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An Intensive Cultural Resources Survey of Brazos Electric Cooperative, Inc.'s Proposed 22.0-acre Railport Substation Property in Ellis County, Texas

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HJN 150042 AR

Prepared for:

Brazos Electric Cooperative

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Waco, Texas

Prepared by:

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Austin, Texas

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MANAGEMENT SUMMARY

On 24 March 2015, Horizon Environmental Services, Inc. (Horizon) conducted an intensive cultural resources survey of Brazos Electric Cooperative, Inc.'s (Brazos) proposed 22.0-acre Railport Substation property in northwestern Ellis County, Texas (Project Area). The Project Area is located on private property, and its development will be funded by private sources. Additionally, no state or federal permitting is currently anticipated in connection with the proposed undertaking. As such, no identifiable regulatory requirements exist regarding cultural resources management. At the request of Brazos, Horizon conducted the cultural resources survey of the Project Area as part of Brazos's due diligence process. Brazos intends to develop only 5.0 acres of the overall 22.0-acre parcel into a new electric substation. As the exact location of the proposed substation within the 22.0-acre parcel has yet to be determined, the entire 22.0-acre Project Area was assessed. The purpose of the survey was to determine if any cultural resources were located within the Project Area and, if any existed, allow Brazos the opportunity to make an informed decision regarding the development of the property.

The cultural resources survey entailed intensive surface inspection and subsurface shovel testing efforts over the extent of the 22.0-acre Project Area. The Texas State Minimum Archeological Survey Standards (TSMASS) require a minimum of 1 shovel test per 2.0 acres for projects between 11.0 and 100.0 acres in size. As the Project Area totals 22.0 acres in size, a minimum of 11 shovel tests were necessary in order to comply with the TSMASS. Horizon exceeded the TSMASS by excavating a total of 22 shovel tests across the Project Area.

The cultural resources survey resulted in entirely negative findings. No cultural materials were observed on the surface of the Project Area or within any of the 22 excavated shovel tests.

Based on the negative survey results, it is Horizon's opinion that the development of the proposed 22.0-acre Railport Substation property will have no adverse effect on significant cultural resources listed on or considered eligible for listing on the National Register of Historic Places within the Project Area. Horizon therefore recommends that Brazos be allowed to proceed with the development of the Project Area.

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Horizon Environmental Services, Inc. (Horizon) conducted the survey of Brazos Electric Cooperative, Inc.'s (Brazos) proposed 22.0-acre Railport Substation property reported herein as part of Brazos's due diligence process. Russ Brownlow served as the Principal Investigator for the project and lead author on this report. Briana Smith and Jennifer Cochran conducted the field investigations, while Briana Smith was responsible for the drafting of the figures.

1.0 INTRODUCTION

This document reports the results of an intensive cultural resources survey of Brazos Electric Cooperative, Inc.'s (Brazos) proposed 22.0-acre Railport Substation property in northwestern Ellis County, Texas (Project Area; Figures 1-1 and 1-2). The Project Area is located on private property, and its development will be funded by private sources. Additionally, no state or federal permitting is currently anticipated in connection with the proposed undertaking. As such, no identifiable regulatory requirements exist regarding cultural resources management. At the request of Brazos, Horizon conducted the cultural resources survey of the Project Area as part of Brazos's due diligence process. Brazos intends to develop only 5.0 acres of the overall 22.0-acre parcel into a new electric substation. As the exact location of the proposed substation within the 22.0-acre parcel has yet to be determined, the entire 22.0-acre Project Area was assessed. The purpose of the survey was to determine if any cultural resources were located within the Project Area and, if any existed, allow Brazos the opportunity to make an informed decision regarding the development of the property.

The cultural resources investigations consisted of an archival review, an intensive cultural resources survey of the Project Area, and the production of a report suitable for review by the State Historic Preservation Officer (SHPO) in accordance with the Texas Historical Commission's (THC) Rules of Practice and Procedure, Chapter 26, Section 27, and the Council of Texas Archeologists (CTA) Guidelines for Cultural Resources Management Reports. Russell Brownlow (Horizon's cultural resources director) served as the project's Principal Investigator, while Briana Smith and Jennifer Cochran (Horizon staff archeologists) conducted the field investigations.

Horizon conducted the survey of the Project Area on 24 March 2015. This entailed intensive surface inspection and subsurface shovel testing efforts over the extent of the 22.0-acre Project Area. The Texas State Minimum Archeological Survey Standards (TSMASS) require a minimum of 1 shovel test per 2.0 acres for projects between 11.0 and 100.0 acres in size. As the Project Area totals 22.0 acres in size, a minimum of 11 shovel tests were necessary within the Project Area in order to comply with the TSMASS. Horizon exceeded the TSMASS by excavating a total of 22 shovel tests across the Project Area.

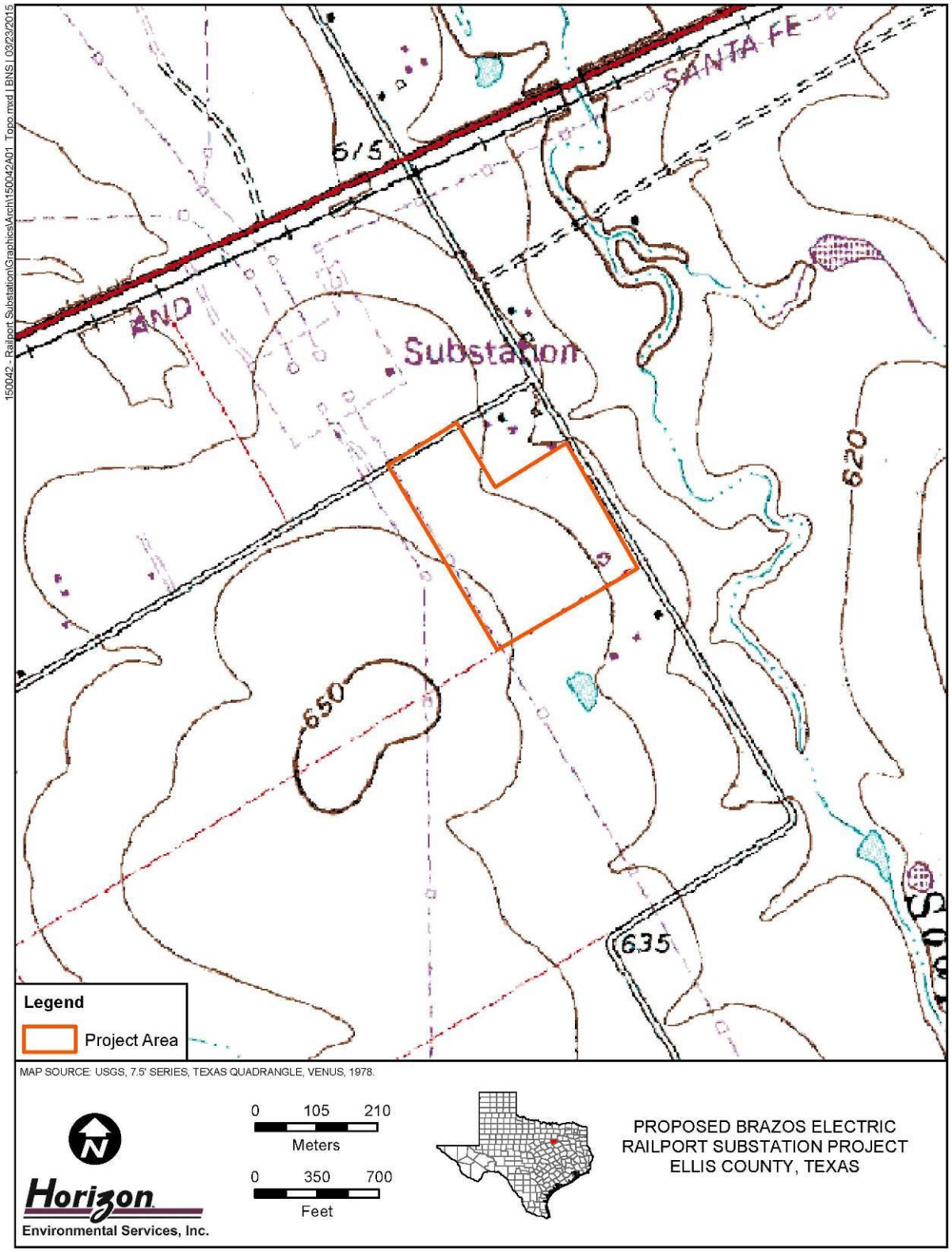

Figure 1-1. Topographic map with the location of the Project Area

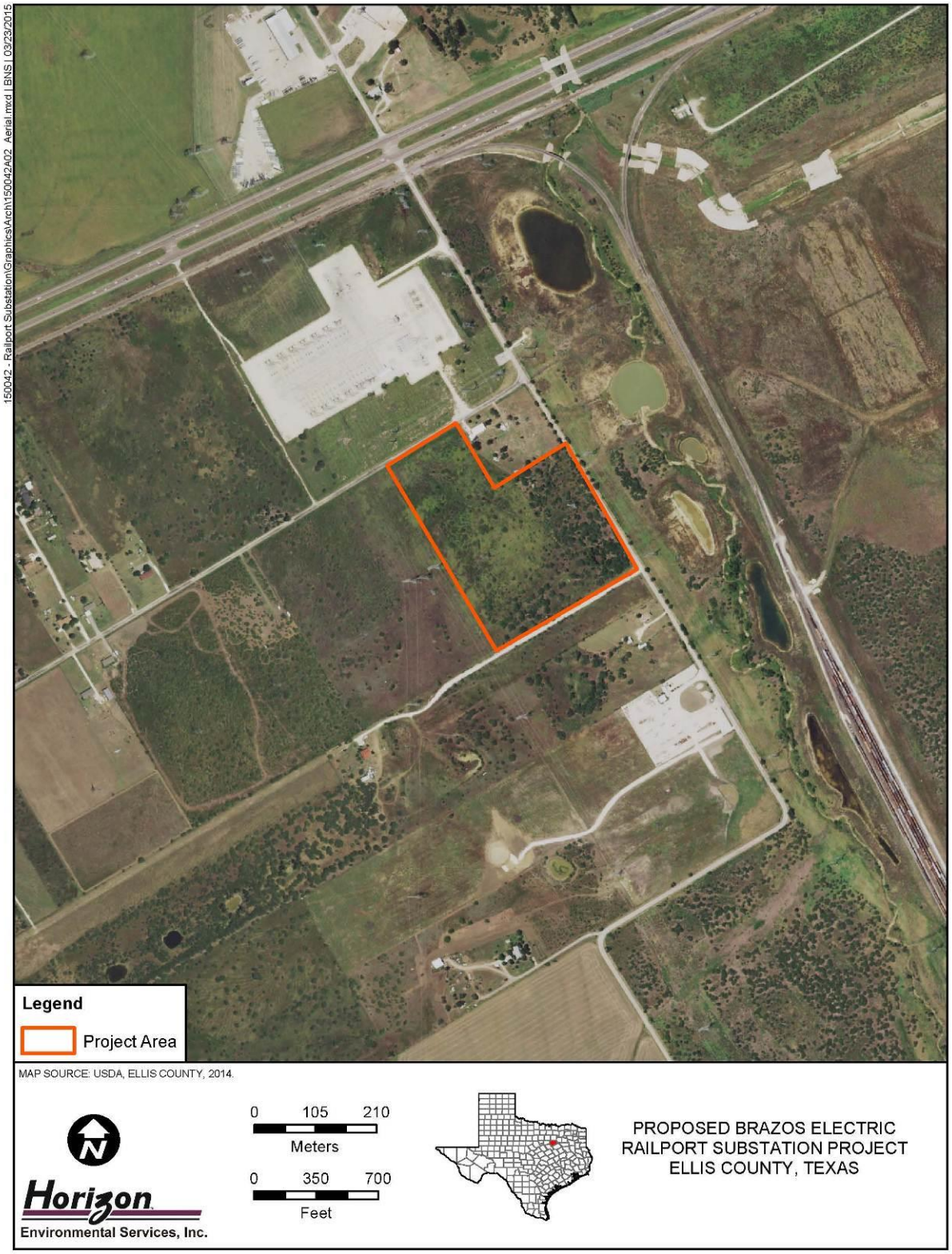

Figure 1-2. Aerial photograph with the location of the Project Area

The cultural resources survey resulted in entirely negative findings. No cultural materials were observed on the surface of the Project Area or within any of the 22 excavated shovel tests.

Based on the negative survey results, it is Horizon's opinion that the development of the proposed 22.0-acre Railport Substation property will have no adverse effect on significant cultural resources listed on or considered eligible for listing on the National Register of Historic Places (NRHP) within the Project Area. Horizon therefore recommends that Brazos be allowed to proceed with the development of the Project Area. However, in the unlikely event that any cultural materials (including human remains or burial features) are inadvertently discovered at any point during construction, use, or ongoing maintenance of the Project Area, even in previously surveyed areas, all work at the location of the discovery should cease immediately, and the THC should be notified of the discovery.

2.0 ENVIRONMENTAL SETTING

2.1 GENERAL PROJECT DESCRIPTION

Brazos's proposed Railport Substation property is located in northwestern Ellis County, approximately 1.7 miles (2.7 kilometers [km]) northeast of Venus, Texas (see Figures 1-1 and 1-2). It can be found on the US Geological Survey (USGS) 7.5-minute Venus, Texas, topographic quadrangle map (see Figure 1-1). The Project Area consists of a block acreage tract with a total area of approximately 22.0 acres. At the time of the cultural resources survey, the Project Area consisted primarily of undeveloped rangeland covered in tall grasses and mesquite stands. An existing substation is located to the northwest of the Project Area, and 2 transmission lines extending from this substation traverse the southwestern border of the Project Area (see Figures 1-1 and 1-2). Aside from these existing transmission lines along the border of the Project Area, no obvious disturbances were noted directly within the Project Area. Representative images of the Project Area at the time of the cultural resources survey are presented in Figures 2-1 through 2-4.

2.2 PHYSIOGRAPHY AND HYDROLOGY

As noted above, the Project Area consisted of undeveloped rangeland at the time of the cultural resources survey. The ground surface across the Project Area slopes gradually to the northeast, toward the channel of Soap Creek, with elevations ranging between approximately 620.0 and 650 feet (189.0 and 198.1 meters [m]) above mean sea level. Hydrologically, the Project Area is situated within the Trinity River drainage basin. The entire Project Area is drained to the northeast into Soap Creek. Soap Creek flows to the northeast, joining Mountain Creek approximately 6.1 miles (9.9 km) northeast of the Project Area. Mountain Creek flows to the northeast, eventually joining the West Fork of the Trinity River approximately 24.9 miles (40.0 km) northeast of the Project Area.

2.3 CLIMATE

The climate in Ellis County is generally mild in the winter, with an average temperature of 48.0 degrees Fahrenheit (°F). In the summer months, the average temperature is 84.0°F. The average annual total precipitation is about 35.1 inches, with the majority falling in the spring (NRCS 2015).

Figure 2-1. General view of the Project Area, facing southeast

Figure 2-2. General view of the Project Area, facing northwest

Figure 2-3. View of the existing transmission lines bordering the Project Area, facing west

Figure 2-4. View of the transmission lines bordering the Project Area, facing northwest

2.4 FLORA AND FAUNA

The Project Area is situated in the southwestern portion of the Texan biotic province (Blair 1950), an intermediate zone between the forests of the Austroriparian and Carolinian provinces and the grasslands of the Kansan, Balconian, and Tamaulipan provinces. Some species reach the limits of their ecological range within the Texan province. The Project Area traverses the Blackland Prairie, a region of dark, calcareous clays derived from ancient shales and chalks. The vegetation within the Project Area consists predominantly of grasslands with isolated trees and scattered clusters of trees, while the greatest concentrations of trees occur along drainages.

Dominant floral species include little bluestem, big bluestem, Indian grass, switchgrass, sideoats grama, hairy grama, tall dropseed, silver bluestem, and Texas wintergrass. Wooded areas are often restricted to stream courses, primarily consisting of elm and hackberry, while bois d'arc is common in lowland areas. Vegetation observed during the survey of the Project Area includes post oak, blackjack oak, elm, hackberry, and mesquite trees, and mixed mid-sized to tall grasses.

The fauna associated with this region are represented by a mixture of species from the Austroriparian, Tamaulipan, Chihuahuan, Kansan, Balconian, and Texan biotic provinces. Common mammalian species include white-tailed deer, opossum, eastern cottontail rabbit, raccoon, striped skunk, hispid cotton rat, white-footed mouse, nine-banded armadillo, and fox squirrel. Common bird species include northern bobwhite, eastern meadowlark, mourning dove, killdeer, field sparrow, red-tailed hawk, turkey vulture, belted kingfisher, and mockingbird. Reptile and amphibian species common to this biotic zone include six-lined racerunner, rat snake, eastern hognose snake, Gulf Coast toad, Texas spiny lizard, rough green snake, copperhead, western diamondback rattlesnake, green tree frog, Blanchard's cricket frog, diamondback water snake, Houston toad, and green anole. Although small herds of bison and antelope were common during the late prehistoric and early historic periods, these species are no longer native to this region (Jurney et al. 1989:13-14).

2.5 SOILS

Only 1 soil type is mapped within the boundaries of the Project Area. This soil is presented in Table 2-1 (NRCS 2015) and in Figure 2-5.

Table 2-1. Soils mapped within the Project Area

SOIL NAME	SOIL TYPE	SOIL DEPTH (INCHES)	SETTING
Houston clay, 1 to 3% slopes (HcB)	Clay	0 to 70: Clay	Summits and shoulders of upland ridges

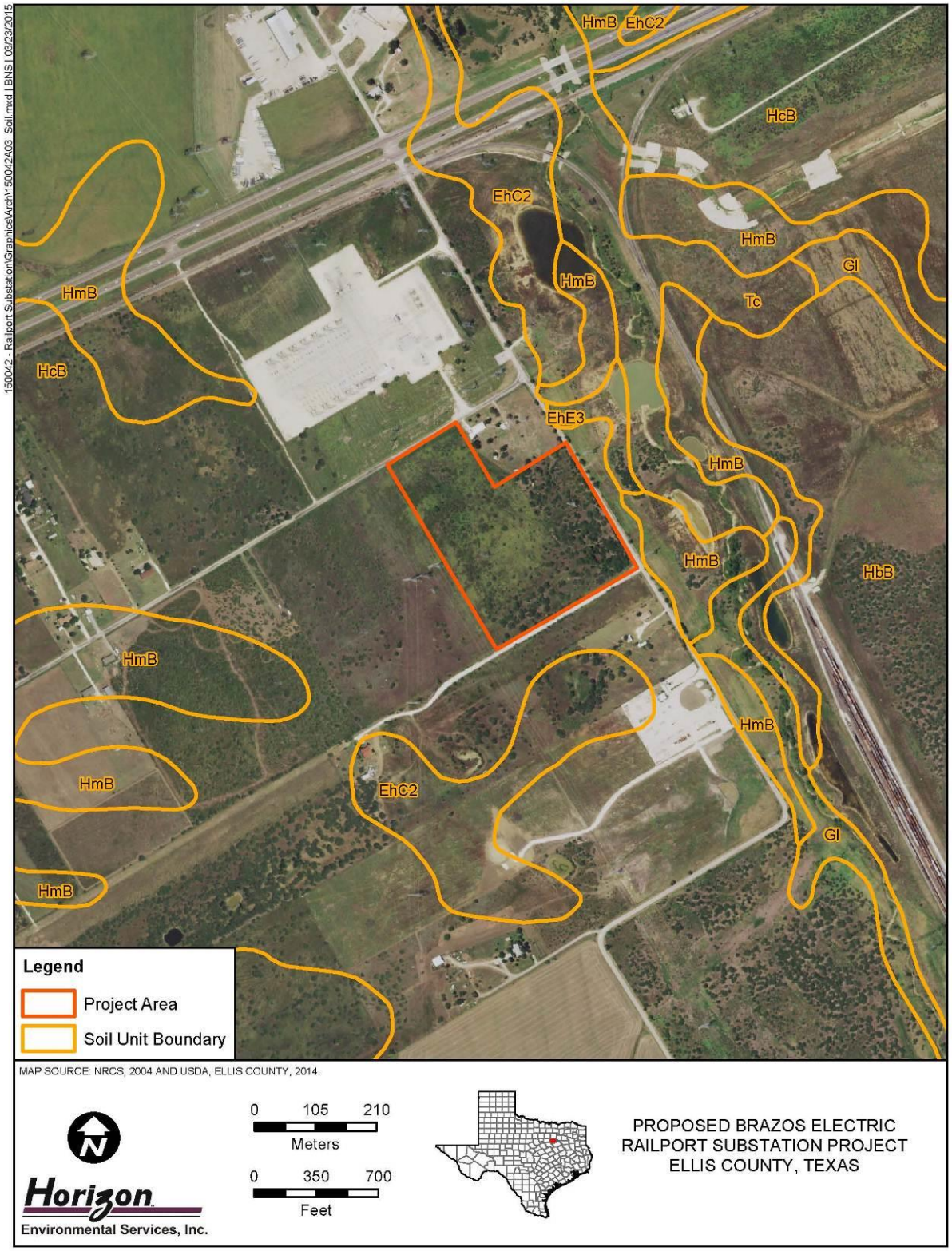

Figure 2-5. Soils mapped within the Project Area

3.0 ARCHIVAL RESEARCH

3.1 DATABASE AND MAP REVIEW

Archival research conducted via the Internet at the THC's *Texas Archeological Sites Atlas* (Atlas) website indicated the presence of no previously recorded archeological sites or cemeteries within a 1.0-mile (1.6-km) perimeter of the Project Area (THC 2015). Similarly, a review of the National Park Service's (NPS) NRHP Google Earth map layer indicated the presence of no historic properties listed on the NRHP within the review perimeter (NPS 2015). No documented cultural resources, including any listed on the NRHP, are located within or immediately adjacent to the boundaries of the Project Area. Based on the Atlas database, no prior cultural resources surveys have been undertaken within the Project Area.

A review of historical topographic maps shows no structures within the Project Area as late as 1949. Historical aerial photography for the location of the Project Area goes back only to 1995. No structures are visible within the Project Area between 1995 and the present.

3.2 PROBABILITY ASSESSMENT

Prehistoric archeological sites are commonly found in upland areas and on alluvial terraces near stream/river channels or drainages. Based on the location of the Project Area on an elevated landform between Soap Creek and West Soap Creek, it was Horizon's original opinion, prior to the field efforts, that there existed at least a moderate potential for undocumented prehistoric cultural resources within the Project Area.

In regard to historic-era resources, the lack of visible structures within the Project Area on the relevant topographic maps and aerial photographs suggested a low potential for historic-era standing structures within the Project Area. However, the presence of several structures on the adjacent property to the northeast of the Project Area suggested at least a moderate potential for associated historic-era cultural deposits within the limits of the Project Area.

4.0 SURVEY METHODOLOGY

A 2-person Horizon archeological field crew completed the intensive pedestrian survey of the Project Area on 24 March 2015. This entailed intensive surface inspection and subsurface shovel testing efforts over the extent of the 22.0-acre Project Area. The TSMASS require a minimum of 1 shovel test per 2.0 acres for projects between 11.0 and 100.0 acres in size. As the Project Area totals approximately 22.0 acres in size, a minimum of 11 shovel tests were necessary within the Project Area in order to comply with the TSMASS. Horizon exceeded the TSMASS by excavating a total of 22 shovel tests across the Project Area.

All shovel tests measured approximately 12.0 inches (30.5 centimeters [cm]) in diameter, and were to be excavated to a maximum depth of 3.3 feet (1.0 m) or to sterile, pre-Holocene clay, whichever was encountered first. As the Project Area was situated within an upland area covered predominantly by shallow, non-alluvial clay soils, all excavated shovel tests terminated at generally shallow depths between 3.9 and 11.8 inches (10.0 and 30.0 cm) below surface. Because the Project Area appears to have once consisted of an active agricultural field, these shovel test depths also appear to coincide with the depth of a typical agricultural plow zone of 0 to 12.0 inches (0 to 30.5 cm), where the potential for intact cultural deposits was diminished. All excavated matrices were screened through 0.25-inch (6.3-millimeter [mm]) hardware mesh or were trowel-sorted if the dense clay soils prohibited successful screening.

Field notes were maintained on terrain, vegetation, soils, landforms, shovel tests, cultural material observed (if any), etc. Standardized shovel test forms were completed for every shovel test. These forms included location data, depth, soil type, and notations on any artifacts encountered. If any new archeological sites were recorded, standard site forms were to be completed and filed at the Texas Archeological Research Laboratory (TARL) for permanent housing. Similarly, if any previously recorded archeological sites were assessed, updated site forms were to be completed and filed at the TARL.

A selective collection strategy was utilized during the survey efforts wherein only diagnostic cultural materials were to be collected for eventual curation at an approved facility or for return to the appropriate landowner. Non-diagnostic artifacts were to be tabulated and assessed in the field and placed back where they were found. Digital photographs with a photo log were completed as appropriate. The locations of all shovel tests were recorded via handheld GPS units utilizing the UTM coordinate system and the NAD 83 map datum. Shovel test locations are presented in Figure 5-1. Shovel test data are presented in Appendix A.

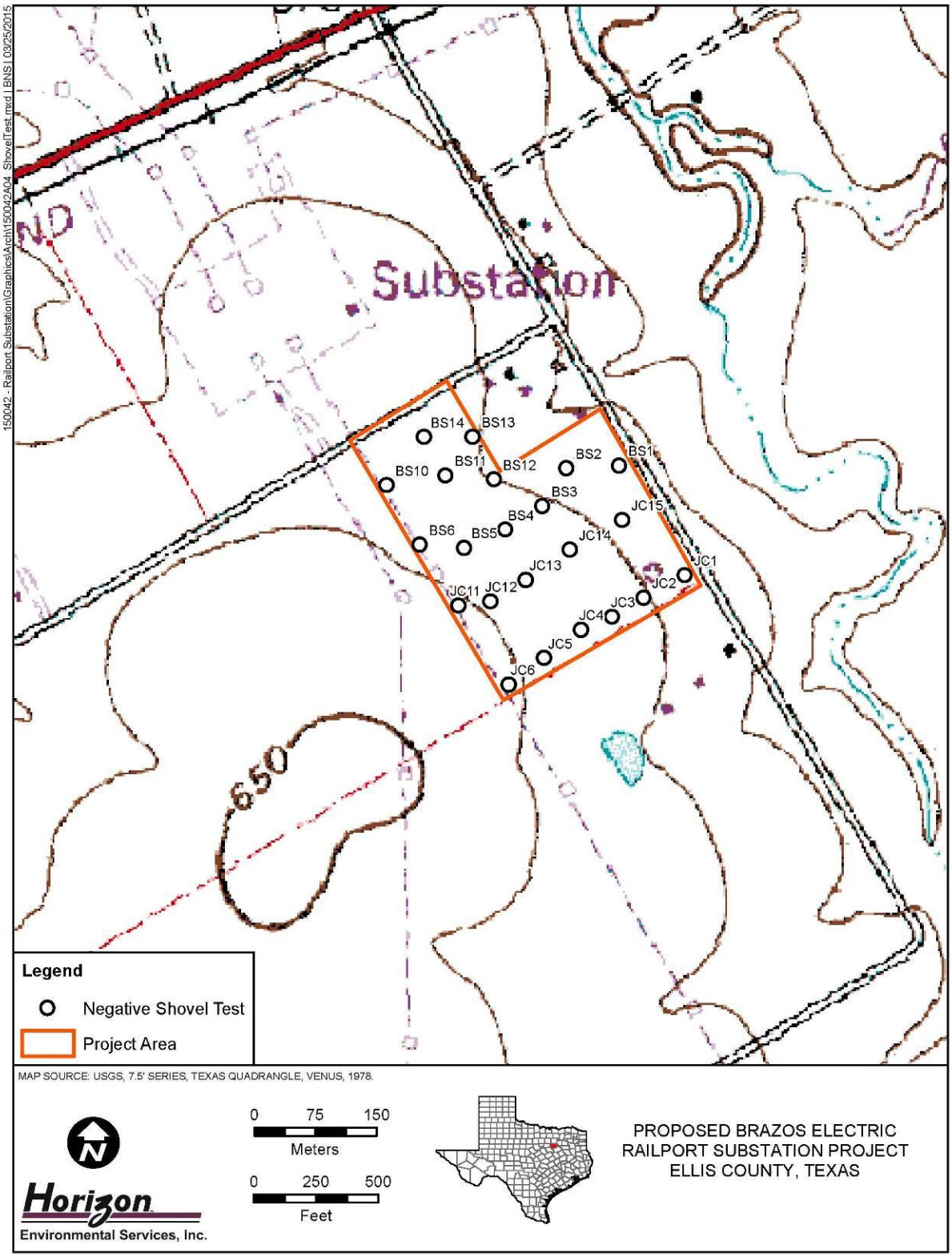

Figure 5-1. Shovel test locations within the Project Area

5.0 RESULTS AND RECOMMENDATIONS

5.1 RESULTS

The cultural resources survey resulted in entirely negative findings. No cultural materials were observed on the surface of the Project Area or within any of the 22 excavated shovel tests. Had any cultural deposits been present within the Project Area, they would have been confined to surface or near-surface (disturbed plow zone) contexts by the shallow clay soils within the Project Area.

5.2 RECOMMENDATIONS

Based on the negative survey results, it is Horizon's opinion that the development of the proposed 22.0-acre Railport Substation property will have no adverse effect on significant cultural resources listed on or considered eligible for listing on the NRHP within the Project Area. Horizon therefore recommends that Brazos be allowed to proceed with the development of the Project Area. However, in the unlikely event that any cultural materials (including human remains or burial features) are inadvertently discovered at any point during construction, use, or ongoing maintenance of the Project Area, even in previously surveyed areas, all work at the location of the discovery should cease immediately, and the THC should be notified of the discovery.

6.0 REFERENCES CITED

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(NPS) National Park Service

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(NRCS) US Department of Agriculture, Natural Resources Conservation Service

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(THC) Texas Historical Commission

2015 *Texas Archeological Sites Atlas Restricted Database*. <http://nueces.thc.state.tx.us/>. Accessed 19 March 2015.

(USDA) US Department of Agriculture

2014 Digital aerial photography, Ellis County, Texas. US Department of Agriculture, National Agriculture Imagery Program, Farm Service Agency, Aerial Photography Field Office.

(USGS) US Geological Survey

1978 7.5-minute series topographic maps, Venus, Texas, quadrangle.

APPENDIX A:

SHOVEL TEST DATA

Table A-1. Shovel Test Summary Data

ST No.	UTM Coordinates[1]		Depth (cmbs)	Soils	Artifacts
	Easting	Northing			
BS1	681561	3591048	0-30+	Dark olive-brown sticky clay	None
BS2	681513	3591025	0-30+	Olive-gray wet clay	None
BS3	681467	3590999	0-30+	Olive-gray wet clay	None
BS4	681422	3590970	0-30+	Olive-gray wet clay	None
BS5	681379	3590939	0-30+	Olive-gray wet clay	None
BS6	681329	3590917	0-30+	Olive-gray wet clay	None
BS10	681269	3591039	0-30+	Olive-brown wet clay	None
BS11	681349	3591036	0-30+	Olive-brown wet clay	None
BS12	681411	3591042	0-30+	Olive-brown wet clay	None
BS13	681394	3591087	0-30+	Olive-brown wet clay	None
BS14	681339	3591097	0-30+	Olive-brown wet clay	None
JC1	681642	3590914	0-30+	Olive-brown clay	None
JC2	681591	3590887	0-30+	Olive-brown clay	None
JC3	681554	3590854	0-30+	Olive-brown clay	None
JC4	681515	3590848	0-30+	Olive-brown clay	None
JC5	681469	3590813	0-30+	Olive-brown clay	None
JC6	681426	3590781	0-30+	Olive-brown clay	None
JC11	681352	3590870	0-15+	Olive-yellow clay	None
JC12	681404	3590882	0-25+	Olive-brown clay	None
JC13	681447	3590909	0-25+	Olive-brown clay	None
JC14	681490	3590944	0-15+	Olive-brown clay	None
JC15	681565	3590982	0-15+	Olive-brown clay	None

[1] All UTM coordinates are located in Zone 14 and utilize the North American Datum of 1983 (NAD 83)

cmbs = Centimeters below surface

ST = Shovel Test

UTM = Universal Transverse Mercator