

NOTES:

- CONCRETE ENCASEMENT FOR DROP CONNECTION TO BE POURED INTEGRALLY WITH BOTH MANHOLE SLAB AND WALL.
- DROP CONNECTIONS SHALL BE REQUIRED WHENEVER AN INFLUENT SEWER IS LOCATED TWO FEET (2') OR MORE ABOVE THE MAIN INVERT CHANNEL.
- A FLOW CHANNEL SHALL BE CONSTRUCTED INSIDE MANHOLE TO DIRECT INFLUENT INTO FLOW STREAM.
- WHEN P.V.C. IS USED IN SANITARY SEWER LINES, SOLVENT TYPE JOINT P.V.C. FITTINGS MAY BE UTILIZED IN THE DROP ASSEMBLY ONLY.
- MINIMUM PIPE SIZE FOR DROP IS EIGHT INCHES (8").
- SEE STANDARD MANHOLE DETAIL (DWG. # WW-03) FOR ADDITIONAL REQUIREMENTS.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

ADOPTED 6/21/2006

FLOW PATTERNS FOR INVERT CHANNELS

SECTION "A-A"

NOTES:

- INVERT CHANNELS TO BE CONSTRUCTED FOR SMOOTH FLOW WITH NO OBSTRUCTIONS.
- SPILLWAYS SHALL BE CONSTRUCTED BETWEEN PIPES WITH DIFFERENT INVERT ELEVATIONS PROVIDING FOR SMOOTH FLOW.
- CHANNELS FOR FUTURE CONSTRUCTIONS (STUBS) SHALL BE CONSTRUCTED, FILLED WITH SAND, AND COVERED WITH 1" OF MORTAR.
- SLOPE MANHOLE ITSELF WITH A 1:2 SLOPE FROM MANHOLE WALL TO CHANNEL.
- INVERT SHALL BE A MINIMUM OF 1/2 THE DIAMETER OF THE LARGEST PIPE OR 4" DEEP.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

ADOPTED 6/21/2006

The Architect/Engineer assumes responsibility for appropriate use of this standard.

COVER SECTION

FRAME SECTION

NOTES:

- STANDARD WASTEWATER MANHOLE SET TO BE EAST JORDAN IRON WORKS, INC. CATALOG NO. 1480A V-1420/148021. COVER TO BE STAMPED WITH "SANITARY SEWER".
- STANDARD WASTEWATER MANHOLE SET TO BE HEAVY DUTY LOAD RATED.
- FOR MORE DETAILED SPECIFICATIONS REFER TO EAST JORDAN IRON WORKS, INC. REFERENCE PRODUCT DRAWING 41420012 00148390.
- FOR BOLTED WASTEWATER MANHOLE SET REFER TO DETAIL WW07A.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

ADOPTED 6/21/2006

The Architect/Engineer assumes responsibility for appropriate use of this standard.

COVER SECTION

FRAME SECTION

NOTES:

- BOLTED WASTEWATER MANHOLE SET TO BE EAST JORDAN IRON WORKS, INC. CATALOG NO. 1480APT V-1420/148021PT. COVER TO BE STAMPED WITH "SANITARY SEWER".
- BOLTED WASTEWATER MANHOLE SET TO BE HEAVY DUTY LOAD RATED.
- FOR MORE DETAILED SPECIFICATIONS REFER TO EAST JORDAN IRON WORKS, INC. REFERENCE PRODUCT DRAWING 00148392 41420015.
- FOR STANDARD WASTEWATER MANHOLE SET REFER TO DETAIL WW07.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

ADOPTED 6/21/2006

ECCENTRIC CONCRETE SECTION

NOTES:

- CONCRETE ENCASEMENT FOR DROP CONNECTION TO BE POURED INTEGRALLY WITH BOTH MANHOLE SLAB AND WALL.
- DROP CONNECTIONS SHALL BE REQUIRED WHENEVER AN INFLUENT SEWER IS LOCATED TWO FEET (2') OR MORE ABOVE THE MAIN INVERT CHANNEL.
- A FLOW CHANNEL SHALL BE CONSTRUCTED INSIDE MANHOLE TO DIRECT INFLUENT INTO FLOW STREAM.
- WHEN P.V.C. IS USED IN SANITARY SEWER LINES, SOLVENT TYPE JOINT P.V.C. FITTINGS MAY BE UTILIZED IN THE DROP ASSEMBLY ONLY.
- MINIMUM PIPE SIZE FOR DROP IS EIGHT INCHES (8").
- SEE STANDARD MANHOLE DETAIL (DWG. # WW-03) FOR ADDITIONAL REQUIREMENTS.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

ADOPTED 6/21/2006

