Volume 2015 Article 168

2015

Cultural Resources Survey Of The Proposed ±28,000-Foot Naylor Jones Unit 13 Block A Gathering Pipeline Mcmullen County, Texas

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CULTURAL RESOURCES SURVEY OF THE PROPOSED ±28,000-FOOT NAYLOR JONES UNIT 13 BLOCK A GATHERING PIPELINE MCMULLEN COUNTY, TEXAS

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January 2015

MANAGEMENT SUMMARY

On 17 November 2014, Goshawk Environmental Consulting, Inc. (Goshawk) conducted a cultural resources survey of the proposed ±28,000-foot (±8,534-meter [m]) Naylor Jones Unit 13 Block A Gathering Pipeline right-of-way (ROW) in McMullen County, Texas, at the request of EOG Resources, Inc. (EOG). The Area of Potential Effect (APE) consisted of a proposed ROW measuring 75 feet (23 m) in width which crossed a first-order tributary of Muerto Creek, the Frio River, and the Mossy Slough. A cultural resources survey, including shovel testing and surface inspection, was conducted within the three review areas which totaled approximately 4.6 acres (1.9 hectares [ha]). The archeological field investigation was conducted by Goshawk archeologist Scott Justen with Mitch Juenke. Scott Justen served as the primary author and Reign Clark performed quality control for the report of investigations. Zach Stark produced Geographic Information Systems (GIS) figures for the report.

This survey was performed in compliance with the National Historic Preservation Act of 1966 (PL 89–665), as amended in 1974, 1976, 1980, and 1992; the National Environmental Policy Act of 1969 (PL 91–190, 83 Stat. 915 USC 4231, 1970); the Procedures for the Protection of Historic and Cultural Properties (36 CFR 800); the Archaeological Resources Protection Act of 1979; as well as the guidelines set forth by the Council of Texas Archeologists.

One newly recorded archeological site (41MC807) was documented within the proposed ROW. The site was documented as undated prehistoric campsite comprised of a moderate lithic scatter consisting of lithic debitage and burned rocks. All artifacts were confined to a surface context within the proposed ROW. The site was determined not to be eligible for designation as a State Antiquities Landmark or for listing in the National Register of Historic Places within the proposed ROW, but further research was recommended in order to determine the eligibility of the remainder of the site as it exists to the east of the APE.

The proposed Naylor Jones Unit 13 Block A Gathering Pipeline APE had experienced heavy disturbances attributed to past land clearing and erosion with depositional soils depleted to pre-Holocene levels within the gently undulating uplands and along the fluvial-terraces of the major streams. As such, the probability for intact cultural sites was considered low. Based on survey results of the survey and the data gathered from site 41MC807, it is the opinion of Goshawk that no significant cultural resources will be impacted by construction of the Naylor Jones Unit 13 Block A Gathering Pipeline as proposed. Goshawk recommends that the project be allowed to proceed as planned.

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FIGURES

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1.0 INTRODUCTION

On 17 November 2014, Goshawk Environmental Consulting, Inc. (Goshawk) archeologists conducted a cultural resources survey of the proposed ±28,000-foot (±8,534-meter [m]) Naylor Jones Unit 13 Block A Gathering Pipeline in McMullen County, Texas for EOG Resources, Inc. (EOG). The Area of Potential Effect (APE) consisted of a proposed ROW measuring 75 feet (23 m) in width which traversed a first-order tributary of Muerto Creek, the Frio River and the Mossy Slough. A cultural resources survey, including shovel testing and surface inspection, was conducted within three review areas which totaled approximately 4.6 acres (1.9 hectares [ha]).

The APE is located approximately 0.8 miles (1.4 kilometers [km]) due east of Fowlerton, Texas (Figure 1). The northern terminus of the proposed pipeline was located just south of Texas State Highway (SH) 72. The APE headed in a generally southerly direction traversing gently undulating terrain and crossing near an abandoned well and then crossed the Mossey Slough. The APE then veered in a southwesterly direction traversing fairly level wooded terrain crossing the Frio River. The APE then turned back to the south traversing undulating upland terrain. The APE then turned in an easterly direction for a short distance, paralleling a fence line and Lansford Road, before turning to the south. Then APE then turned toward the east paralleling a fence line and Old Fowlerton Road before crossing the road. The ROW then traversed in a southerly direction over fairly level terrain then crossed a first-order tributary of Muerto Creek. The APE reached its southern terminus upon an upland landform at an oilfield access road. The APE is found on the Fowlerton, Texas, United States Geological Survey (USGS) topographic quadrangle map.

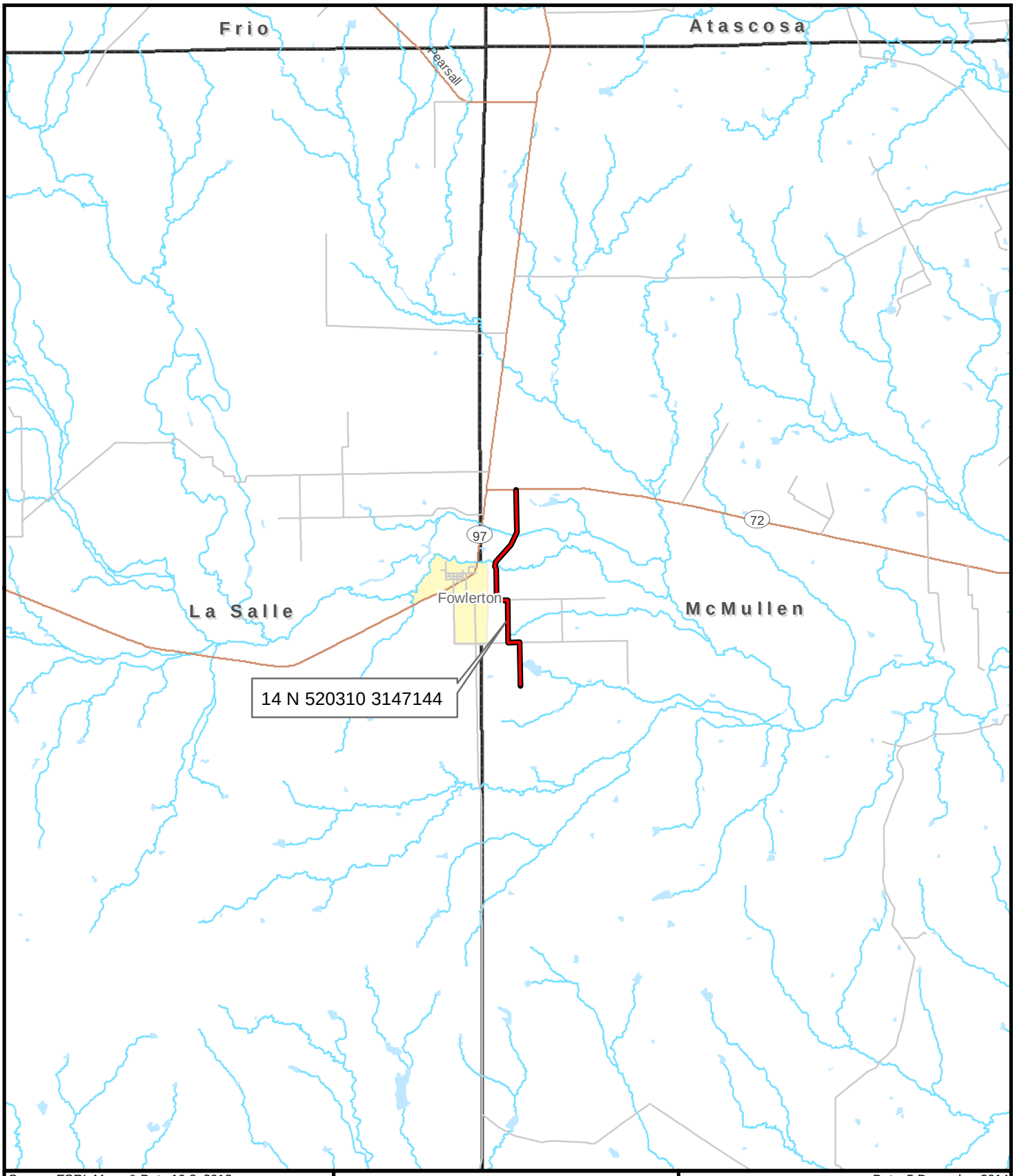
The dominant local land use was pasture for ranching operations, recreational hunting, and oil and gas production. In some areas soil erosion had been accelerated by modern land use, exposing pre-Holocene soils.

This cultural resources survey consisted of archival research, a pedestrian survey augmented by shovel testing, and preparation of a report suitable for review by the United States Army Corps of Engineers (USACE), the regulatory agency responsible for oversight. The investigations were performed in compliance with the National Historic Preservation Act of 1966 (NHPA), as amended (16 U.S.C. 470 et seq., P.L. 89-665, 80 Stat. 915), and the implementing regulations under 36CFR800. They were also intended to comply with the National Environmental Policy Act (NEPA) of 1969; NEPA of 1974 (PL 81-190, 83 Stat. 915, 41 USC 4321, 1970); the Archeological and Historic Preservation Act of 1974 (PL 93-291); the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (48 Fed. Reg. 44716-42, Sept. 29, 1983); the National Register Bulletin Series of the National Park Service; and the Archaeological Resources Protection Act of 1979 (U.S. Department of the Interior 1977). The survey was also conducted under the guidelines set forth by the Council of Texas Archeologists (CTA) (1995).

The cultural resources survey was conducted in areas subject to jurisdiction by the USACE governing navigable "Waters of the US" as defined in Section 404 of the Clean Water Act, Section 10 of the Rivers and Harbors Act of 1899, and Section 328.4 of Title 33 of the Code of Federal Regulations.

The targeted segments of the proposed pipeline ROW (Figures 2 and 3) were subjected to cultural resources survey, including surface inspection and shovel testing. Archeological site 41MC807

was documented within Review Area 1. The portion of the site within the current APE was not considered eligible for listing on the National Register of Historic Places (NRHP) or for designation as a State Antiquities Landmark (SAL). However, it appeared that the site extended to the east of the current APE. As such, further investigation would need to be completed to determine the eligibility of the remainder of the site if future development occurs.



Source: ESRI, Maps & Data 10.2, 2013
Projection: NAD 1983 UTM 14N

0 2.5 5 Kilometers

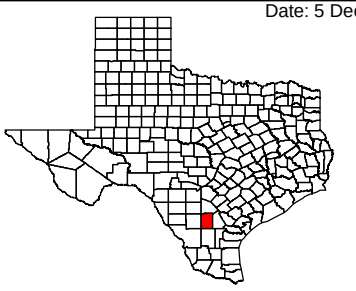
0 2.5 5 Miles

GOSHAWK ENVIRONMENTAL CONSULTING, INC.

Figure 1
Vicinity Map
McMullen County, Texas

Naylor Jones Unit 13 / Block A Gathering

Date: 5 December 2014



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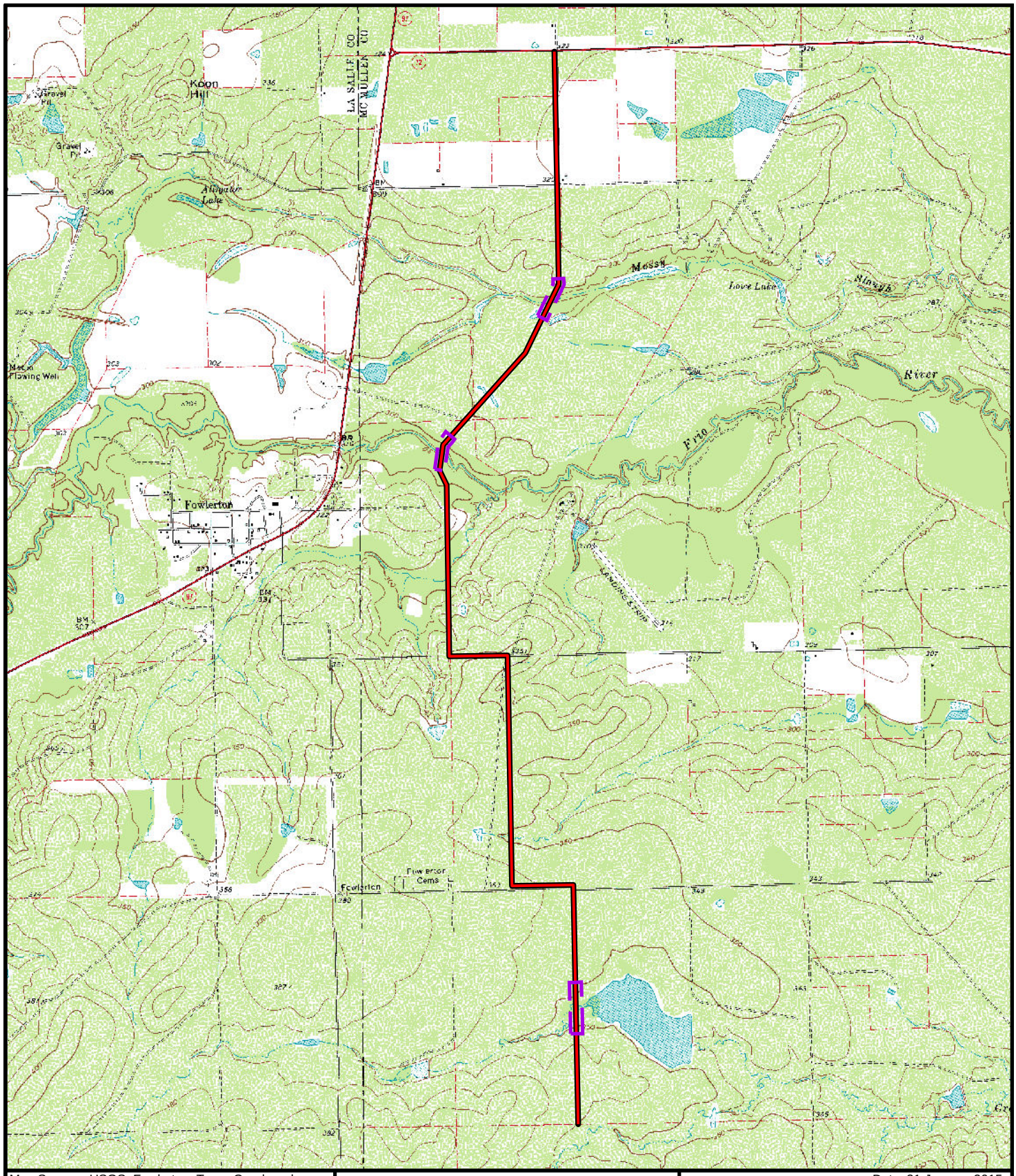


Map Source: USGS, Fowlerton, Texas Quadrangle.

0 1,500 3,000 Feet

0 450 900 Meters

GOSHAWK ENVIRONMENTAL CONSULTING, INC.

Figure 2
Project Area Topographic Map
McMullen County,Texas

Naylor Jones Unit 13 / Block A Gathering

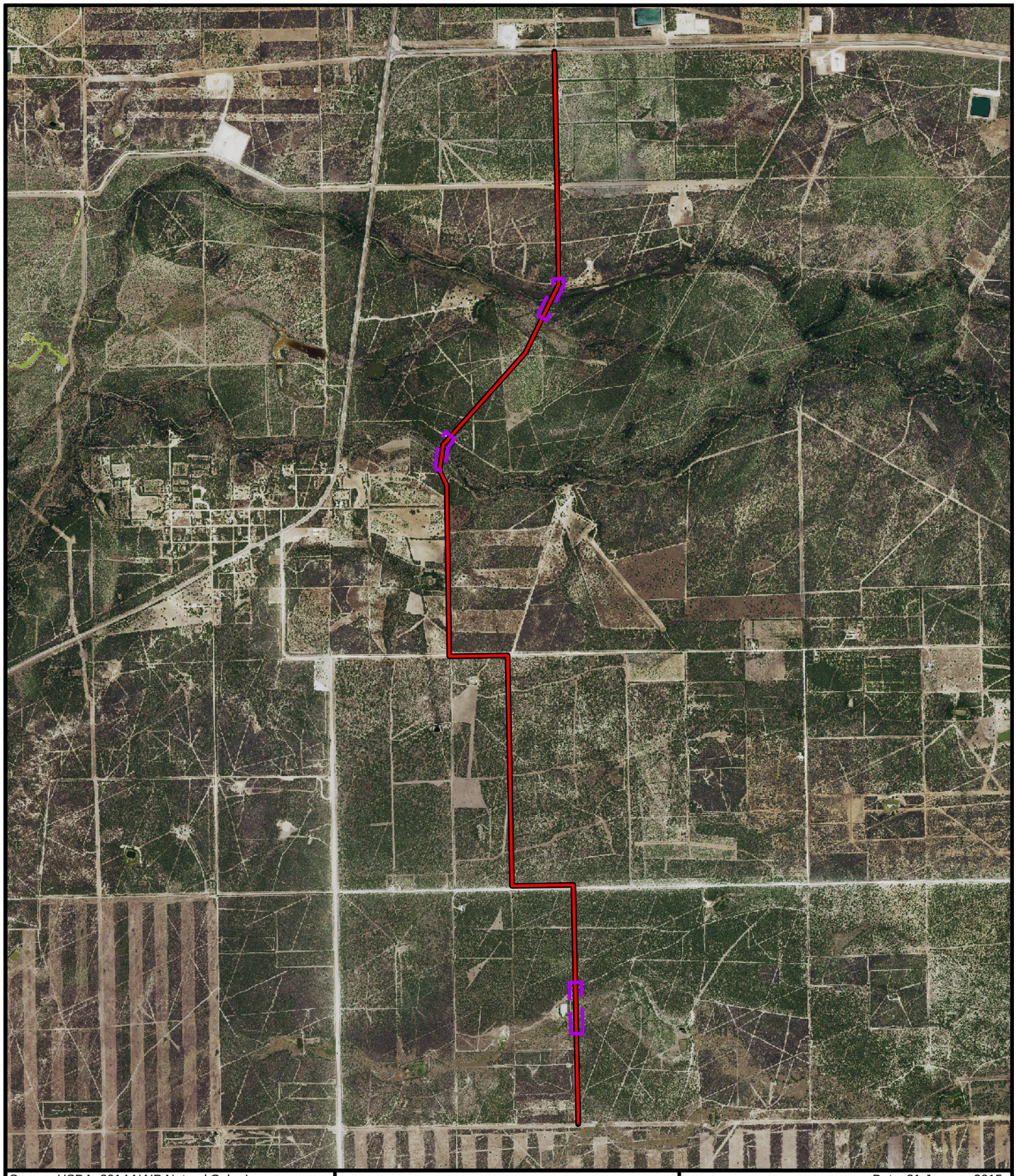
Date: 21 January 2015

LEGEND

Pipeline

Review Areas

N



Source: USDA, 2014 NAIP Natural Color Imagery for Texas.

0 1,500 3,000 Feet

0 450 900 Meters

GOSHAWK ENVIRONMENTAL CONSULTING, INC.

Figure 3
Project Area Aerial Orthoimagery
McMullen County,Texas

Naylor Jones Unit 13 / Block A Gathering

Date: 21 January 2015

LEGEND

Pipeline

Review Areas

N

2.0 ENVIRONMENTAL CONTEXT

The proposed Naylor Jones Unit 13 Block A Gathering Pipeline ROW is located in the South Texas Plains Ecoregion (Gould 1960). The region is characterized by savannah-type grasslands and subtropical thorn forests. The region occupies the southern tip of Texas and contains approximately 20 million acres with an elevation ranging between 0 and 1,000 feet (0 and 305 m) AMSL. The climate in the region ranges between sub-humid and dry with frequent droughts. The average annual rainfall is between 16 and 30 inches (41 and 77 cm) per year (Gould 1960).

The persistent problem of invading brush and cacti is often addressed by “chaining”, whereby a heavy chain is dragged across the landscape by bulldozers, uprooting unwanted brush and mesquite. Additionally, large senderos are often cut through the vegetation to facilitate wildlife management and seismic surveys. Root plowing using a large tracked bulldozer and a dragging blade is a second way to clear brush and destroy mesquite. All clearing methods are potentially disruptive to archeological sites. Poor soil conservation practices have resulted in the depletion of top soil, exposing clay pans within portions of the ROW. Many of the soils originally mapped by the Natural Resources Conservation Service (NRCS) as having pronounced A-horizons over distinct clays. It is thus particularly noteworthy that A-horizons across much of the survey area were highly eroded, indicating recent disturbances and breakdown or movement of topsoil. Thin gravel outcrops with sand over clay are common across the uplands while alluvial clays and clay loams blanket most areas along the creeks.

The APE is in an area of thorn scrub, with mesquite as the dominant vegetation accompanied by cacti, clump grasses, forbs and other thorny vegetation (Figure 4). The persistent problem of invading brush and cacti is often addressed by “chaining”, whereby a heavy chain is dragged across the landscape by bulldozers or tractors, uprooting unwanted brush and mesquite. All clearing methods are potentially disruptive to archeological sites.

Figure 4: Typical Vegetation along APE, Facing South

2.1 GEOLOGIC AND GEOMORPHOLOGIC DATA

The geological formation underlying the Naylor Jones Unit 13 Block A Gathering Pipeline ROW consists of Quaternary terraces (Holocene), Tertiary terraces (Eocene), and the Yegua Formations (BEG 1976, Harshbarger, et al 2011). The youngest (Holocene) material is located along the Frio and Nueces Rivers, and within ephemeral tributaries (BEG 1976, Harshbarger, et al 2011). Within the APE, much of the Holocene age alluvial deposits have eroded away due to land clearing and maintenance practices.

Thick black clay deposits were deposited by lagoons and estuary environments on top of older alluvial coastal sediments (Harshbarger et al 2011). Soil typologies for this area are mostly clayey alluvium weathered from shale or mudstone at lower elevations and sandy loam derived from loamy alluvium on the terraces.

2.2 SOIL TYPES

The Web Soil Survey of the NRCS (NRCS 2014) and the Soil Survey of McMullen County, Texas (Harshbarger, et al 2010) were consulted to determine the major soil types within the Naylor Jones Unit 13 Block A Gathering Pipeline APE. Those soils consisted of Aguilares fine sandy loam, Brennan fine sandy loam, Brundage fine sandy loam, Caid sandy clay loam, Chacon sandy clay loam, Cochina clay, Leoncita loamy fine sand, Mogila sandy clay loam, Montell clay, and Tela sandy clay loam.

Aguilares fine sandy loam, 0 to 3 percent slopes. Aguilares soils are well-drained. A typical soil profile consists of fine sandy loam at 0 to 4 inches (0 to 10 cm), overlying fine sandy loam at 4 to 12 inches (10 to 30 cm), overlying sandy clay loam at 12 to 51 inches (30 to 130 cm), and overlying fine sandy loam to a depth of 80 inches (203 cm). These soils are derived from calcareous loamy residuum weathered from sandstone. Typically, these soils are located on shoulder slopes, summits, and back slopes.

Brennan fine sandy loam, 0 to 3 percent slopes. Brennan soils are well-drained. A typical soil profile consists of fine sandy loam at 0 to 7 inches (0 to 18 cm) overlying sandy clay loam at 7 to 80 inches (18 to 203 cm). These soils are derived from loamy alluvium. Typically, these soils are located on stream terraces.

Brundage fine sandy loam, 0 to 2 percent slopes. Brundage soils are moderately well-drained. A typical soil profile consists of fine sandy loam at 0 to 5 inches (0 to 13 cm) overlying sandy clay loam at 5 to 80 inches (13 to 203 cm). These soils are derived from saline loamy alluvium. Typically, these soils are located on stream terraces.

Caid sandy clay loam, 0 to 3 percent slopes. Caid soils are well-drained soils. A typical soil column consists of sandy clay loam at 0 to 28 inches (0 to 71 cm) overlaying clay loam to 80 inches (203 cm). These soils, derived from loamy alluvium. Typically, these soils are located on stream terraces

Chacon sandy clay loam, 0 to 2 percent slopes. Chacon soils are well-drained interfluvial soils. A typical soil profile consists of sandy clay loam at 0 to 11 inches (0 to 28 cm), overlying clay at 11 to 44 inches (28 to 112 cm), and overlying sandy clay loam at 44 to 80 inches (112 to 203 cm).

These soils are derived from calcareous clayey alluvium over calcareous clayey residuum weathered from shale. These soils are typically located on stream terraces.

Cochina Clay, 0 to 1 percent slopes. Cochina soils are moderately well-drained soils. A typical soil profile consists of deep clay deposits to a depth of 80 inches (0 to 203 cm). These soils are derived from calcareous clayey alluvium. Typically, these soils are located within floodplains.

Leoncita fine sandy loam, 1 to 3 percent slopes. Leoncita soils are well-drained soils. A typical soil profile consists of fine sandy loam at 0 to 11 inches (0 to 28 cm), overlying sandy clay loam at 11 to 80 inches (28 to 203 cm). These soils are derived from calcareous loamy alluvium. These soils are typically located on stream terraces.

Moglia fine sandy loam, 1 to 3 percent slopes. Moglia soils are well-drained soils. A typical soil profile consists of fine sandy loam at 0 to 6 inches (0 to 15 cm), overlying clay loam at 6 to 30 inches (15 to 76 cm), and overlying loam at 30 to 80 inches (76 to 203 cm). These soils are derived from calcareous saline loamy residuum weathered from shale. These soils are typically located on stream terraces

Montell clay, 0 to 3 percent slopes. Montell soils are moderately well-drained soils. A typical soil column consists of deep clay deposits to a depth of 80 inches (203 cm) below surface. These soils are derived from clayey alluvium. Typically, these soils are located on stream terraces.

Tela sandy clay loam, 0 to 2 percent slopes, flooded. Tela soils are moderately well-drained soils. A typical soil column consists of deep sandy clay deposits to a depth of 80 inches (203 cm) below surface. These soils are derived from loamy alluvium. Typically, these soils are located on stream terraces.

2.3 FLORA

McMullen County is located within the Tamaulipan biotic province (Blair 1950, TPWD 2014a) in the South Texas Plains Ecoregion. Native tree species include mesquite, huisache, pecan, live oak, Texas wild olive, and Texas persimmon. Common shrubs and succulents in the region include prickly pear, fiddlewood, desert yaupon, agave, yucca, and autumn sage. Native grass species include sideoats grama, slender grama, buffalograss, inland sea-oats, plains lovegrass, and little bluestem (TPWD 2014a). The biotic province is characterized as subtropical, with high a evaporation rate (TPWD 2014a). Although moisture levels are low, temperatures allow for certain plant growth to occur year-round (Blair 1950). In addition, the area is dominated by clay or clay loam soils. Within areas of deeper soils tall brush is supported like mesquite and spiny hack berry, while shallow soils support short dense brush of many types.

2.4 FAUNA

The Tamaulipan biotic province supports a number of animal species. There are at least 61 mammal species, 57 reptile species, and 22 amphibian species. Common small mammals in the region include several species of rats, mice, and bats; the Texas pocket gopher; the eastern mole; the eastern cottontail rabbit; and the Mexican ground squirrel (Blair 1950). Medium to large mammals include white-tailed deer, American hog-nosed skunk, and armadillo. Another of the

mammalian species located in the ecoregion, also the only marsupial, is the Mexican opossum. Rare or extinct mammalian species in the area include ocelot, jaguar, javelina, bison, and jaguarondi (TPWD 2014b). Reptile species within the region include the western box turtle, Texas banded gecko, Texas spiny lizard, red racer, western diamondback rattlesnake, and diamond-backed water snake (Blair 1950, TPWD 2014a). Rare reptilian species include the Texas tortoise, indigo snake, and Texas horned lizard (Campbell 2003, TPWD 2014b). Despite the drier climate within the Tamaulipan, the region is host to several water-loving urodeles (salamanders and newts) and anurans (frogs and toads) (Blair 1950). There are three species of urodeles and 18 species of anurans. Raptors, songbirds, doves, gulls, and terns are the dominant birds near the APE (Arvin 2007). The rare Cactus Ferruginous pygmy-owl is also occasionally found within the ecoregion (TPWD 2014a, TPWD 2014b).

2.5 CLIMATE

McMullen County has a subtropical climate with average temperatures of 98 degrees Fahrenheit in July. The average low of 42 degrees occurs in January. The average yearly temperature in McMullen County is 71 degrees. The yearly average rainfall is 24 inches (61 cm). Rainfall in the summer accounts for most of the precipitation that falls within the Southern Texas Plaines Region. The growing season averages over 290 days with only one year in two having a yearly low below 42 degrees (Leffler, 2014).

2.6 HYDROLOGY

Review Area 1 traverses upland terrain and crosses a first-order tributary of Muerto Creek, the stream empties into Muerto Creek 1.4 miles (2.5 km) to the southeast. Muerto Creek merges with the Frio River 5.8 miles (9.3 km) to the southeast of the APE. Review Area 2 traverses the Frio River, which empties into the Nueces River approximately 53 miles (82.3 km) south-southeast of the APE just south of the city of Three Rivers, Texas. Review Area 3 crosses Mossy Slough which joins with Esperanza Creek 4.3 miles (7 km) east of the APE. Esperanza Creek flows south for 0.8 mile (1.3 km) before empting into to the Frio River. Elevations along the proposed ROW ranged between 300 feet (91.4 m) and 350 (106.7 m) above mean sea level (AMSL).

3.0 CULTURAL CONTEXT

The APE is located in the South Texas Archeological Region where nomadic hunter-gatherer groups migrated seasonally, following resources and sharing cultural traits with other groups. This is evidenced in the dispersal of point types and ceramic styles across the region (Prewitt 1995). Open camps are the most common type of archeological site found in La Salle County. Open camps can be shallow or deeply buried, can be small or large, are often adjacent to streams and usually contain clustered archeological material such as burned rocks, lithic debris, hearths, or middens. Bone and shell are less common in the assemblages, as organics rarely survive due to the alkaline nature of the soils.

La Salle County is within the South Texas archeological region. Notable work in South Texas archeological research has been conducted by Fox et al. (1974), Mallouf et al. (1977), Mercado et al. (1996), Hall et al. (1986), Black (1989), and Hester (1980). However, the lack of intensive investigations, high rate of looting, and levels of erosion that occur throughout South Texas have left barriers to fully understanding and dating the periods of occupation in the area (Perttula 2004).

The following cultural background is divided into several periods: Paleoindian (9,500 to 6,000 B.C.), Early Archaic (6,000 to 2,500 B.C.), Middle Archaic (2,500 B.C. to A.D. 400), Late Archaic (A.D. 400 to 700), Late Prehistoric (A.D. 700 to 1750), and Historic (A.D. 1750 to present) (Aten 1983; Perttula 2004; Turner and Hester 1999). Some scholars include another period, the Protohistoric or Transitional Archaic, but it will not be included here as the term lacks a useful definition and contextual information available in this region.

3.1 PREHISTORY

3.1.1 Paleoindian Period (ca. 9,500 to 6,000 B.C.)

Recent archeological evidence indicates prehistoric people may have occupied this area prior to the Paleoindian Period. However, the controversial sites that show evidence of an earlier period of habitation have not yet been widely accepted by the archeological community. For this reason, the prehistoric period will begin with Paleoindians.

Beginning around 9,500 B.C., the Paleoindian is the earliest identified cultural period in the vicinity of the survey area. It spans over 3,000 years to about 6,000 B.C. (Ensor and Ricklis 1998). According to some authors, the Paleoindian period begins approximately 1,200 years earlier (11,500 B.C.) further to the south in the South Texas region. It has been postulated that this is most likely due to the earlier habitation of the Paleoindian Clovis peoples coming north from central Mexico (Perttula 2004).

Coinciding with the decline of the Wisconsin glaciation, the Paleoindian period is characterized by a relatively cool, moist climate that encouraged the development of now-extinct species of Pleistocene megafauna, such as bison. This period is sometimes called the Big Game Hunting tradition (Willey 1966), due to a presumed heavy reliance by Paleoindian peoples on megafauna as a food source during the earlier portion of the period. These conclusions are based on well-documented exploitation of megafauna in the western United States and evidence of the presence of similar species in North Texas between 11,000 and 9,000 years ago (Slaughter and Hoover 1963). One radiocarbon date from the Lubbock Lake Landmark pushes the date back to 11,500 years ago (Holliday 1987:22). However, excavations at the Aubrey site (41DN479) in north central Texas have indicated that subsistence efforts did not focus on big game animals alone (Ferring 2001). Rather, the entire range of available fauna was utilized by the occupants of the site. This range included bison, deer, rabbit, squirrel, fish, and turtle (Ferring 1989, 2001; Ferring and Yates 1997). Whether this pattern of a more generalized foraging subsistence system is characteristic of Clovis adaptations to this region remains to be documented. Ferring and Yates (1997) suggest that, in general, the Clovis people probably employed “very flexible adaptive strategies.” Due to the findings at this site and other evidence, many archeologists now believe that while Paleoindian people did use megafauna as part of their diet, the points of the debate between the two subsistence patterns has been exaggerated (Bryant and Shafer 1977; Johnson 1977).

One major geological feature of the Paleoindian time period that greatly differs from the present is sea levels. It has been estimated that during the Paleoindian period, the Gulf of Mexico coastline was between 19 and 25 miles (30 and 40 km) seaward of its present location (Aten 1983:116-117; Paine and Morton 1986; Ricklis and Blum 1997). Forests appear to have occupied much of the

upper Texas coast and probably extended onto the now submerged continental shelf. It is likely that some Paleoindian sites, currently located off the coastal shore, are deeply buried in the terraces of major streams, or have been obliterated by Holocene erosion (Abbott 2001:98; Hester 1980:7-8). Paleoindian remains have been recovered along McFaddin Beach, where cultural remains were redeposited from an actively eroding site offshore (Long 1977; Turner and Tanner 1994). Evidence of early Holocene shell middens along now-inundated paleochannels of the Sabine River have been reported by Stright (1986, 1990). Environmental changes that brought about the extinction or dislocation of megafauna precipitated a shift toward smaller game, creating the transition into the Archaic (Aten 1983:146-148; Willey and Phillips 1958:107).

Temporally diagnostic tool types attributed to this period include a variety of finely chipped, sometimes fluted, lanceolate projectile point styles, such as Clovis, Folsom, Plainview, and Scottsbluff (Meltzer and Bever 1995; Prikryl 1990; Willey 1966). Many of these projectile points are made of nonlocal lithic materials, supporting the idea of a widely mobile group. Social organization in the Paleoindian period likely consisted of loosely structured, highly mobile groups composed of several nuclear families, often referred to as “bands.” Archeological sites of this period often seem to be representative of transient camps along small streams occupied by band-sized or smaller groups. Larger occupation sites, often referred to as “base camps,” are relatively rare. Overall population density is thought to have been rather low during this period (Patterson and Hudgins 1985).

The Paleoindian projectile point types show a transitional change between the earlier Paleoindian points and the Early Archaic. By the late Paleoindian period, unfluted lanceolate projectile points such as Plainview, Golondrina, and Angostura were more common (Story et al. 1990).

3.1.2 Archaic Period (6,000 B.C. to A.D. 400)

Following the close of the Pleistocene, the South Texas region experienced a trend toward a warmer and drier climate. It has been postulated that this climate shift was at least partially responsible for the extinction of megafaunal species. The archeological record of this period exhibits evidence of a gradual diversification in subsistence patterns. This is the beginning of the Archaic, which lasts from about 6,000 B.C. to A.D. 400 (Aten 1983:152-157). The Archaic period is divided into three time periods: the Early Archaic (6,050 to 2,500 B.C.), the Middle Archaic (2,500 B.C. to 1,000 B.C.), and the Late Archaic (1,000 B.C. to A.D. 400) (Perttula 2004; Turner and Hester 1999). Few Archaic sites are recorded on the Upper Texas Coast (Aten 1983:153; Story 1985:28-29). Story (1985:31–34) suggests site density was low on the coastal plain during this period. Archaic sites tested or excavated near the modern shoreline generally consist of shell-bearing sites with varying degrees of lithic tools and debitage, shell or bone tools, and the bones of fish, mammals, and reptiles (Ambler 1967, 1970, 1973; Aten 1979, 1983; Ensor 1998; Howard et al. 1991). Inland sites tend to contain more lithic artifacts and debitage with terrestrial mammal bones comprising the bulk of the inland faunal assemblages. Archaic patterns in tool-making for the South Texas region are centered on corner-notching technology and triangular points, moving away from the basal-notching technology.

3.1.2.1 Early Archaic (6,000 to 2,500 B.C.)

Paleoindian projectile point types are replaced in the Early Archaic by unfluted lanceolate projectile points such as Plainview, Golondrina, and Angostura (Story et al. 1990). The Early Archaic period is generally thought to have a beginning date from around 8,100 to 7,200 B.C., according to (Johnson 1989:47), but others disagree placing the Early Archaic at a later time. Ensor (1987) suggests that San Patrice points (Wolf's Head), a probable variant of Dalton points, bridged the gap between Paleoindian manifestations and later Early Archaic expanding-stem projectile points. This is consistent with adaptations in the southeastern United States to modern floral and faunal regimes after the Pleistocene (Goodyear 1982). Thus, southeastern cultural affiliations are deeply rooted in Southeast Texas.

Several sites on the inner margin of the coastal plain with components dating to the Early Archaic have been recorded (Fields 1988; Patterson 1980; Patterson and Hudgins 1985; Wheat 1953), although very few intact Early Archaic components are known on the Upper Texas Coast (Aten 1983:153). Story (1985:31) suggests the inland margin of the coastal plain may have been occupied more intensively than the Upper Texas Coast as sea levels rose during the Early Archaic.

The Early Archaic in the South Texas region is significantly shorter than in other regions due to the onset of specific regional cultural patterns occurring around 2,500 B.C., which emphasized un-stemmed dart points and smaller bifacial and unifacial beveled tools (Perttula 2004). In addition to these cultural patterns, the archeological record shows the diet of the people in this area consisted of turtles, snails, and freshwater mussels. Land snails (*Rabdotus* sp.) are often present at prehistoric sites, but there is debate regarding whether the prehistoric peoples were consuming them or if the snails were merely "cleaning up" after the group moved out of the area.

3.1.2.2 Middle Archaic (2,500 to 1,000 B.C.)

The coastline reached its modern-day location during the Middle Archaic, between 3,000 and 1,000 B.C. (Aten 1983:137; Ricklis and Blum 1997). In addition, the Post Oak Savannah biotic regime may have developed in the Middle Archaic, initiating the development of the environmental zone that currently characterizes the coastal area (Prikryl 1990). Expanding-stem projectile points continued to dominate the lithic assemblage until approximately 2,000 B.C., when later Middle Archaic types, such as Palmillas and Kent, became more prevalent in the lowest levels of the Harris County Boys' School site (Aten 1976; Aten et al. 1976; Ensor and Ricklis 1998). Excavation of site 41AU36 on the lower Brazos River revealed a cemetery in use from the Middle Archaic through the Early Ceramic period (Hall 1981). Story (1985:44–47) suggests the establishment of cemeteries along major streams on the coastal plain indicates increased territoriality during the Middle and Late Archaic (see also Hall 1981; Story et al. 1990:237–242).

For the South Texas region, the Middle Archaic is more thoroughly represented in the archeological record than the Early Archaic. It is during this time period that the triangular Tortugas and Abasolo points were developed. In addition, the archeological record shows the development of smaller, unifacial, distally beveled tools that show a high amount of reworking and resharpening. Evidence supports that these common tools were used in wood-working (Perttula 2004). During this period, most open campsites were placed in flood-prone zones along low

terraces, and while information concerning their diet is scant, numerous types of fuel materials have been identified including mesquite, acacia, oak, and hackberry (Perttula 2004). There is also significant data concerning treatment of the dead in this area and time frame (Patterson et al. 1998). Especially later in the period, cemeteries were commonly used, most of which contained grave goods such as points, flakes, cores, and sandstone pieces (Perttula 2004; Hall et al. 1986). One such cemetery, Loma Sandia, is dated to the late Middle Archaic and is` located east of the project area in Live Oak County (Taylor and Highley 1995). With its hundreds of burials and thousands of artifacts, it remains one of the most studied archeological sites in South Texas.

3.1.2.3 Late Archaic (1,000 B.C. to A.D. 400)

The Late Archaic Period, called Transitional Archaic by some authors (Turner and Hester 1999:62-63), occupation of the coastal area is much better represented by numerous specimens of dart points such as Yarbrough, Kent, and Gary types found in shoreline shell-bearing sites as well as inland riverine locations (Gadus and Howard 1990, Mercado-Allinger et al. 1984). During the Late Archaic, sea levels remained stable and the modern climatic regime became fully established throughout Texas (Aten 1983:157–159).

Aten (1983) hypothesized the establishment of seasonal rounds, including regular movements from littoral to inland areas during the Late Archaic. During this period, grave goods from site 41AU36 on the Brazos River in Austin County indicate the inhabitants of the site were involved in an import-export sphere extending from southeast Texas to as far north as Arkansas (Hall 1981:289–309). Story (1985:40) views the establishment of large cemeteries along drainages as evidence of strong territorial ties by certain groups resulting from increased population growth in the region. This is likely a continuation and growth of traditions that began in the Middle Archaic. Hall (1981) argued the highly productive environments such as river valley bottoms, estuaries, and bays that formed during the late Holocene were home to a wealth of resources. Many of these resources were predictable, concentrated, and fixed on the landscape, and allowed Late Archaic groups to operate within smaller, more-exclusive territories.

In the Prairie Savanna region, located near the Post Oak Savannah, excavations far to the north of the project area along Richland Creek and Chambers Creek reveal intensive reoccupation of sites by hunting and gathering groups whose diet was rich in plants, nuts, and a variety of fauna and aquatic resources (McGregor 1987; TPWD 2014c). Changes in subsistence regimes are reflected in the proliferation of large pit features, presumably communal, used to process a range of vegetal resources in Central and West Texas.

Two sites located along the Brazos River in Burleson County, the Winnie's Mound site (41BU17), (Bowman 1985) and 41BU16 (Roemer and Carlson 1987) yielded a mix of projectile point styles common to both central and east Texas. Ceramics were also recovered at both sites, although none were typologically distinct. Large cemetery sites begin to appear in the archeological record during the Late Archaic in this region. Cemeteries dating as early as the Late Archaic have been found at the Loeve-Fox site (41WM230) on the north bank of the San Gabriel River in eastern Williamson County (Prewitt 1974), the Winnie's Mound site (Bowman 1985) and 41BU17 (Roemer

and Carlson 1987) in Burleson County, and the Ernest Witte site (41AU36) on the coastal plain in the Brazos River Valley (Hall 1981).

Although Late Archaic sites found along the western margins of the region share similar adaptive strategies with those found along the eastern boundaries, there are noticeable differences. Both the Chesser site (41LE59) (Rogers and Kotter 1995) and the Walleye Creek site (41LE120) (Rogers 1999) have strong Archaic components. Numerous burned rock features were found in association with Late Archaic dart points such as Bulverde, Pedernales, Marshall, Castroville, and Montell (Johnson and Goode 1995). Late Archaic dart points such as Marcos, Ensor, Darl, and Fairland were also recovered. The presence of these point types led Rogers (1999:96–97) to conclude that both sites showed distinct ties to central Texas and the eastern margins of the Edwards Plateau in particular.

In general, Late Archaic sites in Texas show a marked increase in site utilization and heavy dependence on seasonal base camps, where various maintenance, extractive, and processing tasks were used in exploiting local resources. Assemblages characterizing these technological activities include a variety of dart point styles, a suite of ground and polished stone tools, and the beginning use of ceramics.

3.1.3 Late Prehistoric Period (A.D. 400 to 1750)

The Late Prehistoric period in the Prairie Savannah of Texas saw a continuation of many of the same cultural and subsistence patterns in place during the Late Archaic (e.g. cemeteries and burned rock features) with two very significant technological adaptations: a heavier reliance on ceramics by certain groups and the introduction of the bow and arrow (Ensor 1998). Based on archeological evidence, not all groups adopted the ceramics tradition. Sites situated along or near the eastern edge of the Prairie Savanna region were undoubtedly visited by peoples who resided outside the region. However, a recent study has defined a distinct central Texas prairie assemblage that resembles material assemblages found at the George C. Davis site (41CE19) in Cherokee County (Shafer 2006). Based on technological similarities Shafer hypothesized these Late Prehistoric people of the prairie, which he refers to as the "Prairie Caddo," were culturally distinct from other populations occupying portions of the central Texas prairie during the Late Prehistoric. Shafer's study, when coupled with the archeological evidence from sites located along the western and southern margins of the Prairie Savanna archeological region, supports the notion that the Prairie Savanna is a transitional zone between central Texas, northeast Texas, and the Texas coast (Kotter et al. 1991; Skelton 1977). This is particularly true for the relatively complex Late Prehistoric period.

Sometime around A.D. 1250 to 1350 the distinctive Toyah culture appears in the central Texas archeological record and rapidly spreads east-southeast onto the Blackland Prairie and the inland coastal plain (Arnn 2012:52). The Toyah interval brought with it a distinctive artifact assemblage known as the Toyah toolkit or technocomplex (Prewitt 1985). The rapid adoption of this toolkit is generally assumed to be tied to the hunting and processing of large game animals, particularly bison. The origins of the Toyah remain controversial, with the debate centered on whether Toyah represents an intrusion or migration of people into the region or the spread of a successful toolkit.

The toolkit was comprised of blade flake production (as opposed to the bifacial core reduction) of Perdiz arrow points, Harahey knives, large flake/blade end scrapers, beveled knives, flake perforators, and arrow-shaft abraders.

In most of central Texas the Leon Plain ceramic type, and less often Doss Redware, occur in association with Toyah phase materials (Johnson 1994; Prewitt 1985). Different sociocultural groups adopted the Toyah lithic complex in conjunction with bison hunting, while maintaining their own stylistically distinct ceramic traditions. Again, not all groups used ceramics. This adaptive strategy is most pronounced at the margins of the Toyah cultural area, where pottery was stylistically influenced by pottery traditions already in place in the adjacent areas of east Texas and the Texas coast (Hall 1981). Throughout east central Texas and the Prairie Savannah, both sandy paste ceramics and Caddo ceramics have been found (Ricklis 1994). Thus, it appears that an indigenous ceramic tradition with ties to the east existed in the region by about A.D. 1200 to 1300 (Rogers and Kotter 1995).

Sites with Late Prehistoric components are quite common in the northeastern portion of the region. The data from numerous excavations suggest that during the early part of the Late Prehistoric, populations were primarily sedentary hunters and foragers that seasonally moved to residential base camps for extensive periods of time (McGregor 1987). Arrow point styles (e.g., Alba, Scallorn, and Steiner) more closely resemble those found east of the Trinity River. Groups that were using ceramics typologically resembled Caddo wares (e.g., Maydelle Incised, Poyner Engraved, and Weches Fingernail Impressed), suggesting contacts with groups in the Neches River drainage.

Evidence from sites such as those found along Allens Creek on the coastal plain in the Brazos River Valley (41AU31, 41AU36, 41AU37, and 41AU38) exhibits characteristics of both coastal and inland cultures (Hall 1981). The coastal ties are best represented in the ceramic assemblage that is dominated by sandy paste pottery. The subsistence is more similar to inland cultures. Subsistence sources included deer, antelope, a variety of small mammals, and river mussels.

Assemblages along the west-southwestern margins exhibit stronger ties than those found at sites in central and South Texas. For example, excavations at the Toyah Bluff site (41TV441) located above Onion Creek in Travis County revealed over 20 features, including burned rock hearths and earth ovens, some of which contained remnants of floral matter (Karbula et al. 2001). Faunal remains were also present, but in comparatively low numbers. The remains represented bison, deer, dog, and turtle. Both the faunal and floral evidence suggest a significantly more diverse subsistence pattern for this period than often assumed, with bison probably supplementing rather than supplanting existing subsistence practices. Manos and metates, signs of plant processing, were also found frequently in association with the burned rock features. While the earliest of the features at Toyah Bluff date to approximately A.D. 1200, at least one of the earth ovens has been dated by radiocarbon analysis to within the Toyah interval (A.D. 1310 to 1480). Two ceramics recovered from Toyah Bluff consisted of 39 small specimens, the majority of which were bone-tempered with sandy paste. Due to similarities with sherds from nearby sites, it was surmised they might represent a widely produced local type (Karbula et al. 2001). Other ceramics from the site

were characterized by bone tempering or a very sandy paste. This latter group may possibly reflect ties with eastern Texas or the Texas coast (Black 1986).

Cemetery sites are more common during the later portion of the Late Prehistoric. To the south, small, repeatedly used, semiformal cemeteries are a characteristic of the Austin phase, and exemplified by those found at the Frisch Auf site (41FY42) (Hester and Collins 1969) and the Smith Creek Bridge site (41DW270) in DeWitt County (Hudler et al. 2002). The Smith Creek Bridge site had a well-preserved component bearing Morhiss projectile points, dating to around 800 B.C., suggesting affiliation with the Morhiss Mound site in Victoria County. Dates offered for the South Texas region for the Late Prehistoric period are from A.D. 700 to 1250 and share cultural patterns with central Texas and the Toyah horizon except for the absence of bison from the faunal remains and the theory that pottery was not introduced to the region by these people (Perttula 2004). The presence of non-native materials, including obsidian from Idaho and Mexico as well as jadeite and serpentine from Mexico, shows an increased and extensive trade network through the area.

3.2 HISTORIC PERIOD (A.D. 1750 TO PRESENT)

3.2.1 Historic Native Groups in the Area

Among the inheritors of the Toyah culture were the Sanan speakers such as the Emet, Sana, Sijame, and Toho living east of the Edwards Plateau. Although these groups utilized Toyah stone toolkits, they also produced pottery of a different type than produced at Classic Toyah culture sites (Johnson and Campbell 1992). In addition to Sanan speakers, Tonkawa-speaking groups are known to have been in the region between the Guadalupe and Trinity Rivers (Foster 1995). They were not native to the area as their ancestral homeland was located far to the north. Tonkawa speakers probably did not arrive in east central Texas until about the middle of the eighteenth century (Prikryl 2001:66).

Early European Spanish expeditions in Texas afford the primary evidence of the relevant historic Indian tribes in east central Texas during the late seventeenth- and early eighteenth-centuries (Johnson and Campbell 1992). These expeditions include the 1689 expedition of Governor Alonso de León, the 1691 to 1692 expedition of Governor Domingo Terán de los Ríos, the Espinosa-Olivares-Aguirre expedition of 1709, Ramón's expedition of 1716, Alarcón's expedition of 1718, and Rivera's inspection tour of 1727 (Campbell 1983; Foster 1995). The Indians encountered during those journeys included indigenous Sanan speakers and displaced and migrating tribes from well outside the region such as the Jumano of west Texas, the Wichita-speaking Yojuane of north central Oklahoma, and the Simaomo and Tusonibi of northeastern Mexico (Campbell 1979). Many other tribes, not so fortunate, had been decimated by European disease in Coahuila and Nueva Leon according to Chapa, an early historian who documented over 160 groups annihilated during the 1600s (Foster 2008:108).

Large congregations of tribes met the Spaniards along the San Marcos and Colorado Rivers where they had been hunting and trading among themselves and with the Tejas or Caddo. Some of the natives had horses which were likely descendants of horses that had escaped once the Spaniards arrived in the Americas. One trail used by the Caddo on their hunting forays from east Texas crossed the Colorado River at La Grange. They were encountered in 1690 by Governor de León

at a prominent bluff overlooking the Colorado River referred to as Buenavista, which some researchers believe is Monument Hill (Foster 1995:40). Campbell (1979, 1983) lists several tribes believed to have been indigenous to the area. These tribes include Apayxam, Caisquetebana, Cantona, Catqueza, Cava, Chaguantapam, Cumercai, Emet, Mayeye, Menanquen, Panasiu, Sana, Tohaha, and Toho (Johnson and Campbell 1992).

3.2.2 European Contact (ca. 1520)

When Spanish Europeans arrived on the north Texas coast they encountered two major native groups, the Atakapa and the Karankawa (Newcomb 1983). These groups occupied separate territories divided by the western shore of Galveston Bay. The Atakapa, speaking a language of the Tunican family, displayed traits closely related to the natives of southwestern Louisiana. The Karankawa groups spoke a language of the Coahuiltecan family and were more closely related to natives farther south in Texas and Mexico.

Initial exploration of the Gulf of Mexico and the American Southwest was accomplished by Spanish explorers Alonso Alvarez Piñeda (1519) and Alvar Nunez Cabeza de Vaca (1528). The Spanish Crown, in its quest to observe and record the character and economic potential of the territory and its people, sanctioned both explorers. This activity by Spain occurred within the context of greater colonial expansionist efforts undertaken by the primary Western European powers throughout the sixteenth century. Following Piñeda's initial maritime effort to map the Gulf Coast, the earliest exploration of the Texas Gulf Coast territory was accomplished by de Vaca, who shipwrecked in the Gulf of Mexico in 1528 along with other members of an expedition led by Pánfilo de Narváez (Weddle 1985).

It is unclear whether the island of Malhado, upon which de Vaca's party was shipwrecked, is the current Galveston Island or nearby San Luis Island. In either case, he lived among the Native Americans for the next several years and probably visited much of Galveston Island and the surrounding region during the group's seasonal rounds before de Vaca decided to make his way toward Panuco in Mexico and eventually back to Spain (Story et al. 1990). De Vaca's recollections of his adventures along the Texas Gulf Coast and in the American Southwest were published years later, after his return to Spain.

De Vaca's account served as the basis upon which subsequent explorations of the region were conducted by Hernando de Soto (1539) and Luis de Moscoso (1542). By 1561, Spain was facing increasing difficulties in maintaining its few colonies in Florida. The relatively poor economic prospects for these colonies and increasing competition from other colonial powers quelled the Spanish Crown's interest in colonizing their Florida territories which included Texas. As a result, the Texas Gulf Coast remained relatively uninhabited by Europeans for the next two centuries until the threat of increased French exploration in the territory stimulated the Spanish government to establish more permanent settlements in the area (Weddle 1985, 1991). In 1685, René Robert Cavelier and Sieur de la Salle established Fort St. Louis along the Gulf Coast (Gilmore 1984; Tunnel and Ambler 1967). Plagued by disease, starvation, and Indian attacks, the Fort St. Louis was no longer in use by late 1688 or early 1689 (Bruseth and Turner 2005).

The expedition of Teran de los Rios in 1691 encountered several friendly groups of native peoples and great herds of bison as he patrolled north from the Rio Grande, crossing the Rio Frio on the old 1690 route of Alonso de Leon (Wade 2003:146). In 1722, the Spanish established the mission of Nuestra Señora del Espiritu Santo de Zúñiga (also called La Bahia del Espiritu Santo) near the ruins of La Salle's Fort St. Louis in an attempt to Christianize the indigenous people. The mission was later moved to a site near the Guadalupe River, and in 1754 it was moved to Goliad. It was during this time that the Franciscan missionaries laid the foundation for the livestock industry of Texas. The missionaries' escaped or abandoned livestock formed the nucleus from which vast herds of wild longhorn cattle and mustangs later developed in South Texas (Texas Beyond History 2006).

Whereas Piñeda, de Vaca, and others developed maps of the greater Gulf Coast in the sixteenth and seventeenth centuries, the earliest detailed map of Galveston Bay was completed during an eighteenth-century expedition by Bénard de la Harpe (1721). De la Harpe was seeking to reestablish La Salle's former trading post and fortress on Matagorda Bay. France's push into Texas caused Spain to create a settlement plan in order to protect its territories.

3.2.3 European Settlement (ca. 1750)

Although there were no permanent Spanish settlements established in the area now known as McMullen County, Spaniards did traverse the area at various times. A large waterhole on Esperanza Creek was the meeting place on the highway where presidio soldier escorts passed off their charges before returning to their posts in Laredo and San Antonio. This was the route used by early travelers such as Alonso De León who passed through the area in 1689 and 1690, as did Diego Ortiz Parrilla in 1766 (Leffler 2014). In the early 1800s, the "new" Old-San Antonio Road was established, crossing the Frio River. There was a Spanish fort at the Frio River crossing of the "Bexar–Rio Grande Road" staffed off and on by presidio soldiers as reported by Governor Manuel Salcedo in 1812 (Almaraz 1971:144-145).

The area now known as McMullen County was originally granted to Benjamin Drake Lovell and John G. Purnell by the Mexican state of Coahuila in 1825, but it was not developed. In 1828, the same land was assigned to John McMullen and James McGloin who intended to settle 200 families. None of the families ever occupied the area, and by the time of the Texas Revolution in 1836, the area was still inhabited predominantly by native people (Leffler 2014).

"Squatters" occupied the Frio River Valley at Yarbrough Bend just below the river crossing on the Laredo-San Antonio Road beginning in 1857 to 1858. They built and lived in homesteads situated apart to maintain both independence and security. By the time of the Civil War, some of these frontier cattlemen moved downstream founding the community of Rio Frio, later Dog Town, and later still Tilden, the oldest organized community in the county. McMullen County had a population of about 100 people in 1860 (Fox 1983:190-196).

Present day McMullen County is situated in the disputed area between the Rio Grande and the Nueces River. Both the Republic of Texas and the Mexican government failed to establish control over this region, and it became a haven for outlaws and desperados (Leffler 2014). The Treaty of Guadalupe Hidalgo on 2 February 1848 ended the Mexican War and recognized the 1845

annexation of Texas to the United States (Russell 2010:210). McMullen County was officially established from parts of Bexar, Atascosa, and Live Oak Counties in 1858 (Leffler 2014).

That life was rough is attested to by the double gravesite on a rocky hill north of the Frio River Valley where the remains of Martin Luther Taylor and his father-in-law, David Morris, were buried in 1869. They had ranched in DeWitt County before moving with their families to a location north of Yarbrough Bend to escape the Taylor-Sutton Feud brought on by warring families after the Civil War. They were tracked down by the Sutton gang, kidnapped, murdered, and left where they fell. Legend has it the posse found the corpses and buried them beside the Dog Town/Oakville Rd (Fox 1983:196), a location now under the waters of the Choke Canyon Reservoir.

3.3 LOCAL HISTORY

The history of the eastern edge of McMullen County is steeped in actors and actions larger than life. At the turn of the 20th century, a couple of shrewd businessmen, the Fowler brothers, decided to form a land company and promote the dry cactus and mesquite covered country along the Frio River in La Salle and McMullen Counties as the "Wintergarten." They attracted more than 2,000 buyers, many of whom migrated from the east coast for the chance to own a plot of fertile farmland for a few dollars. A farm could be purchased for as little as $25 down and $10 a month. Many have called the brothers "swindlers," but some historians maintain that they did have a vision of the area as a farming utopia. The Fowler brothers happened to tour the county just prior to their development plans during one of the "wet" cycles when almost any crop could grow (Wilson 2012).

Two other brothers with the name of Dull, who had made their fortunes in Pittsburg, PA, once owned the vast 400,000-acre (161,874-ha) Dull Ranch. The Dull brothers later sold 240,000 acres (97,125 ha) to B. L. Naylor and Judge A. H. Jones. Naylor died in 1910 and Jones in 1912. Before Jones died, he had contracted with the Fowler brothers to develop 100,000 acres (40,469 ha) around what would eventually become the town of Fowlerton, Texas. After the railroad was constructed in 1912, growth of the town increased. The building boom supported several lumber yards (Figure 5).

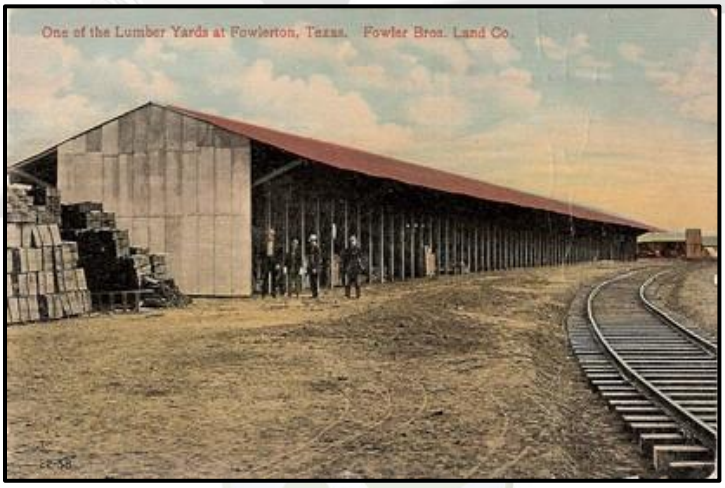


Figure 5: Fowlerton Lumber Yard, 1913

The Fowler brothers, in conjunction with the Naylor & Jones Land Co., laid out the town on a grid system and over 200 miles (322 km) of roads were built. Lots were divided up, some as small as 1/16 acre (0.4 ha) in the town site, as well as numerous farm plots of anywhere from 1 to 100 acres (1 to 40 ha) or more. When a 10- to 160-acre (4 to 65 ha) tract of farmland was purchased, the buyer automatically received a lot in Fowlerton. Between 1913 and 1915 a cotton gin, large rail depot, hotels, two banks, department stores, and schools were all built (Figure 6).

Figure 6: Fowlerton Hotel, 1913

There was a seafood restaurant with fresh oysters and shrimp brought in from the coast. There were many free flowing artesian wells (some containing salt). The “Artesian Route” as described on the San Antonio Uvalde and Gulf Railroad (SAU&G Railroad) advertisements referred to the new farming center with crops of cotton and Egyptian wheat (Figure 7) to faraway markets. At the height of the Fowlerton heyday, some 2,000 to 4,000 people called the vicinity home. Over the years a series of droughts, plus using saline artesian well water, forced all the farmers to leave the county. Fowlerton is located 0.6 miles (0.9 km) west of the proposed APE and is the nearest town.

Figure 7: Egyptian Wheat Crop, 1913

3.4 REGIONAL CULTURAL RESOURCES

McMullen County lists 807 recorded archeological sites, many of which are the direct result of surveys initiated by the recent explosion of oil and gas exploration. According to the Texas Historical Commission's (THC's) Archeological Sites Atlas (Atlas) website, the nearest SAL is the La Salle County Court House, which is located 27.1 miles (43.4 km) to the west of the ROW. There are a five recorded historic cemeteries and 20 historical markers in the county (THC 2014a).

The Mustang Branch Site (41MC163), listed on the National Register, is located 19.37 miles (32.2 km northeast of the proposed APE in McMullen County. Designated in 1978, the Mustang Branch Site National Register District encompasses 24.7 square acres (10 square hectares) of agricultural lands along the right bank of Mustang Branch near its confluence with San Miguel Creek within the Choke Canyon Reservoir in eastern McMullen County. The NRD includes campsites, chipping-quarrying areas, middens, and lithic scatters; all of which contributed to its NRD designation. (THC 2014b).

Recently, oil and gas exploration has added a large number of new sites to the Atlas. Near the project area, numerous cultural resources surveys have been conducted in the recent past. In the mid-1980s, a highway expansion projects were undertaken, resulting in the location of several sites. Dozens of other pipeline, access road, and facility surveys have been conducted in the area since 2010, resulting in the addition of over 250 archeological sites to the Atlas for McMullen County.

There are no previously recorded archeological sites within 1.2 miles (2 km) of the project area. The nearest sites (41LS99, 41LS166, and 41MC589) are located between 1.4 and 1.5 miles (2.2 and 2.4 km) to east and west of the northern quarter of the proposed ROW. These sites will be discussed further detail below.

3.4.1 41LS99 (Fowlerton Site)

Site 41LS99 was documented in 2001 and was recorded as an undated prehistoric lithic and pottery scatter (THC 2014b). The site was located on an upland land form north of the Frio River. The artifact assemblage included pottery, chipped stone tools snail shell, and burned rock. There is no information on the Atlas about the eligibility for designation as a SAL or listing on the NRHP.

3.4.2 41LS166

Site 41LS166 was documented in 2011 as part of the Gardendale Pipeline Project. The site was initially recorded undated prehistoric lithic scatter (THC 2014b). The site was located within uplands north of the Mossy Slough. The artifact assemblage included only three flakes. The initial evaluation of the site determined the site was not eligible for designation as a SAL or listing on the NRHP.

3.4.2 41MC589

Site 41MC589 was documented in 2011 as part of the Gardendale Pipeline Project. The site was initially recorded undated prehistoric lithic scatter (THC 2014b). The site was located within along the slopes and terrace north of a first-order tributary of Mossy Slough. The site measure 295 feet (90 m) north to south and 262 feet (80 m) east to west. The artifact assemblage included only six

lithic flakes. The initial evaluation of the site determined the site was not eligible for designation as a SAL or listing on the NRHP.

The site was revisited in 2013 by Goshawk archeologists as part of the River Lowe West Gathering Pipeline project. The site was confirmed as being a diffuse surface lithic scatter and the site's boundaries were not enlarged. The artifacts observed during the revisit of the site included only one flake and a single piece of burned rock. Goshawk agreed with the initial recorders that the site was not eligible for designation as a SAL or listing on the NRHP.

4.0 METHODS

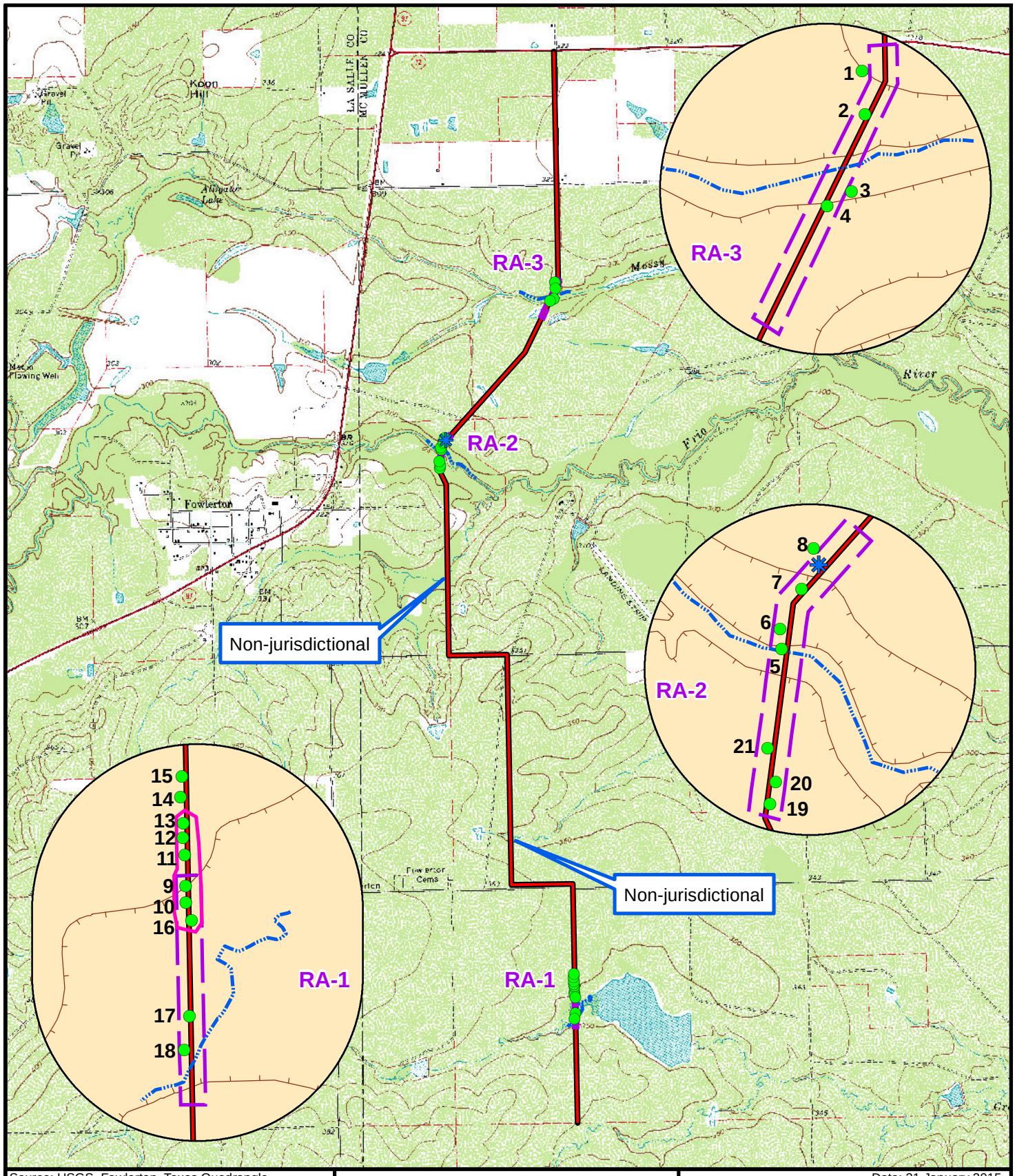
The cultural resources survey conducted within the proposed Naylor Jones Unit 13 Block A Gathering Pipeline APE was performed according to CTA survey guidelines, in compliance with the THC's Rules of Practice and Procedure, Chapter 26, Section 27 (THC 2014a, CTA 1995), and under the general guidelines of the Register of Professional Archaeologists (2014). Prior to commencement of the field effort, the site files for McMullen County and the Rockaway Creek, Texas USGS topographic quadrangle on the THC's Atlas (THC 2014b) were consulted for previously recorded site locations, references to previous archeological surveys undertaken, and place names of interest in the vicinity of the proposed pipeline ROW. Streams potentially under USACE jurisdiction which cross the APE were assessed by an ecologist via desktop and field review prior to commencement of the cultural resources survey. As per the established procedure of due diligence, any segment of an APE which falls within a federally jurisdictional area or any portion of an APE situated within a radius of 328-feet (100-m) of a known cultural site would be subjected to a cultural resources survey. Within NRD's, the protocol dictates that portions of an APE falling within a radius of 984 feet (300 m) of a previously recorded archeological site (regardless of the site's NRHP or SAL status) would be reviewed. Any segment of an APE to be surveyed under this protocol would be labeled as a "review area."

The field investigation of the proposed Naylor Jones Unit 13 Block A Gathering Pipeline ROW included pedestrian survey and shovel testing. The ground surface of the proposed ROW was visually inspected on foot within three established review areas. Shovel tests were administered in the targeted segments of the APE, near subject streams. Shovel tests, typically 12 inches (30 cm) in diameter, were excavated to basal clay or pre-Holocene soils. Shovel test conducted in the review areas were excavated to depths between 1 and 16 inches (1 and 40 cm) below surface. The shovel probe matrix was sifted through ¼-inch (0.6-cm) hardware cloth. If soils of high clay constituency were encountered, the matrix was hand sorted. Shovel test locations were recorded with hand held Global Positioning System (GPS) units and transferred to topographic maps. If present, newly discovered or revisited sites were documented using standard State of Texas site recording forms and plotted by GPS coordinates for entry into the Atlas database. Shovel testing was conducted to ascertain the horizontal and vertical limits of any cultural manifestation discovered within the areas of review. Hand-drawn sketch maps were produced for each cultural site recorded or revisited. The current field effort was performed on private property and was funded by a private source. As such, no artifacts were collected during survey. If present, artifact assemblages were photographed in the field and left where found.

5.0 SURVEY RESULTS

5.1 INTRODUCTION

Goshawk archeologists conducted the cultural resources survey of the proposed Naylor Jones Unit 13 Block A Gathering Pipeline on 17 November 2014. Three review areas were identified within the APE established in the vicinity of potentially jurisdictional streams (Figure 8). The cultural resources survey included surface inspection and shovel testing within the APE in the vicinity of streams. One new archeological site was documented within Review Area 1. The site is described in detail in Section 5.3 below.



Source: USGS, Fowlerton, Texas Quadrangle.

Date: 21 January 2015

0 1,500 3,000 Feet

0 450 900 Meters

Figure 8
Shovel Test Locations
McMullen County,Texas

Naylor Jones Unit 13 / Block A Gathering

LEGEND

- Pipeline
- Waters of the US
- Review Areas
- Site 41MC807
- Negative Shovel Test
- Concrete stock tank/possible well-windmill

N

GOSHAWK ENVIRONMENTAL CONSULTING, INC.

5.2 REVIEW AREAS

5.2.1 Review Area 1

Review Area 1 encompassed a segment of a first-order tributary of Muerto Creek. The stream channel had incised into the landscape between 1.6 and 3.3 feet (0.5 and 1 m) in depth and between 2 and 5 feet (0.6 and 1.5 m) in width (Figure 9). The floodplain surrounding the creek measured approximately 328 feet (100 m) south-to-north. The stream was flanked on either side by two stock tanks located to the east and west of the APE.

Figure 9: Review Area 1, Stream and Floodplain, Facing Southeast

Ground surface visibility averaged between 40 and 70 percent in the vicinity of the subject stream (Figure 10). Vegetation within the area of review had been cleared in the recent past for a two track road which paralleled the APE. Vegetation within the APE included grasses, mesquite, cacti, cedar elm, forbs, and acacia. Shovel tests conducted in the vicinity of the stream yielded brown sandy loam overlying dark brown clays. Shovel tests were terminated between 1 to 12 inches (2 to 30 cm) below surface. A total of 10 shovel tests were conducted in the vicinity of the stream, most of which were conducted in an effort to delineate newly discovered site 41MC807. All shovel tests conducted yielded negative result. Further discussion of site 41MC807 is presented in Section 5.3.

Figure 10: Typical Surface Visibility within APE

5.2.2 Review Area 2

Review Area 2 encompassed a segment of the Frio River. The river channel was well-channelized with tall cut banks. The channel had incised into the landscape between 15 and 25 feet (4.5 and 7.6 m) deep and between 9.9 and 13.1 feet (30 cm) wide (Figure 11). Both banks ascended nearly vertical or vertical slopes to nearly level broad floodplain. The river contained flowing water at the time of survey.

Figure 11: Frio River, Review Area 2, Facing South

Ground surface visibility was considered good ranging between 40 and 60 percent in the vicinity of the subject stream. Vegetation along the edges of the APE included mesquite, prickly pear cacti, acacia, oaks, grasses, and forbs. Shovel tests conducted in the vicinity of the stream yielded yellowish brown or dark brown homogenous clay soils in a surface context. Shovel tests were terminated at a depth ranging between 6 and 12 inches (15 and 30 cm) below surface. A total of

four shovel tests were conducted in the vicinity of the stream, all of which yielded negative results. A concrete water tank and possible windmill footings were found at the edge of the APE (Figure 12 and see Figure 8). However, shovel tests conducted in the vicinity of the concrete tank yielded no associated historic artifacts. No other cultural materials were observed during surface inspection or shovel testing within Review Area 2.

Figure 12: Vegetation in the Vicinity of the Frio River; Review Area 2

5.2.3 Review Area 3

Review Area 3 encompassed a segment of Mossy Slough. The channel was well-defined within the APE with steeply sloping or nearly vertical banks above a large flat floodplain. The main channel had incised into the landscape between 3.3 and 4.8 feet (1 and 1.5 m) deep and between 20 and 25 feet (6 to 7.8 m) wide (Figure 13). Both banks ascended nearly vertically to broad, nearly level floodplain. The slough was dry at the time of survey.

Figure 13: The Mossy Slough, Review Area 3, Facing East

Ground surface visibility was highly variable within the review area ranging between 0 percent within the floodplain and approximately 70 percent along the upland slopes. Vegetation within the floodplain consisted of only riparian grasses. Outside of the floodplain the vegetation consisted of sage, mesquite, oak, cedar elm, forbs and prickly pear cactus (Figure 14). Shovel tests conducted in the vicinity of the stream yielded dark brown or grey clay soils in a surface context. One shovel test yielded moderately deep brown sandy soils overlying yellowish brown clay. Shovel tests were terminated at a depth ranging between 12 and 16 inches (30 and 40 cm) below surface. A total of four shovel tests were conducted in the vicinity of the stream. No cultural materials were observed during surface inspection or shovel testing within Review Area 3.

Figure 14: Vegetation in the Vicinity of the Mossy Slough; Review Area 2

5.3 SITE 41MC807

5.3.1 Site Description and Work Performed

Site 41MC807 was recorded as an undifferentiated prehistoric campsite expressed as a surficial lithic scatter. The site had been disturbed by grazing, construction of a stock tank, two-track roadway traffic, and sheet erosion which had stripped away most of the upper soil horizon. Terrain was nearly level on the primary terrace that the site occupied on the north side of the stream, to the east of a stock tank and a two-track road. Elevations within the site varied little, ranging from 340 feet (104 m) at the bottom of the stream bed to 350 feet (107 m) AMSL at the north end of the site. The archeological site was located mainly along the 350 foot (107 m) contour line north of the tributary stream.

Shovel testing and surface inspection was conducted within the current APE. The surface artifact assemblage consisted of primary flakes (N=50+), secondary flakes (N=50+), tertiary flakes (N=50+), one medial point fragment, one preform, cores (N=2+), and fire-cracked rock (100+). Photographs of a representative selection of these materials are presented below (Figures 15 and 16). The artifacts were found on the ground surface in relatively undisturbed areas along the upper terrace and a two-track road within the proposed ROW. No features or discreet concentrations of artifacts were observed during the survey to indicate the presence of in situ cultural deposits.

In addition to surface observations, eight shovel tests were conducted during delineation of site 41MC807. Shovel testing yielded shallow brown sandy clays overlying dark brown or very dark brown clay. Soils in the immediate vicinity of the tributary were classified as Cochina clays and Moglia sandy clay loam. Shovel tests were terminated between 1 and 16 inches (2 and 40 cm) below surface and none of the tests yielded cultural materials. Two additional shovel tests were placed on high ground south of the floodplain, neither of which yielded positive results.

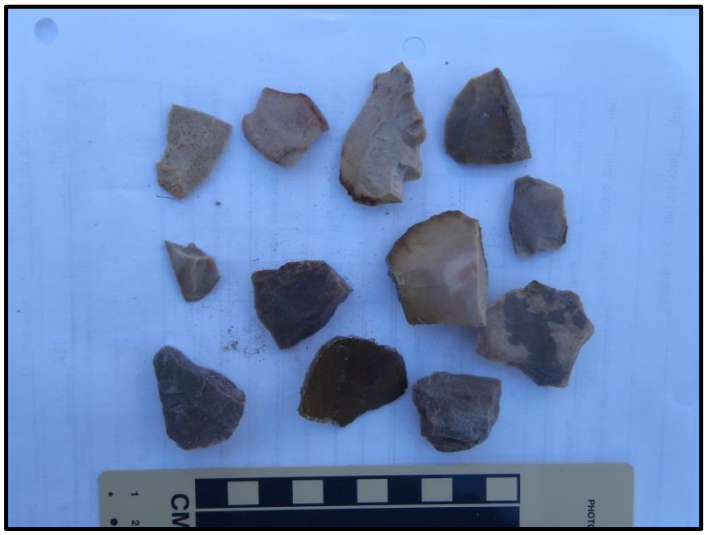
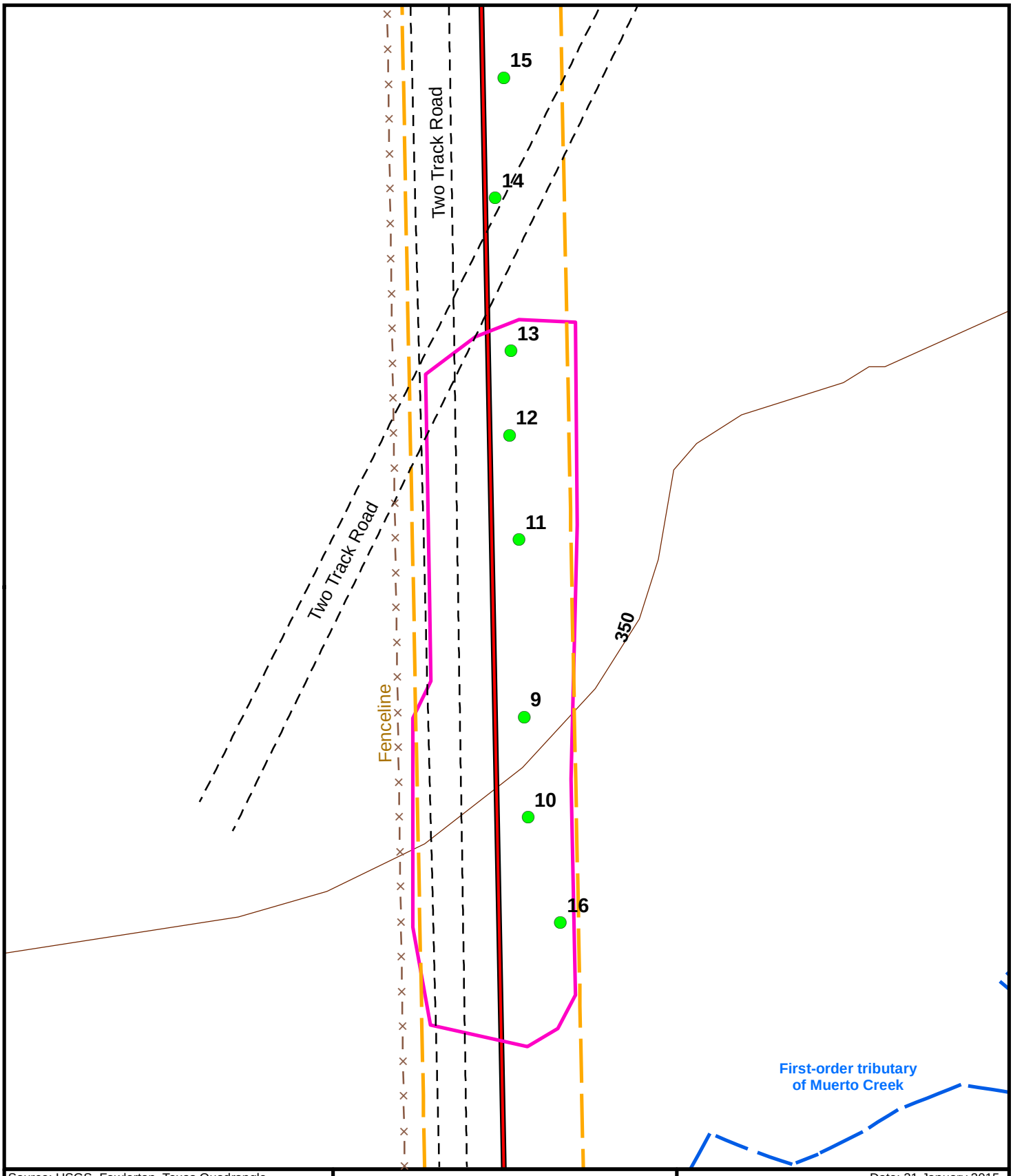


Figure 15: 41MC807, Artifacts from Site, Secondary and Tertiary Flakes

Figure 16: 41MC807, Bifaces, Medial Point Fragment, and Point Preform

Due to the distribution of surface artifacts, the site was measured at 89 feet (27 m) east-to-west and 460 feet (140 m) north-to-south (Figure 17). The site area observed covered approximately 0.9 acre (0.4 ha). The true dimensions of site 41MC807 are not known as the survey was restricted to the APE by survey parameters, although the north and south site boundaries are likely well-established.

Although a great deal of time was spent searching for diagnostic artifacts, none were located within the proposed ROW. Based on the absence of diagnostic materials and the lack of subsurface deposits, the site was deemed ineligible for designation as a SAL or inclusion onto the NRHP. The site undoubtedly extends to the east of the APE. The significance of that portion of the site remains undetermined.



Source: USGS, Fowlerton, Texas Quadrangle.

0 20 40 80 Feet

0 5 10 20 Meters

GOSHAWK ENVIRONMENTAL CONSULTING, INC.

Figure 17
Site 41MC807 Sketch Map
McMullen County,Texas

Naylor Jones Unit 13 / Block A Gathering

Date: 21 January 2015

LEGEND

- Negative Shovel Test
- ROW
- Site 41MC807
- Tributary / Stream
- Pipeline

N

5.4 SITE SUMMARY AND RECOMMENDATIONS

Site 41MC807 was documented as an undifferentiated prehistoric campsite expressed as a lithic scatter. The lithic scatter was relatively dense within the APE but confined to a surface context. The site had seen significant disturbances from grazing and erosion. The artifact assemblage documented in the field was comprised of a high percentage of primary, secondary, and tertiary flakes (150+), a large number of fire-cracked rocks, a point preform, and a medial point fragment. This assemblage is typically associated with prehistoric camping areas, although no features were observed. It is possible a thorough investigation to the east of the APE could reveal more burned rock or even intact burned rock features. Within the proposed ROW, site 41MC807 was determined to be ineligible for designation as a SAL or for listing on the NRHP, but further research is warranted in order to determine the eligibility of the site remainder outside of the current APE. Construction of the Naylor Jones Unit 13 Block A Gathering Pipeline, as proposed, will not impact significant cultural resources within the surveyed portions of the APE.

6.0 DISCUSSION

The goal of the cultural resource survey was not only to locate and record sites, but to provide conclusions and site recommendations, based on NRHP criteria of significance (36 CFR 60.4), and the requirements of Section 106 and 36 CFR 800. According to the NRHP, "The quality of significance in American history, architecture, archeology, engineering, and culture is present in district, sites, materials, workmanship, feeling, and association that:

a. are associated with events that have made a significant contribution to the broad patterns of our history;
b. are associated with the lives of persons significant in our past;
c. embody distinctive characteristics of a type, period, or method of construction; represent the work of a master; possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction; or
d. have yielded, or may be likely to yield, information important in prehistory or history."

Ordinarily cemeteries, birthplaces, or graves of historical figures; properties owned by religious institutions or used for religious purposes; structures that have been moved from their original locations; reconstructed historic buildings; properties primarily commemorative in nature; and properties that have achieved their significance within the past 50 years shall not be considered eligible for the NRHP (36 CFR § 60.4). Typically, the most applicable criterion for evaluation of archeological properties is criterion "d." In general, subsurface deposits in the form of features or middens are what make prehistoric sites eligible for inclusion in the NRHP. Site integrity is a key factor in evaluating significance.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Goshawk, acting as agent for EOG, conducted a cultural resources survey across the proposed ±28,000-foot (1,638-m) Naylor Jones Unit 13 Block A Gathering Pipeline ROW. The survey was performed on private land within two areas of review, established in the vicinity of three potentially jurisdictional streams. A total of 21 shovel tests were dug along the APE, eight of which were conducted during the delineation efforts associated with site 41MC807. The recording effort confirmed the site's ineligibility for inclusion to the NRHP or designation as a SAL within the proposed ROW. Due to the absence of diagnostic materials, a lack of intact cultural features, and

an absence of temporally stratified soils, no further work is recommended within the APE. However, the extent of the site lying outside of the APE will require further survey to determine its eligibility status. Goshawk recommends that construction of the Naylor Jones Unit 13 Block A Gathering Pipeline should be allowed to proceed as planned without further archeological investigations. In the event that cultural resources (including human remains) are discovered during construction or maintenance activities, work should be halted immediately and the USACE and a qualified archeologist should be notified.

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APPENDIX A

SHOVEL TEST DATA COMPILATION
(UTM: NAD 83, 14N)

Naylor Jones Unit 13 Block A Gathering Pipeline (14 NAD 1983)										
Report ST#	ST#	WP#	Easting	Northing	Depth (cm)	Soil Color	Soil Composition	Artifacts	Review Area	Temporary Site #
1	MJ1	50	3150639	520607	0-40	Brown	Sandy clay loam	None	3	
					40+	Yellowish brown	Clay loam	None		
2	MJ2	51	3150597	520610	0-30	Greyish black	Clay loam	None	3	
3	MJ3	52	3150523	520597	0-30	Dark brown	Clay loam	None	3	
4	MJ4	53	3150510	520574	0-30	Brown	Clay loam	None	3	
5	MJ5	54	3149481	519820	0-10	Yellowish brown	Compacted Clay	None	2	
6	MJ6	55	3149497	519819	0-15	Brown	Cl ay	None	2	
7	MJ7	56	3149530	519837	0-20	Dark Brown	Clay loam	None	2	
8	MJ8	57	3149564	519846	0-20	Brown	Clay loam	None	2	
9	MJ9	62	3145721	520743	0*-25	Brown	Fine sandy clay loam	None	1	MJ1
					25+	Very dark brown	Clay loam	None		
10	MJ10	63	3145708	520744	0-30	Brown	Fine sandy clay loam	None	1	MJ1
					30+	Very dark brown	Clay loam	None		
11	MJ11	64	3145769	520741	0-30	Brown	Fine sandy clay loam	None	1	MJ1
					30+	Very dark brown	Clay loam	None		
12	MJ12	65	3145805	520739	0-30	Brown	Fine sandy clay loam	None	1	MJ1
					30+	Very dark brown	Clay loam	None		
13	MJ13	66	3145805	520739	0-15	Brown	Sandy clay	None	1	MJ1
					15+	Very dark brown	Clay	None		
14	MJ14	67	3145834	520736	0-25	Brown	Sandy clay	None	1	MJ1
					25+	Very dark brown	Clay	None		
15	MJ15	68	3145857	520738	0-10	Brown	Sandy clay	None	1	MJ1
					10+	Very dark brown	Clay	None		
16	MJ16	69	3145695	520749	0-2	Brown	Sandy clay	None	1	MJ1
					2+	Very dark brown	Clay	None		
17	MJ17	70	3145587	520747	0-30	Dark brown	Clay	None	1	
18	MJ18	71	3145549	520741	0-30	Greyish brown	Clay	None	1	
19	MJ19	72	3149354	519811	0-30	Dark brown	Clay	None	2	
20	MJ20	73	3149373	519815	0-30	Dark brown	Clay	None	2	
21	MJ21	74	3149400	519809	0-30	Dark brown	Clay	None	2	