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An Intensive Cultural Resources Survey of the USACE Jurisdictional Areas within Chesapeake Energy Corporation's Proposed San Lorenzo Creek Bridge ROW in Dimmit County, Texas

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HJN 130087 AR 53

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February 2015

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MANAGEMENT SUMMARY

On 13 January 2015, Horizon Environmental Services, Inc. (Horizon) conducted an intensive cultural resources survey of the US Army Corps of Engineers (USACE) jurisdictional areas within Chesapeake Energy Corporation's (Chesapeake) proposed San Lorenzo Creek bridge right-of-way (ROW) in southwestern Dimmit County, Texas (Project Area). Although the Project Area will be located entirely on private property and will be developed with private funds, its construction will require the usage of a Nationwide Permit (NWP) issued by the USACE. As a result, the portions of the undertaking within the USACE's purview also fall under the regulations of Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended. Horizon conducted the cultural resources survey of the USACE jurisdictional areas on behalf of Chesapeake in compliance with Section 106 of the NHPA. The purpose of the survey was to determine if any archeological sites were located within the USACE jurisdictional areas and, if any existed, to determine if the project had the potential to have any adverse impacts on sites eligible for inclusion on the National Register of Historic Places (NRHP).

The cultural resources survey resulted in the reassessment of a small portion of previously recorded site 41DM190. This site, an extensive prehistoric campsite, was found to possess dense surficial deposits of lithic debris, stone tool fragments, and fire-cracked rock (FCR). It was also found to possess subsurface cultural deposits extending to depths of at least 27.6 inches (70.0 centimeters [cm]) below surface. As Horizon's investigations were limited to only a small portion of the site and its full horizontal and vertical extent have not been thoroughly assessed, it is Horizon's opinion that the NRHP eligibility status of site 41DM190 is currently undetermined.

Based on the extensive size of the site, previous impacts to the immediate area of the proposed bridge ROW, as well as construction methods that will pose minimal impacts to any cultural deposits contained within the terraces of the site, it is Horizon's opinion that the construction of the proposed San Lorenzo Creek bridge will have no adverse effect on significant cultural resources listed on or considered eligible for listing on the NRHP within the USACE jurisdictional area. Horizon therefore recommends that Chesapeake be allowed to proceed with the construction of the proposed bridge, relative to the jurisdiction of the USACE and Section 106 of the NHPA.

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ACKNOWLEDGEMENTS

Horizon Environmental Services, Inc. (Horizon) conducted the intensive cultural resources survey of the US Army Corps of Engineers (USACE) jurisdictional areas within Chesapeake Energy Corporation's (Chesapeake) proposed San Lorenzo Creek bridge right-of-way (ROW) reported herein in compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended. Russ Brownlow served as the principal investigator for the project and lead author on this report. Briana Smith and Jared Wiersema conducted the field investigations, and Briana Smith was also responsible for the drafting of the figures.

1.0 INTRODUCTION

This document reports the results of an intensive cultural resources survey of the US Army Corps of Engineers (USACE) jurisdictional areas within Chesapeake Energy Corporation's (Chesapeake) proposed San Lorenzo Creek bridge right-of-way (ROW) in southwestern Dimmit County, Texas (Project Area; Figures 1-1 and 1-2). Although the proposed bridge will be located entirely on private property and will be constructed with private funds, its construction will require the usage of a Nationwide Permit (NWP) issued by the USACE. As a result, the portion of the undertaking within the USACE's purview also falls under the regulations of Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended. Horizon Environmental Services, Inc. (Horizon) conducted the cultural resources survey of the USACE jurisdictional areas on behalf of Chesapeake in compliance with Section 106 of the NHPA. The purpose of the survey was to determine if any archeological sites were located within the USACE jurisdictional areas and, if any existed, to determine if the project had the potential to have any adverse impacts on sites eligible for inclusion on the National Register of Historic Places (NRHP).

The proposed bridge ROW measures approximately 100.0 feet (30.5 meters [m]) in length and 20.0 feet (6.1 m) in width, with a total area of 0.05 acres. It will be located on an existing ranch road that traverses the creek channel via a series of existing culverts that were previously permitted with the USACE in 2012. The newly proposed bridge will serve to provide a safer mode of crossing San Lorenzo Creek for the various vehicles and machinery utilized for oil/gas development on the property. As the USACE considers their jurisdiction to consist of a water channel and the associated uplands within 100.0 feet (61.0 m) of either bank, the survey area consisted of an approximately 200.0 feet (61.0 m) span across San Lorenzo Creek where the channel is traversed by the proposed bridge ROW (approximately 0.1 acres total).

The cultural resources investigations consisted of an archival review, an intensive cultural resources survey of the USACE jurisdictional areas, 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 Jared Wiersema (Horizon staff archeologists) conducted the field investigations.

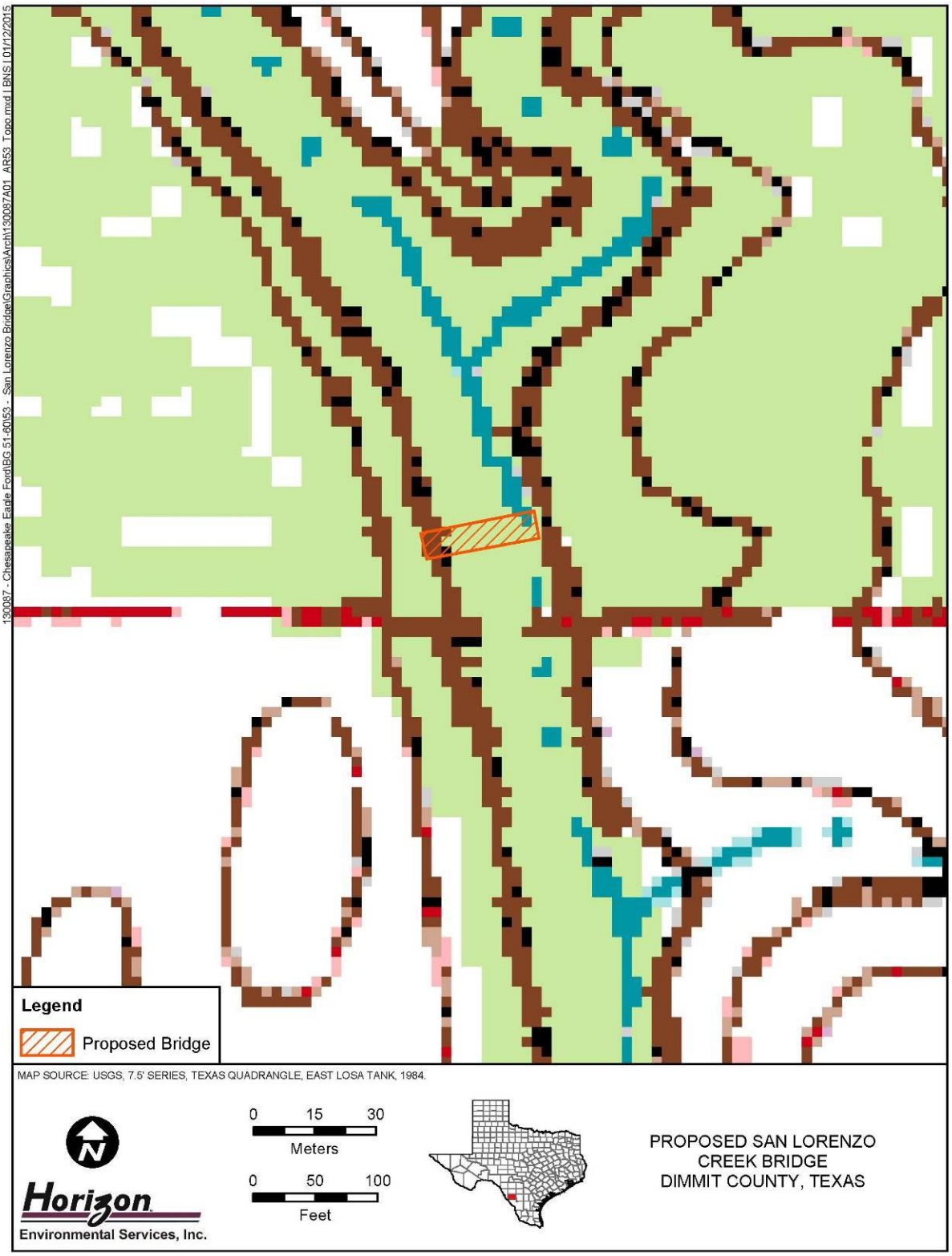

Figure 1-1. Topographic map with the location of the Project Area

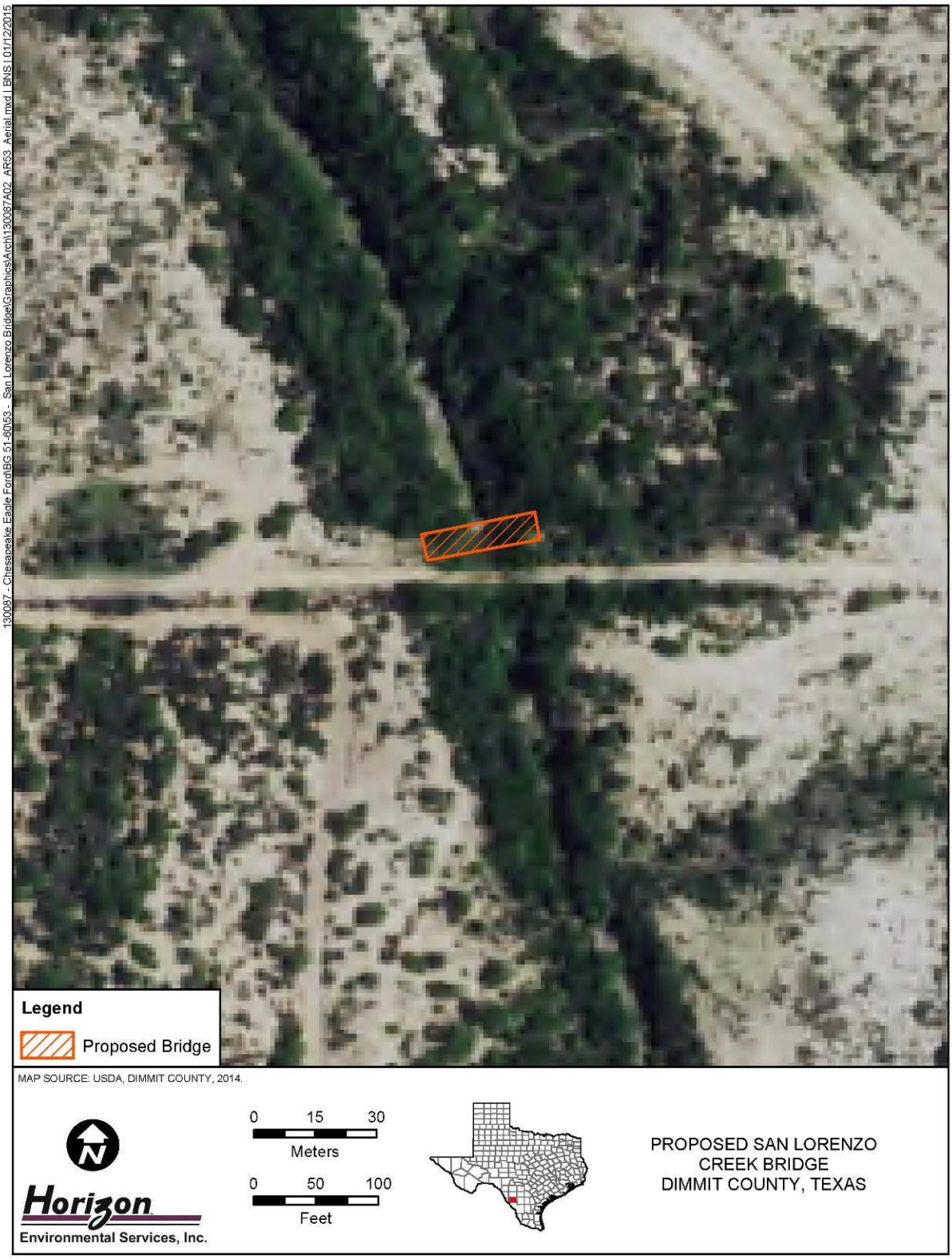

Figure 1-2. Aerial photograph with the location of the Project Area

Horizon conducted the survey of the Project Area on 13 January 2015. This entailed intensive surface inspection and subsurface shovel testing efforts on opposing sides of the 1 USACE jurisdictional crossing (San Lorenzo Creek) located within the Project Area. The Texas State Minimum Archeological Survey Standards (TSMASS) require a minimum of 16 shovel tests per mile for linear projects measuring up to 100.0 feet (30.5 m) in width. As the USACE jurisdictional area totals approximately 200.0 feet (61.0 m) in length, a total of 1 shovel test was necessary within the USACE jurisdictional area in order to comply with the TSMASS. Horizon exceeded the TSMASS by excavating a total of 6 shovel tests within the USACE jurisdictional area contained within the Project Area.

The cultural resources survey resulted in the reassessment of a small portion of previously recorded site 41DM190. This site, an extensive prehistoric campsite, was found to possess dense surficial deposits of lithic debris, stone tool fragments, and fire-cracked rock (FCR). It was also found to possess subsurface cultural deposits extending to depths of at least 27.6 inches (70.0 centimeters [cm]) below surface. As Horizon's investigations were limited to only a small portion of the site and its full horizontal and vertical extent have not been thoroughly assessed, it is Horizon's opinion that the NRHP eligibility status of site 41DM190 is currently undetermined.

Although it is Horizon's opinion that the overall NRHP eligibility status of site 41DM190 is currently undetermined, there are several factors that suggest that the current undertaking will pose no adverse impacts to significant cultural deposits on the site. First, the extensive size of the site (as currently defined, as well as within unassessed areas to the north and south) indicates that there are undoubtedly untouched areas of the site that have not been previously impacted by road grading or game fence construction.

Second, while the currently assessed portion of the site did contain both surface and subsurface cultural deposits, an existing ranch road has already been cut via a bulldozer in the immediate vicinity of the proposed bridge crossings, and several dozer push-piles were noted on each side of the creek channel.

Finally, and most importantly, the currently proposed bridge construction methods include the placement of approximately 10.0 feet (3.0 meters [m]) of fill on opposing banks of San Lorenzo Creek to provide a level approach to the proposed bridge. These fill deposits will serve to cap and preserve any cultural deposits within these areas of the site. In addition, subsurface impacts for the proposed bridge footers are proposed only on the edges of the opposing creek banks where they begin their decent down toward the channel. As the sloping creek banks are unlikely spots for human habitation and the observed occupational debris was encountered upslope of the opposing terraces (where fill will be placed), the proposed construction methods should pose minimal impact to any cultural deposits on the site.

Based on the extensive size of the site, previous impacts to the immediate area of the proposed bridge ROW, as well as construction methods that will pose minimal impacts to any cultural deposits contained within the terraces of the site, it is Horizon's opinion that the construction of the proposed San Lorenzo Creek bridge will have no adverse effect on significant cultural resources listed on or considered eligible for listing on the NRHP within the

USACE jurisdictional area. Horizon therefore recommends that Chesapeake be allowed to proceed with the construction of the proposed bridge, relative to the jurisdiction of the USACE and Section 106 of the NHPA. 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 bridge, even in previously surveyed areas, all work at the location of the discovery should cease immediately, and the THC and the USACE should be notified of the discovery.

2.0 ENVIRONMENTAL SETTING

2.1 GENERAL PROJECT AREA DESCRIPTION

Chesapeake's proposed San Lorenzo Creek bridge ROW is located in southwestern Dimmit County, approximately 21.0 miles (33.8 kilometers [km]) southwest of Asherton, Texas (see Figures 1-1 and 1-2). It can be found on the US Geological Survey (USGS) 7.5-minute East Losa Tank, Texas, topographic quadrangle map (see Figure 1-1). The proposed bridge ROW measures approximately 100.0 feet (30.5 m) in length and 20.0 feet (6.1 m) in width, with a total area of 0.05 acres. It will be located on an existing ranch road that traverses the creek channel via a series of existing culverts that were previously permitted with the USACE in 2012. The newly proposed bridge will serve to provide a safer mode of crossing San Lorenzo Creek for the various vehicles and machinery utilized for oil/gas development on the property. As the USACE considers their jurisdiction to consist of a water channel and the associated uplands within 100.0 feet (61.0 m) of either bank, the survey area consisted of an approximately 200.0 feet (61.0 m) span across San Lorenzo Creek where the channel is traversed by the proposed bridge ROW (approximately 0.1 acres total). 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 proposed bridge ROW is situated across a shallow channel of San Lorenzo Creek. It initiates on the western bank of the creek on an existing lease road and extends northeasterly across the creek channel to the opposing bank. Elevations across the entire span of the bridge ROW range between approximately 660.0 and 670.0 feet (201.2 and 204.2 m) above mean sea level. Hydrologically, the Project Area is situated within the Rio Grande River basin. The Project Area is drained to the south via San Lorenzo Creek. San Lorenzo Creek flows to the south, joining the Rio Grande River approximately 11.3 miles (18.2 km) south of the Project Area.

Figure 2-1. View from the east side of the USACE crossing, facing west

Figure 2-2. View from the west side of the USACE crossing, facing northeast

2.3 CLIMATE

The climate in Dimmit County is generally mild in the winter, with an average temperature of 55.0 degrees Fahrenheit (°F). In the summer months, the average temperature is 85.0°F, with an average daily maximum temperature of 97.0°F. The average annual total precipitation is about 21.85 inches (NRCS 2015).

2.4 FLORA AND FAUNA

The Project Area is located in the Tamaulipan Biotic Province (WWF 2014) and the South Texas Plains vegetational region (Gould 1975). The upland areas support a rich tapestry of South Texas chaparral. The vegetation of the undeveloped and uncleared areas can be characterized as brush country, with variably dense scrub ranging in height from 4 to 10 feet. Mesquite and associated thorny shrubs, such as catclaw acacia, huisache, blackbrush, granjeno, whitebrush, prickly pear, and Spanish dagger are common locally. Understory vegetation is characteristically sparse. Along major drainages, live oak, Texas sugarberry, cedar elm, and retama occur. Little bluestem, bristlegrass, paspalums, windmill grass, and buffelgrass are dominant grasses.

The Tamaulipan/Mezquital ecoregion of southern Texas and northeastern Mexico has unique plant and animal communities containing tree- and brush-covered dunes, wind tidal flats, and dense native brushland (WWF 2014). Although there are large acreages of cultivated land on the South Texas Plains, most of the area is still rangeland. Land holdings predominantly are large cattle ranches. Deer and other wildlife species are common. This area originally supported a grassland- or savannah-type climate vegetation. Long-continued grazing and other factors have altered the plant communities to such a degree that ranchers of the region now face a severe brush problem (Gould 1975).

2.5 SOILS

Only 1 soil type is mapped within the boundaries of the Project Area. This soil is summarized in Table 2-1 (NRCS 2015), and its mapped location is shown in Figure 2-3.

Table 2-1. Soils mapped within the USACE jurisdictional area

SOIL NAME	SOIL TYPE	SOIL DEPTH (INCHES)	SETTING
Brystal fine sandy loam, gently undulating (BYB)	Fine sandy loam	0 to 7: Fine sandy loam 7 to 80: Sandy clay loam	Toeslopes of broad interfluves

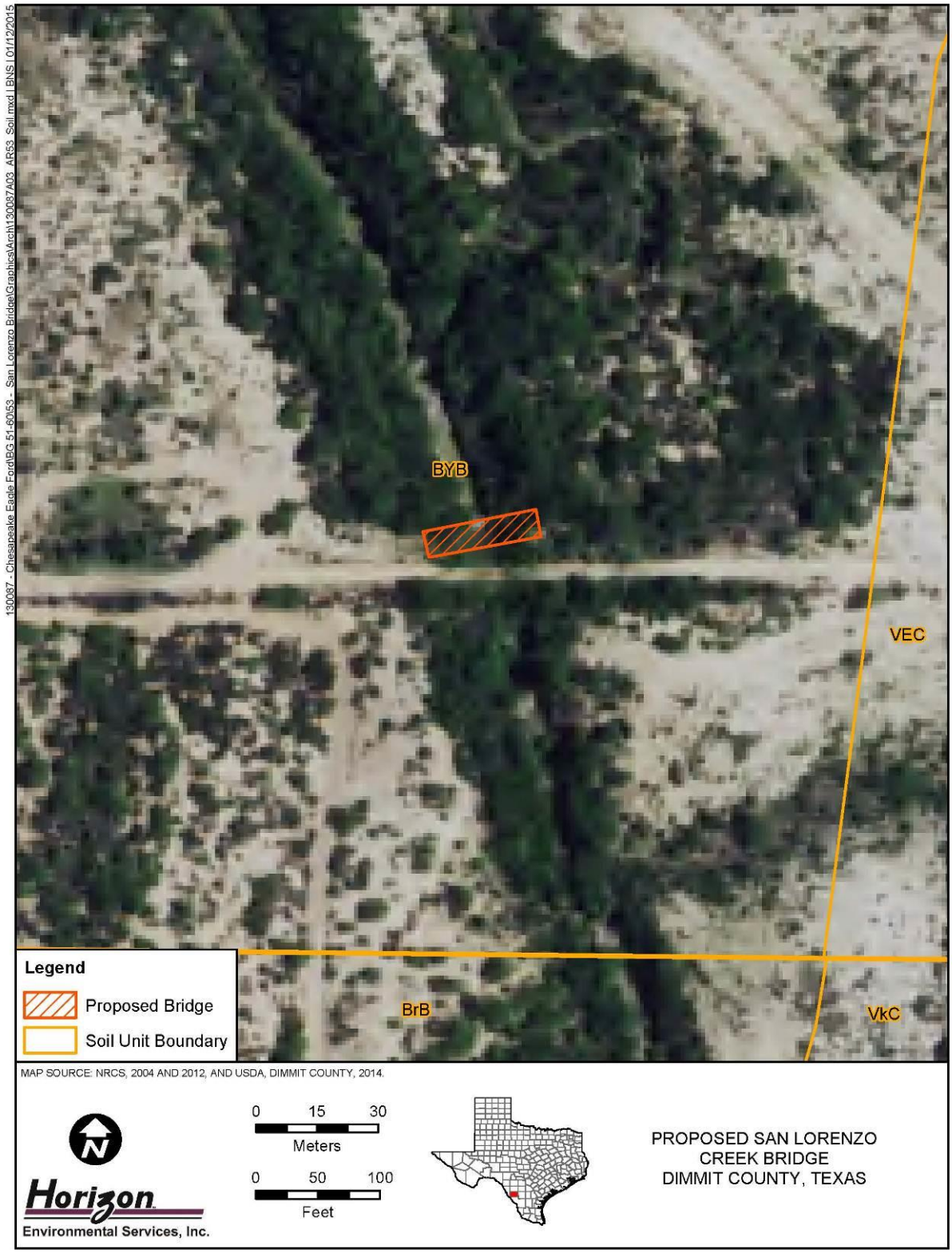

Figure 2-3. Soils mapped within the Project Area

3.0 CULTURAL BACKGROUND

The prehistory of South Texas can essentially be divided into 3 major periods: (1) Paleoindian (9200–6000 BC); (2) Archaic, which has been subdivided into the Early Archaic (ca. 6000–2500 BC), Middle Archaic (ca. 2500–400 BC), and Late Archaic (ca. 400 BC–AD 800); and (3) Late Prehistoric (AD 800–1600). These prehistoric periods are principally defined by the presence of particular diagnostic projectile points, but they are intended to designate general cultural patterns based on ecology, technology, and subsistence strategies (Black 1989:48-57; Suhm et al. 1954).

3.1 PALEOINDIAN PERIOD (CA. 9200–6000 BC)

Evidence of Paleoindian occupations in South Texas (9200–6000 BC) usually consists of surface finds found most frequently in the Nueces-Guadalupe and Rio Grande plains. Only 2 stratified Paleoindian sites have been excavated in the region: Buckner Ranch (Sellards 1940) and Berger Bluff (Brown 1987). Both sites were deeply buried in alluvial terraces. Diagnostic projectile point styles of the Paleoindian period include Clovis (Meltzer 1986), Folsom (Largent et al. 1991), Golondrina, Scottsbluff, and Angostura (Black 1989:48-49). Finely flaked end scrapers fashioned on blades and bifacially worked Clear Fork tools are also diagnostic of the Paleoindian period. Paleoindian peoples have traditionally been characterized as terminal Pleistocene big-game hunters, but these highly mobile hunter-gatherers probably exploited a rich diversity of wild plant and animal foods. Investigations at Baker Cave, for instance, indicate that a diverse array of fish, snakes, and rodents was exploited by the Paleoindian occupants (Hester 1983). Paleoindian populations were probably organized into small groups that ranged over great distances across periglacial plains and marginally forested areas to acquire different food sources throughout the year (Black 1989:48).

3.2 ARCHAIC PERIOD (CA. 6000 BC–AD 800)

The major distinction of the Early Archaic period (6000–2500 BC) is the replacement of earlier lanceolate-shaped projectile points by stemmed and corner-notched types. These styles include Bell, Andice, Early Triangular, and Early Expanding Stemmed points such as Bandy, Martindale, Uvalde, and related forms (Turner and Hester 1999). Other diagnostic artifacts include Clear Fork tools and large, thin, triangular bifaces with concave bases. The beginning of the Early Archaic period marks the onset of the modern Holocene era, during which the periglacial climate of the late Pleistocene began to grow warmer. Available evidence from the

Gulf Coastal Plain suggests that population densities remained low through the beginning of the Archaic period in South Texas, reflecting a continuation of the highly mobile adaptations of the Paleoindian period.

The Middle Archaic period (2500–400 BC) in South Texas is defined by the presence of Pedernales, Langtry, Kinney, Bulverde, and Tortugas projectile point styles (Bell 1958; Turner and Hester 1999). Distally beveled tools are also common during this period, and ground stone tools, such as tubular grinding stones and manos, appear for the first time (Black 1989:49). Site densities in South Texas increase markedly during the Middle Archaic, possibly reflecting a decrease in group mobility and/or an increase in territoriality among groups (Black 1989:51). A heavier reliance on vegetal foods may be indicated by the introduction of ground stone technology and the appearance of large, burned rock middens throughout Central Texas.

Late Archaic (400 BC–AD 800) occupations in South Texas are defined by small corner- and side-notched dart points, including Ensor, Frio, Marcos, Fairland, and Ellis types (Bell 1958, 1960; Turner and Hester 1999). Site densities continue to increase throughout the Late Archaic period, possibly indicating that population densities continued to rise. Cultural deposits on Late Archaic sites also tend to be deeper than during preceding periods, suggesting that occupations were either more extended in duration or that reoccupation of the same locations was more frequent (Black 1989:51). Cemeteries appear during this period, possibly indicating higher levels of social organization and increasing territoriality (Black 1989:51). During the Late Archaic, the exploitation of different ecological niches continued to intensify, becoming increasingly oriented toward the exploitation of seasonal food sources. This kind of adaptation is best illustrated by the frequent occurrence of shell middens along the coast and burned rock middens farther inland. Data collected from inland sites indicate that the economy was based primarily on vegetal resources supplemented with the hunting of small game such as rodents and rabbits (Black 1989:51).

3.3 LATE PREHISTORIC PERIOD (CA. AD 800–1600)

The onset of the Late Prehistoric period is defined by the appearance of pottery and the bow and arrow. The small dart points of the Late Archaic period were largely replaced by arrow points (Black 1989:52). The Late Prehistoric period in South Texas has been divided into 2 distinct time horizons, the Austin (AD 800–1350) and Toyah (AD 1350–1600) phases (Black 1986). The Austin phase is characterized by the presence of Scallorn arrow points, while the Toyah phase is defined by the presence of Perdiz arrow points. Faunal resources became increasingly important during this period, especially large mammals such as bison and deer. Lithic tool kits seem to have been manufactured for the processing of large mammals (Black 1989:51-57). Late Prehistoric sites are relatively common throughout South Texas, which might be interpreted as the result of population increases. The movement of bison from Central to South Texas may coincide with a movement of peoples and/or technology from both the Austin and Toyah phases of Central Texas (Black 1989:51-57).

3.4 HISTORIC PERIOD (CA. AD 1520 TO PRESENT)

The historic era of South Texas began with the arrival of Europeans in the region and can be subsumed within the overall history of Texas. In South Texas, the historic era has been divided into 3 time periods: (1) Spanish Exploration and Colonial (ca. AD 1520–1821); (2) Mexican (1821–1836); and (3) Texas-American (ca. 1836 to present). The Protohistoric era in this region can generally be incorporated within the early part of the Spanish Exploration and Colonial period.

Protohistoric

Records from the initial Spanish expeditions provide the earliest ethnohistoric accounts of the Coahuiltecan-affiliated groups indigenous to the Rio Grande Plain (Hester 1989a:1-4; 1989b:77-82). Based on fragmentary ethnohistorical records, it appears that these people—part of an extinct cultural group that occupied lands stretching from South Texas deep into Mexico—were highly nomadic hunter-gatherers who moved in a seasonal pattern within distinctive territories (Hester 1989a). Available evidence suggests that Coahuiltecans living in the Rio Grande Plain (as well as in other parts of South Texas and northern Mexico) subsisted on a number of seasonal food sources, ranging from prickly pear in the fall to bison or deer in the late fall or winter, as well as small mammals and roots during off seasons or in times of hardship (Hester 1989b:77-81).

Two causes can be cited for the early destruction of the Coahuiltecan groups on the Rio Grande plain. The primary reason stems from the great period of unrest among Native American groups generated by the introduction of the horse by the Spanish. Groups who adopted the horse (especially the Apache and the Comanche) eagerly took to raiding neighboring groups. Nomadic peoples such as the Coahuiltecans were especially vulnerable to such pressure, as they could neither consolidate for protection nor occupy defensible positions without risking starvation. Therefore, finally, the Coahuiltecans asked for missions to be established in their territories in order to protect them from the Apache and Comanche raiders. After the establishment of the Spanish missions in South Texas during the first half of the 18th century, the remnants of the indigenous Native American groups were rapidly integrated into the mission system or were subjected to outright extinction by depredation or disease (John 1975:171-174).

Spanish Colonial

The first European incursion into Texas was by Alvarez de Pineda in 1513 during the course of a Spanish mapping expedition. In 1528, Cabeza de Vaca crossed South Texas after being shipwrecked along the Texas Coast near Galveston Bay (Folan et al. 1989:85). Between 1688 and 1717, Spanish explorers such as Mazanet and Espinosa passed through the Rio Grande Plain from Mexico on their way to the Caddoan settlements in northeast Texas (Hester 1989b:80-81). These early Spanish explorers recorded observations about the aboriginal groups in the region, but they were primarily engaged in consolidating territory for the Spanish Crown.

Following the founding of San Antonio in 1718, the town of Laredo was established along the Rio Grande in 1755 when rancher Tomas Sanchez de la Berrera y Gallardo was granted permission by the great Spanish colonizer, Jose de Escandon, to form a new settlement. Located in the province of Nuevo Santander, which included most of northeastern Mexico and parts of present-day Texas, Laredo was one of a series of settlements that Escandon established or authorized as part of Spain's effort to colonize the area south of the Nueces River (Clark and Juarez 1986:85; Folan et al. 1986:6).

Mexican and Texas-American

Prior to the Treaty of Guadalupe Hidalgo, a Spanish garrison was established in Laredo to minimize the effects of depredations by Lipan Apache and Comanche raiders. In 1790, a daring attack on the city overran the garrison and exploded the powder magazine, deepening fears "that the Comanches' efforts to sweep through south Texas were succeeding" (Briggs 1982:7). Once the Texas-Mexico border was established along the Rio Grande in 1848, the role of protection in the Laredo area passed to the United States. In 1849, a company of mounted infantry under 2nd Lieutenant E.L. Viele arrived to establish an army post on "some high flats west of the city, opposite a ford and just north of a bend in the Rio Grande" (Briggs 1982:7) on the Texas side of the river about 3/4 of a mile west of the old Spanish town of Laredo. Originally named Camp Crawford (or Camp Laredo), the name of the post was changed in 1850 to Fort McIntosh in honor of Lieutenant Colonel James S. McIntosh, who died in September 1847 from wounds received at the Battle of Molino del Rey during the Mexican-American War (Frazer 1972). When construction began in 1850, the general military objective of the fort was to provide "escort service to caravans of travelers and [to reduce] Indian depredations and general outlawry" (Briggs 1982:8).

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 1 previously recorded archeological site within a 0.5-mile (0.8-km) perimeter of the Project Area (THC 2015a), while 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). The previously recorded archeological site and its distance from the Project Area is summarized in Table 4-1, while its location relative to the Project Area is presented in Figure 4-1.

Table 4-1. Documented cultural resources within 0.5 miles of the Project Area

Site Trinomial, Cemetery, or Historic Property	Site Type	NRHP Eligibility Status	Distance/Direction from Project Area	Potential to be Impacted by Project?
41DM190	Prehistoric campsite	Undetermined	Covers Project Area	Yes

Based on the Atlas database, no previous cultural resources surveys are mapped within the Project Area. However, Chesapeake provided Horizon with a copy of an archeological survey report that was prepared by CRC, LLC (CRC) in July 2012 for a proposed concrete crossing within the channel of San Lorenzo Creek at the location of the current Project Area (Griggs 2012). This report notes that 2 prehistoric campsites were documented on opposing sides of San Lorenzo Creek, well outside of any of the Areas of Potential Effect (APE) associated with that project. While the report denotes abundant lithic materials on both sites, including a Scallorn arrow point that reflects a Late Prehistoric occupation at the sites, it also notes that subsurface auger testing produced negative results for any subsurface cultural deposits. Based on the presence of only surficial cultural deposits, and despite the fact that the entirety of each of these sites were not assessed, CRC recommended both sites as ineligible for inclusion on the NRHP. CRC also only assigned temporary site numbers for these sites and did not acquire formal trinomials for them from the Texas Archeological Research Laboratory (TARL).

Sensitive site data omitted

Figure 4-1. Location of the documented cultural resources within 0.5 miles of the Project Area

As can be seen in Figure 4-1, site 41DM190 is mapped across the entirety of the current Project Area. This site was formally recorded as a prehistoric campsite by Tierras Antiguas Archaeological Investigations (TAAI) in December 2012 during a survey of the Faith Toro Trunkline ROW (THC 2015b). Like CRC, TAAI also noted dense amounts of lithic material, including Archaic and Paleoindian dart point fragments, confined to surficial contexts on opposing sides of San Lorenzo Creek. However, TAAI documented the entire area as 1 large prehistoric campsite within the then-proposed ROW and acquired the formal trinomial of 41DM190 for the site. Because TAAI knew the site's deposits extended to the north and south into unassessed areas beyond the ROW, the overall NRHP eligibility of site 41DM190 was not evaluated. However, TAAI indicated that the portion of the site within the ROW was a non-contributing element to the overall NRHP eligibility status of the site due to only surficial deposits of lithic materials.

4.2 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 elevated landforms on opposing sides of San Lorenzo Creek, in conjunction with the fact that the boundaries of site 41DM190 extend across the entire Project Area, it was Horizon's original opinion, prior to the field efforts, that there existed a high potential for prehistoric cultural deposits within the boundaries of the overall Project Area. However, based on the results of 2 prior surveys conducted in 2012 at this location, Horizon anticipated finding cultural deposits restricted to only surface contexts.

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

5.0 SURVEY METHODOLOGY

A 2-person archeological field crew completed the intensive pedestrian survey of the USACE jurisdictional areas contained within the Project Area on 13 January 2015. This entailed intensive surface inspection and subsurface shovel testing efforts on opposing sides of the 1 USACE jurisdictional crossing (San Lorenzo Creek) located within the Project Area. The TSMASS require a minimum of 16 shovel tests per mile for linear projects measuring up to 100.0 feet (30.5 m) in width. As the USACE jurisdictional area totals approximately 200.0 feet (61.0 m) in length, a total of 1 shovel test was necessary within the USACE jurisdictional area in order to comply with the TSMASS. Horizon exceeded the TSMASS by excavating a total of 6 shovel tests within the USACE jurisdictional area contained within 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. 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 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.

Sensitive site data omitted

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

6.0 RESULTS OF INVESTIGATIONS

The cultural resources survey of the proposed bridge ROW resulted in the reassessment of previously recorded site 41DM190. A detailed description of the findings is presented below.

6.1 SITE 41DM190

General Description

As was previously noted in Section 4.0, the location containing the currently proposed bridge ROW was assessed on 2 previous occasions prior to Horizon's current assessment. The first assessment, conducted in July 2012 by CRC, resulted in the observation of 2 separate prehistoric campsites (no formal trinomials acquired) on opposing sides of San Lorenzo Creek and beyond the limits of the APE for a then-proposed concrete crossing (Griggs 2012). While the CRC assessment resulted in the observation of dense amounts of lithic debris in surface contexts on both sites, auger testing on each site produced negative results for subsurface cultural deposits. Based on the lack of observed subsurface deposits, and despite the fact that neither site was assessed in its entirety, the investigations recommended both sites as ineligible for inclusion on the NRHP.

Later that same year in December 2012, TAAI assessed the same location during a survey of the Faith Toro Trunkline ROW (THC 2015b). Also observing dense amounts of surficial lithic debris but no subsurface cultural deposits, TAAI documented the entire area as 1 large prehistoric campsite within the then-proposed ROW and acquired the formal trinomial of 41DM190 for the site. Because TAAI knew the site's deposits extended to the north and south into unassessed areas beyond the ROW, the overall NRHP eligibility of site 41DM190 was not evaluated. However, TAAI indicated that the portion of the site within the ROW was a non-contributing element to the overall NRHP eligibility status of the site due to only surficial deposits of lithic materials.

Like the 2 earlier assessments of the location, Horizon's current investigations also resulted in the observation of copious amounts of culturally-modified lithic materials on both sides of San Lorenzo Creek within the defined limits of site 41DM190. However, as currently defined, the boundaries of site 41DM190 extend well beyond the limits of the currently proposed bridge ROW in all directions. As such, only a small portion of this site confined to the proposed bridge ROW was reevaluated during Horizon's field visit (namely, the western and eastern ends of the proposed bridge structure across San Lorenzo Creek).

Horizon found site 41DM190 to be located on the elevated banks of opposing sides of San Lorenzo Creek (Figures 6-1 through 6-3). A game fence and existing ranch road form the mapped southern boundary of the site, while the northern extent (and likely the true southern extent) extend for an undetermined distance in each direction (Figure 6-4). The western and eastern boundaries were not assessed, but are presumed to match those mapped by TAAI. At this location, San Lorenzo Creek is deeply incised with observed 6.0- to 8.0-foot (1.8 to 2.4 m) cutbanks (Figure 6-5). Vegetation consists of mostly mesquite, acacia, sagebrush, and various cacti (Figure 6-6). The ground surface consists of eroding sandy loam soils covered with a dense scatter of lithic cultural debris (Figure 6-7).

As with the other investigations, Horizon found the site to be evidenced by mainly surficial cultural deposits consisting of lithic debitage and FCR. A total of 6 shovel tests were excavated on the site; 3 on each high terrace on opposing sides of San Lorenzo Creek. Unlike the prior investigations, 4 of Horizon's 6 shovel tests produced dense amounts of subsurface lithic materials, some as deep as 29.5 inches (75.0 cm) below surface. Horizon's investigations were limited to only the portions of the site within the current Project Area. As such, the full extent of site 41DM190 was not assessed.

Observed Cultural Materials

During the original earlier assessments of site 41DM190, recorders noted dense deposits of lithic debris and scattered FCR on the surface of the site. CRC noted the collection of a Scallorn arrow point on the site, indicating a Late Prehistoric component (Griggs 2012). TAAI recorded an Ellis dart point and an untypable Paleoindian point base, reflecting Middle-Transitional Archaic occupations as well as a Paleoindian presence.

Horizon's investigations also noted the presence of dense amounts of lithic debris across the surface of the site, as well as numerous bifaces/biface fragments, dart point fragments, scattered FCR, and several fragments of ochre (Figure 6-8). One of the observed dart point fragments retains a concave and flaring base, similar to the Uvalde, Gower, and Martindale styles and suggesting an Early Archaic presence at the site (Turner and Hester 1999; Figure 6-9). Another dart point fragment appears to be the base of a Tortugas, reflective of a Middle Archaic occupation (Turner and Hester 1999). The projectile points from all 3 investigations on site 41DM190 reflect occupations at this locale throughout the defined extent of prehistory (Paleoindian through Late Prehistoric). Only lithic materials were observed on the site, and no preserved floral or faunal remains were noted.

Cultural Features

No evidence of any intact cultural features (e.g., hearths or burned rock middens) was observed on the surface of site 41DM190 or within any of the 6 shovel tests excavated across the site. However, the presence of scattered FCR across the site, as well as the fact that the site occupations span prehistory, suggest that food preparation via heated stones undoubtedly occurred at various locations across the site.

Sensitive site data omitted

Figure 6-1. Topographic map with the location of site 41DM190

Sensitive site data omitted

Figure 6-2. Aerial photograph with the location of site 41DM190

Sensitive site data omitted

Figure 6-3. Sketch map of site 41DM190

Figure 6-4. General view of site 41DM190 from the east side of the creek, facing west

Figure 6-5. Channel of San Lorenzo Creek, facing north

Figure 6-6. Typical view of the vegetation on site 41DM190 on the west side of the creek

Figure 6-7. Typical view of the ground surface on site 41DM190

Figure 6-8. Typical lithic debris observed on the surface of site 41DM190

Figure 6-9. View of the concave stem dart point fragment from site 41DM190

Horizontal and Vertical Extents of the Cultural Materials

Horizon's current investigations were limited to only the portion of site 41DM190 containing the proposed bridge ROW. As such, the horizontal extent of the site was not assessed. However, TAAI recorded the boundaries as measuring approximately 2500.0 feet (762.0 m) east-west by 250.0 feet (76.2 m) north-south (THC 2015b). At that time, only the width of a proposed pipeline ROW was assessed, and the recorder indicated that the site boundaries undoubtedly continue for an undefined distance to the north and south (THC 2015). Based on the physiography of the area and the presence of several waterway confluences in the immediate area, Horizon concurs that it is highly likely that the site's deposits extend for a considerable distance to the north and south.

The vertical extent of site 41DM190's cultural deposits was assessed during 2 separate assessments in 2012. The first, conducted in July 2012 by CRC, included the excavation of 2 auger probes, 1 on each side of Lorenzo Creek. Both of these auger probes produced negative results for subsurface cultural deposits (Griggs 2012). The second, conducted in December 2012 by TAAI, included the excavation of only 1 shovel test "in the only intact terrace deposit" within that assessed ROW (THC 2015b). This shovel test also produced negative results for subsurface cultural deposits.

Horizon excavated a total of 6 shovel tests on the site; 3 on opposing banks of San Lorenzo Creek. Unlike the previous 2 investigations on the site, subsurface cultural deposits were encountered within 4 of the 6 excavated shovel tests. The 3 shovel tests excavated on the west side of San Lorenzo Creek all contained cultural materials ranging between 0.0 and 27.6 inches (0.0 and 70.0 cm) below surface. On the east side of the creek, the 2 shovel tests closest to the creek channel produced negative results, while the third shovel test produced subsurface cultural materials ranging between 0.0 and 15.7 inches (0.0 and 40.0 cm) below surface.

Summary

Site 41DM190 is a previously recorded prehistoric campsite that has now been assessed on 3 separate occasions by 3 separate firms. All 3 investigations documented dense surface deposits comprised of lithic debitage, FCR, and assorted stone tools reflective of an intense utilization of the location. All 3 investigations also recovered projectile points that collectively reflect a utilization of the area throughout most of documented prehistory (Late Paleoindian through Late Prehistoric). As a result, it is not surprising that the surface of the site is littered with the refuse of countless occupations.

However, the 3 separate investigations differ in 2 ways. First, the initial CRC investigations determined that the area contains 2 sites (neither formally recorded) on opposing sides of San Lorenzo Creek, both with boundaries set a considerable distance away from the channel and both lacking subsurface deposits. The subsequent TAAI investigation determined that the location contains 1 extensive site that continues for an undetermined distance north-south and also lacked subsurface deposits within the then-assessed portion of the ROW. Finally, Horizon's current investigations found that TAAI's extensive boundary is likely correct,

but, unlike the previous investigations, documented relatively thick subsurface cultural deposits on both sides of San Lorenzo Creek.

The second way that the 3 investigations differ is within their overall assessment of the site's NRHP eligibility status. CRC excavated only 2 auger probes on opposing banks of San Lorenzo Creek and did not fully assess the extent of the surface deposits on either bank. However, based on their minimal assessment, they recommended both sites in their entirety as being ineligible for inclusion on the NHRP. TAAI recognized that the extensive site was not assessed in its entirety and therefore did not provide an NRHP eligibility assessment for the overall site. However, due to prior impacts such as bulldozing and erosion within the portion of the site contained within the then-assessed pipeline ROW, TAAI noted that these disturbances likely yielded the portion of the site within the ROW as a non-contributing element to the overall NRHP eligibility status of the site.

During the reassessment of site 41DM190, Horizon's investigations were limited to only the portions of the site within the current Project Area. Moreover, Horizon's investigations also documented relatively thick subsurface cultural deposits that have not been thoroughly evaluated in regard to their integrity and preservation. As the full horizontal and vertical extent of the site has not been assessed, it is Horizon's opinion that the overall NRHP eligibility status of site 41DM190 is currently undetermined. Additional investigations will be necessary to determine if the site contains stratified cultural deposits that contain intact cultural features and preserved floral and faunal remains that could qualify the site as eligible for inclusion on the NRHP under Criterion D.

7.0 SUMMARY AND RECOMMENDATIONS

7.1 SUMMARY

On 13 January 2015, Horizon conducted an intensive cultural resources survey of the USACE jurisdictional areas within Chesapeake's proposed San Lorenzo Creek bridge ROW in southwestern Dimmit County, Texas. Although the Project Area will be located entirely on private property and will be developed with private funds, its construction will require the usage of a NWP issued by the USACE. As a result, the portions of the undertaking within the USACE's purview also fall under the regulations of Section 106 of the NHPA of 1966, as amended. Horizon conducted the cultural resources survey of the USACE jurisdictional areas on behalf of Chesapeake in compliance with Section 106 of the NHPA. The purpose of the survey was to determine if any archeological sites were located within the USACE jurisdictional areas and, if any existed, to determine if the project had the potential to have any adverse impacts on sites eligible for inclusion on the NRHP.

The proposed bridge ROW measures approximately 100.0 feet (30.5 m) in length and 20.0 feet (6.1 m) in width, with a total area of 0.05 acres. As the USACE considers their jurisdiction to consist of a water channel and the associated uplands within 100.0 feet (61.0 m) of either bank, the survey area consisted of an approximately 200.0 feet (61.0 m) span across San Lorenzo Creek where the channel is traversed by the proposed bridge ROW (approximately 0.1 acres total).

The pedestrian survey entailed intensive surface inspection and subsurface shovel testing efforts on opposing sides of the 1 USACE jurisdictional crossing (San Lorenzo Creek) located within the Project Area. The TSMASS require a minimum of 16 shovel tests per mile for linear projects measuring up to 100.0 feet (30.5 m) in width. As the USACE jurisdictional area totals approximately 200.0 feet (61.0 m) in length, a total of 1 shovel test was necessary within the USACE jurisdictional area in order to comply with the TSMASS. Horizon exceeded the TSMASS by excavating a total of 6 shovel tests within the Project Area.

The cultural resources survey resulted in the reassessment of a small portion of previously recorded site 41DM190. This site, an extensive prehistoric campsite, was found to possess dense surficial deposits of lithic debris, stone tool fragments, and FCR. It was also found to possess subsurface cultural deposits extending to depths of at least 27.6 inches (70.0 cm) below surface. As Horizon's investigations were limited to only a small portion of the site,

and its full horizontal and vertical extent have not been thoroughly assessed, it is Horizon's opinion that the overall NRHP eligibility status of site 41DM190 is currently undetermined.

7.2 RECOMMENDATIONS

Although it is Horizon's opinion that the overall NRHP eligibility status of site 41DM190 is currently undetermined, there are several factors that suggest that the current undertaking will pose no adverse impacts to significant cultural deposits on the site. First, the extensive size of the site (as currently defined, as well as within unassessed areas to the north and south) indicates that there are undoubtedly untouched areas of the site that have not been previously impacted by road grading or game fence construction.

Second, while the currently assessed portion of the site did contain both surface and subsurface cultural deposits, an existing ranch road has already been cut via a bulldozer in the immediate vicinity of the proposed bridge crossings, and several dozer push-piles were noted on each side of the creek channel.

Finally, and most importantly, the currently proposed bridge construction methods include the placement of approximately 10.0 feet (3.0 m) of fill on opposing banks of San Lorenzo Creek to provide a level approach to the proposed bridge (Figure 7-1). These fill deposits will serve to cap and preserve any cultural deposits within these areas of the site. In addition, subsurface impacts for the proposed bridge footers are proposed only on the edges of the opposing creek banks where they begin their decent down toward the channel (Figure 7-2). As the sloping creek banks are unlikely spots for human habitation and the observed occupational debris was encountered upslope of the opposing terraces (where fill will be placed), the proposed construction methods should pose minimal impact to any cultural deposits on the site.

Based on the extensive size of the site, previous impacts to the immediate area of the proposed bridge ROW, as well as construction methods that will pose minimal impacts to any cultural deposits contained within the terraces of the site, it is Horizon's opinion that the construction of the proposed San Lorenzo Creek bridge will have no adverse effect on significant cultural resources listed on or considered eligible for listing on the NRHP within the USACE jurisdictional area. Horizon therefore recommends that Chesapeake be allowed to proceed with the construction of the proposed bridge, relative to the jurisdiction of the USACE and Section 106 of the NHPA. 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 bridge, even in previously surveyed areas, all work at the location of the discovery should cease immediately, and the THC and the USACE should be notified of the discovery.

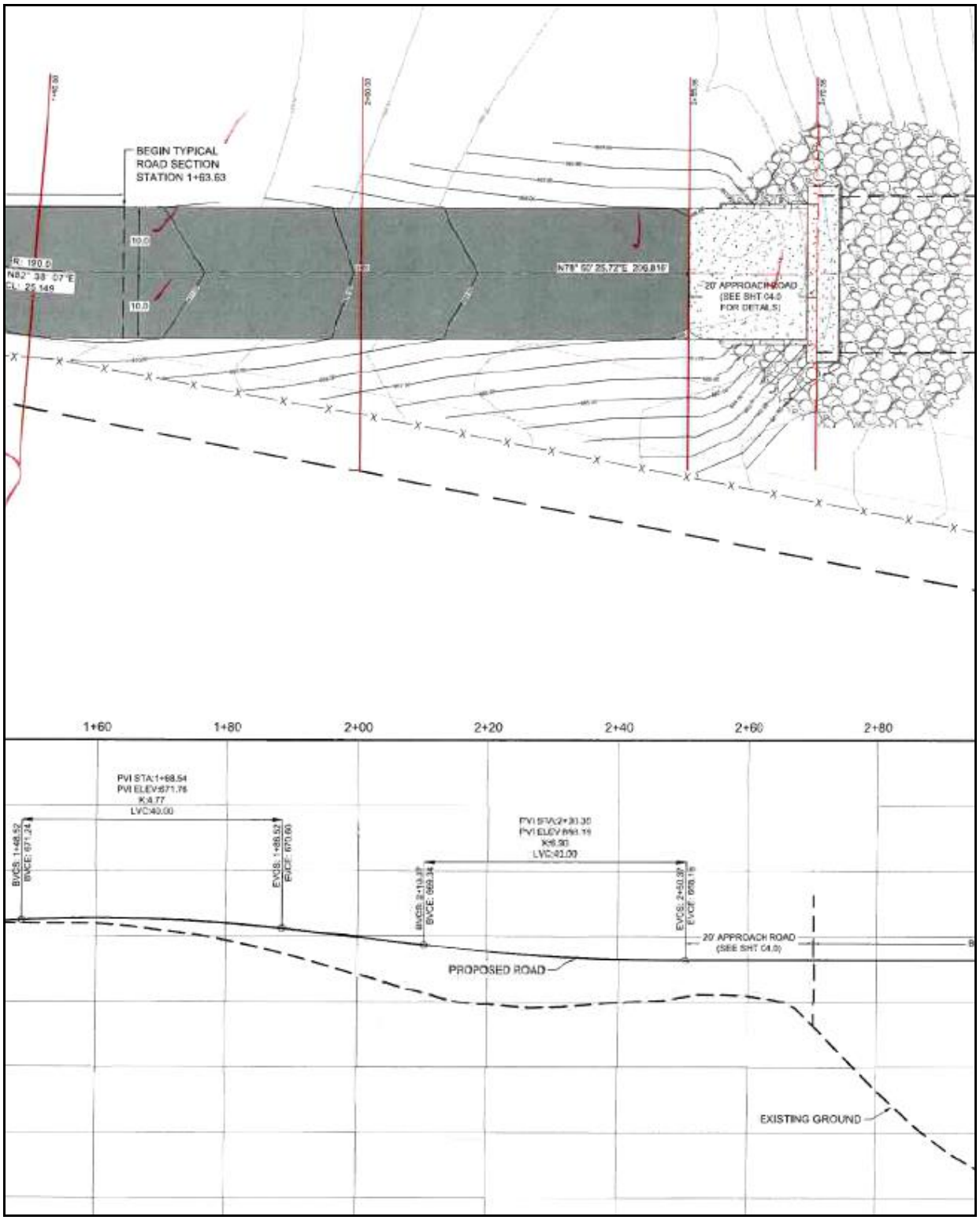

Figure 7-1. Schematic showing the placement of fill on the site for the bridge approach

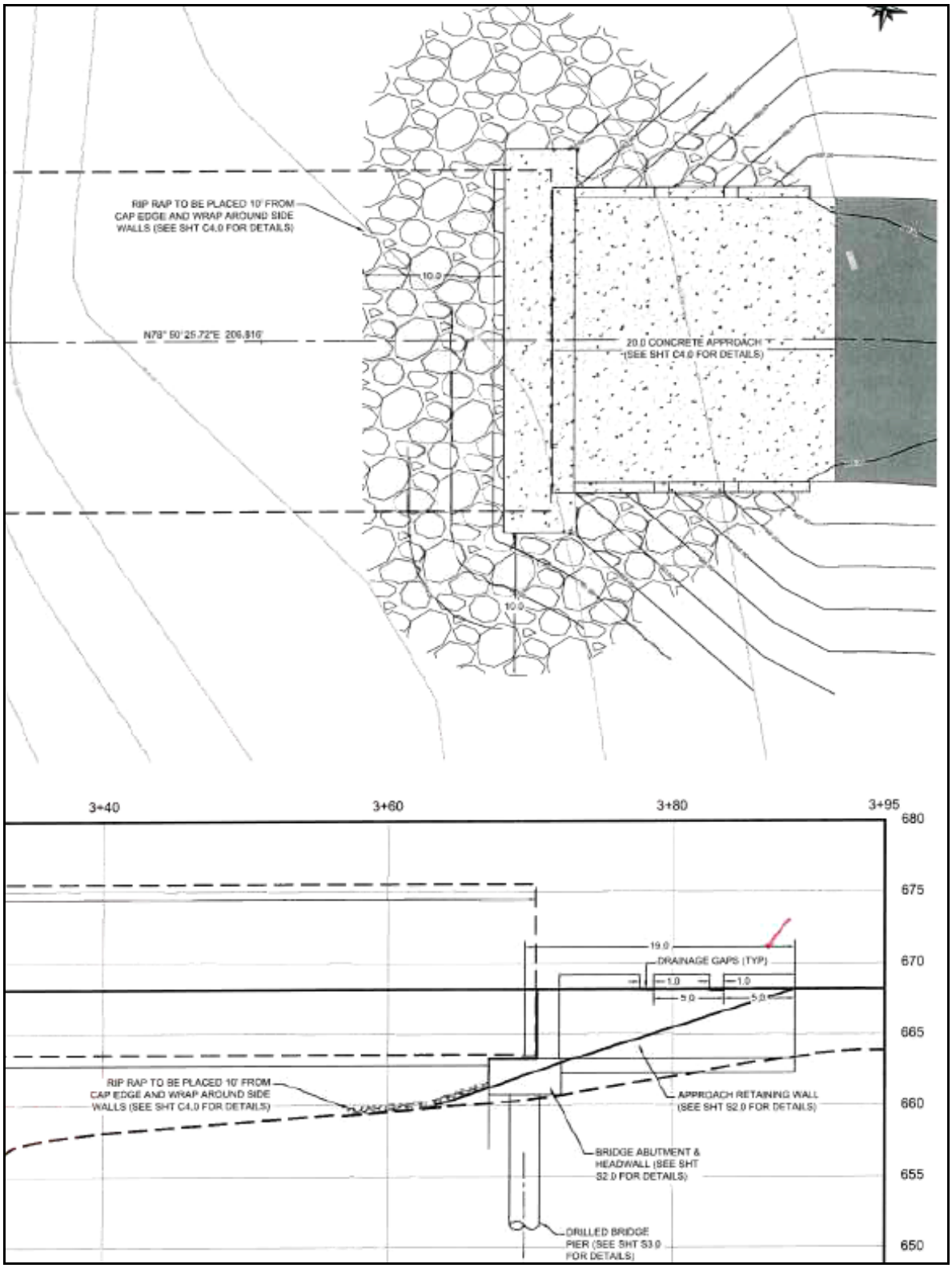

Figure 7-2. Schematic of the proposed bridge footer on the slope of the creek bank

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APPENDIX A:

SHOVEL TEST DATA

Table A-1. Shovel Test Summary Data

ST No.	UTM Coordinates[1]		Depth (cmbs)	Soils	Artifacts
	Easting	Northing			
BS1	402808	3119932	0-20	Brown fine sandy loam	2 secondary flakes, 4 tertiary flakes
			20-30	Brown fine sandy loam	3 primary flakes, 3 secondary flakes, 7 tertiary flakes, 1 rabdotus shell
			30-40	Brown fine sandy loam	3 secondary flakes, 4 tertiary flakes
			40-70	Brown fine sandy loam	3 tertiary flakes, 1 rabdotus shell, 1 charcoal fragment
BS2	402793	3119937	0-20	Dark yellowish-brown loamy sand	1 biface, 1 FCR, 2 secondary flakes, 8 tertiary flakes
			20-30	Dark yellowish-brown loamy sand	1 secondary flake, 1 tertiary flake
			30-50	Dark yellowish-brown loamy sand	1 tertiary flake
			50-60+	Dark yellowish-brown loamy sand	None
JW1	402924	3119936	0-40	Yellowish-brown silty loam	None
			40-50	Yellowish-brown silty loam	None
			50+	Yellowish-brown clay	None
JW2	402951	3119931	0-50+	Yellowish-brown silty clay	None
JW3	402961	3119923	0-20	Brown silty loam	3 secondary flakes
			20-40	Brown silty loam	1 primary flake
			40-60+	Yellowish-brown silty clay	None
JW4	402770	3119916	0-30	Brown silty loam	2 secondary flakes
			30-65+	Yellowish-brown silty loam	1 secondary flake

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

cmbs = Centimeters below surface

ST = Shovel test

UTM = Universal Transverse Mercator