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An Intensive Cultural Resources Survey of a Segment of Plains All American Pipeline, LP's Proposed China Draw Expansion Project Located on GLO Property in Reeves County, Texas

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An Intensive Cultural Resources Survey of a Segment of Plains All American Pipeline, LP's Proposed China Draw Expansion Project Located on GLO Property in Reeves County, Texas

By:

Russell K. Brownlow



**HJN 170176 AR 01
Texas Antiquities Committee Permit No. 8170**

Prepared for:



**Whitenton Group, Inc.
San Marcos, Texas**

Prepared by:



**Horizon Environmental Services, Inc.
Austin, Texas**

February 2018

**An Intensive Cultural Resources Survey of a
Segment of Plains All American Pipeline, LP's
Proposed China Draw Expansion Project Located on
GLO Property in Reeves County, Texas**

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February 2018

MANAGEMENT SUMMARY

On 26 September 2017, Horizon Environmental Services, Inc. (Horizon) conducted an intensive cultural resources survey of a segment of Plains All American Pipeline, LP's (Plains) proposed China Draw Expansion pipeline right-of-way (ROW) located in northwestern Reeves County, Texas (Project Area). The development of the pipeline ROW will be privately funded and will not require any federal permitting or coordination. However, a 1.0-mile (1.6-kilometer [km])-long segment of the proposed ROW is located on property owned by the Texas General Land Office (GLO). As the GLO is considered to be a political subdivision of the state, the portion of the undertaking on GLO property falls under the regulations of the Antiquities Code of Texas (ACT). At the request of Whittenton Group, Inc. (Whittenton), Horizon conducted the cultural resources survey of the Project Area on behalf of Plains in compliance with the ACT. The purpose of the survey was to determine if any archeological sites were located within the Project Area and, if any existed, to determine if the project had the potential to have any adverse impacts on sites considered eligible for formal designation as State Antiquities Landmarks (SALs). The cultural resources survey was conducted under Texas Antiquities Committee (TAC) permit number 8170.

Overall, the entire proposed ROW measures 6.7 miles (10.9 km) long by 30.0 feet (9.1 meters [m]) wide, with a total area of approximately 24.4 acres. However, the Project Area (i.e., the segment of the proposed ROW that crosses GLO property) measures only 1.0 mile (1.6 km) long by 30.0 feet (9.1 m) wide, with a total area of approximately 3.6 acres.

The cultural resources survey of the Project Area resulted in entirely negative findings. No cultural materials were observed on the surface of the Project Area or within any of the 17 excavated shovel tests.

Based on the negative survey results, it is Horizon's opinion that the construction of the proposed China Draw Expansion Project across GLO property will have no adverse effect on significant cultural resources designated as or considered eligible for designation as SALs. Horizon therefore recommends that Plains be allowed to proceed with the construction of the proposed pipeline relative to the jurisdiction of the ACT.

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ACKNOWLEDGEMENTS

Horizon Environmental Services, Inc. (Horizon) conducted the intensive cultural resources survey of the segment of Plains All American Pipeline, LP's (Plains) proposed China Draw Expansion pipeline right-of-way (ROW) reported herein in compliance with the Antiquities Code of Texas (ACT). Russell Brownlow served as the principal investigator for the project and lead author of this report. Jacob Lyons and Foster Duncan conducted the field investigations, while Jacob Lyons was responsible for drafting the figures.

1.0 INTRODUCTION

This document reports the results of an intensive cultural resources survey of a segment of Plains All American Pipeline, LP's (Plains) proposed China Draw Expansion pipeline right-of-way (ROW) located in northwestern Reeves County, Texas (Project Area; Figures 1-1 and 1-2). The development of the pipeline ROW will be privately funded and will not require any federal permitting or coordination. However, a 1.0-mile (1.6-kilometer [km])-long segment of the proposed ROW is located on property owned by the Texas General Land Office (GLO). As the GLO is considered to be a political subdivision of the state, the portion of the undertaking on GLO property falls under the regulations of the Antiquities Code of Texas (ACT). At the request of Whitenton Group, Inc. (Whitenton), Horizon Environmental Services, Inc. (Horizon) conducted the cultural resources survey of the Project Area on behalf of Plains in compliance with the ACT. The purpose of the survey was to determine if any archeological sites were located within the Project Area and, if any existed, to determine if the project had the potential to have any adverse impacts on sites considered eligible for formal designation as State Antiquities Landmarks (SALs).

Overall, the entire proposed ROW measures 6.7 miles (10.9 km) long by 30.0 feet (9.1 meters [m]) wide, with a total area of approximately 24.4 acres. However, the Project Area (i.e., the segment of the proposed ROW that crosses GLO property) measures only 1.0 mile (1.6 km) long by 30.0 feet (9.1 m) wide, with a total area of approximately 3.6 acres.

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 Jacob Lyons (Horizon field technician) and Foster Duncan (temporary archeological field technician) conducted the field investigations. The cultural resources investigations were conducted under Texas Antiquities Committee (TAC) permit number 8170.

Horizon conducted the survey of the Project Area on 26 September 2017. This entailed intensive surface inspection and subsurface shovel testing along the length of the Project Area. The Texas State Minimum Archeological Survey Standards (TSMASS) require a minimum of



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



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

16 shovel tests per mile for linear projects measuring up to 100.0 feet (30.5 m) wide. As the Project Area totals 1.0 mile (1.6 km) in length, a minimum of 16 shovel tests were necessary within the Project Area in order to comply with the TSMASS. Horizon exceeded the TSMASS by excavating a total of 17 shovel tests across the Project Area.

The cultural resources survey of the Project Area resulted in entirely negative findings. No cultural materials were observed on the surface of the Project Area or within any of the 17 excavated shovel tests.

Based on the negative survey results, it is Horizon's opinion that the construction of the proposed China Draw Expansion Project across GLO property will have no adverse effect on significant cultural resources designated as or considered eligible for designation as SALs. Horizon therefore recommends that Plains be allowed to proceed with the construction of the proposed pipeline relative to the jurisdiction of the ACT. 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 proposed pipeline ROW, even in previously surveyed areas, all work at the location of the discovery should cease immediately, and the THC and GLO should be notified of the discovery.

2.0 ENVIRONMENTAL SETTING

2.1 GENERAL PROJECT AREA DESCRIPTION

Plains' proposed China Draw Expansion Project is located in northeastern Culberson County and northwestern Reeves County, approximately 5.4 miles (8.7 km) northwest of Orla, Texas. It can be found on the US Geological Survey (USGS) 7.5-minute Screwbean Draw NE, Texas, and Red Bluff, Texas, topographic quadrangle maps (see Figure 1-1). Overall, the entire proposed ROW measures 6.7 miles (10.9 km) long by 30.0 feet (9.1 m) wide, with a total area of approximately 24.4 acres. However, the Project Area (i.e., the segment of the proposed ROW that crosses GLO property) measures only 1.0 mile (1.6 km) long by 30.0 feet (9.1 m) wide, with a total area of approximately 3.6 acres. It is located only in Reeves County on the Screw Bean Draw NE, Texas, topographic quadrangle map (see Figure 1-1). Representative images of the Project Area at the time of the cultural resources survey are presented in Figures 2-1 and 2-2.

2.2 PHYSIOGRAPHY AND HYDROLOGY

The Project Area is located in northwestern Reeves County in far West Texas. It is situated within an area of gently undulating desert hills southeast of China Draw and north of a tributary of Sand Creek (see Figure 1-1). The proposed ROW initiates at an existing well pad north of China Draw in Culberson County. From there, it extends southeasterly to an existing gathering facility in Reeves County. Near the center of this alignment, the proposed ROW crosses a tract owned by the GLO. Elevations within the Project Area range between 3025.0 and 3035.0 feet (922.0 and 925.1 m) above mean sea level. Hydrologically, the proposed ROW is situated within the Pecos River basin. It is drained to the northeast by China Draw and to the west by Salt Creek and its tributaries. Both China Draw and Salt Creek eventually join the Pecos River, which is located approximately 3.3 miles (5.3 km) east of the Project Area.

2.3 CLIMATE

Winters in Reeves County are generally cool, with an average temperature of 46.0 degrees Fahrenheit (°F). The summer months are hot, with an average temperature of 83.0°F. The average annual total precipitation is about 8.6 inches (21.8 centimeters [cm]), with roughly 70% of it falling between April and September (NRCS 1980).



Figure 2-1. View along proposed ROW on GLO land, facing east



Figure 2-2. View along proposed ROW on GLO land, facing west

2.4 FLORA AND FAUNA

The Project Area is located in the Chihuahuan Biotic Province, which includes all of Trans-Pecos Texas except the Guadalupe Mountains (Blair 1950). Blair notes that portions of Culberson and the surrounding counties were once part of an old bolson now drained by the Pecos River. Also located within the Chihuahuan Basins and Playas of the Chihuahuan Deserts ecoregion, the Project Area is situated within geologic formations composed of sand sheet and caliche deposits (Griffith et al. 2007). Three native plant communities dominate the Chihuahuan Basins and Playas: saline flats and alkaline playa margins, gypsum land, and desert shrubland. The dominant species associated with the saline flats and alkaline playa margins plant community include *Atriplex canescens* (fourwing saltbush), *Suaeda* spp. (seepweed), *Salicornia* spp. (pickleweed), and *Sporobolus airoides* (alkali sacaton). The dominant species associated with the gypsum land plant community include *Bouteloua breviseta* (gypsum grama), *Mentzelia* spp. (blazingstar), and *Ephedra torreyana* (Torrey's jointfir). The dominant species associated with the desert shrubland plant community include *Larrea tridentata* (creosote bush), *Flourensia cernua* (American tarwort), *Yucca* spp. (yucca), *Artemisia filifolia* (sand sagebrush), *Acacia rigidula* (blackbrush), *Cylindropuntia leptocaulis* (Christmas cactus), *Agave lechuguilla* (lechuguilla), and *Leucophyllum frutescens* (cenizo) (Griffith et al. 2007).

2.5 SOILS

One soil type is mapped within the boundaries of the Project Area. This soil is presented in Table 2-1 (NRCS 180) and in Figure 2-3.

Table 2-1. Soils mapped within the Project Area

Soil Name	Soil Type	Soil Depth (inches)	Setting
Reaker-Lozier association, undulating (33)	<u>Reaker</u> Loam	<u>Reaker</u> 0 to 7: Loam 7 to 17: Heavy loam 17 to 65: Clay loam	<u>Reaker</u> Broad plains and alluvial fans
	<u>Lozier</u> Very gravelly loam	<u>Lozier</u> 0 to 12: Very gravelly loam 12 to 80: Limestone bedrock	<u>Lozier</u> Basins, valley floors, or adjacent terraces

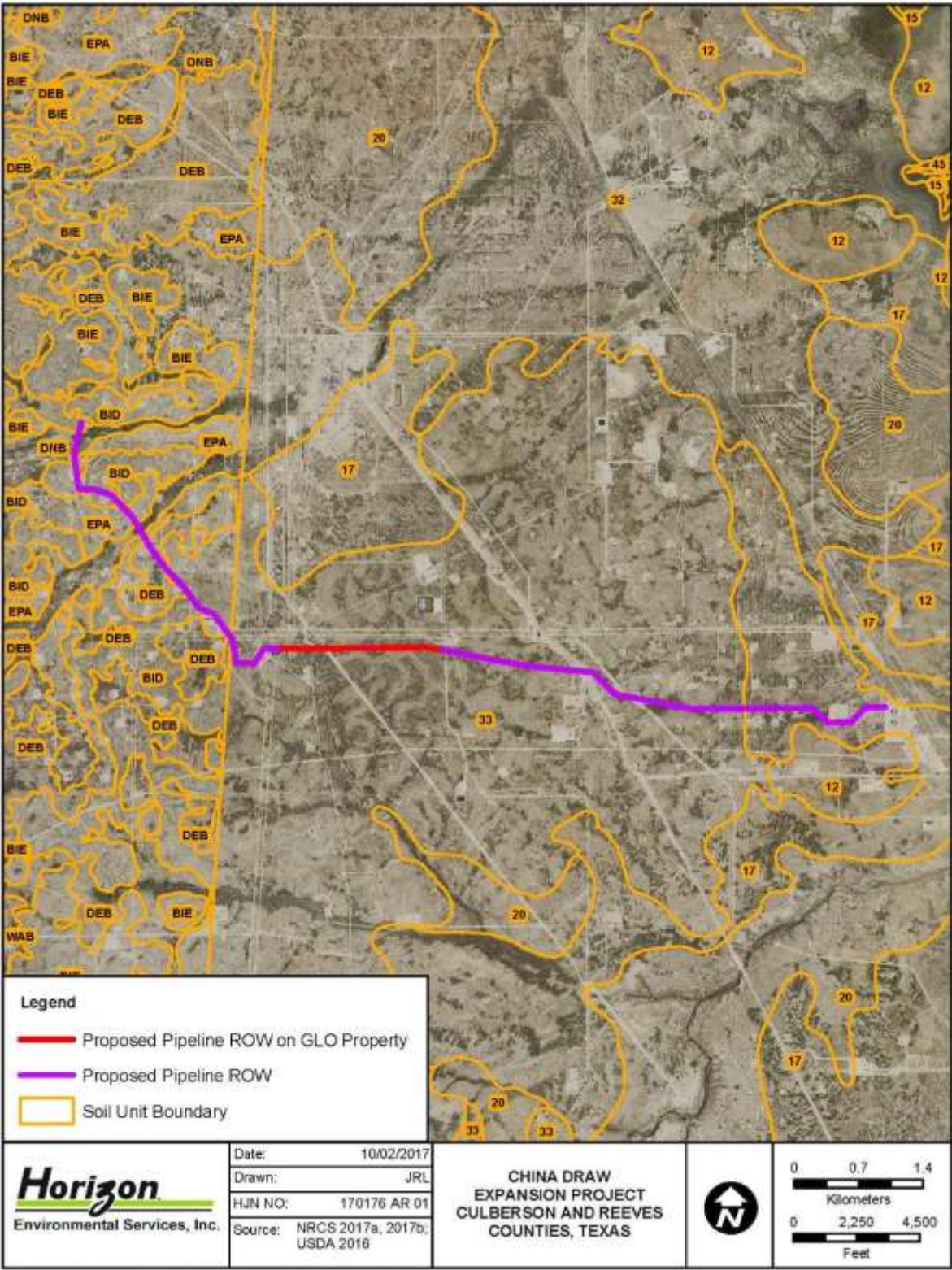


Figure 2-3. Soils mapped within the Project Area

3.0 CULTURAL BACKGROUND

The general temporal framework for most prehistoric archeological sites in Texas is based on the seriation of projectile point types originally established by Suhm et al. (1954) and later revised by Suhm and Jelks (1962), Prewitt (1981, 1985), and Turner and Hester (1999). This temporal framework, consisting of a tri-partite system based on technological changes in diagnostic artifacts that occurred as a result of indigenous adaptation to changing environments and subsistence strategies, is broken down into 3 main periods: the Paleoindian (pre-8500 B.P.), the Archaic (8500 to 1250 B.P.), and the Late Prehistoric (1250 to 250 B.P.). The Archaic period is further subdivided into the Early Archaic (8500 to 6000 B.P.), the Middle Archaic (6000 BP to 3500 B.P.), and the Late Archaic (3500 to 1250 B.P.).

3.1 PALEOINDIAN (PRE-8500 B.P.)

The Paleoindian period is characterized by highly mobile groups hunting over large areas. Although now-extinct megafauna such as mammoth and bison are often found associated with sites of this time period, smaller game, such as deer and turtles, were also likely utilized as food items. Undoubtedly, plant foods made up a portion of the diet as well. Based upon the low number of diagnostic artifacts recovered from sites of this period, as well as the low frequency of sites, population densities are considered low and probably consisted of small family groups. An increase in projectile point frequency toward the end of the period may suggest an increased population density or, perhaps, an increase in macro-band aggregation for the purpose of communal hunts. Sites from this time period are found mostly in upland tributary and spring settings, as well as deeply buried in floodplain alluvium. Clovis and Folsom points are indicative of Early Paleoindian occupations, while Plainview, Golondrina, Scottsbluff, Meserve, Eden, Dalton, San Patrice, and Angostura points are characteristic of the later span of the period.

3.2 EARLY ARCHAIC (8500 TO 6000 B.P.)

Like the Paleoindian period, Early Archaic population densities remained low, still consisting of small, mobile bands. However, a more generalized hunting-and-gathering strategy is evidenced by the use of river mussels. Early Archaic sites are typically located on terraces along tributary watercourses, but are also often found deeply buried in floodplain alluvium. Site locale and an increased use of river mussels possibly indicate a shift in subsistence strategies in order to exploit the bottomlands of major waterways during this period of wetter climates.

Split-stemmed points such as Gower, Martindale, and Uvalde, as well as Big Sandy, Hardin, and Hoxie, are diagnostic of Early Archaic occupations.

3.3 MIDDLE ARCHAIC (6000 TO 3500 B.P.)

During the Middle Archaic, the trend to bottomland exploitation increased, with fewer sites found along minor tributaries. Population density remained relatively low, but obviously increased over prior periods, with broad-spectrum hunting and gathering represented at larger sites where food sources were more abundant.

3.4 LATE ARCHAIC (3500 TO 1250 B.P.)

In contrast to earlier time periods, the Late Archaic represents a period of increased population and site density. Subsistence was focused on hunting and gathering within the bottomlands of major creeks and rivers. Deer remains are quite common at Late Archaic sites, and the exploitation of plant foods (nuts) seems to have increased during this period, based upon an increase in plant-processing tools. Late Archaic sites are typically found on sandy terraces along tributaries, as well as on clayey floodplains.

3.5 LATE PREHISTORIC I (1250 TO 250 B.P.)

The Late Prehistoric, in general, is characterized by the advent of the bow and arrow, as well as ceramics, in Texas. Hunting and gathering continued, with an emphasis on deer and other small game. Horticulture also became evident in some areas. As in the Late Archaic, sites continue to be located on sandy terraces along major creeks and rivers. In fact, the majority of Late Prehistoric sites contain some traces of Late Archaic occupations. A marked population increase is highly evident, and increased territorial conflicts possibly explain the recovery of burials with indications of violent deaths. Furthermore, differentiated burial practices also suggest the development of non-egalitarian societies.

4.0 ARCHIVAL RESEARCH

4.1 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 2017). Similarly, a review of the National Park Service's (NPS) Nation Register of Historic Places (NRHP) Google Earth map layer indicated the presence of no historic properties listed on the NRHP within the review perimeter (NPS 2017). No documented cultural resources, including any listed on the NRHP or formally designated as SALs, are located within or immediately adjacent to the boundaries of the Project Area. Based on the Atlas database, no previous cultural resources surveys have been undertaken within the boundaries of the current Project Area.

The closest documented cultural resource to the Project Area is a prehistoric campsite. This site, 41CU800, is located approximately 2.4 miles (3.9 km) northwest of the Project Area.

4.2 PROBABILITY ASSESSMENT

Prehistoric archeological sites are commonly found in upland areas and on alluvial terraces near stream/river channels or drainages. Additionally, in this part of the state, they are often found in proximity to playa lake beds and dune blowouts. Based on the location of the Project Area near several vegetated playa basins and drainages between China Draw and a tributary of Salt Creek, it was Horizon's opinion, prior to the field efforts, that there existed at least a moderate potential for undocumented prehistoric cultural deposits within the Project Area.

In regard to historic-era resources, the lack of visible structures in immediate proximity to the Project Area on the relevant topographic quadrangle maps suggested a decreased potential for historic-era standing structures or associated cultural deposits within the boundaries of the Project Area.

5.0 SURVEY METHODOLOGY

A 2-person Horizon archeological field crew completed the intensive pedestrian survey of the Project Area on 26 September 2017. This entailed intensive surface inspection and subsurface shovel testing along the length of the Project Area. The TSMASS require a minimum 16 shovel tests per mile for linear projects measuring up to 100.0 feet (30.5 m) wide. As the Project Area totals 1.0 mile (1.6 km) in length, a minimum of 16 shovel tests were necessary within the Project Area in order to comply with the TSMASS. Horizon exceeded the TSMASS by excavating a total of 17 shovel tests across the Project Area. 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. For any new archeological sites recorded, standard site forms were completed and filed at the Texas Archeological Research Laboratory (TARL) for permanent housing. Similarly, for any previously recorded archeological sites that were assessed, updated site forms were 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. 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 Universal Transverse Mercator (UTM) coordinate system and the North American Datum of 1983 (NAD 83). Shovel test locations are presented in Figure 5-1. Shovel test data are presented in Appendix A.

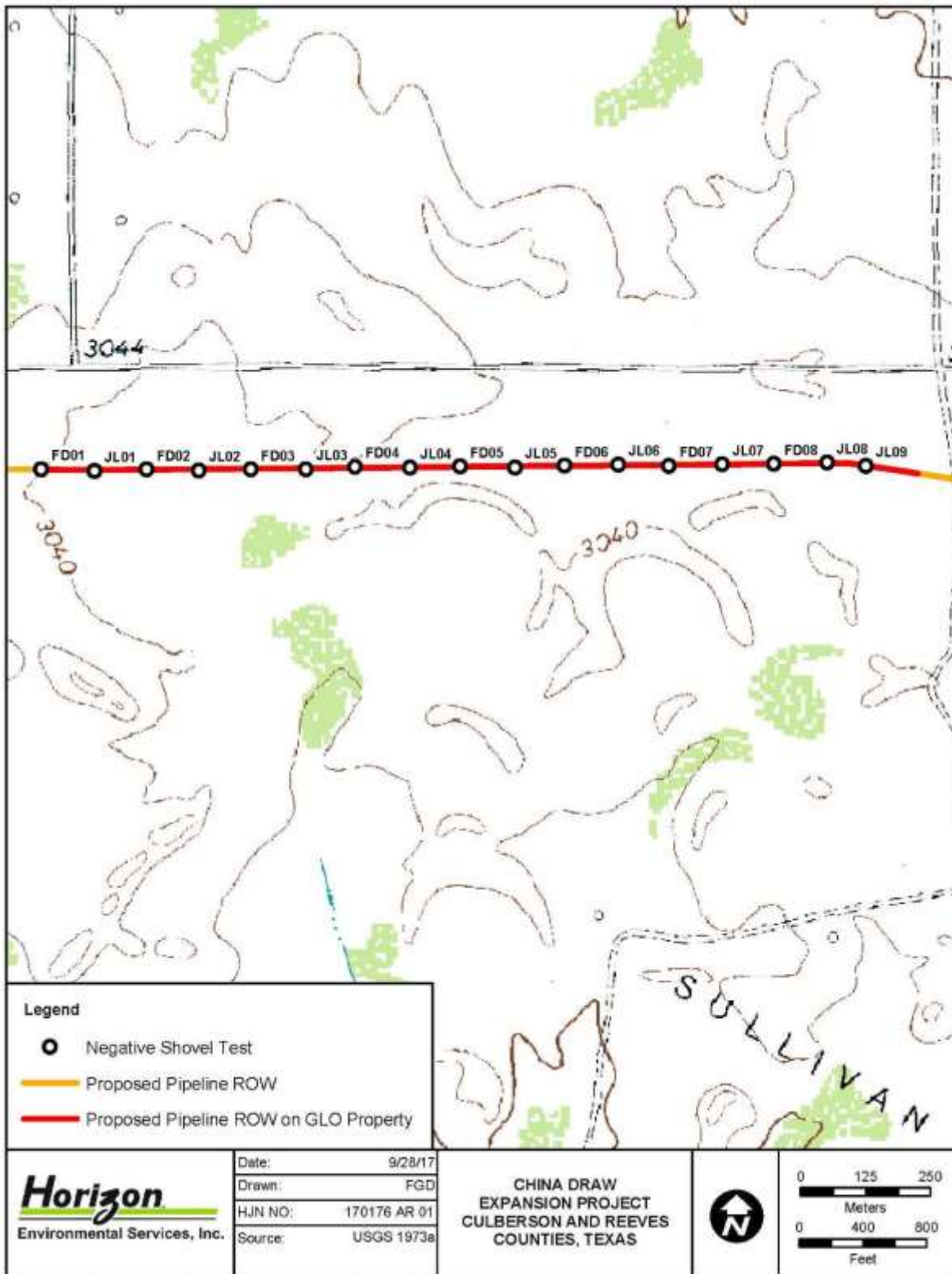


Figure 5-1. Shovel test locations within the Project Area

6.0 RESULTS AND RECOMMENDATIONS

6.1 RESULTS

On 26 September 2017, Horizon conducted an intensive cultural resources survey of a segment of Plains' proposed China Draw Expansion Project located in northwestern Reeves County, Texas. The development of the pipeline ROW will be privately funded and will not require any federal permitting or coordination. However, a 1.0-mile (1.6-km)-long segment of the proposed ROW is located on property owned by the GLO. As the GLO is considered to be a political subdivision of the state, the portion of the undertaking on GLO property falls under the regulations of the ACT. At the request of Whitenton, Horizon conducted the cultural resources survey of the Project Area on behalf of Plains in compliance with the ACT. The purpose of the survey was to determine if any archeological sites were located within the Project Area and, if any existed, to determine if the project had the potential to have any adverse impacts on sites considered eligible for formal designation as SALs. The cultural resources survey was conducted under TAC permit number 8170.

Overall, the entire proposed ROW measures 6.7 miles (10.9 km) long by 30.0 feet (9.1 m) wide, with a total area of approximately 24.4 acres. However, the Project Area (i.e., the segment of the proposed ROW that crosses GLO property) measures only 1.0 mile (1.6 km) long by 30.0 feet (9.1 m) wide, with a total area of approximately 3.6 acres.

The cultural resources survey consisted of intensive surface inspection and subsurface shovel testing along the length of the Project Area. The TSMASS require a minimum 16 shovel tests per mile for linear projects measuring up to 100.0 feet (30.5 m) wide. As the Project Area totals 1.0 mile (1.6 km) in length, a minimum of 16 shovel tests were necessary within the Project Area in order to comply with the TSMASS. Horizon exceeded the TSMASS by excavating a total of 17 shovel tests across the Project Area.

The cultural resources survey of the Project Area resulted in entirely negative findings. No cultural materials were observed on the surface of the Project Area or within any of the 17 excavated shovel tests.

6.2 RECOMMENDATIONS

Based on the negative survey results, it is Horizon's opinion that the construction of the proposed China Draw Expansion Project across GLO property will have no adverse effect on significant cultural resources designated as or considered eligible for designation as SALs. Horizon therefore recommends that Plains be allowed to proceed with the construction of the proposed pipeline relative to the jurisdiction of the ACT. 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 proposed pipeline ROW, even in previously surveyed areas, all work at the location of the discovery should cease immediately, and the THC and GLO should be notified of the discovery.

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(USGS) US Geological Survey

1968a 7.5-minute series topographic map, Red Bluff, Texas, quadrangle.

1968b 7.5-minute series topographic map, Orla, Texas, quadrangle.

1973a 7.5-minute series topographic map, Screwbean Draw NE, Texas, quadrangle.

1973b 7.5-minute series topographic map, Screwbean Draw East, 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			
JL01	592043	3529408	0-20	Pale Brown Silt Loam	None
			20-30	Very Pale Brown fine Silt Loam	None
			30+	Decaying caliche bedrock	None
JL02	592244	3529409	0-40	Pale brown silty loam	None
			40+	decaying caliche bedrock	None
JL03	592449	3529412	0-5	Pale brown silty loam	None
			5+	Limestone bedrock	None
JL04	592649	3529414	0-30	Pale brown silty loam	None
			30+	Decaying caliche bedrock	None
JL05	592851	3529415	0-40	Pale brown silty loam	None
			40+	Decaying caliche bedrock	None
JL06	593049	3529420	0-40	Pale brown silty loam	None
			40+	Decaying caliche bedrock	None
JL07	593249	3529421	0-50	Pale brown silty loam	None
			50+	Decaying caliche bedrock	None
JL08	593451	3529424	0-40	Pale brown silty loam	None
			40+	Decaying caliche bedrock	None
JL09	593524	3529417	0-20	Dark brown gravelly silty loam	None
			20-60	Light grayish brown silty loam	None
			60-70+	Compact gravelly reddish-brown silty loam	None
FD01	591940	3529411	0-15	Pale brown silty loam	None
			15-100	Caliche	None
FD02	592142	3529411	0-20	Pale brown silty loam	None
			20-100	Caliche	None
FD03	592343	3529411	0-10	Saturated dark brown silty loam	None
			10-30+	Caliche	None
FD04	592544	3529416	0-15	Pale brown silty loam	None
			15-100	Caliche	None
FD05	592745	3529417	0-12	Pale brown silty loam	None
			12-100	Caliche	None
FD06	592945	3529419	0-20	Pale brown silty loam	None
			20-100	Caliche	None
FD07	593147	3529418	0-17	Saturated dark reddish-brown silty loam	None
			17+	Compact limestone cobbles	None

ST No.	UTM Coordinates ¹		Depth (cmbs)	Soils	Artifacts
	Easting	Northing			
FD08	593348	3529422	0-14	Pale brown silty loam	None
			14-70+	Caliche	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