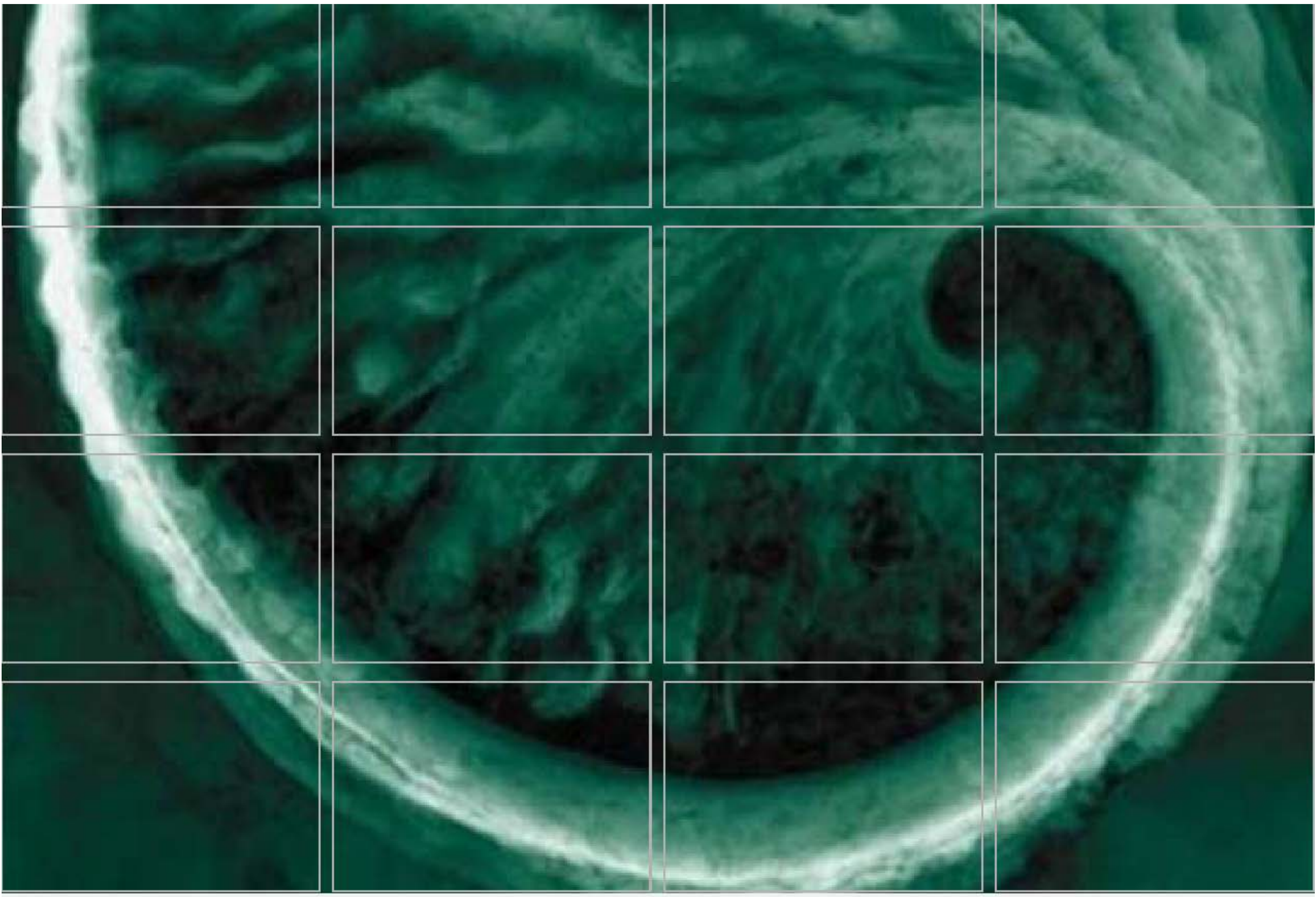

CPS Energy

Location Restrictions Demonstration – Plant Drains Pond

Calaveras Power Station
San Antonio, Texas

August 18, 2023

Project No. 0681818

The business of sustainability

ERM

Signature Page

Location Restrictions Demonstration – Plant Drains Pond

Calaveras Power Station
San Antonio, Texas

August 18, 2023

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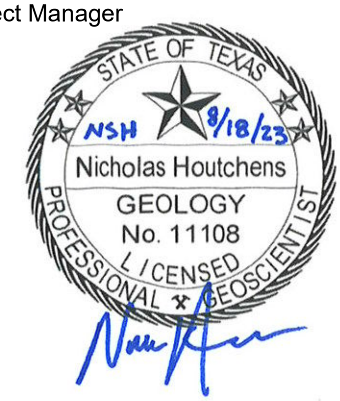

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EXECUTIVE SUMMARY

On behalf of CPS Energy, Environmental Resource Management Southwest, Inc. (ERM) conducted evaluations of the location restrictions for the newly installed Plant Drains Pond (PDP) Coal Combustible Residuals (CCR) Unit associated with the Calaveras Power Station located southeast of San Antonio, in Bexar County, Texas. The evaluations were conducted through a combination of desktop reviews and obtaining site-specific information from engineering assessments, site investigations, and site visits to assess compliance with Title 40, Code of Federal Regulations, Part 257 (40 CFR Part 257), Subpart D (a.k.a. CCR Rule) and Title 30, Texas Administrative Code, Chapter 352 (30 TAC 352) (a.k.a. Texas CCR Rule), collectively referred to as the CCR Rules.

The evaluations, documented in this *Location Restrictions Demonstration*, concluded the following:

Placement Above the Uppermost Aquifer

Based on the review of the geotechnical engineering reports, engineering drawings, site-specific groundwater elevation data, and soil geotechnical data, the bottom base of the PDP is more than 5 feet above the uppermost aquifer and unlikely to be in intermittent, recurring, or sustained hydraulic connection with the uppermost aquifer. Therefore, the PDP meets the minimum requirements of 40 CFR §257.60 and 30 TAC §352.601.

Wetlands

Based on the lack of current or historical evidence of wetland hydrology, hydric soils, or hydrophytic vegetation, the PDP is not located within any wetlands. Therefore, the PDP meets the minimum requirements of 40 CFR §257.61 and 30 TAC §352.611.

Fault Areas

Based on a review of published geologic and fault maps and fault and fold databases, the PDP is not located within 60 meters (200 feet) of a fault that has had displacement in Holocene time. Therefore, the PDP meets the minimum requirements of 40 CFR §257.62 and 30 TAC §352.621.

Seismic Impact Zones

Based on review of published seismic hazard and earthquake maps, the PDP is not located in seismic impact zones. Therefore, the PDP meets the minimum requirements of 40 CFR §257.63 and 30 TAC §352.631.

Unstable Areas

Based on the review of soil boring logs and geologic cross sections, and topographic and karst zones maps, the PDP is not located in unstable areas. Therefore, the PDP meets the minimum requirements of 40 CFR §257.64 and 30 TAC §352.641.

1. INTRODUCTION

On behalf of CPS Energy, ERM conducted evaluations of the location restrictions for newly installed Plant drains Pond (PDP) associated with the Calaveras Power Station located southeast of San Antonio, in Bexar County, Texas. The evaluations were conducted through a combination of desktop reviews and obtaining site-specific information from engineering assessments, site investigations, and site visits to assess compliance with the CCR Rules.

2. BACKGROUND

2.1 Site description

CPS Energy owns and operates the Calaveras Power Station, which consists of three power plants of which two plants (J.T. Deely and J.K. Spruce) are subject to the CCR Rules. The Calaveras Power Station is located in unincorporated Bexar County, Texas, approximately 13 miles southeast of San Antonio. The JT Deely Power Plant ceased operation at the end of December 2018. The JK Spruce Power Plant and CCR units associated with both power plants that receive or historically received CCR are subject to the CCR Rules. A general site location map is provided as **Figure 1**.

CPS Energy has identified six CCR Units at the Calaveras Power Station:

- Fly Ash Landfill (FAL);
- Evaporation Pond (EP);
- Sludge Recycle Holding (SRH) Pond;
- North Bottom Ash Pond (BAP);
- South BAP; and
- Plant Drains Pond (PDP).

For the purposes of this document, only the PDP, also termed the Central CCR Unit, is discussed and evaluated. A *Location Restrictions Demonstration* for the other five CCR Units was previously conducted and documented by ERM in October 2018. The CCR Unit locations are shown in **Figure 2**.

2.2 Site-Wide Geology

According to the Bureau of Economic Geology (BEG) *Geologic Atlas of Texas San Antonio Sheet*[1], the geology in the area of Calaveras Power Station consists of the Carizzo Sand and the Wilcox Group. According to the United States Geological Survey (USGS), the Carizzo Sand consists of medium- to coarse-grained sandstone, with finer grained material towards the top of the formation[2]. The Wilcox Group consists mostly of mudstone, with various amounts of sandstone, lignite, and ironstone concretions, and is glauconitic[3]. Information presented in Section 2.2 and the following subsections was obtained from the *Groundwater Monitoring System* report (ERM, October 2017; revised July 2023).

2.2.1 Central CCR Unit

The stratigraphic sequence is generally characterized by approximately 5 feet to 15 feet of consolidated material (sands, silts, and low to medium plasticity clays), underlain by a clayey/silty sand to poorly sorted sand (groundwater-bearing unit) that is at least 22 feet thick, but may be greater than 40 feet thick. Discontinuous silt and clay material were observed within the groundwater-bearing unit in monitor well JKS-65 (west of the unit), Raba Kistner geotechnical soil boring B-4 (north of the unit), monitor well JKS-68 (northeast of the unit), and in monitoring well JKS-67 and Raba Kistner geotechnical soil borings B-10 and B-11 (south of the unit). Bedrock (sandstone) was encountered below the groundwater-bearing unit

---

[1] Bureau of Economic Geology. 1974, revised 1982. *Geologic Atlas of Texas, San Antonio Sheet*. Bureau of Economic Geology, University of Texas at Austin.

[2] Eargle, D.H. 1968. *Nomenclature of Formations of Claiborne Group, Middle Eocene, Coastal Plain of Texas*. U.S. Geological Survey Bulletin 1251-D.

[3] United States Geological Survey. 2016. *Wilcox Group, undivided*. U.S. Geological Survey Mineral Resources On-line Spatial Data. July 25, 2016. http://mrdata.usgs.gov/geology/state/sgmc-unit.php?unit=TXEOPNwi;0.

at monitor well JKS-68 at a depth of 27 feet below ground surface but was not observed at any other soil boring or monitor well. However, it is anticipated that the bedrock encountered is acting as a confining layer for the Central CCR Unit and is present at deeper intervals west of JKS-68 and Calaveras Lake. A CCR Well Network Location Map is provided as **Figure 3**.

Visual classifications of the geologic material described above are consistent with results from the soil materials testing analysis conducted by ERM and Raba Kistner. The laboratory USCS results classify the groundwater bearing-unit as silty sand (SM) at Raba Kistner geotechnical soil borings B-3 and B-13. The discontinuous clay lenses observed within the groundwater-bearing unit at monitor well JKS-68 and Raba Kistner geotechnical soil borings B-10 and B-11 were classified as sand lean clays (CL).

2.3 Site-Wide Hydrogeology

Based on water level measurements and stratigraphic information collected during the advancement of the soil borings, ERM has provided an interpretation of the confining nature of the underlying stratigraphy. Information presented in the following subsections was obtained from the *Groundwater Monitoring System* report (ERM, October 2017; revised July 2023).

2.3.1 Central CCR Unit

Based on recent water elevation data collected in 2022, groundwater in the vicinity of the Central CCR Unit appears to flow towards the Southern CCR Units and Lake Calaveras (south to southeast).

The groundwater-bearing unit in the vicinity of the Central CCR Unit appears to exhibit unconfined conditions based on the potentiometric surface of the groundwater in relation to the first encountered water during drilling for the temporary wells installed by Raba Kistner, the permanently installed wells installed by ERM, and the lack of continuous upper confining units. The potentiometric surface is within approximately one-half foot to five feet of the first water encountered during drilling. The minimal change in elevation and the stratigraphic information indicates that a significant, laterally continuous confining layer is not present above the groundwater-bearing unit in the central area.

2.4 Location Restrictions Technical Requirements

The EPA and the State of Texas have published rules for the management of CCR generated from electric utilities. The CCR Rules specify requirements for active and inactive surface impoundments and landfills that manage CCR.

The evaluations discussed in this document are intended to address the PDP location restrictions for the CCR units as outlined in the following CCR Rules requirements:

<u>Placement Above the Uppermost Aquifer</u>

40 CFR §257.60

(a) New CCR landfills, existing and new CCR surface impoundments, and all lateral expansions of CCR units must be constructed with a base that is located no less than 1.52 meters (five feet) above the upper limit of the uppermost aquifer, or must demonstrate that there will not be an intermittent, recurring, or sustained hydraulic connection between any portion of the base of the CCR unit and the uppermost aquifer due to normal fluctuations in groundwater elevations (including the seasonal high water table). The owner or operator must demonstrate by the dates specified in paragraph (c) of this section that the CCR unit meets the minimum requirements for placement above the uppermost aquifer.

30 TAC §352.601

The commission adopts by reference 40 Code of Federal Regulations §257.60 (Placement above the uppermost aquifer) as amended through the April 17, 2015, issue of the Federal Register (80 FR 21301).

<u>Wetlands</u>

40 CFR §257.61

(a) New CCR landfills, existing and new CCR surface impoundments, and all lateral expansions of CCR units must not be located in wetlands, as defined in § 232.2 of this chapter, unless the owner or operator demonstrates by the dates specified in paragraph (c) of this section that the CCR unit meets the requirements of paragraphs (a)(1) through (5) of this section.

(1) Where applicable under section 404 of the Clean Water Act or applicable state wetlands laws, a clear and objective rebuttal of the presumption that an alternative to the CCR unit is reasonably available that does not involve wetlands.

(2) The construction and operation of the CCR unit will not cause or contribute to any of the following:

- *(i) A violation of any applicable state or federal water quality standard;*
- *(ii) A violation of any applicable toxic effluent standard or prohibition under section 307 of the Clean Water Act;*
- *(iii) Jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of a critical habitat, protected under the Endangered Species Act of 1973; and*
- *(iv) A violation of any requirement under the Marine Protection, Research, and Sanctuaries Act of 1972 for the protection of a marine sanctuary.*

(3) The CCR unit will not cause or contribute to significant degradation of wetlands by addressing all of the following factors:

- *(i) Erosion, stability, and migration potential of native wetland soils, muds and deposits used to support the CCR unit;*
- *(ii) Erosion, stability, and migration potential of dredged and fill materials used to support the CCR unit;*
- *(iii) The volume and chemical nature of the CCR;*
- *(iv) Impacts on fish, wildlife, and other aquatic resources and their habitat from release of CCR;*
- *(v) The potential effects of catastrophic release of CCR to the wetland and the resulting impacts on the environment; and*
- *(vi) Any additional factors, as necessary, to demonstrate that ecological resources in the wetland are sufficiently protected.*

(4) To the extent required under section 404 of the Clean Water Act or applicable state wetlands laws, steps have been taken to attempt to achieve no net loss of wetlands (as defined by acreage and function) by first avoiding impacts to wetlands to the maximum extent reasonable as required by paragraphs (a)(1) through (3) of this section, then minimizing unavoidable impacts to the maximum extent reasonable, and finally offsetting remaining unavoidable wetland impacts through all appropriate and reasonable compensatory mitigation actions (e.g., restoration of existing degraded wetlands or creation of man-made wetlands); and

(5) Sufficient information is available to make a reasoned determination with respect to the demonstrations in paragraphs (a)(1) through (4) of this section.

30 TAC §352.601

The commission adopts by reference 40 Code of Federal Regulations §257.61 (Wetlands) as amended through the April 17, 2015, issue of the Federal Register (80 FR 21301).

Fault Areas

40 CFR §257.62

(a) New CCR landfills, existing and new CCR surface impoundments, and all lateral expansions of CCR units must not be located within 60 meters (200 feet) of the outermost damage zone of a fault that has had displacement in Holocene time unless the owner or operator demonstrates by the dates specified in paragraph (c) of this section that an alternative setback distance of less than 60 meters (200 feet) will prevent damage to the structural integrity of the CCR unit.

30 TAC §352.621

The commission adopts by reference 40 Code of Federal Regulations §257.62 (Fault areas) as amended through the April 17, 2015, issue of the Federal Register (80 FR 21301).

Seismic Impact Zones

40 CFR §257.63

(a) New CCR landfills, existing and new CCR surface impoundments, and all lateral expansions of CCR units must not be located in seismic impact zones unless the owner or operator demonstrates by the dates specified in paragraph (c) of this section that all structural components including liners, leachate collection and removal systems, and surface water control systems, are designed to resist the maximum horizontal acceleration in lithified earth material for the site.

30 TAC §352.631

The commission adopts by reference 40 Code of Federal Regulations §257.63 (Seismic impact zones) as amended through the April 17, 2015, issue of the Federal Register (80 FR 21301).

Unstable Areas

40 CFR §257.64

(a) An existing or new CCR landfill, existing or new CCR surface impoundment, or any lateral expansion of a CCR unit must not be located in an unstable area unless the owner or operator demonstrates by the dates specified in paragraph (d) of this section that recognized and generally accepted good engineering practices have been incorporated into the design of the CCR unit to ensure that the integrity of the structural components of the CCR unit will not be disrupted.

30 TAC §352.641

The commission adopts by reference 40 Code of Federal Regulations §257.64 (Unstable areas) as amended through the April 17, 2015, issue of the Federal Register (80 FR 21301).

3. LOCATION RESTRICTIONS EVALUATION

ERM evaluated technical compliance with the PDP location restrictions outlined in the CCR Rules through a combination of desktop reviews and obtaining site-specific information from engineering assessments, site investigations, and site visits. The certification from a qualified professional engineer stating that this *Location Restrictions Demonstration* meets the CCR Rules requirements is provided in **Appendix A**.

3.1 Placement Above the Uppermost Aquifer

The CCR Rules define an aquifer as “a geologic formation, group of formations, or portion of a formation capable of yielding usable quantities of groundwater to wells or springs”. The CCR Rule also defines uppermost aquifer as “the geologic formation nearest the natural ground surface that is an aquifer, as well as lower aquifers that are hydraulically interconnected with this aquifer within the facility’s property boundary. Upper limit is measured at a point nearest to the natural ground surface to which the aquifer rises during the wet season”.

ERM obtained site-specific information from engineering assessments and site investigations to evaluate whether the base of the PDP is located more than 1.52 meters (5 feet) above the upper limit of the uppermost aquifer. Information reviewed included:

- *Geotechnical Engineering Study* (Raba Kistner, February 2018);
- *Geotechnical Engineering Study* (Raba Kistner, September 2020);
- *Spruce Plant Drains Pond* Design Drawings (AECOM, June 2022); and
- *Groundwater Monitoring System, CPS Energy Calaveras Power Station* (ERM, October 2017; amended August 2023)

Based on the review of the AECOM design drawing *Spruce Plant Drains Pond*, drawing number 2-470-C0005, the elevation of the base of the PDP ranges from approximately 507 to 508 feet above mean sea level (msl). The first groundwater beneath the PDP was encountered during well drilling at approximately 493.5 feet above msl, and static water levels range from 481 to 489.5 feet above msl based on current and historical water level data. Stratigraphic cross sections (Section H-H’ and I-I’) depicting pertinent elevations are provided as **Figure 4** and **Figure 5**, respectively. Based on geotechnical analysis, the unit that overlies the first groundwater consists of low to medium plasticity clay, sandy clay, and/or silty clay, which typically had tested hydraulic conductivities in the 10^{-6} to 10^{-7} cm/sec range signifying a low permeability unit. Based on the above information, the base of the PDP is greater than 5 feet above the uppermost aquifer and unlikely to be in intermittent, recurring, or sustained hydraulic connection with the uppermost aquifer.

3.2 Wetlands

The CCR Rules define wetlands as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas”. Positive wetland indicators of three environmental parameters including hydrology, hydric soil, and hydrophytic vegetation are normally present within wetlands.

ERM obtained information from a desktop review and conducted a site visit on 15 July 2022 to evaluate whether the PDP is located in potential wetlands and waters of the United States. Information reviewed included:

- Site Photographs;
- Historical aerial imagery;
- Topographic maps;
- U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Soil Surveys;
- U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI);
- U.S. Geological Survey (USGS) National Hydrography Dataset (NHD);
- USFWS Information for Planning and Consultation (IPAC); and
- Texas Parks and Wildlife Department (TPWD) Calaveras Lake Survey Report.

The desktop evaluation of the PDP location determined that there are no wetlands or waterbodies mapped in, or within 300 feet of, the PDP location by the NWI. Soil survey data indicates that the PDP is located within soils mapped as Aluf sand, 0 to 5 percent slopes (EuC) and Wilco loamy fine sand 3 to 5 percent slopes, eroded (HkC2). These soils have a hydric rating of “0”, indicating that zero percent of the soil components meet the criteria for hydric soils. Review of historical aerial imagery indicated the previous existence of what appeared to be a drainage ditch transecting the site from the southwest to the northeast corner towards Calaveras Lake. The drainage ditch is visible on aerial imagery from 1995 to 2006. In 2008, the area is shown to have been leveled and developed with a parking lot and laydown yards, filling the drainage ditch. Historical imagery shows the area was then re-developed in 2012, clearing the former parking lot and laydown yard and leaving a maintained field similar to current conditions. Supporting information including NWI maps and soil surveys/hydric ratings is provided in **Appendix B**.

A site visit conducted on 15 July 2022 confirmed that the PDP is not located in wetlands or waterbodies. The PDP location is over 300 feet from any existing waterbodies. A culvert was observed approximately 150 feet southwest of the site, which connects to a man-made swale located approximately 100 feet south of the site at the nearest point, where it then curves further to the south away from the site. Vegetation observed within the PDP location was comprised of exclusively upland species.

3.3 Fault Areas

The CCR Rules define fault as “a fracture or a zone of fractures in any material along which strata on one side have been displaced with respect to that on the other side”. The CCR Rule also defines displacement as “the relative movement of any two sides of a fault measured in any direction”.

ERM obtained information from a desktop review to evaluate whether the PDP is located within 60 meters (200 feet) of the outermost damage zone of a fault that has had displacement in Holocene time. Information reviewed included:

- USGS Geologic Map

(https://txpub.usgs.gov/dss/texasgeology);

- USGS Fault Map (https://earthquake.usgs.gov/hazards/qfaults/map/#qfaults); and
- Quaternary Fault and Fold Databases

(https://earthquake.usgs.gov/cfusion/qfault/ query_results_AB.cfm) and
(https://earthquake.usgs.gov/cfusion/qfault/query_results_ CD.cfm)

The geology underlying the Calaveras Power Station includes the Wilcox Group that consists mostly of Eocene mudstone, with various amounts of sandstone and lignite, and is glauconitic. The Wilcox Group overlies the Midway Group, a Paleocene clay and sand. According to the Geologic Map provided as **Figure 6**, the Midway Group crops out approximately 11,000 feet north of the PDP. An unnamed normal fault is mapped approximately 12,000 feet north of the PDP and bounds the northern exposure of the Midway Group in this area. This fault dies out to the east, and to the west the fault is covered by the Pleistocene Leona Formation and Fluviatile terrace deposits and by the Pliocene Uvalde Gravel. These geologic units are all older than Holocene and do not show displacement.

According to the Fault Map provided as **Figure 7**, there are no Quaternary faults identified in proximity to the Calaveras Power Station. In addition, a review of the Quaternary Fault and Fold Database of the United States did not identify any Class A, Class B, Class C or Class D faults in Bexar County, Texas.

3.4 Seismic Zones

The CCR Rules define a seismic impact zone as "an area having a 2% or greater probability that the maximum expected horizontal acceleration, expressed as a percentage of the earth's gravitational pull (g), will exceed 0.10g in 50 years".

ERM obtained information from a desktop review to evaluate whether the PDP is located within a seismic impact zone. Information reviewed included:

- USGS Seismic Hazard Map (https://earthquake.usgs.gov/earthquakes/byregion/images/texas-haz); and
- USGS South Texas Earthquakes 1900-2018 (https://earthquake.usgs.gov/earthquakes/search).

The USGS produced a national Seismic Hazard Map of the 2% probability of exceedance in 50 years of peak ground acceleration. A portion of the Seismic Hazard Map that includes the State of Texas is provided as **Figure 8**. Based on this map, the Calaveras Power Station is located in the mapped area of 2-4%g. Note that the units in **Figure 8** are reported in %g. As such, a value of 2-4%g is equivalent to 0.02-0.04g and not greater than 0.10g in 50 years.

In addition, according to the South Texas Earthquakes Map provided as **Figure 9**, the nearest earthquake in proximity to the Calaveras Power Station was located in western Wilson County, more than 10 miles to the south. The earthquake occurred on 8 August 1984 as a magnitude 3 earthquake at a depth of 5 km. A search of earthquakes in Bexar County did not reveal any historical earthquakes from 1900 to July 2018.

3.5 Unstable Areas

The CCR Rules define an unstable area as "a location that is susceptible to natural or human-induced events or forces capable of impairing the integrity, including structural components of some or all of the CCR unit that are responsible for preventing releases from such unit. Unstable areas can include poor foundation conditions, areas susceptible to mass movements, and karst terrains". The CCR Rules also defines areas susceptible to mass movement as "those areas of influence (i.e., areas characterized as having an active or substantial possibility of mass movement) where, because of natural or human-induced events, the movement of earthen material at, beneath, or adjacent to the CCR unit results in the downslope transport of soil and rock material by means of gravitational influence. Areas of mass movement include, but are not limited to, landslides, avalanches, debris slides and flows, soil fluctuation, block sliding, and rock fall". In addition, the CCR Rules define karst terrain means as "an area where karst topography, with its characteristic erosional surface and subterranean features, is developed as the result of dissolution of limestone, dolomite, or other soluble rock. Characteristic physiographic features present in karst terranes include, but are not limited to, dolines, collapse shafts (sinkholes), sinking streams, caves, seeps, large springs, and blind valleys".

ERM obtained information from a desktop review to evaluate whether the PDP is located within unstable areas. Information reviewed included:

- Bexar County Area Karst Zones Map from Delineation of Hydrogeologic Areas and Zones for the Management and Recovery of Endangered Karst Invertebrate Species in Bexar County, Texas (Veni, George & Associates, April 2003); and
- Groundwater Monitoring System, CPS Energy Calaveras Power Station (ERM, October 2017; amended August 2023).

3.5.1 Structural Stability and Safety Factor Assessments

Based on the height and storage volume of the PDP, it was determined per 40 CFR §257.74(b), that structural stability assessments and safety factor assessments are not required for this unit. Even though these assessments are not required, the PDP will be inspected weekly and will be part of the annual inspection of all the CCR units. These inspections will document whether visual evidence of geometry changes or other evidence of differential settlement have occurred at the CCR units.

3.5.2 Mass Material Movement Considerations

A review of historical topographic maps from before Calaveras Lake was created do not indicate a topography that has experienced extensive mass wasting, other than expected stream incisions in an area of generally flat or gently sloping topography. Also note that the presence of Calaveras Lake is a stabilizing feature in the area. In general, according to CPS Energy, Calaveras Lake is maintained at an elevation of approximately 485 feet above msl, with a variability of approximately 0.5 feet under normal conditions.

3.5.3 Karst Terrain

An evaluation of potential karst terrain was conducted using the Bexar County Area Karst Zones Map provided as **Figure 10**. The Calaveras Power Station is located in Karst Zone 5, which is not known to contain karst invertebrate species and associated karst features. The karst zones are based on a review of geological maps depicting the Edwards Aquifer recharge zone and the Glen Rose Formation within Bexar County, Texas.

4. CONCLUSIONS

The evaluations, documented in this *Location Restrictions Demonstration*, concluded the following:

Placement Above the Uppermost Aquifer

Based on the review of the geotechnical engineering reports, engineering drawings, site-specific groundwater elevation data, and soil geotechnical data, the bottom base of the PDP is more than 5 feet above the uppermost aquifer and unlikely to be in intermittent, recurring, or sustained hydraulic connection with the uppermost aquifer. Therefore, the PDP meets the minimum requirements of 40 CFR §257.60 and 30 TAC 30 TAC §352.601.

Wetlands

Based on the lack of current or historical evidence of wetland hydrology, hydric soils, or hydrophytic vegetation, the PDP is not located within any wetlands. Therefore, the PDP meets the minimum requirements of 40 CFR §257.61 and 30 TAC §352.611.

Fault Areas

Based on a review of published geologic and fault maps and fault and fold databases, the PDP is not located within 60 meters (200 feet) of a fault that has had displacement in Holocene time. Therefore, the PDP meets the minimum requirements of 40 CFR §257.62 and 30 TAC §352.621.

Seismic Impact Zones

Based on review of published seismic hazard and earthquake maps, the PDP is not located in seismic impact zones. Therefore, the PDP meets the minimum requirements of 40 CFR §257.63 and 30 TAC §352.631.

Unstable Areas

Based on the review of soil boring logs and geologic cross sections, and topographic and karst zones maps, the PDP is not located in unstable areas. Therefore, the PDP meets the minimum requirements of 40 CFR §257.64 and 30 TAC §352.641.

FIGURES

Environmental Resources Management

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FIGURE 1
GENERAL SITE LOCATION MAP

CPS Energy - Calaveras Power Station
San Antonio, Texas

ERM

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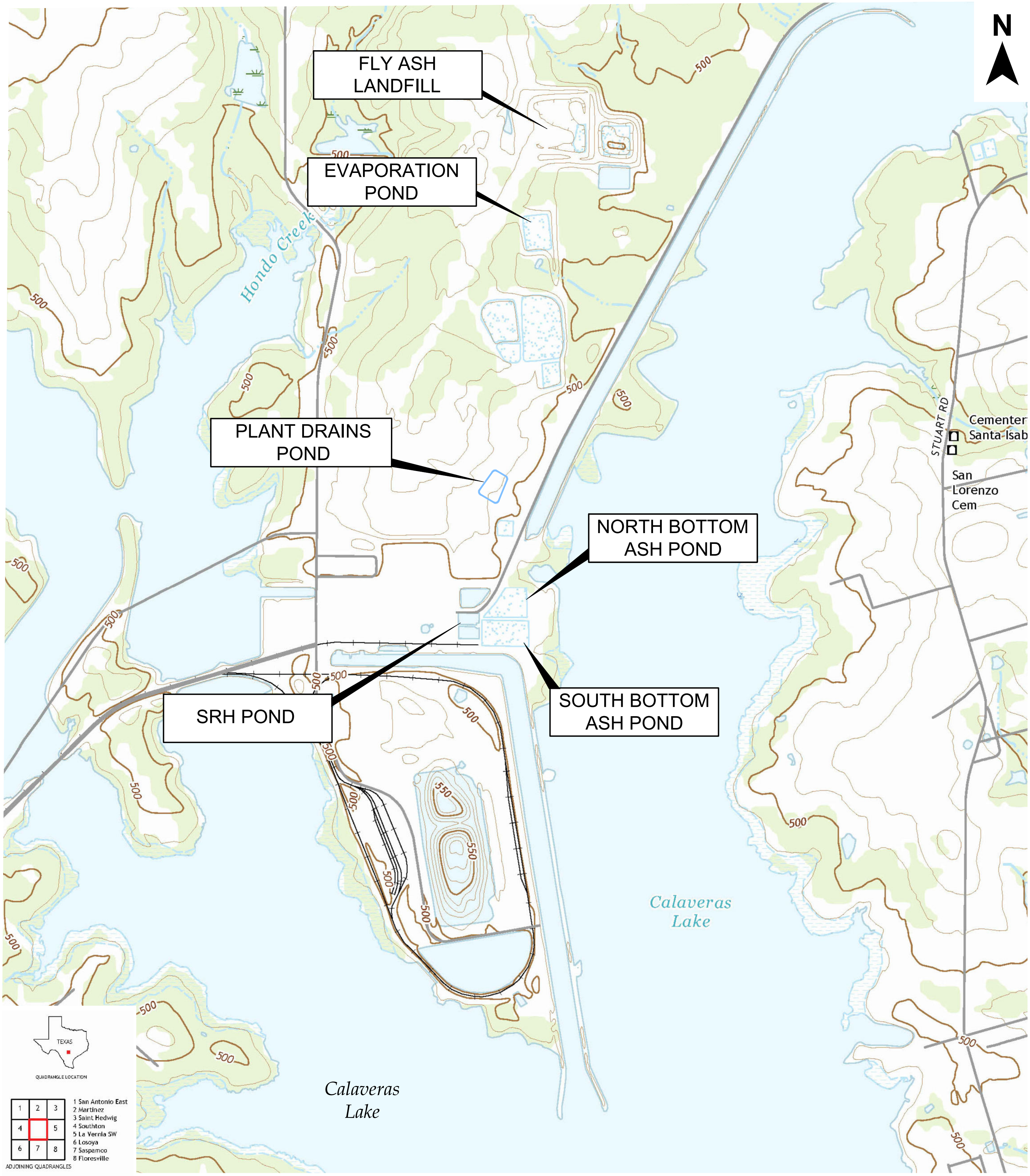

SOURCE: USGS 7.5-MINUTE QUADRANGLE, TOPOGRAPHIC SERIES, ELMENDORF, TX, 2022.

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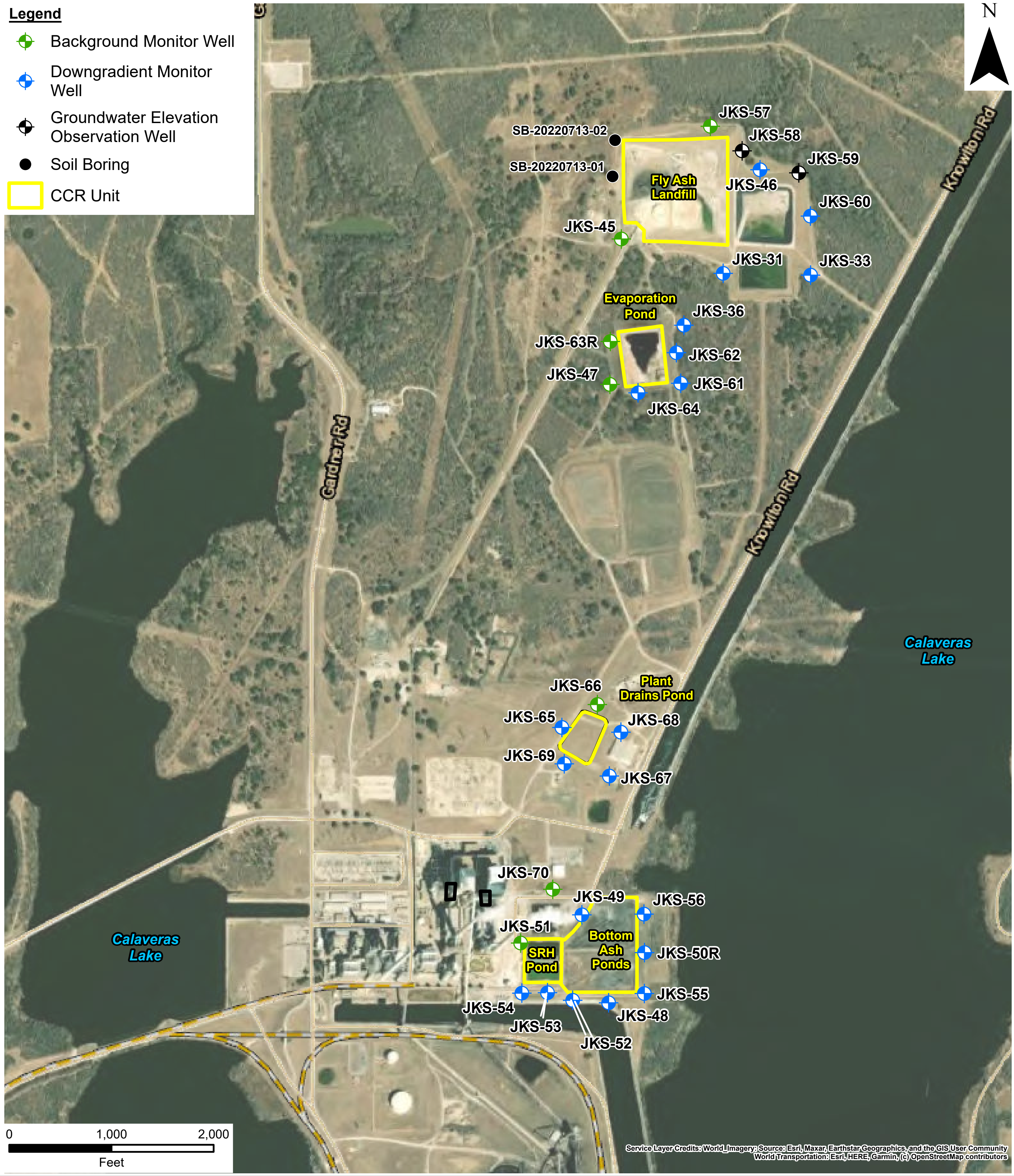
SCALE FEET

Figure 2
CCR Unit Locations
CPS Energy
Calaveras Power Station
San Antonio, Texas

Environmental Resources Management
erm.com
ERM



Environmental Resources Management

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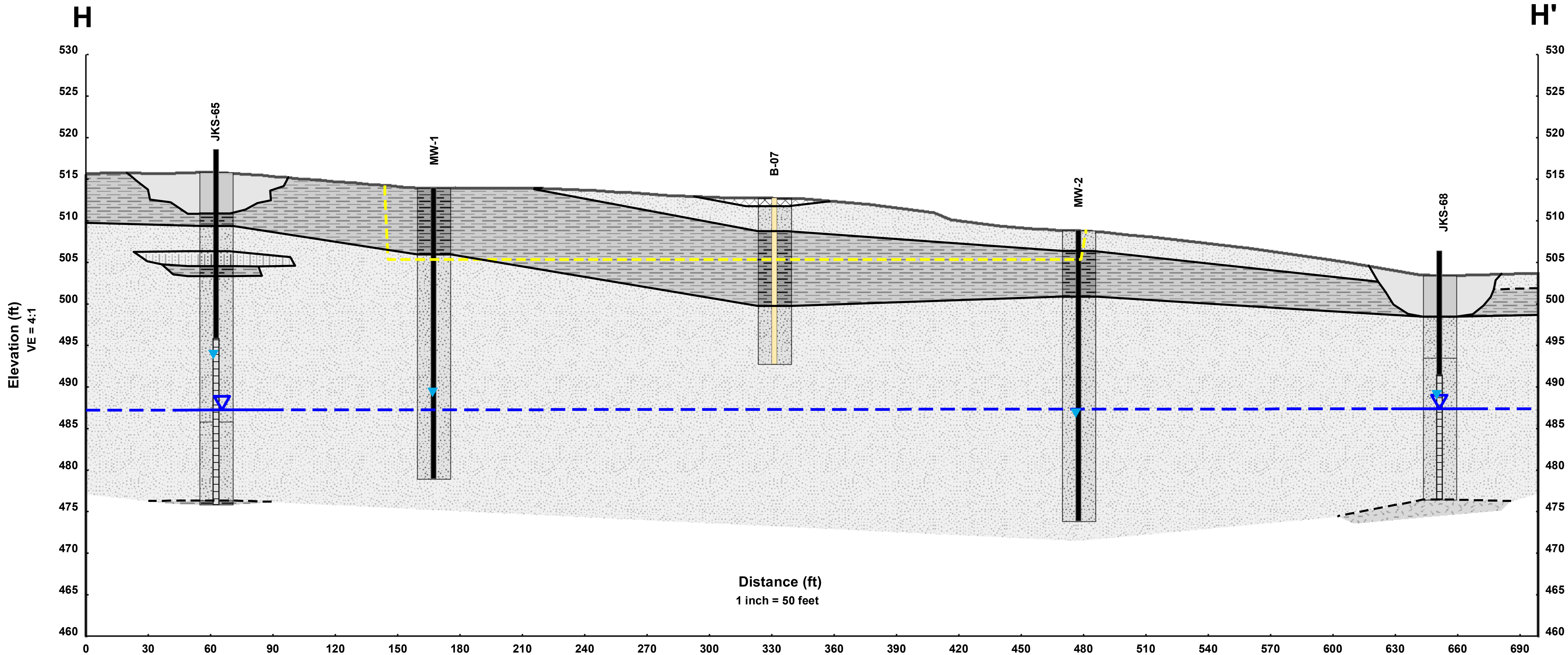
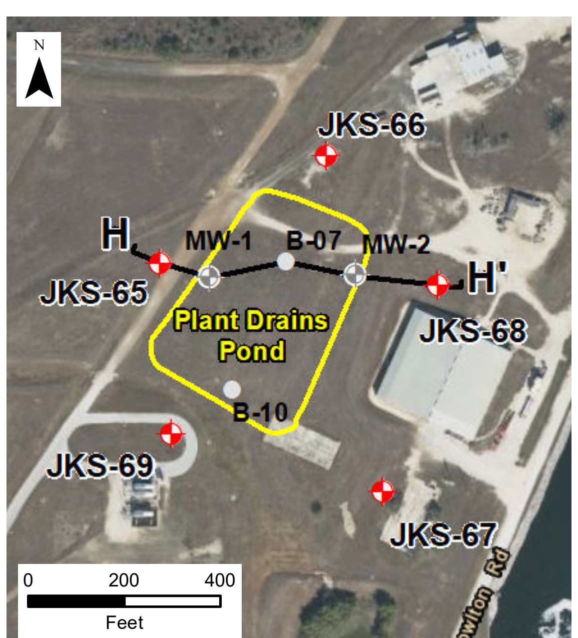
FIGURE 3
CCR WELL NETWORK LOCATION MAP
CPS Energy - Calaveras Power Station
San Antonio, Texas

ERM





Legend

- Gauged Water Level - November 8, 2022 (dashed where inferred)
- Water Level Encountered During Well / Boring Installation
- Anticipated Lowest Plant Drains Pond Design Elevation

Location Details

- Boring
- Casing
- Screen

Soil Lithology

- No Recovery
- Fill Material
- Sand, Silty Sand, and/or Clayey Sand
- Silt, Sandy Silt, and/or Clayey Silt
- Low to medium plasticity Clay, Sandy Clay, and/or Silty Clay
- Bedrock (Sandstone)

Notes:
1. Monitor well JKS-65 installed in August 2020 and JKS-68 installed in July 2022 by ERM.
2. Monitor wells MW-1 and MW-2 installed in December 2017, as documented in the Raba Kistner 2018 Geotechnical Engineering Study Report.
3. Soil Boring B-7 installed in July 2020, as documented in the Raba Kistner 2020 Geotechnical Engineering Study Report.
4. Approximate location of pond based on the Raba Kistner 2020 Geotechnical Engineering Study Report. The anticipated lowest design elevation based on AECOM Design Drawings entitled "Spruce Plant Drains Project", drawing number 2-470-C0005 dated 5/2/2022.
5. Vertical Exaggeration = 4:1

STATE OF TEXAS
Nicholas Houtchens
GEOLOGY
No. 11108
LICENSED
PROFESSIONAL GEOSCIENTIST
NGH 11/29/22

Figure 4
Stratigraphic Cross-Section H-H'
Plant Drains Pond
CPS Energy - Calaveras Power Station
San Antonio, Texas

Environmental Resources Management
www.erm.com
ERM

Source: Esri, HERE, Garmin, (c) OpenStreetMap contributors
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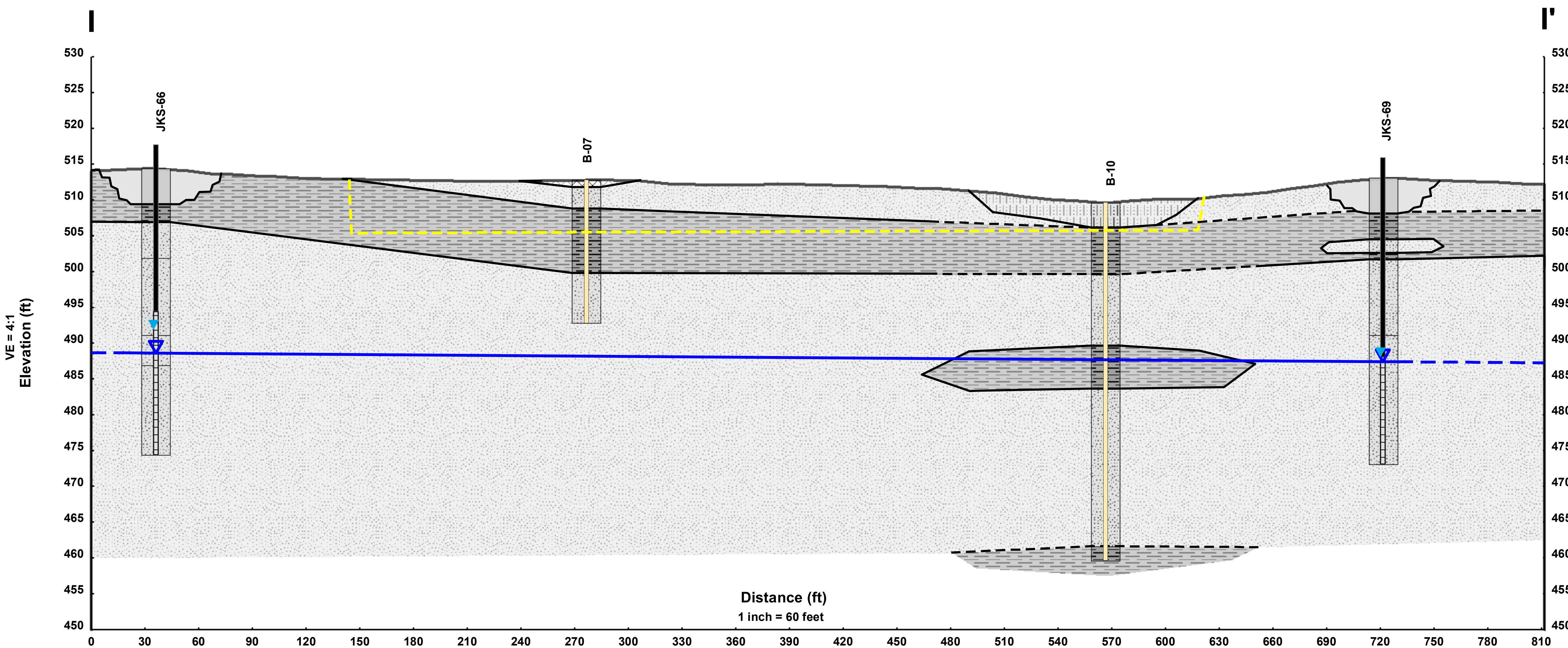
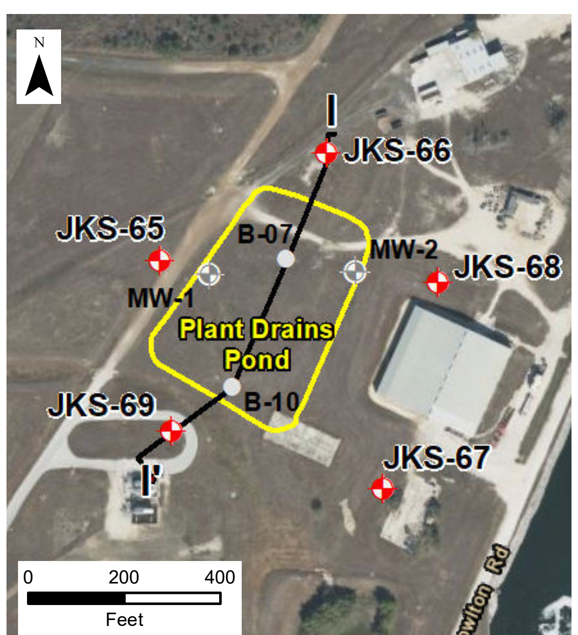
Texas Registered Engineering Firm F-2393
Texas Board of Professional Geoscientist Firm 50036

FILE: \\OPSBDCFILE01\Data\Boston\Team\DMMV\Clients_A_E\CPS_Energy\SanAntonio_TX\MXD\202211_Evaluation\04H_CrossSectionH\04H_XSecH.mxd, REVISED: 11/29/2022, SCALE: 1:4,800 when printed at 11x17, DRAWN BY: CLT - ABF





Legend

- Gauged Water Level - November 8, 2022 (dashed where inferred)
- Water Level Encountered During Well / Boring Installation
- Anticipated Lowest Plant Drains Pond Design Elevation

Location Details

- Boring
- Casing
- Screen

Soil Lithology

- No Recovery
- Fill Material
- Sand, Silty Sand, and/or Clayey Sand
- Silt, Sandy Silt, and/or Clayey Silt
- Low to medium plasticity Clay, Sandy Clay, and/or Silty Clay

Notes:
1. Monitor well JKS-66 installed in August 2020 and JKS-69 installed in July 2022 by ERM.

2. Soil Borings B-7 and B-10 installed in July 2020, as documented in the Raba Kistner 2020 Geotechnical Engineering Study Report.

4. Approximate location of pond based on the Raba Kistner 2020 Geotechnical Engineering Study Report. The anticipated lowest design elevation based on AECOM Design Drawings entitled "Spruce Plant Drains Project", drawing number 2-470-C0005 dated 5/2/2022.

5. Vertical Exaggeration = 4:1

STATE OF TEXAS
Nicholas Houtchens
GEOLOGY
No. 11108
LICENSED
PROFESSIONAL GEOSCIENTIST

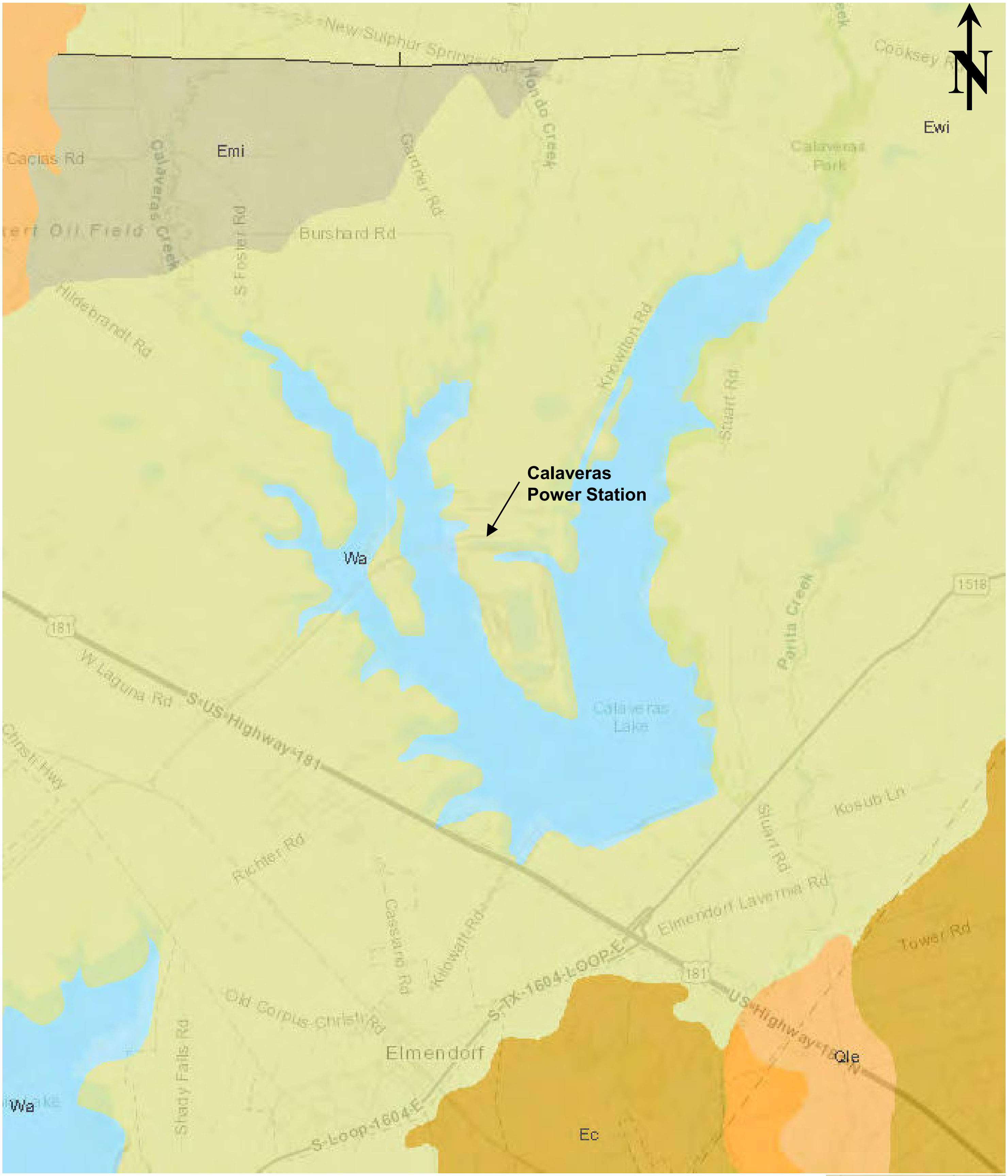
Figure 5
Stratigraphic Cross-Section I-I'
Plant Drains Pond
CPS Energy - Calaveras Power Station
San Antonio, Texas

Environmental Resources Management
www.erm.com
ERM

DRAWN BY: CLT - ABF SCALE: 1:4,800 when printed at 11x17 REVISED: 11/29/2022

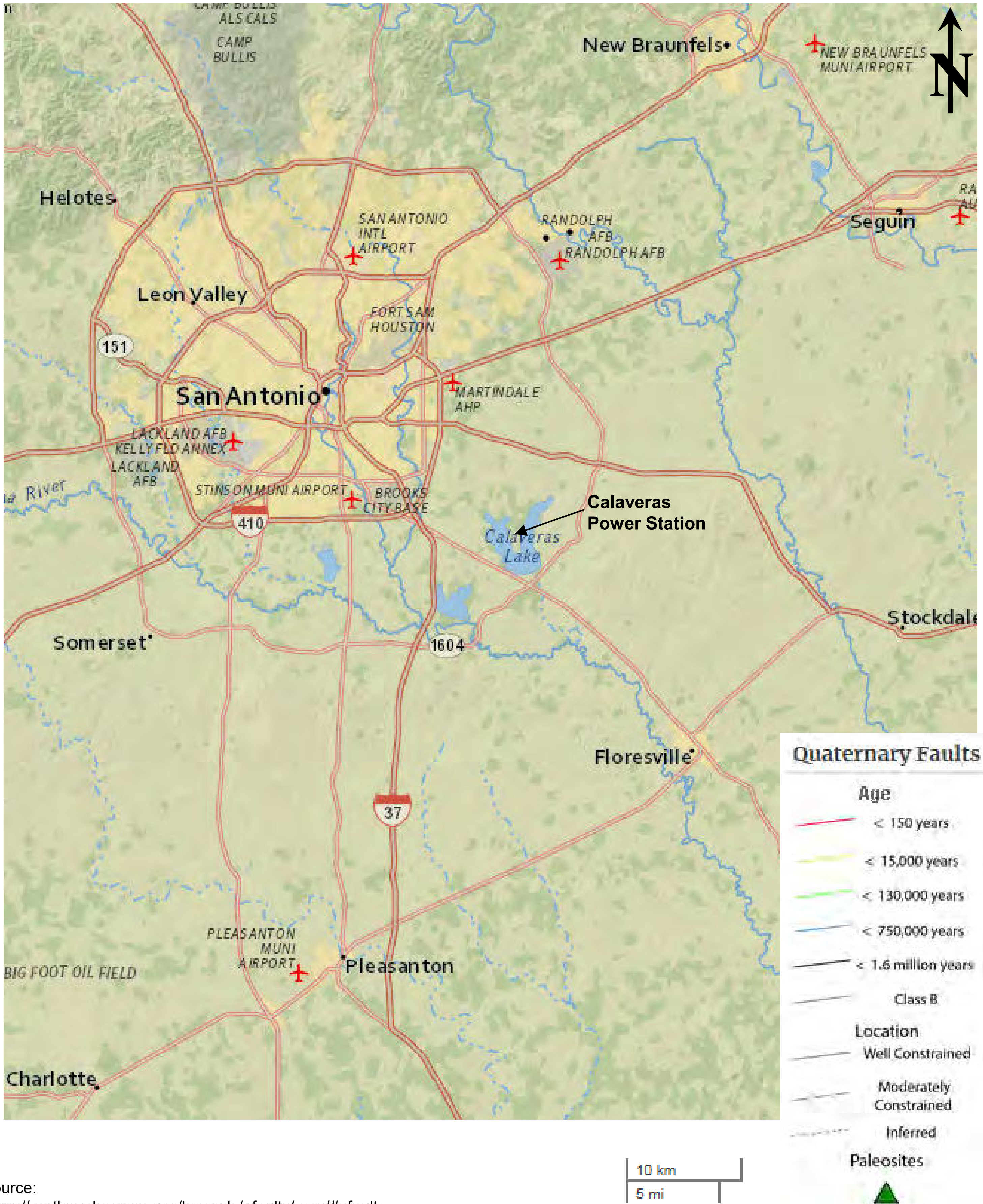
FILE: \\OPSBDCFILE01\Data\Boston\Team\DMMV\Clients_A_E\CPS_Energy\SanAntonio_TX\MXD\202211_Evaluation\04_CrossSection\04_XSecI.mxd

Texas Registered Engineering Firm F-2393
Texas Board of Professional Geoscientist Firm 50036



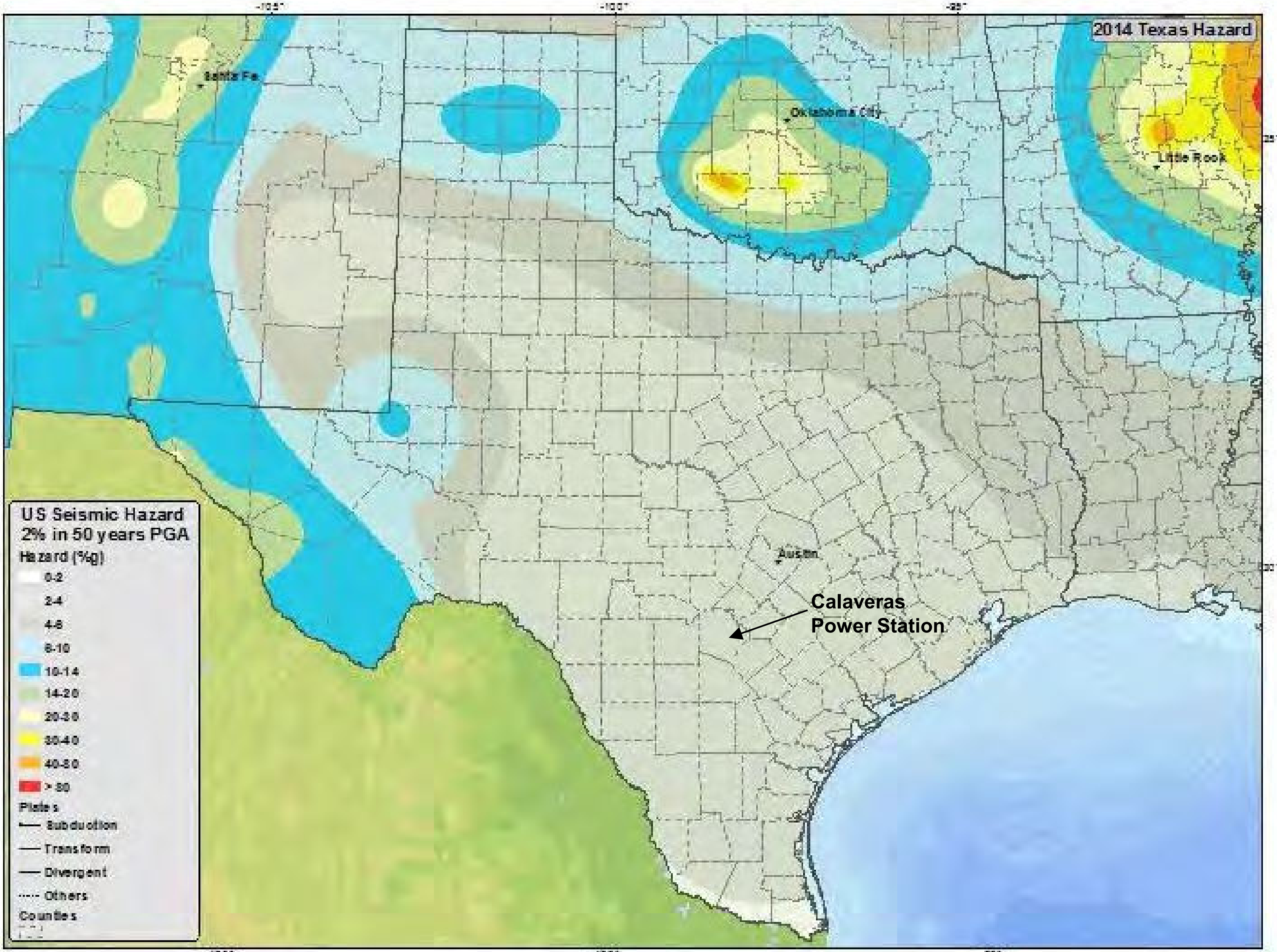
Source: txpub.usgs.gov/dss/texasgeology/

Environmental Resources Management	FIGURE 6 USGS Geologic Map CPS Energy - Calaveras Power Station San Antonio, Texas	ERM
DATE: Sep 2018 / PROJ. NO.: 0337367		



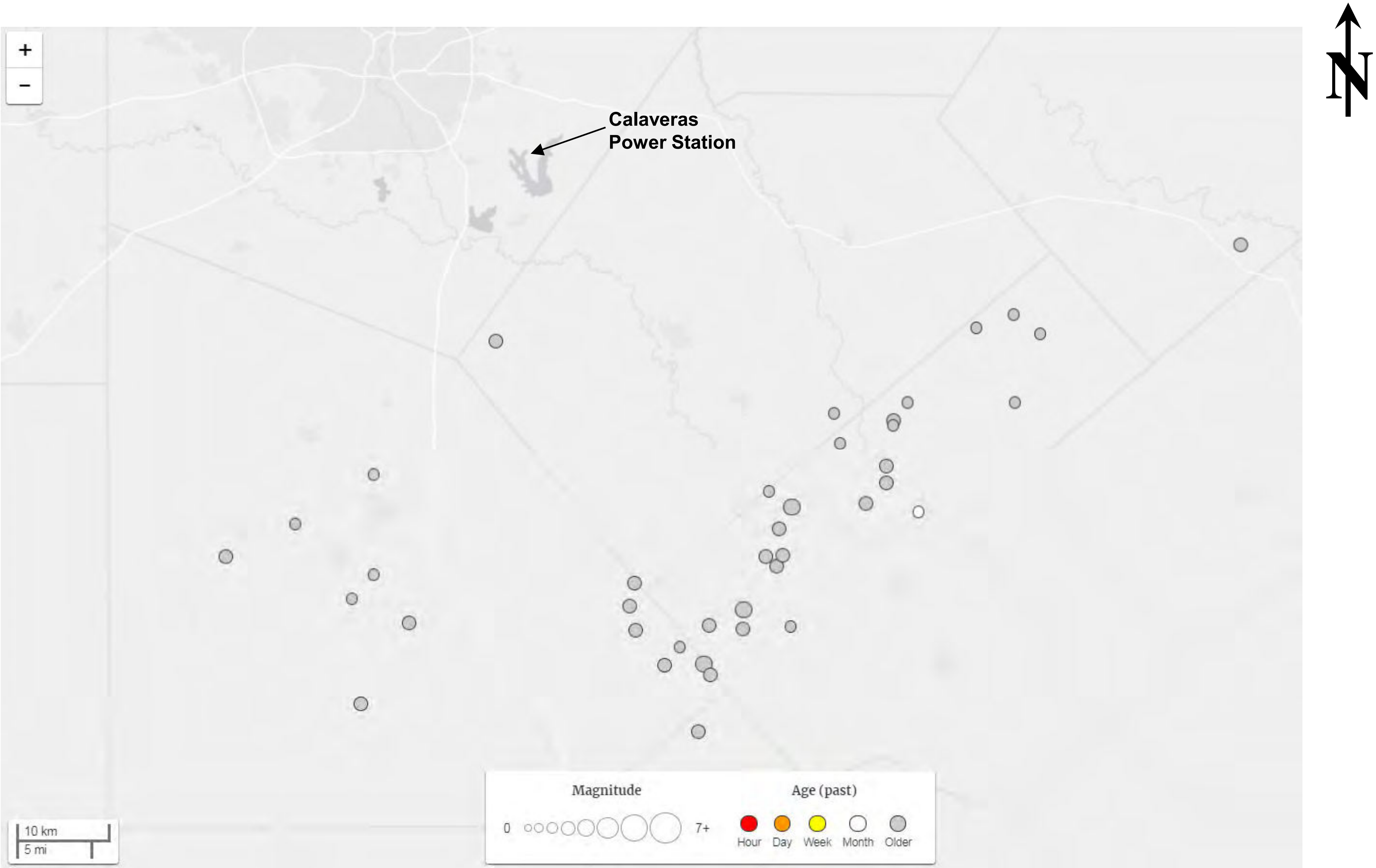
Source:
https://earthquake.usgs.gov/hazards/qfaults/map/#qfaults

Environmental Resources Management		FIGURE 7 USGS Fault Map CPS Energy - Calaveras Power Station San Antonio, Texas	ERM
DATE: Sep 2018	PROJ. NO.: 0337367		



Source: https://earthquake.usgs.gov/earthquakes/byregion/images/texas-haz.jpg

Environmental Resources Management	FIGURE 8 Seismic Hazard Map CPS Energy – Calaveras Power Station San Antonio, Texas	ERM
DATE: September 2018 — PROJ.NO.: 0337367		



Source: Earthquake.usgs.gov/earthquakes/search (7/20/2018 search date)

Environmental Resources Management

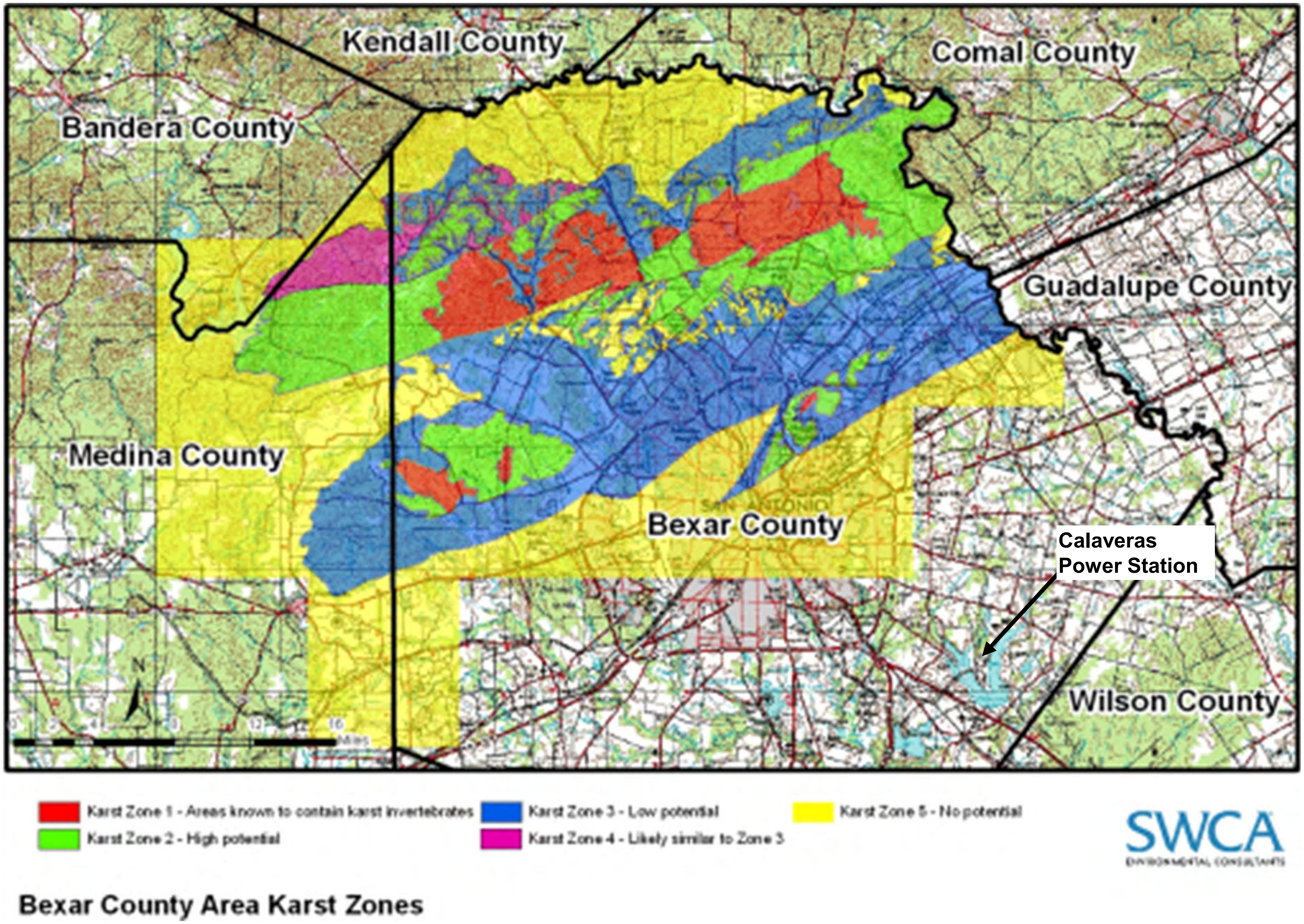
DATE: September 2018

PROJ.NO.: 0337367

FIGURE 9
South Texas Earthquakes 1900-2018

CPS Energy – Calaveras Power Station
San Antonio, Texas

ERM



Source: SWCA, Bexar County Area Karst Zones

Environmental Resources Management	FIGURE 10 Bexar County Area Karst Zones Map CPS Energy – Calaveras Power Station San Antonio, Texas	ERM
DATE: September 2018 PROJ.NO.: 0337367		

APPENDIX A PROFESSIONAL ENGINEER'S CERTIFICATION

LOCATION RESTRICTIONS DEMONSTRATION
CERTIFICATION

Calaveras Power Station
San Antonio, Texas

CERTIFICATION

I hereby verify the accuracy of the information provided in this *Location Restrictions Demonstration* in accordance with the requirements of 40 CFR §257.60-64 and 30 TAC §352.601-641.

STATE OF TEXAS
JEFFERY L. BAUGUSS
86195
LICENSED
PROFESSIONAL ENGINEER

8/18/23

Jeffery L. Bauguss, P.E.
Texas Licensed Professional Engineer No. 86195

APPENDIX B SUPPORTING INFORMATION

U.S. Fish and Wildlife Service
National Wetlands Inventory

Plant Drains Pond

June 14, 2022

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for

Bexar County, Texas

Plant Drains Pond

June 14, 2022

Preface

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

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

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

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

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

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

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EuC—Aluf sand, 0 to 5 percent slopes.......... 13
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How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

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

Soil Map

Map Scale: 1:2,090 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0, 30, 60, 120, 180

Feet: 0, 100, 200, 400, 600

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

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Bexar County, Texas
Survey Area Data: Version 25, Sep 9, 2021

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

Date(s) aerial images were photographed: Dec 3, 2020—Dec 9, 2020

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
EuC	Aluf sand, 0 to 5 percent slopes	8.8	91.5%
HkC2	Wilco loamy fine sand, 3 to 5 percent slopes, eroded	0.8	8.5%
Totals for Area of Interest		**9.6**	**100.0%**

Map Unit Descriptions

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

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

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

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

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

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

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

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

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

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

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

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

Bexar County, Texas

EuC—Aluf sand, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: f39l
Elevation: 500 to 750 feet
Mean annual precipitation: 24 to 30 inches
Mean annual air temperature: 70 to 72 degrees F
Frost-free period: 230 to 250 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Aluf and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Aluf

Setting

Landform: Sand sheets
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy eolian deposits

Typical profile

H1 - 0 to 42 inches: fine sand
H2 - 42 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: A
Ecological site: R083AY022TX - Loamy Sand
Hydric soil rating: No

HkC2—Wilco loamy fine sand, 3 to 5 percent slopes, eroded

Map Unit Setting

National map unit symbol: f39t
Elevation: 300 to 800 feet
Mean annual precipitation: 26 to 32 inches
Mean annual air temperature: 70 to 73 degrees F
Frost-free period: 275 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

Wilco, eroded, and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wilco, Eroded

Setting

Landform: Interfluves
Landform position (two-dimensional): Backslope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Loamy fluviomarine deposits

Typical profile

H1 - 0 to 16 inches: loamy fine sand
H2 - 16 to 33 inches: sandy clay loam
H3 - 33 to 40 inches: sandy clay loam
H4 - 40 to 60 inches: sandy clay loam

Properties and qualities

Slope: 3 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 3 percent
Available water supply, 0 to 60 inches: Moderate (about 7.6 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R083AY022TX - Loamy Sand
Hydric soil rating: No

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