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Intensive Cultural Resources Survey of the Proposed Sagebrush Booster Fuel Pipeline, Andrews County, Texas

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Intensive Cultural Resources Survey of the Proposed Sagebrush Booster Fuel Pipeline, Andrews County, Texas

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**Intensive Cultural Resources Survey of
the Proposed Sagebrush Booster Fuel
Pipeline, Andrews County, Texas**

Prepared for
DCP Midstream, LP

Prepared by
SWCA Environmental Consultants

Texas Antiquities Permit 7152

SWCA Cultural Resources Report No. 15-35

May 2015



**INTENSIVE CULTURAL RESOURCES SURVEY OF THE PROPOSED SAGEBRUSH
BOOSTER FUEL PIPELINE, ANDREWS COUNTY, TEXAS**

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SWCA Cultural Resources Report No. 15-35

May 19, 2015

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ABSTRACT

On behalf of DCP Midstream (DCP), SWCA Environmental Consultants (SWCA) conducted an intensive cultural resources survey for the proposed Sagebrush Booster Fuel Pipeline project in Andrews County, Texas. The proposed development includes approximately 2.25 miles of pipeline. The project is entirely on University Lands managed by The University of Texas System. As University Lands is a political subdivision of the State of Texas, all work was conducted to comply with the Antiquities Code of Texas (ACT) under Texas Antiquities Permit No. 7152.

The proposed area of potential effects (APE) includes 2.25 miles of proposed 8-inch pipeline located in southern Andrews County within The Embar Oil Field, east of Farm-to-Market Road (FM) 181 and approximately 3.25 miles south-southeast of the FM 181/State Highway (SH) 115 intersection. Impacts associated with the construction of the pipeline will typically occur within a 75-foot-wide construction right-of-way (ROW), except at the northern terminus of the pipeline where the ROW expands to approximately 120 feet to accommodate a short secondary pipeline that parallels about 860 feet of the main pipeline. Subsurface impacts are anticipated to extend 4 to 5 feet below the existing ground surface for the pipeline. The project APE on University Lands is 2.25 miles in length, 75 feet wide, and encompasses approximately 21.3 acres.

The investigations included a literature and records review and an intensive pedestrian survey of the APE. The background review revealed that Turpin and Sons (TAS) performed an archaeological survey in 2014, which crosses over the northern portion of the project area. No sites were recorded during this investigation (Turpin 2014). Two additional surveys and three archaeological sites are located within 1 mile of the current project area; however, none of these overlap the project. There are no cemeteries, National Register of Historic Places (NRHP) listed properties/districts, or historical markers within 1 mile of the APE. The review of Texas Department of Transportation Historic Overlay maps revealed no possible historic-age structures within or immediately adjacent to the project area.

A 100 percent pedestrian inspection with shovel testing was conducted for the 2.25-mile-long APE located on University Lands, within a 100- to 110-foot-wide survey corridor centered on the proposed pipeline centerline. Overall, the intensive pedestrian survey documented a relatively level, open environment, with sand dunes through the central portion providing the only topographic relief. The APE is within the active Embar Oil Field and has been disturbed by the construction of oil and gas field infrastructure (e.g., well pads, access roads, and pipelines), grading and clearing, utilities (subsurface and overhead), and wind erosion/scouring. These impacts have resulted in significant disturbances throughout the project area. A total of 17 negative shovel tests were excavated within the project area during the intensive pedestrian survey and site delineation, and one site (41AD73) was newly documented.

Site 41AD73 is a prehistoric open campsite consisting of two flakes and a scatter of burned limestone. No subsurface deposits were encountered and cultural material is present directly atop Early Pleistocene-aged soil. Site 41AD73 is recommended as not eligible for listing on the NRHP or as a State Antiquities Landmark (SAL) based on the paucity of artifacts, absence of temporal diagnostics, and a lack of both contextual integrity and potential for intact subsurface deposits. In accordance with the ACT, SWCA has made a reasonable and good faith effort to identify cultural resources within the APE. As no properties were identified that warrant SAL designation, SWCA recommends that no further cultural resources investigations within the project APE are necessary and the proposed project should be allowed to proceed as planned.

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INTRODUCTION

On behalf of DCP Midstream, LP (DCP), SWCA Environmental Consultants (SWCA) conducted an intensive cultural resources survey for the proposed Sagebrush Booster Fuel Pipeline project in Andrews County, Texas (Figure 1). The project is located on University Lands managed by The University of Texas System. The work was conducted to comply with the Antiquities Code of Texas (ACT) under Permit No. 7152, as University Lands is a political subdivision of the State of Texas.

The area of potential effects (APE) includes 2.25 miles of proposed pipeline located approximately 3.25 miles south-southeast of the FM 181/State Highway (SH) Highway 115 intersection, 16.5 miles southwest of Andrews, Texas. Impacts associated with the construction of the pipeline will typically occur within a 75-foot-wide construction right-of-way (ROW), except at the northern terminus of the pipeline where the ROW expands to approximately 120 feet to accommodate a short secondary pipeline that parallels about 860 feet of the main pipeline. Subsurface impacts are anticipated to extend 4 to 5 feet below the existing ground surface for the pipeline. The project area of potential effects (APE) on University Lands is 2.25 miles in length, 75 feet wide, and encompasses approximately 21.3 acres.

The investigations, conducted January 15–16, 2015, consisted of an intensive pedestrian archaeological survey with shovel testing of the entire APE located on University Lands. All investigations were conducted in accordance with Texas Historical Commission (THC) and Council of Texas Archeologists (CTA) standards, with any exceptions thoroughly documented. Judith R. Cooper served as the Principal Investigator and Project Manager, and Matthew Stotts served as Field Director conducting the survey efforts with the assistance of archaeologist Mercedes Cody.

PROJECT AREA DESCRIPTION

The project area begins 0.34 mile east of Farm-to-Market Road (FM) 181, approximately 3.25 miles south-southeast of the FM 181/State Highway (SH)

115 intersection and extends approximately 2.25 miles south-southwest through the Embar Oil Fields, roughly parallel to FM 181 (Figure 2). The project area terminates at the existing Coyote Corner Booster Station just south of SW 7000 Road, approximately 0.20 mile east of FM 181.

The project area is located within an existing oil and gas field. Primary disturbances within the project area include the previous construction of existing oil and gas field infrastructure (e.g., well pads, access roads, and pipelines). Other disturbances include previous grading and clearing, utilities (subsurface), and wind erosion/scouring. Vegetation is thin across the area, consisting of bunch grasses, shin oak, scrub mesquite, and yucca. No waterways are mapped within the project area.

ENVIRONMENTAL DESCRIPTION

The proposed Sagebrush Booster Fuel Pipeline alignment is in south-central Andrews County, in west Texas. The project area is located in the Southern High Plains physiographic region of Texas. A physiographic province is characterized as a region with shared geology, vegetation, fauna, and climate. The Southern High Plains region is characterized as flat, with elevation ranging from 2,200–3,800 feet above mean sea level. Numerous playas and local dune fields dot the landscape. Additionally, the Sagebrush Booster Fuel Pipeline alignment is situated within the Kansan biotic regions and High Plains vegetative region (Blair 1950; Correll and Johnston 1979).

GEOLOGY AND SOILS

The northern majority of the project area is mapped as recent (Holocene) windblown sand (Qsu) defined as sand sheets, dunes and dune ridges overlying windblown sand cover (Qcs) (Barnes 1976). The southern kilometer is mapped as Early Pleistocene age windblown sand cover (Qcs), comprised of fine- to medium-grained quartz with common caliche nodules (Barnes 1976).

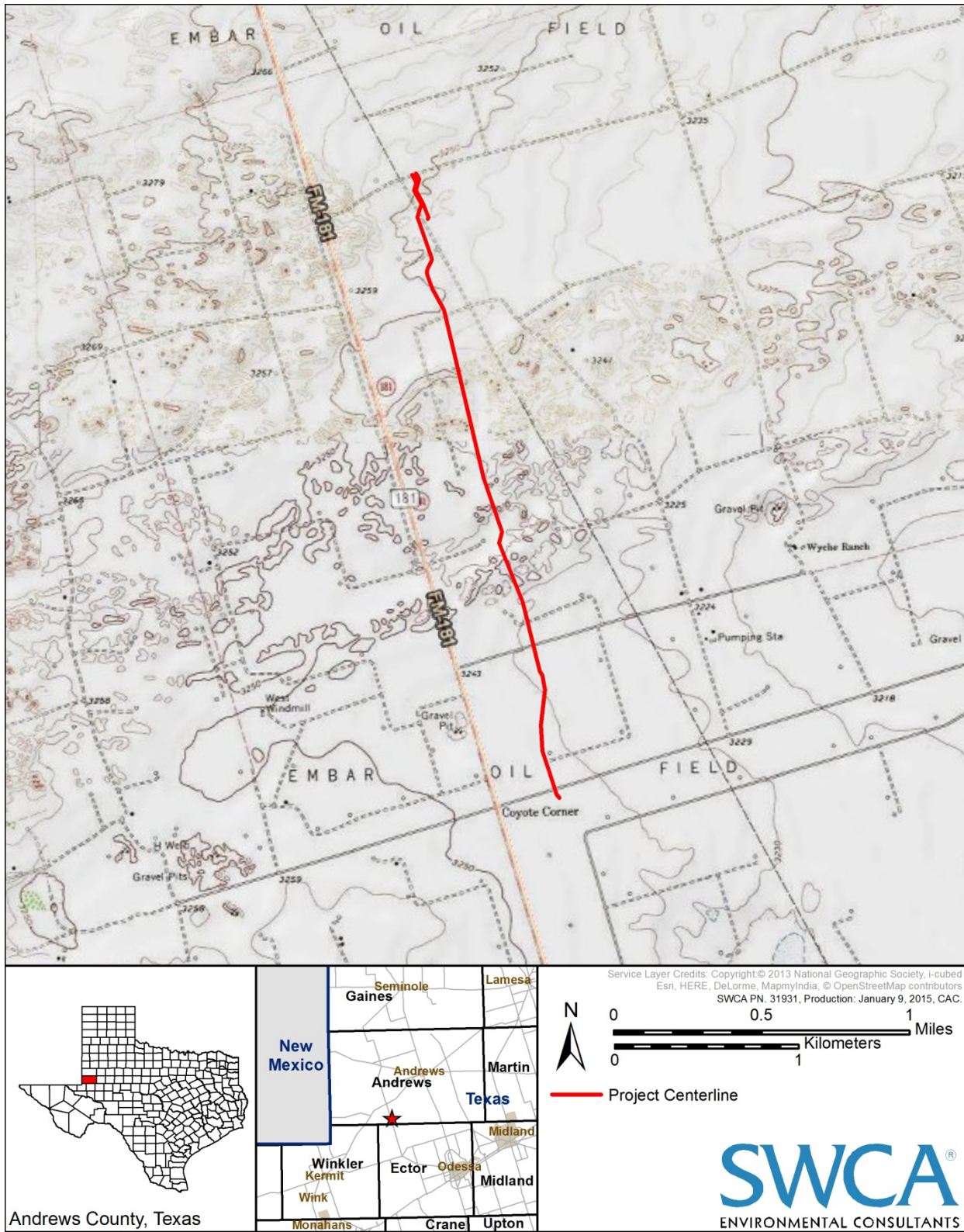


Figure 1. Project location map.

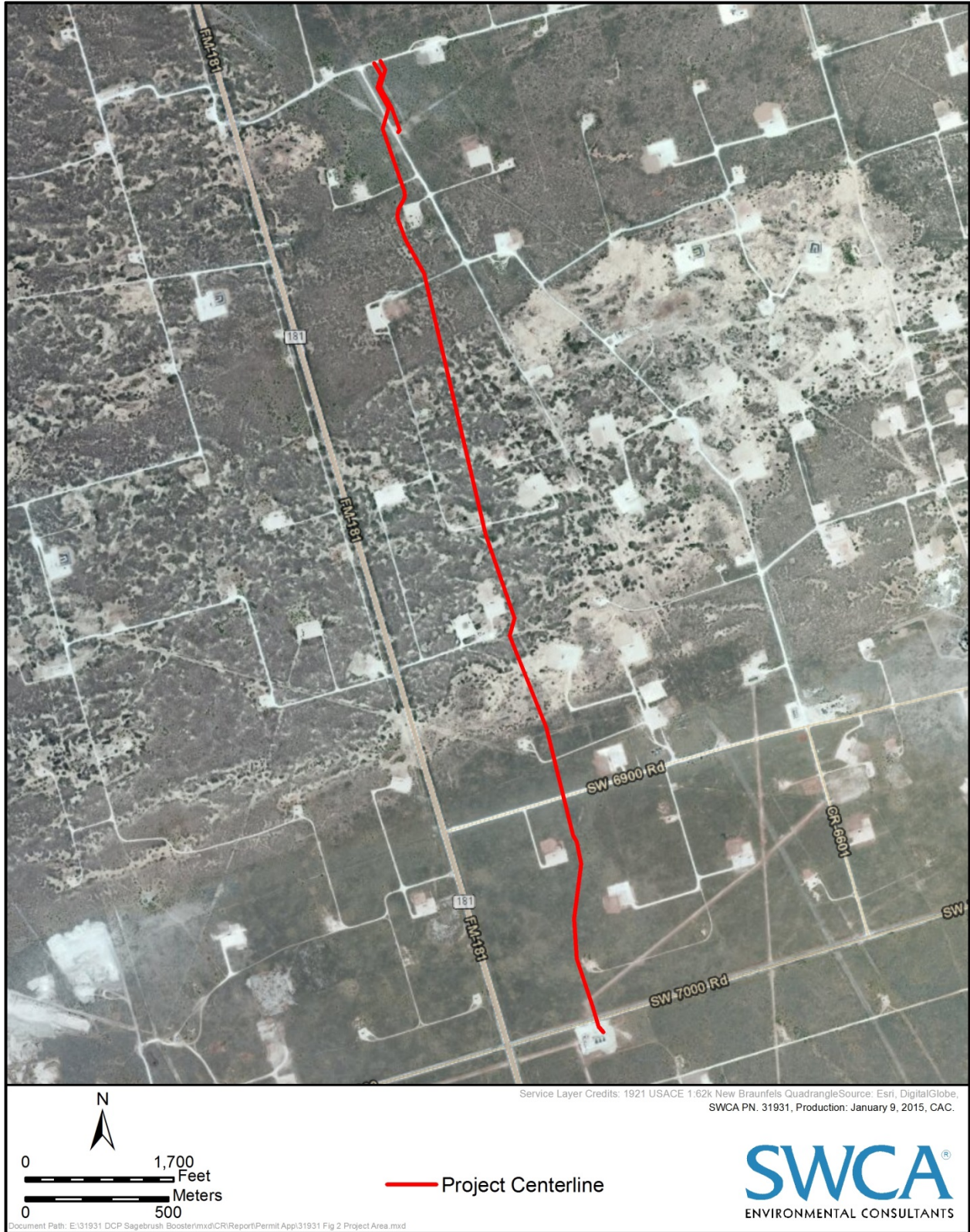


Figure 2. Project area map.

Three soil units are mapped within the project area; one (Jalmar-Penwell) coinciding with the sand sheets and dunes, and two (Wickett-Triomas and Stegal-Slaughter-Sharvana-Kimbrough) that are associated with the Early Pleistocene-age sands at the south end of the project area (Natural Resources Conservation Service [NRCS] 2015). The Jalmar-Penwell association, undulating, consists of sandy eolian deposits of Holocene age overlying Pleistocene eolian deposits originating from the Blackwater Draw formation. A typical profile exhibits fine sand from 0 to 14 inches below ground surface overlying fine sand or sandy clay loam to 80 inches below ground surface (NRCS 2015). The Wickett-Triomas and Stegal-Slaughter-Sharvana-Kimbrough soils within the project area exhibit the same lower profile although the upper, Holocene-age sand is not present. Given the Holocene age of the cover sand, there is a potential for it to contain buried archaeological material. However, such material is most likely displaced due to erosion and previous impacts as a result of oil and gas operations. Archaeological sites are commonly encountered in “blowouts” within the cover sand, where the underlying Pleistocene deposits are exposed.

HYDROLOGY

There are no named waterways in this part of Andrews County. Monument Draw lies far to the north, and the headwaters of Monahans Draw are approximately 22 miles to the southeast. Blowouts within the sand dunes provided potential water resources for prehistoric inhabitants in the form of small playa lakes. Bum Lake, located 3.4 miles south of the southern terminus of the project area, is a larger, named representative of the rare playa lakes that are the only source of surface water in the area.

FLORA & FAUNA

The Sagebrush Booster Fuel Pipeline project area falls within the Shinnery Sands ecoregion of the High Plains and Kansan biotic province (Blair 1950; Griffith et al. 2004). The Shinnery Sands ecoregion is named for the Harvard (shin) oak brush that stabilizes the sandy area, which is subject to extensive wind erosion (Griffith et al. 2004). The

project area includes sand hills and dunes as well as flat, sandy recharge areas. This portion of the ecoregion is formed of redeposited eolian sands originating in the Pecos River Basin, against the western escarpment of the Llano Estacado. Vegetation is comprised of various prairie grasses, with Harvard (shin) oak, sand sage, rocky mountain juniper, western soapberry, and invasive scrub mesquite and yucca (Correll and Johnston 1979; Gould 2002; Petrides 1992). Although the prairie grasses may form continuous cover across portions of the region, vegetation within the sand dunes is typically very sparse (Griffith et al. 2004).

Important mammalian fauna encountered within the Kansan biotic province include various species of mouse, rat, woodrat, and squirrel, as well as individual species of gopher, ferret, prairie dog, swift fox, skunk, badger, coyote, eastern cottontail, and jackrabbit. Bison once existed in this area but no longer remain (Blair 1950; Burt and Grossenheider 1976; Davis and Schmidly 1994). There are also fourteen lizard species and thirty-one snake species, as well as seven amphibian species in this biotic province.

The Shinnery Sands are also home to the lesser prairie-chicken, a species in serious decline (Griffith et al. 2004). The low shin oak scrub brush provides shelter and shade for nesting and a staple food source. However, the nearest known lesser prairie-chicken occupied range is nearly 30 miles from the project area (Southern Great Plains Crucial Habitat Assessment Tool 2013).

CULTURAL BACKGROUND AND SETTING

The APE lies on the southwestern edge of the Southern Plains archaeological region (Hofman 1989:1–2), in a transitional zone bordering the Trans-Pecos region to the west and the Lower Pecos to the south. Most previously recorded archaeological sites in the area are small prehistoric occupation or lithic scatter sites with minimal research potential, often lacking a means of assigning cultural affiliation. The cumulative assemblage, however, indicates occupation of the area throughout most prehistoric and historic stages and phases that are recognized in the Southern

Plains region. Each stage of the basic four-part division of human chronology, including Paleoindian, Archaic, Late Prehistoric, and Historic periods, is represented in the archaeological record of the survey area.

As the investigations described in this report identified only prehistoric-age cultural materials, the background setting below focuses on those time periods. The recent Historic period is briefly discussed, as the extensive oil and gas exploration activity in Andrews County influenced the archaeological record of the region.

PREHISTORIC CHRONOLOGY

The Paleoindian and Archaic periods are manifestations of a trend from the earliest identified “peopling phase” of North America to an adaptation to particular regional environments, which fostered development of specific regional identities and artifact styles. The Paleoindian period, dating from 10,000+ to 6000 B.C., spanned a time of more mesic conditions than the present. Springs were perhaps more abundant and playa lakes were likely important loci of hunting and occupation.

It was long held that Paleoindian groups in Texas, as with the rest of North America, represented nomadic hunters who relied heavily on now-extinct megafauna, such as mammoth, for subsistence. Site occupations were generally believed to have been brief as groups followed migratory herd animals. It is now recognized, however, that Paleoindian groups actually exploited a wide range of plant and animal resources in addition to large-game species (Bever and Meltzer 2007; Black 1989; Bousman et al. 2004; Johnson and Holliday 1995; Mallouf 1985). Sites of this period are relatively common in the Southern Plains region.

The end of the Paleoindian period coincided with a trend towards increasingly arid conditions, the development of the Chihuahuan Desert to the west, and the extinction of many megafaunal species. With these changes, the Archaic pattern emerged. Dating from approximately 6000 B.C. to A.D. 500, Archaic groups are generally viewed as maintaining a mobile lifestyle in which bands exploited seasonally and spatially dispersed resources.

Characteristics of the Archaic period include a more generalized hunting and gathering subsistence, a more intensive exploitation of regional resources, and the proliferation of regional artifact styles. The move towards a more general subsistence pattern was in part instigated by the apparent decrease in bison populations in the general vicinity from 5000–1000 B.C. (Hofman 1989:53).

The Late Prehistoric period (A.D. 500 to late 1500) is marked by a series of social and technological changes that coincided with, and resulted from, ever-widening regional interaction spheres, including Puebloan influences from the northwest and Woodland influences from the east mixing with Plains cultures. Horticulture/agriculture, semi-permanent to permanent architecture, ceramics, and the bow and arrow are distinctive traits of this period. Bison, which returned en masse during cyclical mesic periods, resumed its prominence in subsistence patterns.

ANDREWS COUNTY HISTORY

The project area is located within south-central Andrews County, which was formed in 1876 (Hunt 2015). In the 1880s, the Texas and Pacific Railway was built through Midland, the supply point of Andrews County. Though the railroad promoted immigration, the population in Andrews County grew slowly, with population rising from 24 to only 87 people from 1890 to 1900 (Hunt 2015). West Texas was vast and many other locations offered better access to transportation. By 1910, the population was up to 975 people, mostly farmers and ranchers dealing in corn and cattle. Cattle ranching took over by the 1920s once farmers realized the area was inhospitable to farming.

Oil was discovered in Andrews County in 1929; however, the oil boom was not quick to follow due to the productive East Texas oil fields and stock market crash of 1929. In addition, the Andrews County oil was low gravity and heavy in sulfur, reducing its appeal to investors. In 1934, however, J.W. Tripplehorn began buying oil leases in the area and drilling. Tripplehorn convinced Humble Oil Company (now Exxon Company) to lease additional lands and build a pipeline through the county. In the 1940s, 26 new oil fields were

discovered spurring the long-awaited oil and gas boom. The Embar Oil Field was discovered on University Lands in 1942 and as of 2014, consisted of 162 oil wells and two gas wells (Dubois and Crnich 2014). Oil has remained an important source of revenue and employment through present day.

METHODS

BACKGROUND REVIEW

SWCA performed a cultural resources records review to determine if the proposed APE has been previously surveyed for cultural resources or if any cultural resources were recorded within or adjacent to the APE. To conduct this review, an SWCA archaeologist reviewed the *Coyote Corner and North Cowden NW, Texas* U.S. Geological Survey 7.5-minute topographic quadrangle maps available on the THC's online Texas Archeological Sites Atlas (Atlas). These sources provided information on the nature and location of previously conducted archaeological surveys, previously recorded cultural resource sites, locations of National Register of Historic Places (NRHP) properties, sites designated as State Antiquities Landmarks (SALs), Official Texas Historical Markers, Recorded Texas Historic Landmarks, cemeteries, and local neighborhood surveys. Aerial photographs, Bureau of Economic Geology Maps, and the NRCS Web Soil Survey were also examined. Finally, the Texas Department of Transportation (TxDOT) Historic Overlay was examined to identify potential historic-age structures in and adjacent to the APE.

CULTURAL RESOURCES SURVEY

SWCA's investigations consisted of an intensive pedestrian survey with subsurface investigations as necessary based on field conditions within the APE. Archaeologists examined the ground surface and erosional profiles and exposures for cultural resources. Survey was conducted within a 100- to 110-foot-wide survey corridor that includes the 75-foot APE and additional temporary workspaces. Shovel tests were excavated at 100-meter (m) intervals along one transect, as well as in selected areas to assess site deposits. Each shovel test measured roughly 30 by 30 centimeters (cm) in size and was excavated in 20-cm arbitrary levels to 1 m

in depth or to archaeologically sterile subsoil. The matrix was screened through ¼-inch mesh. The location of each shovel test was plotted using a Global Positioning System receiver, or on an aerial map, and each test was recorded on appropriate project field forms. As this was a non-collection survey, any artifacts discovered were to be tabulated, analyzed, and documented in the field, but not collected. Temporally diagnostic artifacts, if present, were to be described in detail and photographed in the field.

RESULTS

BACKGROUND REVIEW

A review of the THC's Atlas indicates three previous archaeological surveys and three previously recorded archaeological sites are within a 1-mile radius of the project area. Approximately 0.5 mile south-southeast of the northern terminus of the proposed pipeline is previously recorded prehistoric camp site 41AD54. SWCA recorded site 41AD54, a surface scatter of burned caliche, lithic debitage, two Jornanda Brownware sherds, and ground stone fragments, in 2007 during a survey of a segment of an El Paso Natural Gas pipeline prior to repairs. The site was determined not eligible for inclusion on the NRHP or for SAL designation (Atlas 2015).

One mile south-southwest of the southern terminus of the proposed pipeline is previously recorded site 41AD29, a prehistoric lithic scatter documented by Prewitt & Associates, Inc., during a survey of the planned Pacific Texas Pipeline (Atlas 2015). The Atlas provides no additional data on this site but given its distance from the proposed pipeline, it will not be impacted by the currently planned project.

Approximately 1 mile east of the central portion of the proposed pipeline is previously recorded site 41AD43, a prehistoric open camp with one human burial (removed), ground stone, debitage, burned rock, and chipped-stone tools recorded by avocational archaeologists with the Midland Archeological Society in 1988. THC determined the site eligible for SAL designation in 2002. Based on the distance of this site to the proposed pipeline, planned construction will not impact the site.

Turpin and Sons (TAS), at the request of SWCA and on behalf of DCP, recently conducted a cultural resources survey of approximately 6.9 miles of the proposed DCP Goldsmith to Fullerton 12-inch pipeline on University Lands (Turpin 2014), a segment of which overlaps and parallels the northern end of the currently proposed pipeline. The TAS survey discovered no cultural resources along the pipeline alignment, including within the currently proposed overlapping pipeline area. There are no cemeteries, NRHP listed properties/districts, or historical markers within 1 mile of the project area.

As part of the review, an SWCA archaeologist also examined the TxDOT Historic Overlay Maps, a mapping/geographic information system database with historic maps and resource information covering most portions of the state (Foster et al. 2006). The review of the TxDOT Historic Overlay maps revealed no possible historic-age structures within or immediately adjacent to the proposed pipeline (Foster et al. 2006). SWCA also reviewed historic maps from HistoricAerials.com in order to determine if any historic-age built resources were located within the project area, and to develop an idea of land development over time. A review was conducted of aerial topographic maps dated to 1970 and 1992 and historic aerial maps dated to 1966, 2004, and 2008. No historic-age topographic maps were available. As noted in the cultural setting, the Embar Oil Field was discovered in 1942 and, based on the review of aerial maps, well pads and roads within and near the project area were in use by at least 1968.

CULTURAL RESOURCES SURVEY

On January 15–16, 2015, two SWCA archaeologists conducted an intensive archaeological survey of the proposed Sagebrush Booster Fuel Pipeline. Survey was performed for the entire 2.25-mile-long project area on University Lands. In all, SWCA excavated a total of 17 shovel tests, all of which were negative for cultural material (Figure 3; Table 1). One archaeological site, 41AD73, was newly documented.

The project area is characterized by Holocene to Pleistocene-age sand and sandy loam that support a variety of bunch grasses, shin oak, scrub mesquite, and yucca. The project area is located within an active oil field, and as such, disturbance related to surface and buried water and gas pipelines (PVC and steel), overhead transmission lines, and gravel roads is ubiquitous (Figure 4).

The southern third of the project area traverses an open exposure of Early Pleistocene-aged sandy loam with fragments of fossiliferous limestone and caliche on the surface (Figures 5 and 6). Bunch grasses are common in this area and the surface visibility ranges from 30–70 percent, consistently increasing from south to north. Shovel tests in this area terminated at indurated limestone at a maximum depth of 40 cm below surface (cmbs), which is very similar in description to the “caprock caliche” as described by Lehman and Rainwater (2000) (see Table 1).

The central third of the project area traverses sand dunes that reach an observed height of at least 5 m above the ancient subsoil (Figure 7). Surface visibility across the dunes is roughly 75–80 percent. Newly documented site 41AD73 was identified within the southern extent of the sand dunes, where the subsoil is exposed at the base of large blowouts. Shovel tests within the southern portion of the dunes revealed Pleistocene-age sandy loam and sandy clay, which terminates at limestone at a maximum depth of 50 cmbs. Within the northern half of the dunes, the blowouts do not expose the ancient subsoil and shovel tests encountered sand to a depth exceeding 1 m (see Table 1).

Restricted Information
Not for Public Disclosure

Figure 3a. Survey results within the Northern half of the project area.

Restricted Information
Not for Public Disclosure

Figure 3b. Survey results within the Southern half of the project area.

Table 1. Shovel Test Data

ST ID	Site	Depth (cmbs)	Munsell	Soil Color	Soil Texture	Inclusions	Comments/Reason For Termination
MC01		0–25	7.5YR4/6	strong brown	sandy loam		South of sand dunes. No cultural material encountered.
MC01		25+	7.5YR4/6	strong brown	sandy loam	95% gravels	No cultural material encountered. Termination at bedrock.
MC02		0–30	7.5YR4/6	strong brown	sandy loam		South of sand dunes. No cultural material encountered.
MC02		30+	7.5YR4/6	strong brown	sandy loam	95% gravels	No cultural material encountered. Termination at bedrock.
MC03		0–40	7.5YR4/6	strong brown	sandy loam	5% gravels	South of sand dunes. No cultural material encountered.
MC03		40+	7.5YR4/6	strong brown	sandy loam	95% gravels	No cultural material encountered. Termination at bedrock.
MC04		0–35	7.5YR4/6	strong brown	sandy loam		South of sand dunes. No cultural material encountered.
MC04		35+	7.5YR4/6	strong brown	sandy loam	95% gravels	No cultural material encountered. Termination at bedrock.
MC05		0–30	7.5YR4/6	strong brown	sandy loam		South of sand dunes. No cultural material encountered.
MC05		30+	7.5YR4/6	strong brown	sandy loam	95% gravels	No cultural material encountered. Termination at bedrock.
MC06		0–40	10YR4/4	dark yellowish brown	sand		Within sand dunes area. No cultural material encountered.
MC06		40–100	10YR7/3	very pale brown	sand		No cultural material encountered. Termination due to depth.
MC07		0–60	10YR5/3	brown	sand		Along north margin of project area. No cultural material encountered.
MC07		60–80	10YR7/3	very pale brown	sand		No cultural material encountered.
MC07		80–100	10YR8/1	white	sand		No cultural material encountered. Termination due to depth.
MC08		0–80	7.5YR5/6	strong brown	sandy loam		Near north margin of project area. Heavily disturbed by pipeline construction (open trenches) and machinery/equipment. No cultural material encountered.
MC08		80–100	7.5YR5/1	gray	sand		No cultural material encountered. Termination due to depth.
MS01	41AD73	0–40	10YR5/4 (damp)	yellowish brown	sandy loam		Near Feature 1 (burned rock concentration) and approximately 1 meter outside scatter within sand dunes area. No cultural material encountered.

MS01		40-50	10YR6/4	light yellowish brown	sandy clay		No cultural material encountered. Termination at bedrock.
MS02		0-40	10YR5/4	yellowish brown	sandy loam	limestone	South of sand dunes. No cultural material encountered. Termination at bedrock.
MS03		0-7	10YR5/4	yellowish brown	sandy clay loam	limestone	Exposed Pleistocene at surface. No cultural material encountered. Termination at bedrock.
MS04		0-50	10YR4/4 (damp)	dark yellowish brown	sand		Near low point in sand dunes area. No cultural material encountered.
MS04		50-100	10YR7/3 (dry)	very pale brown	sand		No cultural material encountered. Termination due to depth.
MS05		0-50	10YR4/4 (damp)	dark yellowish brown	sand		Within sand dunes area with high dunes. No cultural material encountered.
MS05		50-100	10YR7/3 (dry)	very pale brown	sand		No cultural material encountered. Termination due to depth.
MS06		0-50	10YR4/4 (damp)	dark yellowish brown	sand		Northern end of sand dunes area with high dunes. No cultural material encountered.
MS06		50-100	10YR7/3 (dry)	very pale brown	sand		No cultural material encountered. Termination due to depth.
MS07		0-100	10YR5/4	yellowish brown	sand		North of high dunes. No cultural material encountered. Termination due to depth.
MS08		0-100	10YR5/4	yellowish brown	sand		Recently heavily disturbed surface surrounded by pipeline construction and machinery. No cultural material encountered. Termination due to depth.
MS09		0-100	10YR5/4	yellowish brown	sand		Just north of ROW crossing with current construction (open trench). No cultural material encountered. Termination due to depth.



Figure 4. Surface and buried pipelines, transmission lines, and a gravel road (SW 6900) crossing the project area, facing east-northeast.



Figure 5. Typical overview of southern portion of project area, facing north.



Figure 6. Example of fossiliferous limestone found across the surface and encountered in shovel tests.



Figure 7. Sand dunes in the central portion of the project area on 41AD73, facing north-northeast. Investigator is in the location of Feature 1.

The northern third of the project area is extensively disturbed as a result of oil and gas field activity (Figure 8). At the time of survey, a pipeline was under construction, which parallels the west edge of the proposed ROW, then crosses the ROW before diverting to the east (Turpin 2014). In addition to numerous surface pipelines, several buried pipelines were visible in the open trench within the project area (see Figure 8).

Surface visibility and vegetation through the northern portion of the project area is similar to the central third, and sandy loam soil was found to exceed 1 m in depth (see Table 1).

Based on the high level of surface visibility (greater than 30 percent) and extensive disturbance noted within the project area, the 100 percent pedestrian inspection supplemented with 17 shovel tests performed in support of the project exceeds the THC/CTA minimum survey standards. As previously mentioned, all shovel tests were negative for cultural material.



Figure 8. Extensive disturbance within the northern portion of the project area near centerline, facing west-southwest.

SITE 41AD73

Site 41AD73 is a prehistoric open campsite situated within the southern extent of the sand dunes, 570 m northeast of the FM 181/SW 6900 intersection (see Figure 3). Active well pads are located to the east and west and pipelines were noted traversing the area, although none were observed within the site boundary. Vegetation consists of sparse bunch grass, shin oak, and scrub mesquite allowing approximately 85 percent surface visibility. The site is delineated by the extent of surface artifacts and measures 100 m north-south by 20 m east-west (Figure 9).

The observed artifact assemblage of site 41AD73 includes two flakes and roughly 40 fragments of burned limestone, including one scattered surface feature (Feature 1). The only two flakes noted are located in the northern portion of the site (Figure 10). The first flake is of light brown chert and measures approximately 2 cm long by 0.3 cm wide. One edge exhibits fine flaking and the fragment is likely a result of bifacial edge rejuvenation (Figure 11). This flake was noted directly atop the ancient subsoil at the base of a blowout. The second flake was observed on the surface of a sand dune, roughly 1 m above the subsoil and 15 m southwest of the chert flake. This flake is of a coarse-grained quartzite material, exhibits some cortex and three prior flake removal scars, and measures 5 cm square by a maximum thickness of 2 cm (see Figure 11).

The majority of burned rock was confined to a 9-m-diameter area designated as Feature 1 (Figure 12). This feature is also located directly atop the Pleistocene-aged soil and likely represents the remnants of a burned rock hearth that has been displaced by movement of the surrounding sand and surface erosion. Burned rock fragments range from approximately 1 to 5 cm in diameter (Figure 13).

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Figure 9. Site 41AD73 map.



Figure 10. Overview of north portion of site 41AD73 facing south-southwest. Note the “X” in the location of the quartzite flake.



Figure 11. Flakes found on site 41AD73.



Figure 12. Feature 1 area between shovel, backpack, and screen on site 41AD73 facing north-northeast.



Figure 13. Close-up of burned rock concentration in the northwestern portion of Feature 1 on site 41AD73.

Based on the excellent surface visibility, one shovel test (MS01) was excavated during the delineation of the site, immediately adjacent to Feature 1. This test revealed 40 cm of damp sandy loam over 10 cm of sandy clay, which terminates at indurated limestone at 50 cmbs (see Table 1). This soil predates cultural activity and therefore precluded the need for additional shovel testing. No temporally diagnostic artifacts were observed in association with site 41AD73.

SUMMARY

Site 41AD73 is a purely surficial, prehistoric open campsite consisting of lithic debitage and burned rock. The site type and location are typical of the region and the site offers little to no potential to contribute valuable information regarding prehistoric activity in Texas. Based on the paucity of artifacts, heavily deflated nature of Feature 1, and a lack of buried cultural material or temporally diagnostic artifacts, SWCA recommends site 41AD73 as not eligible for listing on the NRHP or for designation as an SAL. Accordingly, no further archaeological work is recommended at the site.

SUMMARY AND RECOMMENDATIONS

On behalf of DCP, SWCA conducted an intensive cultural resources survey for the proposed Sagebrush Booster Fuel Pipeline project in Andrews County, Texas. The work was conducted to comply with the ACT under Permit No. 7152, as University Lands is a political subdivision of the State of Texas. All work was performed in accordance with the ACT and CTA/THC minimum survey standards.

Investigations included a background literature and records review and an intensive pedestrian survey. The background review revealed that TAS performed an archaeological survey in 2014, which crosses over the northern portion of the project area. No sites were recorded during this investigation (Turpin 2014). Two additional surveys and three archaeological sites are located within 1 mile of the current project area, however, none of these overlap the project.

A 100 percent pedestrian inspection with shovel testing was conducted for the 2.25-mile-long APE

located on University Lands, within a 100- to 110-foot-wide survey corridor centered on the proposed pipeline centerline. Overall, the intensive pedestrian survey documented a relatively level, open environment with sand dunes through the central portion providing the only form of topographic relief. The APE is within the active Embar oil field and has been disturbed by the construction of oil and gas field infrastructure (e.g., well pads, access roads, and pipelines), grading and clearing, utilities (subsurface and overhead), and wind erosion/scouring. These impacts have resulted in significant disturbances throughout the project area. A total of 17 negative shovel tests were excavated within the project area during the intensive pedestrian survey and site delineation, and one site (41AD73) was newly documented.

Site 41AD73 is recommended not eligible for listing on the NRHP or as an SAL based on the paucity of artifacts, absence of temporal diagnostics, and a lack of both contextual integrity and potential for intact subsurface deposits. In accordance with the ACT, SWCA has made a reasonable and good faith effort to identify cultural resources within the APE. As no properties were identified that warrant SAL designation, SWCA recommends that no further cultural resources investigations within the project APE are necessary and the proposed project should be allowed to proceed as planned.

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