

## Environmental Resource Inventory

For the City of Austin  
 Related to LDC 25-8-121, City Code 30-5-121, ECM 1.3.0 & 1.10.0

The ERI is required for projects that meet one or more of the criteria listed in LDC 25-8-121(A), City Code 30-5-121(A).

1. SITE/PROJECT NAME: \_\_\_\_\_
2. COUNTY APPRAISAL DISTRICT PROPERTY ID (#'s): \_\_\_\_\_
3. ADDRESS/LOCATION OF PROJECT: \_\_\_\_\_
4. WATERSHED: \_\_\_\_\_
5. THIS SITE IS WITHIN THE *(Check all that apply)*
  - Edwards Aquifer Recharge Zone\* *(See note below)* .....  YES  No
  - Edwards Aquifer Contributing Zone\* .....  YES  No
  - Edwards Aquifer 1500 ft Verification Zone\* .....  YES  No
  - Barton Spring Zone\* .....  YES  No

\*(as defined by the City of Austin – LDC 25-8-2 or City Code 30-5-2)

**Note: If the property is over the Edwards Aquifer Recharge zone, the Hydrogeologic Report and karst surveys must be completed and signed by a Professional Geoscientist Licensed in the State of Texas.**

6. DOES THIS PROJECT PROPOSE FLOODPLAIN MODIFICATION?.....  YES\*\*  NO  
 If yes, then check all that apply:
  - (1) The floodplain modifications proposed are necessary to protect the public health and safety;
  - (2) The floodplain modifications proposed would provide a significant, demonstrable environmental benefit, as determined by a **functional assessment** of floodplain health as prescribed by the Environmental Criteria Manual (ECM), or
  - (3) The floodplain modifications proposed are necessary for development allowed in the critical water **quality zone under LDC 25-8-261 or 25-8-262, City Code 30-5-261 or 30-5-262.**
  - (4) The floodplain modifications proposed are outside of the Critical Water Quality Zone in an area determined to be in poor or fair condition by a **functional assessment** of floodplain health.

**\*\* If yes, then a functional assessment must be completed and attached to the ERI (see ECM 1.7 and Appendix X for forms and guidance) unless conditions 1 or 3 above apply.**

7. IF THE SITE IS WITHIN AN URBAN OR SUBURBAN WATERSHED, DOES THIS PROJECT PROPOSE A UTILITY LINE PARALLEL TO AND WITHIN THE CRITICAL WATER QUALITY ZONE? .....  YES\*\*\*  NO

***N/A - We are in the Water Supply Rural Watershed, not Urban or Suburban.***

**\*\*\*If yes, then riparian restoration is required by LDC 25-8-261(E) or City Code 30-5-261(E) and a functional assessment must be completed and attached to the ERI (see ECM1.5 and Appendix X for forms and guidance).**

8. There is a total of \_\_\_\_\_ (#s) Critical Environmental Feature(s)(CEFs) on or within 150 feet of the project site. If CEF(s) are present, attach a detailed **DESCRIPTION** of the CEF(s), color **PHOTOGRAPHS**, the **CEF WORKSHEET** and provide **DESCRIPTIONS** of the proposed CEF buffer(s) and/or wetland mitigation. Provide the number of each type of CEFs on or within 150 feet of the site *(Please provide the number of CEFs)*:

\_\_\_\_\_ (#s) Spring(s)/Seep(s)      \_\_\_\_\_ (#s) Point Recharge Feature(s)      \_\_\_\_\_ (#s) Bluff(s)  
 \_\_\_\_\_ (#s) Canyon Rimrock(s)      \_\_\_\_\_ (#s) Wetland(s)

**Note: Standard buffers for CEFs are 150 feet, with a maximum of 300 feet for point recharge features. Except for wetlands, if the standard buffer is not provided, you must provide a written request for an administrative variance from LDC 25-8-281(C)(1) and provide written findings of fact to support your request. Request forms for administrative variances from requirements stated in LDC 25-8-281 are available from Watershed Protection Department. *Please see Attachment 9.4 for CEF descriptions.***

*Please see Attachment 9.4 for CEF descriptions.*

9. The following site maps are attached at the end of this report (Check all that apply and provide):

All ERI reports must include:

- (Attachment 9.1)  **Site Specific Geologic Map with 2-ft Topography**
- (Attachment 9.2)  **Historic Aerial Photo of the Site**
- (Attachment 9.3)  **Site Soil Map**
- (Attachment 9.4)  **Critical Environmental Features and Well Location Map on current Aerial Photo with 2-ft Topography**

Only if present on site (Maps can be combined):

- (Attachment 9.5)  **Edwards Aquifer Recharge Zone with the 1500-ft Verification Zone**  
*(Only if site is over or within 1500 feet the recharge zone)*
- Edwards Aquifer Contributing Zone**
- (Attachment 9.6)  **Water Quality Transition Zone (WQTZ)**
- (Attachment 9.7)  **Critical Water Quality Zone (CWQZ)**
- City of Austin Fully Developed Floodplains for all water courses with up to 64-acres of drainage**

10. **HYDROGEOLOGIC REPORT** – Provide a description of site soils, topography, and site specific geology below (Attach additional sheets if needed):

**Surface Soils** on the project site is summarized in the table below and uses the SCS Hydrologic Soil Groups\*. If there is more than one soil unit on the project site, show each soil unit on the site soils map.

Soil Series Unit Names, Infiltration Characteristics & Thickness		
Soil Series Unit Name & Subgroup**	Group*	Thickness (feet)

<b>*Soil Hydrologic Groups Definitions (Abbreviated)</b>
A. Soils having a <u>high infiltration</u> rate when thoroughly wetted.
B. Soils having a <u>moderate infiltration</u> rate when thoroughly wetted.
C. Soils having a <u>slow infiltration</u> rate when thoroughly wetted.
D. Soils having a <u>very slow infiltration</u> rate when thoroughly wetted.
**Subgroup Classification – See <u>Classification of Soil Series</u> Table in County Soil Survey.

**Description of Site Topography and Drainage** *(Attach additional sheets if needed):*

**List surface geologic units below:**

Geologic Units Exposed at Surface		
Group	Formation	Member

**Brief description of site geology** *(Attach additional sheets if needed):*

**Wells** – Identify all recorded and unrecorded wells on site (test holes, monitoring, water, oil, unplugged, capped and/or abandoned wells, etc.):

There are \_\_\_(#) wells present on the project site and the locations are shown and labeled

\_\_\_(#s)The wells are not in use and have been properly abandoned.

\_\_\_(#s)The wells are not in use and will be properly abandoned.

\_\_\_(#s)The wells are in use and comply with 16 TAC Chapter 76.

There are \_\_\_(#s) wells that are off-site and within 150 feet of this site.

***There are no wells within 150 feet of the project limits. See attachment 9.4 for location of wells on the project property but farther than 150 feet from the project site.***

11. **THE VEGETATION REPORT** – Provide the information requested below:

**Brief description of site plant communities** *(Attach additional sheets if needed):*

There is woodland community on site .....  YES  NO *(Check one)*.

If yes, list the dominant species below:

<b>Woodland species</b>	
Common Name	Scientific Name

There is grassland/prairie/savanna on site.....  YES  NO *(Check one)*.

If yes, list the dominant species below:

<b>Grassland/prairie/savanna species</b>	
Common Name	Scientific Name

There is hydrophytic vegetation on site .....  YES  NO *(Check one)*.

If yes, list the dominant species in table below *(next page)*:

Hydrophytic plant species		
Common Name	Scientific Name	Wetland Indicator Status

A tree survey of all trees with a diameter of at least eight inches measured four and one-half feet above natural grade level has been completed on the site.

YES  NO (Check one).

**12. WASTEWATER REPORT –** Provide the information requested below.

Wastewater for the site will be treated by (Check of that Apply):

- On-site system(s)
- City of Austin Centralized sewage collection system
- Other Centralized collection system

*Note: All sites that receive water or wastewater service from the Austin Water Utility must comply with City Code Chapter 15-12 and wells must be registered with the City of Austin*

The site sewage collection system is designed and will be constructed to in accordance to all State, County and City standard specifications.

YES  NO (Check one). **Not applicable.**

Calculations of the size of the drainfield or wastewater irrigation area(s) are attached at the end of this report or shown on the site plan.

YES  NO  Not Applicable (Check one).

Wastewater lines are proposed within the Critical Water Quality Zone?

YES  NO (Check one). If yes, then provide justification below:

Is the project site is over the Edwards Aquifer?

YES  NO (Check one).

If yes, then describe the wastewater disposal systems proposed for the site, its treatment level and effects on receiving watercourses or the Edwards Aquifer.

**13. One (1) hard copy and one (1) electronic copy of the completed assessment have been provided.**

Date(s) ERI Field Assessment was performed: \_\_\_\_\_  
Date(s)

My signature certifies that to the best of my knowledge, the responses on this form accurately reflect all information requested.

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Telephone

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Email Address

\_\_\_\_\_  
Name of Company

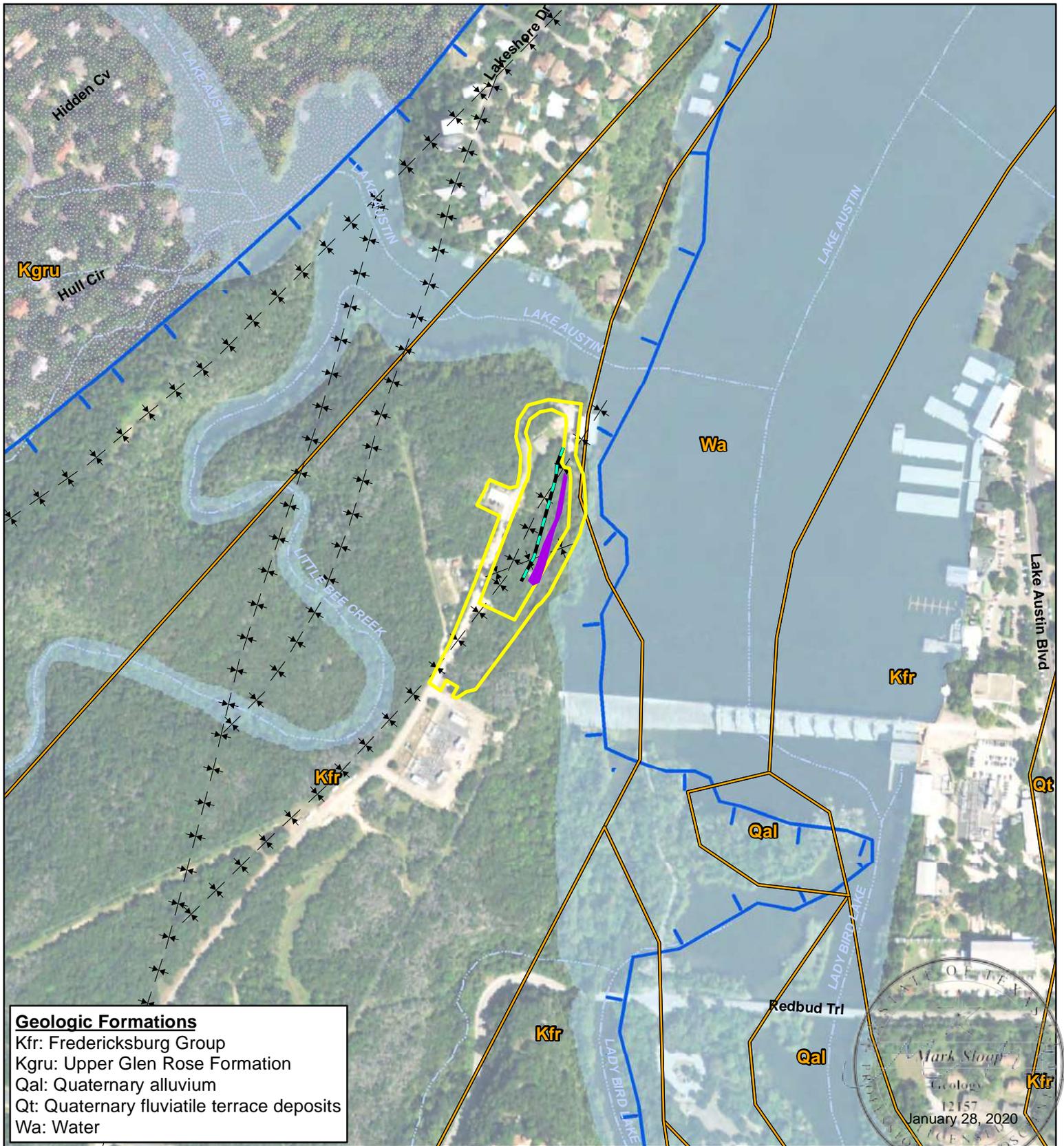
\_\_\_\_\_  
Date

For project sites within the Edwards Aquifer Recharge Zone, my signature and seal also certifies that I am a licensed Professional Geoscientist in the State of Texas as defined by ECM 1.12.3(A).





**ATTACHMENT 9.1 - SITE SPECIFIC GEOLOGIC MAP**



**Geologic Formations**  
 Kfr: Fredericksburg Group  
 Kgru: Upper Glen Rose Formation  
 Qal: Quaternary alluvium  
 Qt: Quaternary fluvial terrace deposits  
 Wa: Water

- Baer-identified Rimrock
- Geologic Fault Line
- Depressed Area at Base of Rimrock
- Geologic Formation Boundary
- TCEQ Edwards Aquifer Contributing Zone
- TCEQ Edwards Aquifer Recharge Zone

FEMA 100-year Floodplain

Project Area

Feet

0 200 400

Baer Project No. 172081.01  
 Date: October 1, 2019

TBPE Firm No. F-3181 TBPG Firm No. 50030  
 Base Map: NAIP Aerial Imagery, 2016

**Site Geologic Map**

Ullrich Water Treatment Plant  
 Low Service Pump Station Improvements  
 1000 Forest View Drive Austin, Texas 78746



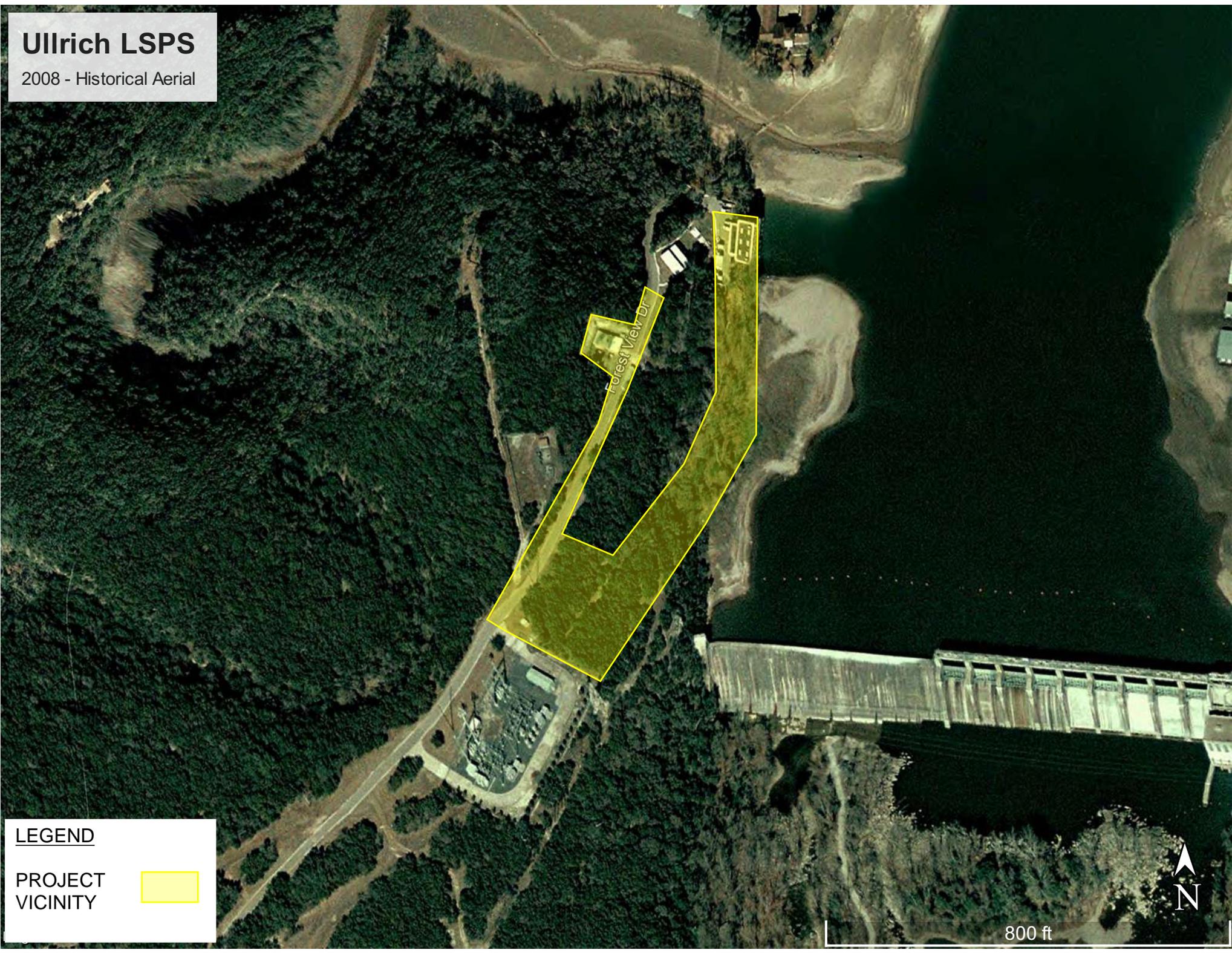
## Attachment 9.1 - USGS Texas Geology Area Description

USGS Texas Geology describes this area as "Fredericksburg Group undivided, rock unit code Kfr. Edwards limestone, limestone, dolomite, and chert; limestone aphanitic to fine grained, massive to thin bedded, hard, brittle, in part rudistid blostromes, much miliolid biosprate; dolomite fine to very fine grained, porous, medium gray to grayish brown; chert nodules and plates common, varies in amount from bed to bed, some intervals free of chert, mostly white to light gray; in zone of weathering considerable recrystallized, "honeycombed," and cavernous forming an aquifer; forms flat areas and plateaus bordered by scarps; thickness 60-350 feet, thins northward. Comanche peak limestone, fine to very fine grained, fairly hard, nodular, light gray, weathers white, extensively burrowed, burrow fillings slightly coarser and darker, typically crops out in scarp face beneath Edwards Limestone; thickness up to 80 feet, thins southward near Williamson Travis County line. Keys Valley Marl, soft, white; marine megafossils include *Exogyra texana*, *Gryphaea mucronata*, and other pelecypods, ammonites, gastropods, and echinoids; thickness up to 50 feet, thins southward near Williamson Travis County line. Cedar Park Limestone, Kcp, lithologically and faunally similar to Comanche Peak Limestone; thickness 40 feet, south of Williamson Travis County line upper part interfingers with Edwards Limestone and lower part is mapped with Bee Cave Marl, Kbc, lithologically and faunally similar to Keys Valley Marl, except *Exogyra texana* are more abundant and ammonites are scarce; thickness 25-40 feet."

ATTACHMENT 9.2 - HISTORIC AERIAL PHOTO OF  
THE SITE

# Ullrich LSPS

2008 - Historical Aerial



## LEGEND

PROJECT  
VICINITY



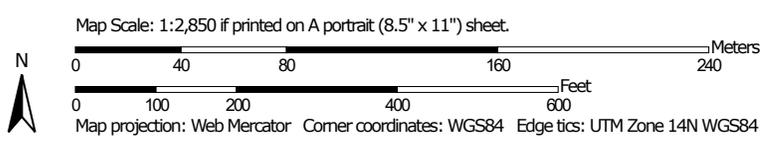
800 ft

**ATTACHMENT 9.3 - SITE SOIL MAP**

Soil Map—Travis County, Texas  
(Ullrich LSPS - Soil Map)



Soil Map may not be valid at this scale.



ATTACHMENT 9.4 - CEF AND WELL LOCATION  
MAP

# Ullrich LSPS

CEF and Well Location Map

## LEGEND

WETLAND 

Well #5842619 

Well #5842620 

RIM ROCK  
CRITICAL  
ENVIRONMENTAL  
FEATURE

WETLAND  
CRITICAL  
ENVIRONMENTAL  
FEATURE (W-2)

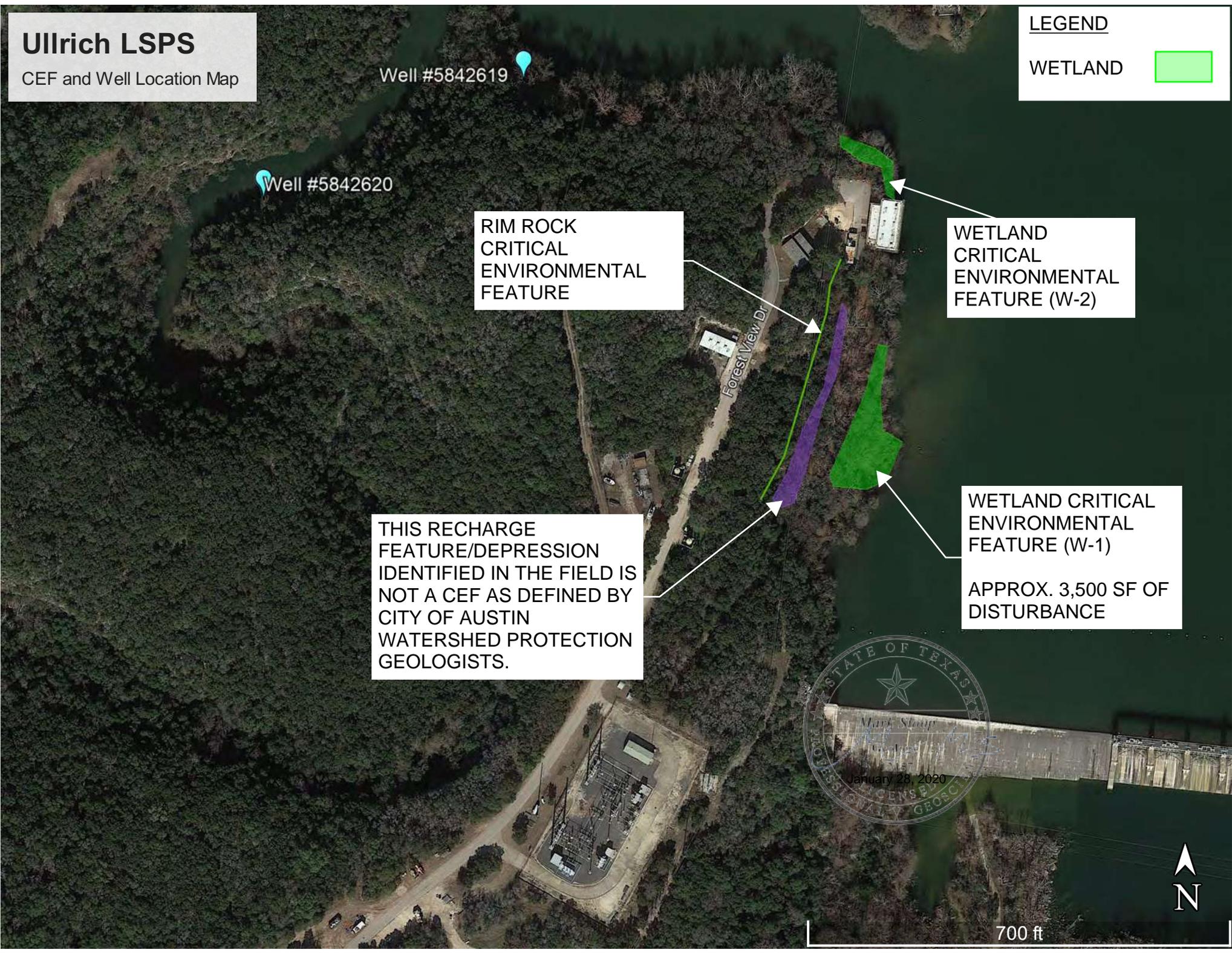
THIS RECHARGE  
FEATURE/DEPRESSION  
IDENTIFIED IN THE FIELD IS  
NOT A CEF AS DEFINED BY  
CITY OF AUSTIN  
WATERSHED PROTECTION  
GEOLOGISTS.

WETLAND CRITICAL  
ENVIRONMENTAL  
FEATURE (W-1)

APPROX. 3,500 SF OF  
DISTURBANCE



700 ft



## CEF DESCRIPTIONS

Baer Engineering conducted a field survey of the assessment area on August 28, 2019. The assessment area is defined as the project area plus a 150-ft buffer. Approximately five-tenths of an inch of rain were recorded near the project area in the week before commencement of the field surveys. No rain was recorded during field surveys.

For wetland identification, Baer Engineering used the recommended routine method, outlined in the COA ECM Section 1.10.3. This method assumes adequate hydrology and hydric soils if the area under examination is dominated (over 50% vegetative cover) by Facultative-wet and/or Obligate plant species (as listed in the National List of Plant Species That Occur in Wetlands, South Plains, Region 6, U.S. Department of the Interior, Washington D.C.) and an abrupt boundary is evident between these Facultative-wet and/or Obligate plant community and the Upland plant communities. The wetlands described in this report met the criteria in the wetland delineation method described above. No official delineation was conducted and the dimensions provided in this report are estimates.

Four (4) CEFs (two wetlands, one rimrock, & one recharge feature) were observed within the assessment area. The CEFs are described below.

**Wetland, W-1:** This wetland was observed along the eastern edge of the assessment area, at the shore of the Colorado River. The river bank was dominated by bald cypress (*Taxodium distichum*, OBL), with some glossy privet (*Ligustrum lucidum*, UPL), green ash (*Fraxinus pennsylvanica*, FAC), and American sycamore (*Platanus occidentalis*, FAC). Jamaican sawgrass (*Cladium mariscus*, OBL) and taro (*Colocasia esculenta*, OBL) were observed beyond the fence line at the shore, but inaccessible. The wetland was approximately 5 to 60 feet wide, observed from the edge of the water, and approximately 250 feet long. Please see **Photographs 1-2**.

**Wetland, W-2:** This wetland was observed northwest of the facility at the bank of the Colorado River, at the north end of the assessment area. Bald cypress, smallspike false nettle (*Boehmeria cylindrica*, FACW), and Emory sedge (*Carex emoryii*, FACW) dominated the area, along with some glossy privet and American sycamore. The wetland was approximately 15 feet wide from the edge of the water and 140 feet long following the shoreline. Please see **Photographs 3-4**.

**Rimrock, Ullrich Rimrock:** Rimrock was observed at the center of the assessment area, northwest of the proposed roadway and southeast of the proposed work adjacent to the existing roadway. The rim rock extends northeast to southwest for approximately 430 feet. The estimated height of the rimrock is 30 feet from the base to the upper edge. Please see **Photograph 5**.

**Recharge Feature, Solution Recharge Feature:** A recharge feature was observed within a depression that is approximately five to six feet below the nearby footpath surface and approximately three to four feet below the level of the nearby Colorado River. The depression contained several inches of leaf litter and detritus. The initial site visit was conducted after a rain event the evening before and little to no water was observed in the depression. Comparing the depression and rimrock discussed above to geologic maps of the area, these features appear to

correlate with a mapped fault depicted on the site. The feature was approximately 350 long, 20 feet wide, and 4 feet below the surrounding grade. Please see **Photographs 5-6**.

## VEGETATION REPORT

### BRIEF DESCRIPTION OF SITE PLANT COMMUNITIES:

The Site is located in the U.S. EPA-defined Balcones Canyonlands ecoregion, described below:

The Balcones Canyonlands are highly dissected through the erosion and solution of springs, streams, and rivers working both above and below ground; percolation through the porous limestone contributes to the recharge of the Edwards Aquifer. High gradient streams originating from springs in steep-sided canyons supply water for development on the Texas Blackland Prairies at the eastern base of the escarpment. This ecoregion supports a number of endemic plants and has a higher representation of deciduous woodland than elsewhere on the Edwards Plateau, with escarpment black cherry, Texas mountain-laurel, madrone, Lacey oak, bigtooth maple, and Carolina basswood. Some relicts of eastern swamp communities, such as baldcypress, American sycamore, and black willow, occur along major streamcourses. It is likely that these trees have persisted as relicts of moister, cooler climates following the Pleistocene glacial epoch. Toward the west, the vegetation changes gradually as the climate becomes more arid. Plateau live oak woodland is eventually restricted to north and east facing slopes and floodplains, and dry slopes are covered with open shrublands of juniper, sumac, sotol, acacia, honey mesquite, and ceniza.

Vegetation within the project area was characterized by three habitat types: **Juniper Woodland**, **Deciduous Floodplain Forest**, and **Mowed Grasses**.

The **Juniper Woodland** occupied the upland portions of the project area adjacent to the driveway. Canopy cover was mostly dense, with some open grassy areas on the eastern side. Trees were predominantly ashe juniper (*Juniperus ashei*) with some cedar elm (*Ulmus crassifolia*) and live oak (*Quercus fusiformis*). The moderately dense midstory included Texas persimmon (*Diospyrus texana*), Texas mountain laurel (*Sephora secundiflora*), agarita (*Mahonia trifoliolata*), yaupon (*Ilex vomitoria*), and elbowbush (*Forestiera pubescens*). Shrubby boneset (*Ageratina havanensis*) and cedar sedge (*Carex planostachys*) dominated the wooded understory. The grassy opening vegetation predominantly consisted of silver bluestem (*Bothriochloa laguroides*), doveweed (*Croton monanthaginus*), prairie coneflower (*Ratibida columnifera*), and other grasses and forbs as groundcover. Additionally, evergreen and flameleaf sumac (*Rhus virens*, *Rhus lanceolata*) and Texas kidneywood (*Eysenhardtia texana*) grew as a midstory with some prickly pear species (*Opuntia sp.*). Please see **Photographs 7-9**.

The **Deciduous Floodplain Forest** was observed below the bluff, east of the paved driveway. Canopy cover was dense, with cottonwood (*Populus deltoides*), bald cypress, American sycamore, and glossy privet as overstory. Smaller woody vegetation included ash species (*Fraxinus sp.*) and chinaberry (*Melia azedarach*), with some groundcover from poison ivy (*Toxicodendron radicans*), frostweed (*Verbesina virginica*), and Virginia wild rye (*Elymus virginicus*). The understory vegetation had relatively low density. The previously-

described wetlands occurred along the river bank on the edges of this habitat. Please see **Photograph 10**.

**Mowed Grasses** were observed along the paved driveway within the project area. Identifiable grasses included silver bluestem and perennial rye (*Lolium perenne*), and forbs included lemon beebalm (*Monarda citriodora*), tie vine (*Ipomoea cordatotriloba*), western ragweed (*Ambrosia psilostachya*), Indian Blanket (*Gaillardia pulchella*), maretail weed (*Erigeron canadensis*), as well as plants as found in the wooded openings in the Juniper Woodland, described above. Please see **Photograph 11**.

**Photograph 1:** Wetland W-1 – A view of the wetland, dominated by bald cypress along the bank of the Colorado River.



**Photograph 2:** Wetland W-1 – Photo through perimeter fence of taro at river bank.



**Photograph 3:** Wetland W-2 – Wetland observed on northern side of assessment area along bank of the Colorado River, outside of perimeter fence. Bald cypress and American sycamore can be seen.



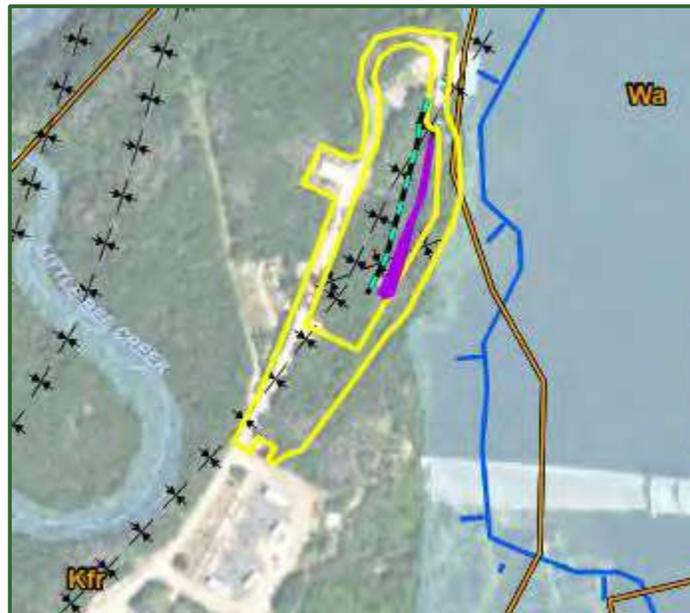
**Photograph 4:** Wetland W-2 – View of wetland vegetation at the river bank outside of perimeter fence, including sedges and shortspike false nettle.



**Photograph 5:** Ullrich Rimrock, Solution Recharge Feature – This depression was observed east of the paved driveway and at the foot of the rimrock.



**Photograph 6:** Ullrich Rimrock, Solution Recharge Feature – The figure below depicts the location of the feature in blue.



**Photograph 7:** Example of **Juniper Woodland**, west of paved driveway.



**Photograph 8:** Example of **Juniper Woodland**, east of paved driveway and above floodplain bluff.



**Photograph 9:** Grassy opening in **Juniper Woodland**, east of paved driveway.



**Photograph 10:** Example of **Deciduous Floodplain Forest** between the river bank and Ullrich Rimrock.



**Photograph 11:** Example of **Mowed Grasses** along paved driveway.



**ATTACHMENT 9.5 - EDWARDS AQUIFER  
RECHARGE AND CONTRIBUTING ZONES MAP**



# Property Profile



## Legend

- Jurisdiction**
- FULL PURPOSE
  - LIMITED PURPOSE
  - EXTRATERRITORIAL JURISDICTION
  - 2 MILE ETJ AGRICULTURAL AGR
  - OTHER CITY LIMITS
  - OTHER CITIES ETJ
  - Edwards Aquifer Recharge Zone
  - Edwards Aquifer Recharge Verification Zone
  - Edwards Aquifer Contributing Zone

1: 4,800



0.2 0 0.08 0.2 Miles

NAD\_1983\_StatePlane\_Texas\_Central\_FIPS\_4203\_Feet

10/23/2018

This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the-ground survey. This product has been produced by the City of Austin for the sole purpose of geographic reference. No warranty is made by the City of Austin regarding specific accuracy or completeness.

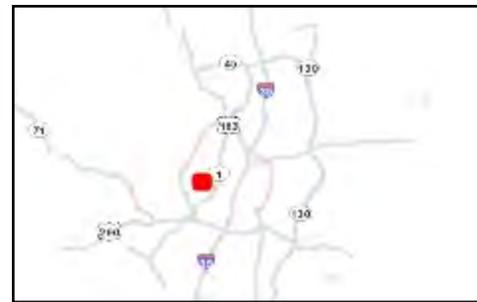
## Notes

This project is entirely in the Edwards Aquifer Recharge Zone. The Contributing and Verification Zones are outside of project limits.

**ATTACHMENT 9.6 - WQTZ AND CWQZ MAP**



**ATTACHMENT 9.7 - CITY OF AUSTIN FULLY  
DEVELOPED FLOODPLAINS MAP**



**FEMA Floodplain**

- 100 Year (Detailed-AE)
- 100 year (Shallow-AO)
- 100 Year (Approx-A)
- X Protected by Levee
- 500 Year

This custom map was created with FloodPro and is for informational purposes only. It is not intended for or suitable for legal, engineering, or surveying purposes. It does not represent on-the-ground survey and represents only the approximate relative locations of property boundaries. No warranty is made by the City of Austin regarding the specific accuracy or completeness of the map. Final determination of floodplain status for a property must be based on topographic survey by a Texas registered professional. For regulatory purposes, floodplain elevations must be determined from an engineering model created in accordance with the Drainage Criteria Manual and approved by the City of Austin.

0 793 1,586 Feet

Prepared: 12/18/2019



Case No.: \_\_\_\_\_  
(City use only)

## Environmental Resource Inventory

For the City of Austin

Related to LDC 25-8-121, City Code 30-5-121, ECM 1.3.0 & 1.10.0

The ERI is required for projects that meet one or more of the criteria listed in LDC 25-8-121(A), City Code 30-5-121(A).

1. SITE/PROJECT NAME: Ullrich Water Treatment Plant - Process Drain and Support Systems Improvements Project
2. COUNTY APPRAISAL DISTRICT PROPERTY ID (#'S): 114928
3. ADDRESS/LOCATION OF PROJECT: 1000 Forest View Drive, Austin Texas, 78746.
4. WATERSHED: Little Bee Creek and Lady Bird Lake watersheds.
5. THIS SITE IS WITHIN THE (Check all that apply)  
Edwards Aquifer Recharge Zone\* (See note below).....  Yes  No  
Edwards Aquifer Contributing Zone\* .....  Yes  No  
Edwards Aquifer 1500 ft Verification Zone\* .....  Yes  No  
Barton Spring Zone\* .....  Yes  No  
*\*(as defined by the City of Austin – LDC 25-8-2 or City Code 30-5-2)*

**Note: If the property is over the Edwards Aquifer Recharge zone, the Hydrogeologic Report and karst surveys must be completed and signed by a Professional Geoscientist Licensed in the State of Texas.**

6. DOES THIS PROJECT PROPOSE FLOODPLAIN MODIFICATION?.....  YES\*\*  NO  
If yes, then check all that apply:  
 (1) The floodplain modifications proposed are necessary to protect the public health and safety;  
 (2) The floodplain modifications proposed would provide a significant, demonstrable environmental benefit, as determined by a **functional assessment** of floodplain health as prescribed by the Environmental Criteria Manual (ECM), or  
 (3) The floodplain modifications proposed are necessary for development allowed in the critical water **quality zone under LDC 25-8-261 or 25-8-262, City Code 30-5-261 or 30-5-262.**  
 (4) The floodplain modifications proposed are outside of the Critical Water Quality zone in an area determined to be in poor or fair condition by a **functional assessment** of floodplain health.

**\*\* If yes, then a functional assessment must be completed and attached to the ERI (see ECM 1.7 and Appendix X for forms and guidance) unless conditions 1 or 3 above apply.**

7. IF THE SITE IS WITHIN AN URBAN OR SUBURBAN WATERSHED, DOES THIS PROJECT PROPOSE A UTILITY LINE PARALLEL TO AND WITHIN THE CRITICAL WATER QUALITY ZONE? .....  YES\*\*\*  NO

**\*\*\*If yes, then riparian restoration is required by LDC 25-8-261€ or City Code 30-5-261€ and a functional assessment must be completed and attached to the ERI (see ECM1.5 and Appendix X for forms and guidance).**

8. There is a total of 1 (#'s) Critical Environmental Feature(s)(CEFs) on or within 150 feet of the project site. If CEF(s) are present, attach a detailed **DESCRIPTION** of the CEF(s), color

**PHOTOGRAPHS**, the **CEF WORKSHEET** and provide **DESCRIPTIONS** of the proposed CEF buffer(s) and/or wetland mitigation. Provide the number of each type of CEFs on or within 150 feet of the site (*Please provide the number of CEFs*):

\_\_\_ (#'s) Spring(s)/Seep(s)      1 (#'s) Point Recharge Feature(s)      \_\_\_ (#'s) Bluff(s)  
\_\_\_ (#'s) Canyon Rimrock(s)      \_\_\_\_\_ (#'s) Wetland(s)

**Note: Standard buffers for CEFs are 150 feet, with a maximum of 300 feet for point recharge features. Except for wetlands, if the standard buffer is not provided, you must provide a written request for an administrative variance from LDC 25-8-281(C)(1) and provide written findings of fact to support your request. Request forms for administrative variances from requirements stated in LDC 25-8-281 are available from Watershed Protection Department.**

**CEF Descriptions and Buffer Mitigation:**

Baer Engineering conducted a CEF field survey of the assessment area on March 30, 2017, and a karst survey of the site on October 26, 2018.

No CEFs were identified during the 2017 survey. One karst recharge feature (sinkhole) CEF was identified during the karst survey on October 19, 2018. Please refer to **Figure 4** for the location of the sinkhole.

**Karst Recharge Feature SH-1, Sinkhole** -- SH-1 is a sinkhole located between the facility's western perimeter drive and western fence. It is roughly nine feet by 10 feet and two feet deep. There are a large number of small trees, shrubs and saplings growing out of the soil floor. Hand excavation encountered soft, aerated clayey soil, but no openings or airflow. A berm has been constructed on the south and topographically up-gradient side of the feature to divert surface water runoff. The east side, along the road, has also been engineered to prevent inflow of surface runoff, with rectangular blocks set in concrete bolstering the east side. Beneath the berm and blocks, Edwards Limestone is visible in the sinkhole walls. The interpreted karst origin of this feature suggests a high probability of rapid infiltration. The soil fill and the reinforced berm around the sinkhole creates a very small catchment area, limiting the infiltration. Please refer to **Photographs 1 through 3**.

*Recommendation:*

Impacts to this CEF should be avoided. The project design does not include ground disturbance within 150 feet of SH-1. Existing controls are in place to prevent overland flow from entering the recharge feature. During construction, surface runoff should be watched to check that the existing controls are adequate to protect this CEF.

9. The following site maps are attached at the end of this report (*Check all that apply and provide*):

All ERI reports must include:

- Site Specific Geologic Map with 2-ft Topography – Figure 1**
- Historic Aerial Photograph of the Site – Figure 2**
- Site Soil Map – Figure 3**
- Critical Environmental Features and Well Location Map on current Aerial Photograph with 2-ft Topography – Figure 4**

Only if present on site (Maps can be combined):

- Edwards Aquifer Recharge Zone with the 1500-ft Verification Zone – Figure 5**

(Only if site is over or within 1500 feet the recharge zone)

- Edwards Aquifer Contributing Zone**
- Water Quality Transition Zone (WQTZ) – Figure 5**
- Critical Water Quality Zone (CWQZ) – Figure 5**
- City of Austin Fully Developed Floodplains for all water courses with up to 64-acres of drainage – Figure 5**

10. **HYDROGEOLOGIC REPORT** – Provide a description of site soils, topography, and site-specific geology below (Attach additional sheets if needed):

**Surface Soils** on the project site are summarized in the table below, using the Soil Conservation Service (SCS) Hydrologic Soil Groups\*. If there is more than one soil unit on the project site, show each soil unit on the site soils map.

Soil Series Unit Names, Infiltration Characteristics & Thickness			
Soil Series Unit Name & Subgroup**	Group*	Thickness (feet)	Approximate Percentage of Site
Tarrant soils and Urban land, 0-2% slopes (TeA)	D	<1	63.5
Tarrant soils and Urban land, 5-18% slopes (TeE)	D	<1	36.5

According to the Natural Resources Conservation Service (NRCS) Web Soil Survey, the native soils mapped in the project area consist of four soil groups, listed above. The soil series descriptions for these soils, as defined in the SCS Travis County Soil Survey, are provided below (USDA 1974).

**Tarrant soils and Urban land, 0 to 2 percent slopes (TeA):**

This undifferentiated group occupies long, broad ridges. It consists of about 75 percent Tarrant soils, about 20 percent Urban land, and about 5 percent other soils.

Undisturbed areas of Tarrant soils have an 8-inch thick surface layer of dark grayish-brown clay or clay loam. The underlying material is limestone. Stones are on the surface and in the soil.

**\*Soil Hydrologic Groups 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.

\*\*Subgroup Classification – See Classification of Soil Series Table in County Soil Survey.

*Citations for this Section:*

NRCS (Natural Resources Conservation Service), 2017, Web Soil Survey. Available online at the following url: <https://websoilsurvey.sc.egov.usda.gov/> . Accessed 11/8/2018.

USDA (United States Department of Agriculture) Soil Conservation Service, 1974, Soil Survey of Travis County. U.S. Government Printing Office. Washington D.C.

**Description of Site Topography and Drainage** (Attach additional sheets if needed):

The following sub-sections provide site-specific summaries of existing geologic and hydrologic conditions, including topography, bedrock type, structural geology, surface water, and floodplains. Information was gathered from desktop research, site assessment, and various maps. **Photographs 3 through 9** illustrate the topography of the project area.

According to the COA Property Profile GIS Viewer 2017 Contour Layer, the elevation within the project area ranges from approximately 720 feet above mean sea level (AMSL) at the southern property boundary adjacent to Rocky River Road, to 610 feet AMSL at the northwest end of the property at Little Bee Creek, and at the northeast end of the property at the corner of Redbud Trail and Forest View Drive. The project area occupies a ridge trending approximately 45 degrees east of north, sloping to the northwest toward Little Bee Creek and Southeast toward an unnamed tributary to Lady Bird Lake.

Drainage from the western portion of the facility enters the stormwater collection system through a series of curb and grate inlets, and is discharged on the northwest side of the property through a concrete outfall which drains to Little Bee Creek. Drainage from the eastern portion of the facility passes through a sedimentation pond in the northeast quadrant of the facility, and is discharged to the east beneath Forest View Drive to the unnamed tributary to Lady Bird Lake.

The northwest portion of the project area is located in the Little Bee Creek watershed, which is classified by the COA as a Water Supply Rural regulation area. The southeast portion of the project area is in the Lady Bird Lake watershed, which is classified by the COA as Water Supply Suburban. The north western corner of the property intersects the COA-defined Critical Water Quality Zone (CWQZ) and Water Quality Transition Zone of Little Bee Creek. The entire project area is with the COA-defined Edwards Aquifer Recharge Zone (EARZ) and Edwards Aquifer Verification Zone (EAVZ), and the Texas Commission on Environmental Quality (TCEQ) EARZ. The extents of these zones are shown in **Figure 5**, attached.

*Citation for this Section:*

City of Austin. 2019. Property Profile GIS Viewer, 2017 Contours. Site Accessed on 7/29/2019.  
<http://www.austintexas.gov/gis/propertyprofile/>

**Brief description of site geology** (*Attach additional sheets if needed*):

According to the University of Texas at Austin, Bureau of Economic Geology (BEG), Geologic Atlas of Texas (GAT), Austin Sheet, the entire property is within the EARZ and EAVZ, and lies above rocks of the Upper Cretaceous age Edwards Limestone (Ked), bounded by normal faults associated with the Balcones Fault zone to the northwest and southeast. To the northwest of the property beyond the fault is limestone of the Glen Rose Formation (Kgr), which is part of the Edwards Aquifer Contributing Zone. Down-dropped blocks to the southeast of the property include outcrops of the Georgetown Formation (Kgt).

The GAT description of the surface geologic unit is below:

Edwards Limestone (Ked):

A limestone, dolomite, and chert; limestone aphanitic to fine grained, massive to thin bedded, hard, brittle, in part rudistid biostromes, much miliolid biosparite; dolomite fine to very fine grained, porous, medium gray to grayish brown; chert, nodules and plates common, varies in amount from bed to bed, some intervals free of chert, mostly white to light gray; in zone of weathering considerably recrystallized, "honeycombed," and cavernous forming an aquifer; forms flat areas and plateaus bordered by scarps; thickness 60-350 feet, thins northward.

*Citation for this Section:*

Bureau of Economic Geology. 1974. Geologic Atlas of Texas, Austin Sheet; Bureau of Economic Geology. The University of Texas at Austin.

**Wells** – Identify all recorded and unrecorded wells on site (test holes, monitoring, water, oil, unplugged, capped and/or abandoned wells, etc.):

There are   0   (#) wells present on the project site and the locations are shown and labeled  
       (#'s) The wells are not in use and have been properly abandoned.  
       (#'s) The wells are not in use and will be properly abandoned.  
       (#'s) The wells are in use and comply with 16 TAC Chapter 76.  
There are   0   (#'s) wells that are off-site and within 150 feet of this site.

11. **THE VEGETATION REPORT** – Provide the information requested below:

**Brief description of site plant communities** (*Attach additional sheets if needed*):

The project area is within the U.S. EPA defined Edwards Plateau Region.

This region comprises an area of central Texas commonly known as the Texas Hill Country. Soils of the Edwards Plateau are usually shallow with a variety of surface textures. They are underlain by limestone. Several river systems dissect the surface, creating a rough and well-drained landscape. The limestone of the Edward's Plateau is honeycombed with many caves. Beneath the eastern edge of the Plateau lies the Edwards Aquifer. The Edwards Plateau is characterized by grasslands, juniper/oak woodlands, and plateau live oak or mesquite savannah. Average annual rainfall ranges from 15 to 34 inches. Rainfall is highest in May or June and September. Elevations range from slightly less than 100 feet to over 3,000 feet above sea level.

The project site and surrounding study area are characterized by two distinct habitat types: **Mowed Grassland/Landscaping** and **Juniper Oak Woodland**.

The **Mowed Grassland/Landscaping** consisted of landscaped grasslands dominated by bermudagrass, manicured, with stand-alone trees. Some landscaped areas included such species as eastern gamagrass (*Tripsacum dactyloides*), bluebonnets (*Lupinus texensis*), horseherb (*Calyptocarpus vialis*), King Ranch Bluestem (*Bothriochloa ischaemum*), other herbaceous groundcover, and clusters of live oak (*Quercus fusiformis*), hackberry (*Celtis laevigata*), Chinaberry (*Melia azedarach*), and other trees. Some areas between the mowed landscape and the Juniper Oak Woodland are filled with grasses and other herbaceous plants not consistently mowed and left to grow more wildy. Please refer to **Photographs 4-6**.

The **Juniper Oak Woodland** is dominated by ash juniper (*Juniperus ashei*), live oak, hackberry, Texas red oak (*Quercus buckleyi*), and Yaupon (*Ilex vomitoria*). The woodland also contains an understory that presents bare rock and soil, filled with Ligustrum (*Ligustrum japonicum*), mountain laurel (*Sephora secundiflora*), Virginia creeper (*Parthenocissus quinquefolia*), as well as some bunchgrasses. Please refer to **Photograph 6-8**.

There is woodland community on site.....  Yes  No (*Check one*).  
If yes, list the dominant species below:

Woodland species	
Common Name	Scientific Name
Ashe Juniper	<i>Juniperus ashei</i>
Black Willow	<i>Salix nigra</i>
Bradford pear	<i>Pyrus calleryana</i>
Chinaberry	<i>Melia azedarach</i>

Woodland species	
Common Name	Scientific Name
Chinese tallow	<i>Triadica sebifera</i>
Hackberry	<i>Celtis laevigata</i>
Ligustrum	<i>Ligustrum japonicum</i>
Live oak	<i>Quercus fusiformis</i>
Mountain Laurel	<i>Sephora secundiflora</i>
Pecan	<i>Carya illinoensis</i>
Pencil cactus	<i>Euphorbia tirucalli</i>
Post oak	<i>Quercus stellata</i>
Redbud	<i>Cercis canadensis</i>
Sycamore	<i>Platanus occidentalis</i>
Texas Red Oak	<i>Quercus buckleyi</i>
Yaupon	<i>Ilex vomitoria</i>

There is grassland/prairie/savanna on site .....  Yes  No (Check one).  
 If yes, list the dominant species below:

Grassland/prairie/savanna species	
Common Name	Scientific Name
Bedstraw	<i>Galium sp.</i>
Beeblossom	<i>Guara sp.</i>
Bermudagrass	<i>Cynodon dactylon</i>
Bluebonnet	<i>Lupinus texensis</i>
Brown-eyed Susan	<i>Rudbeckia hirta</i>
Coreopsis	<i>Coreopsis spp.</i>
Crossvine	<i>Bignonia capreolata</i>
Dandelion	<i>Pyrrhopappus multicaulis</i>
Dewberry	<i>Rubus trivialis</i>
Eastern gamagrass	<i>Tripsacum dactyloides</i>
Hedge parsley	<i>Torillis arvensis</i>
Horseherb	<i>Calyptocarpus vialis</i>
Johnson Grass	<i>Sorghum halepense</i>
King Ranch Bluestem	<i>Bothriochloa ischaemum</i>
Lemon Mint	<i>Monarda citriodora</i>
Peppervine	<i>Nekemias arborea</i>
Prairie verbena	<i>Glandularia bipinnatifida</i>
Prickly pear	<i>Opuntia sp.</i>
Primrose	<i>Calylophus spp.</i>
Silver bluestem	<i>Bothriochloa laguroides</i>
Silver-leaf nightshade	<i>Solanum elaeagnifolium</i>
Switchgrass	<i>Panicum virgatum</i>
Virginia Creeper	<i>Parthenocissus quinquefolia</i>
Winecup	<i>Callirhoe involucrata</i>

There is hydrophytic vegetation on site.....  Yes  No (Check one).  
 If yes, list the dominant species below:

**Hydrophytic plant species**

Common Name	Scientific Name	Wetland Indicator Status
-------------	-----------------	--------------------------

No wetland vegetation was observed during field reconnaissance.

A tree survey of all trees with a diameter of at least eight inches measured four and one-half feet above natural grade level has been completed on the site.

YES  NO (Check one).

**12. WASTEWATER REPORT – Provide the information requested below.**

Wastewater for the site will be treated by (Check all that apply):

- On-site system(s)
- City of Austin Centralized sewage collection system
- Other Centralized collection system

*Note: All sites that receive water or wastewater service from the Austin Water Utility must comply with City Code Chapter 15-12 and wells must be registered with the City of Austin*

The site sewage collection system is designed and will be constructed to in accordance to all State, County and City standard specifications.

YES  NO (Check one).

Calculations of the size of the drain field or wastewater irrigations area(s) are attached at the end of this report or shown on the site plan.

YES  NO  Not Applicable (Check one).

Wastewater lines are proposed within the Critical Water Quality Zone?

YES  NO (Check one). If yes, then provide justification below:

Is the project site over the Edwards Aquifer?

YES  NO (Check one).

If yes, then describe the wastewater disposal systems proposed for the site, its treatment level and effects on receiving watercourses or the Edwards Aquifer.

Wastewater from this facility is transported through the COA sanitary sewer system and treated at a COA wastewater treatment plant.

**13. One (1) hard copy and one (1) electronic copy of the completed assessment have been provided.**

Date(s) ERI Field Assessment was performed: June 30, 2017; Karst survey performed on October 26, 2018

My signature certifies that to the best of my knowledge, the responses on this form accurately reflect all information requested.

Michael Macicak, PG (TX4181)

Print Name

512-453-3733

Telephone



Signature

mmacicak@baereng.com

Email address

Baer Engineering and Environmental Consulting, Inc.

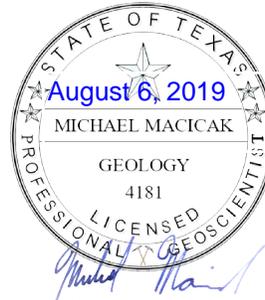
Name of Company

8/6/2019

Date

For project sites within the Edwards Aquifer Recharge Zone, my signature and seal also certifies that I am licensed Professional Geoscientist in the State of Texas as defined by ECM 1.12.4(A).

P.G.  
Seal



**Critical Environmental Feature Worksheet**

1	Project Name:	Albert H. Ullrich Water Treatment Plant – Process Efficiency and Rehabilitation
2	Project Address:	1000 Forest View Drive, Austin Texas, 78741
3	Site Visit Date:	March 30, 2017; October 19, 2018
4	Environmental Resource Inventory Date:	August 6, 2019

5	Primary Contact Name:	Michael Macicak, PG
6	Phone Number:	512-453-3733
7	Prepared By:	Michael Macicak, PG
8	Email Address:	mmacicak@baereng.com

9	FEATURE TYPE {Wetland, Rimrock, Bluffs, Recharge Feature, Spring}	FEATURE ID (eg S-1)	FEATURE LONGITUDE (WGS 1984 in Meters)		FEATURE LATITUDE (WGS 1984 in Meters)		WETLAND DIMENSIONS (ft)		RIMROCK/BLUFF DIMENSIONS (ft)		RECHARGE FEATURE DIMENSIONS				Springs Est. Discharge cfs
			Coordinate	notation	Coordinate	notation	X	Y	Length	Avg Height	x	y	z	Trend	
	Recharge Feature	SH-1 (Photograph log Photographs 1, 2 and 3)	-97.7944	DD	30.28977	DD					9	10	2		

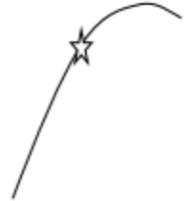
City of Austin Use Only CASE NUMBER:	
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Please state the method of coordinate data collection and the approximate precision and accuracy of the points and the unit of measurement.

Method		Accuracy	
GPS	<input checked="" type="checkbox"/>	sub-meter	<input type="checkbox"/>
Surveyed	<input type="checkbox"/>	meter	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>	>meter	<input type="checkbox"/>

Professional Geologists apply seal below

For rimrock, locate the midpoint of the segment that describes the feature.



For wetlands, locate the approximate centroid of the feature and the estimated area.



For a spring or seep, locate the source of groundwater that feeds a pool or stream.





**Photograph #1**

A view of Sinkhole, **SH-1**. This karst recharge feature lies between the paved perimeter road and the perimeter fence on the southwest edge of the facility. A berm has been constructed on the topographical up-gradient side of the sinkhole to prevent overland flow from entering the feature. The photographer is facing northwest.



**Photograph #2**

Additional view of **SH-1**. This view shows the topographical up-gradient berm on the left, the curb along the roadway, and blocks set in concrete between the curb and the sinkhole, to prevent overland flow from entering the feature. The photographer is facing southwest.



**Photograph #3**

The northeast wall of Sinkhole SH-1 is shown with concrete reinforcement above Edwards Limestone bedrock. The photographer is facing east.



**Photograph #4**

A view of Mowed Landscape on project site. This shows manicured grasses and stand-alone trees.



**Photograph #5**

Another view of Mowed Landscape with clusters of stand-alone trees.



**Photograph #6**

This is a view of the edge between the Juniper Oak Woodland and the wild grown landscape.



**Photograph #7**

A view of the Juniper Oak Woodland on the edges of the project site.

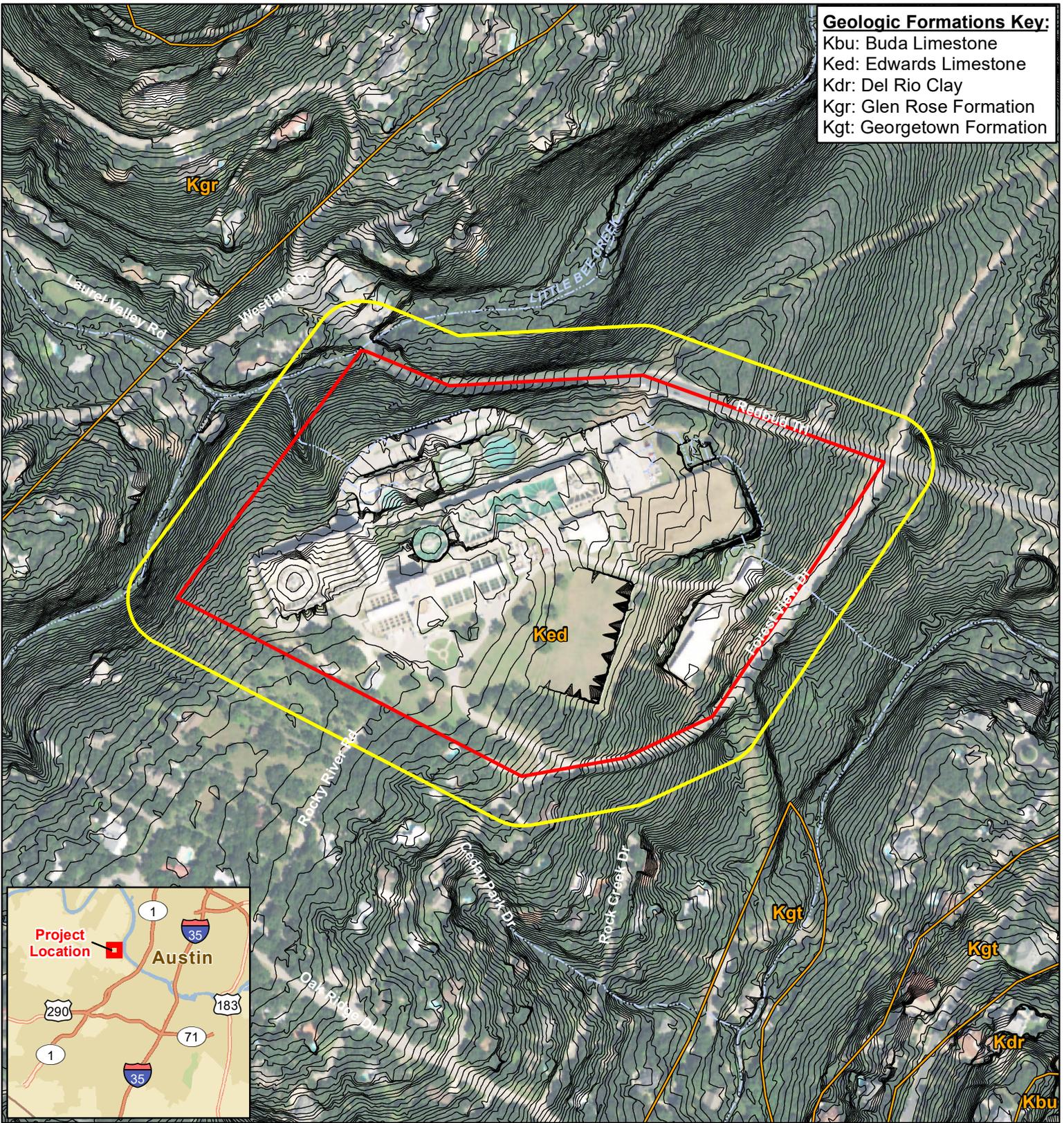


**Photograph #8**

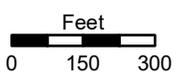
A view of the understory of the Juniper Oak Woodland. This shows the bare ground, as well as some of the plant growth underneath the canopy.



**Geologic Formations Key:**  
 Kbu: Buda Limestone  
 Ked: Edwards Limestone  
 Kdr: Del Rio Clay  
 Kgr: Glen Rose Formation  
 Kgt: Georgetown Formation



-  COA Elevation Contour (2-ft)
-  Geologic Formation Boundary
-  Project Boundary
-  Assessment Area (150-ft)



Baer Project No. 162071.02  
 Date: July 29, 2019

TBPE Firm No. F-3181 TBPG Firm No. 50030

Base Map: NAIP Aerial Imagery, 2016

**Figure 1**  
**Site Specific Geology with**  
**2-ft Topography**

Ullrich Water Treatment  
 Plant Process Efficiency and  
 Rehabilitation



**Baer Engineering**  
*and Environmental Consulting, Inc.*



**Figure 2**  
**Historic Aerial Photograph**

Ullrich Water Treatment  
Plant Process Efficiency and  
Rehabilitation

-  Project Boundary
-  Assessment Area (150-ft)

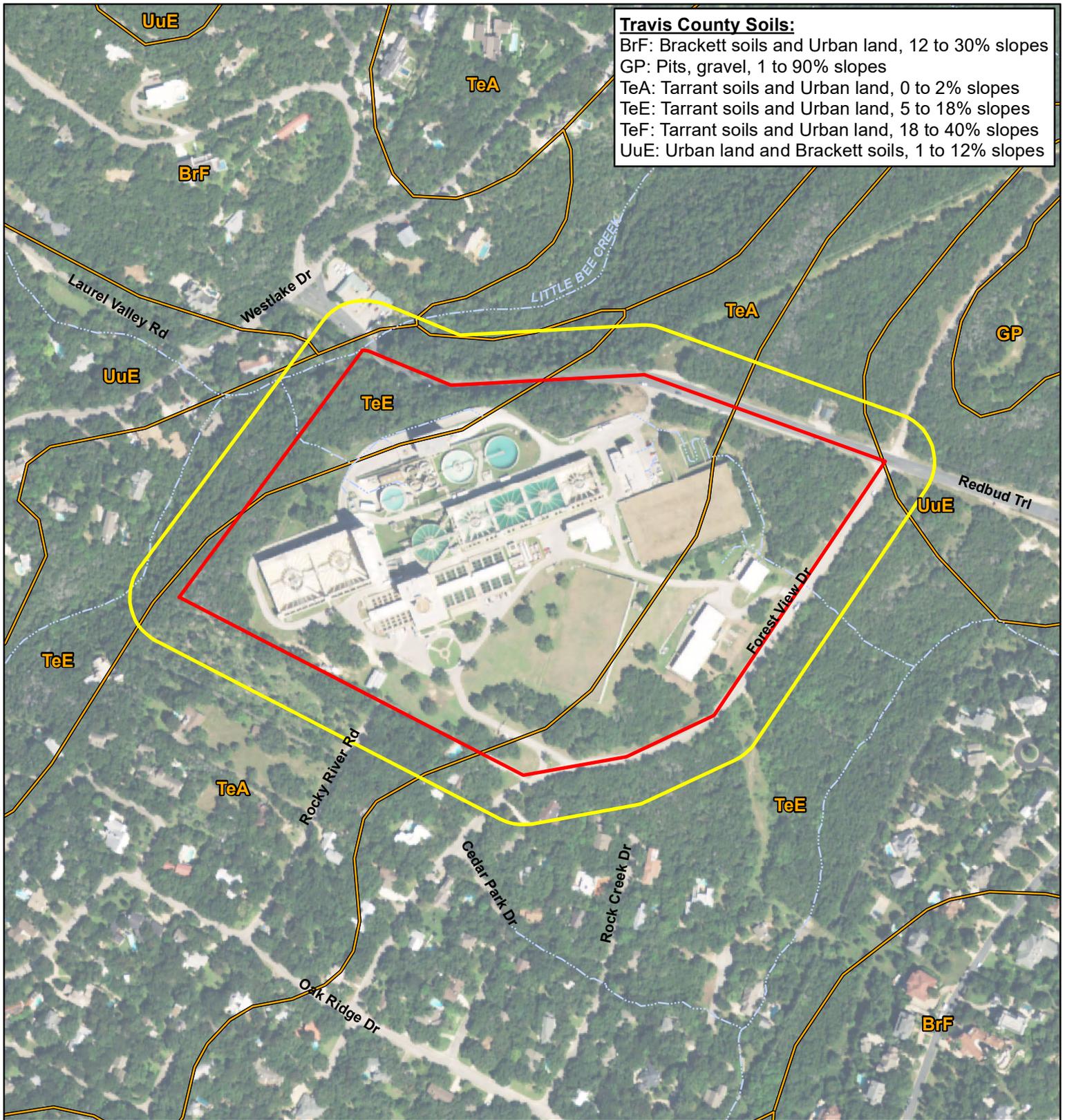
Baer Project No. 162071.02  
Date: July 30, 2019

TBPE Firm No. F-3181 TBPG Firm No. 50030

Base Map: 1996 Austin West SE



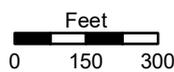
**Baer Engineering**  
and Environmental Consulting, Inc.



**Figure 3  
Travis County Soils**

Ullrich Water Treatment  
Plant Process Efficiency and  
Rehabilitation

-  Travis County Soils
-  Project Boundary
-  Assessment Area (150-ft)



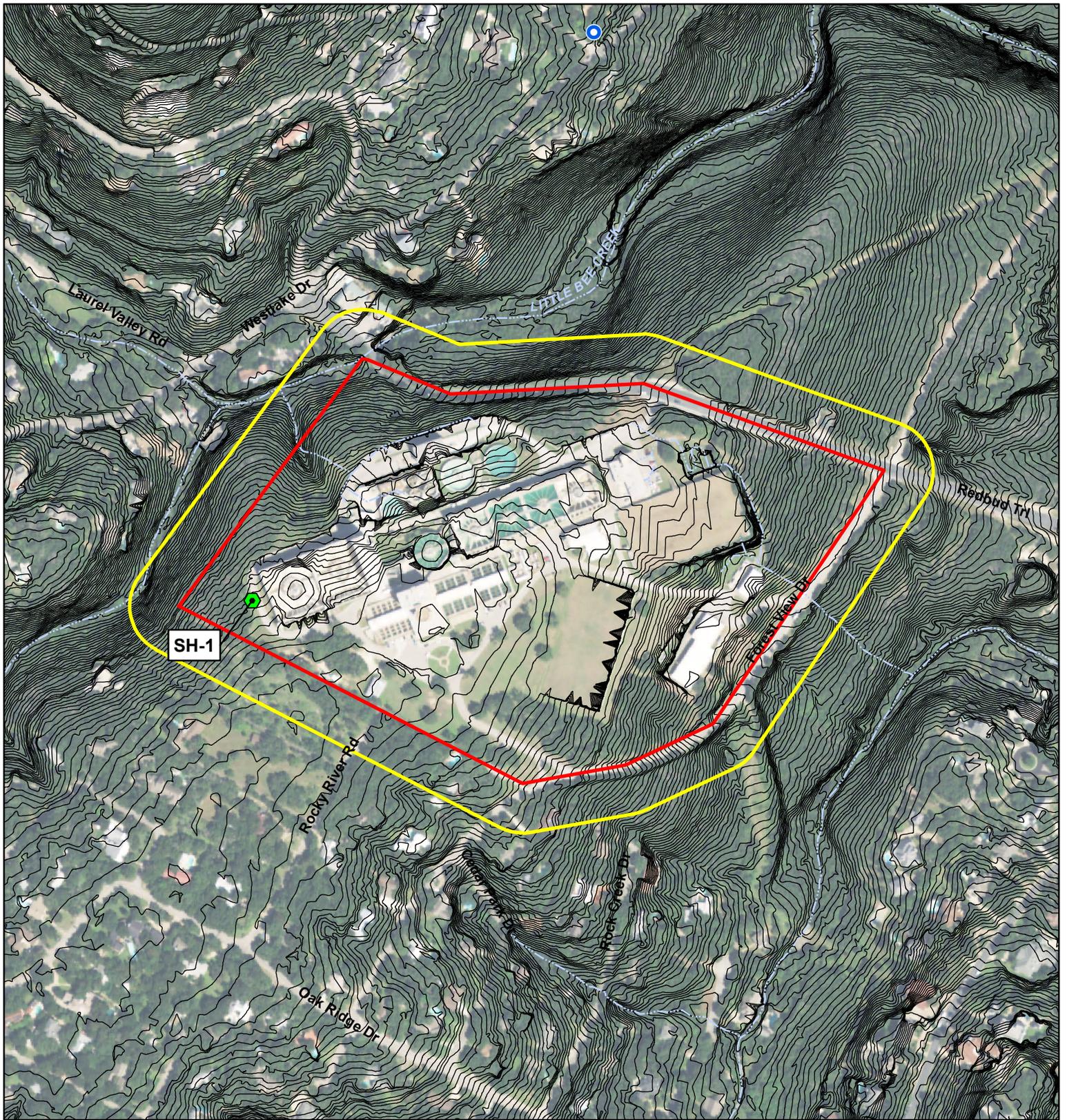
Baer Project No. 162071.02  
Date: July 29, 2019

TBPE Firm No. F-3181 TBPG Firm No. 50030

Base Map: NAIP Aerial Imagery, 2016



**Baer Engineering**  
and Environmental Consulting, Inc.



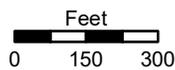
● Texas Water Development Board Well

⬡ Baer-identified Sinkhole CEF (SH-#)

— COA Elevation Contour (2-ft)

▭ Project Boundary

▭ Assessment Area (150-ft)



Baer Project No. 162071.02  
Date: July 29, 2019

TBPE Firm No. F-3181 TBPG Firm No. 50030

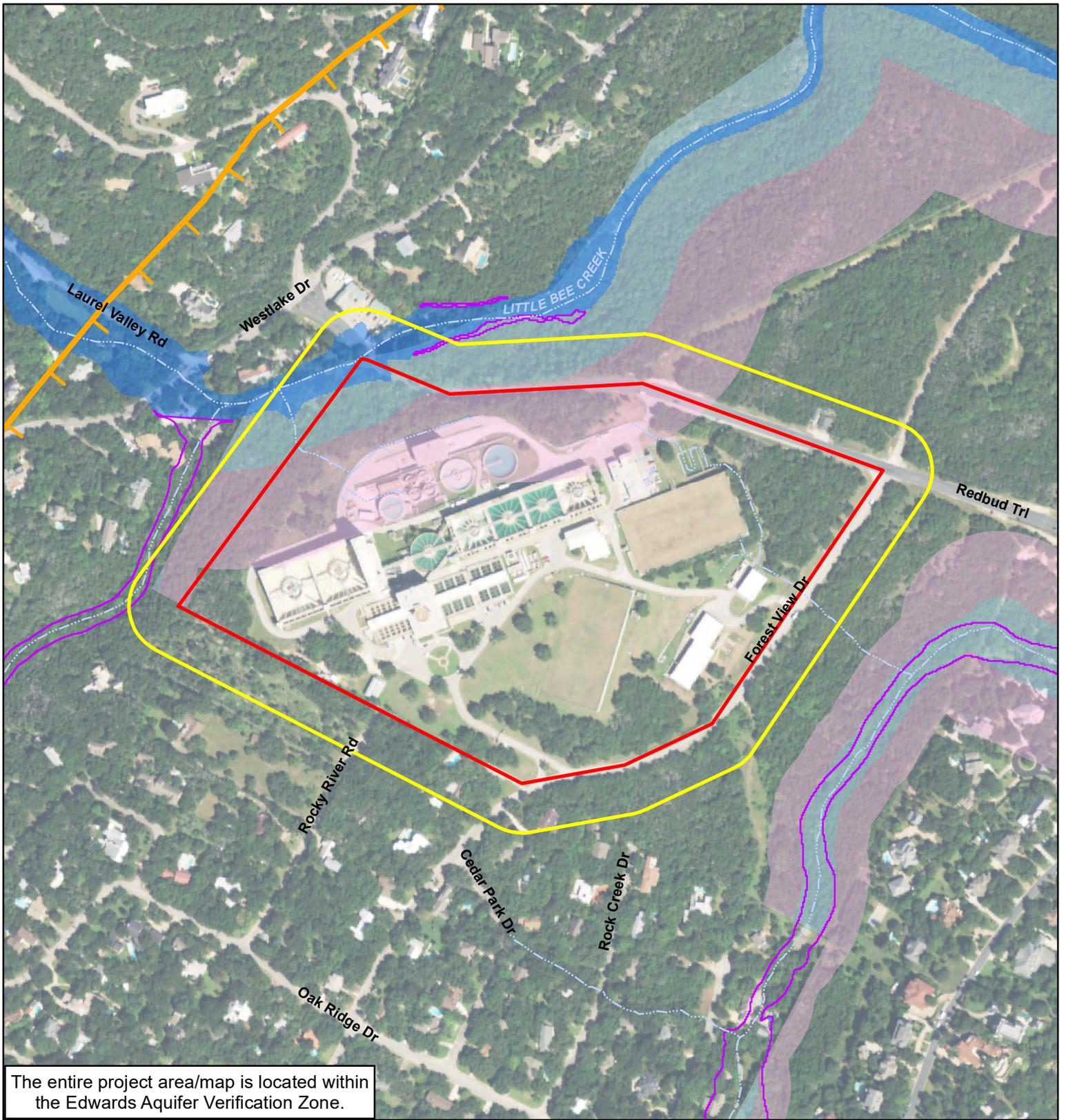
Base Map: NAIP Aerial Imagery, 2016

**Figure 4**  
**Critical Environmental Features**  
**and Well Locations with 2-ft**  
**Topography**

Ullrich Water Treatment  
Plant Process Efficiency and  
Rehabilitation

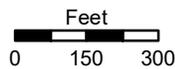


**Baer Engineering**  
and Environmental Consulting, Inc.



The entire project area/map is located within the Edwards Aquifer Verification Zone.

-  COA Edwards Aquifer Recharge Zone
-  Critical Water Quality Zone
-  Water Quality Transition Zone
-  FEMA 100-year Floodplain
-  FEMA 500-year Floodplain (Interim Atlas 14)
-  Project Boundary
-  Assessment Area (150-ft)



Baer Project No. 162071.02  
Date: August 2, 2019

TBPE Firm No. F-3181 TBPG Firm No. 50030

Base Map: NAIP Aerial Imagery, 2016

**Figure 5**  
**Water Quality Zones,**  
**Floodplain, and Edwards Aquifer**

Ullrich Water Treatment  
Plant Process Efficiency and  
Rehabilitation



**Baer Engineering**  
and Environmental Consulting, Inc.