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Balding Pod 138kV Transmission Line Route-Ut Lands Portion

Cody S. Davis

Joy C. Tatem

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AR Consultants, Inc.

Archaeological and Environmental Consulting
805 Business Parkway, Richardson, Texas 75081
Phone: (214) 368-0478
Fax: (214) 221-1519
E-mail: arc@arc-digs.com

ARCHAEOLOGICAL SURVEY OF THE PROPOSED

BALDING POD 138kV TRANSMISSION LINE ROUTE – UT LANDS PORTION

WINKLER COUNTY, TEXAS

Texas Antiquities Permit Number 8140

Cody S. Davis, MA
Principal Investigator
and
Joy C. Tatem, B.A.

Submitted to:

HALFF ASSOCIATES, INC.
1201 North Bowser Road
Richardson, Texas 75081

Submitted by:

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805 Business Parkway
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Cultural Resources Report 2017-58
September 18, 2017

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ABSTRACT

Oncor Electric Delivery Company, LLC is planning to construct the Balding POD 138-kV Transmission Line in Winkler County, Texas. Halff Associates, Inc, the routing consultant for Oncor, contracted with AR Consultants, Inc. to conduct an intensive pedestrian survey of the 370-m proposed transmission line route located on University of Texas School Lands. Survey was conducted on August 30, 2017. Four shovel tests were excavated and transects were walked within the 100-ft survey corridor (2.7 acres); no cultural resources were identified in these shovel tests nor on the surface. Due to prior disturbances, poor integrity of context, eroded and shallow soils, and the absence of any identified cultural materials in the study area, the proposed project should have **No Effect** on any cultural resource sites meeting National Register of Historic Places eligibility requirements set forth in 36 CFR 60.4 – *Criteria of Eligibility*, nor any sites that merit designation as State Antiquities Landmarks, as outlined in 13 TAC 26.8, *Criteria for Evaluating Archeological Sites*. Therefore, no additional cultural resources investigations are recommended for this project. Geoarchaeological assessment revealed that the project area does not exhibit the necessary pedologic or geomorphic conditions for the burial and preservation of cultural deposits. Consequently, no geoarchaeological monitoring of transmission pole emplacement is recommended. However, should the proposed right-of-way alignment change through the addition of reroutes, additional archaeological survey may be necessary. Since no sites were identified, no artifact curation is required, while the paperwork will be curated with the Center for Archaeological Studies at Texas State University in San Marcos.

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INTRODUCTION

Oncor Electric Delivery Company, LLC (Oncor) is planning to construct the Balding Point of Delivery (POD) 138-kV Transmission Line in Winkler County, Texas. Oncor is proposing to construct approximately 2.5 miles of new 138 kV electric transmission line between an existing transmission line and the Balding POD (Figure 1). The route is situated approximately 4.5 miles northwest of Wink, Texas and extends southwest from FM 302. The southwestern most 0.23 miles (370 meters [m]) of the route are on University of Texas (UT) School Lands, while the remainder (2.29 mi or 3700 m) is located on private land. The project route was divided between the UT Lands and the private portions; the discussion on the private land portions will not be included in this study. AR Consultants, Inc. (ARC) was contracted by Halff Associates, Inc. (Halff) to conduct an intensive pedestrian survey of the route on UT School Lands within a 100-foot-wide survey corridor (2.7 acres). The proposed route will have a 70-foot-wide right-of-way (ROW). The project will utilize steel or concrete monopole structures. The depths of foundations holes generally impact depths of 10 to 25 ft (3 to 7.6 m) within a 2 to 8 ft (0.6 to 2.4 m) diameter area for monopole structures. In extreme cases, the depth of impacts may extend as deep as 60 ft (18.3 m). Prior to the establishment of the alignment corridor, ARC identified a generalized study area boundary shown in Figure 2 in order to facilitate data gathering for cultural resources.

The area investigated for archaeological resources includes the 100 ft (30 m) wide survey corridor. Within the corridor alignment, mechanized clearing of vegetation and construction of access roads and culverts typically impact to depths of 6 to 24 inches (in) (15 to 60 centimeters [cm]). Cultural resources personnel from ARC conducted an archaeological survey for the proposed transmission line project on August 30, 2017. All work was performed in accordance with the Texas Historical Commission (THC)-approved *Generic Research Design for Archaeological Surveys of Oncor Electric Delivery Electric Transmission Line Projects in Texas* (PBS&J Corporation 2008). The generic research design stipulates the methods under which cultural resources within proposed transmission line ROW will be identified and assessed for National Register of Historic Places (NRHP) and State Antiquities Landmark (SAL) eligibility, and how site-specific recommendations for additional archaeological research would be handled.

A cultural resource investigation was required because UT is a governmental entity of the State of Texas, and Texas Antiquities Permit Number 8140 was issued for the archaeological survey. Cody S. Davis served as principal investigator. Relevant legislation includes the Antiquities Code of Texas (Texas Natural Resource Code, Title 9, Chapter 191). The Archeology Division of the THC will review this report as the State Agency responsible for administering the Texas Antiquities Code. Additionally, as part of the permitting process for these projects, Oncor applies for a Certificate of Convenience and Necessity (CCN) from the Public Utility Commission of Texas (PUC), as required by Section 37.051 of the Texas Utilities Code (TUC). In granting the CCN, the PUC routinely requests that Oncor comply with the requirements of the THC regarding the need for cultural resources investigations within the proposed project area. This usually consists of an archaeological survey of the proposed transmission line ROW, conducted prior to the initiation of any construction, and submittal of a report of findings to the THC. These surveys are intended to provide necessary information regarding any critical cultural resources that might be affected by construction during the planning stages of the project.

No archaeological sites, isolated finds, or historic standing structures were identified during the survey. Thus, no official site forms were required for submission to the Texas Archeological Research Laboratory (TARL) at UT. This report documents the methods, results, and recommendations for the archaeological survey of all parcels, including recommendations for geoarchaeological monitoring. These recommendations are subject to change, depending on the need for any reroutes to the proposed corridor.

This report is written in accordance with report guidelines used by the Archeology Division of the THC (Council of Texas Archeologists n.d.). The following report presents a brief description of the natural setting of the project area, followed by a discussion of the culture history and previous investigations within the study area. A chapter on the research design and methodology employed in the investigation is then followed by the results of the field investigation. The report concludes with recommendations followed by the references cited.

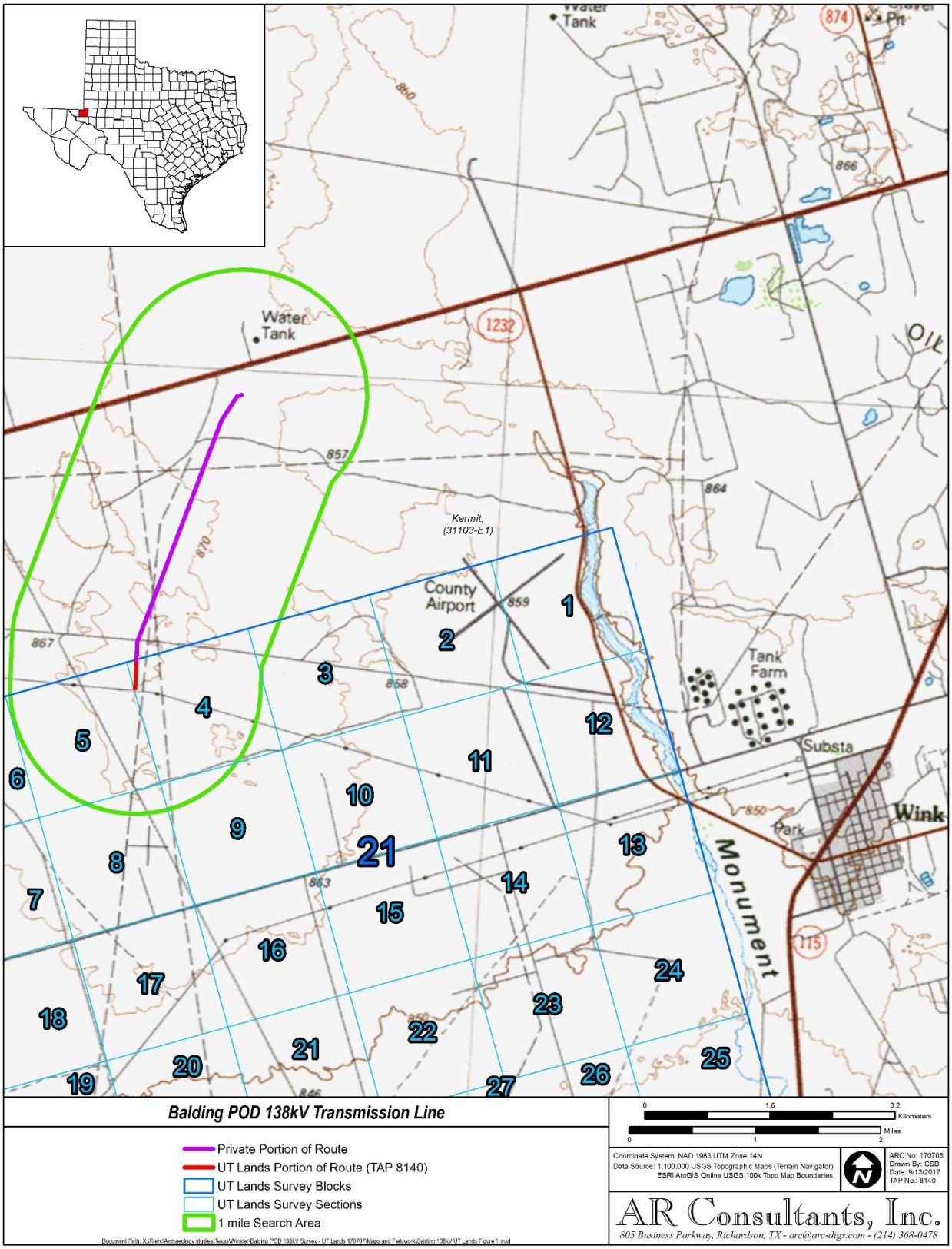

Figure 1. The proposed Balding POD 138kV Transmission Line project area shown on the Kermit, TX 1:100,000 USGS map.

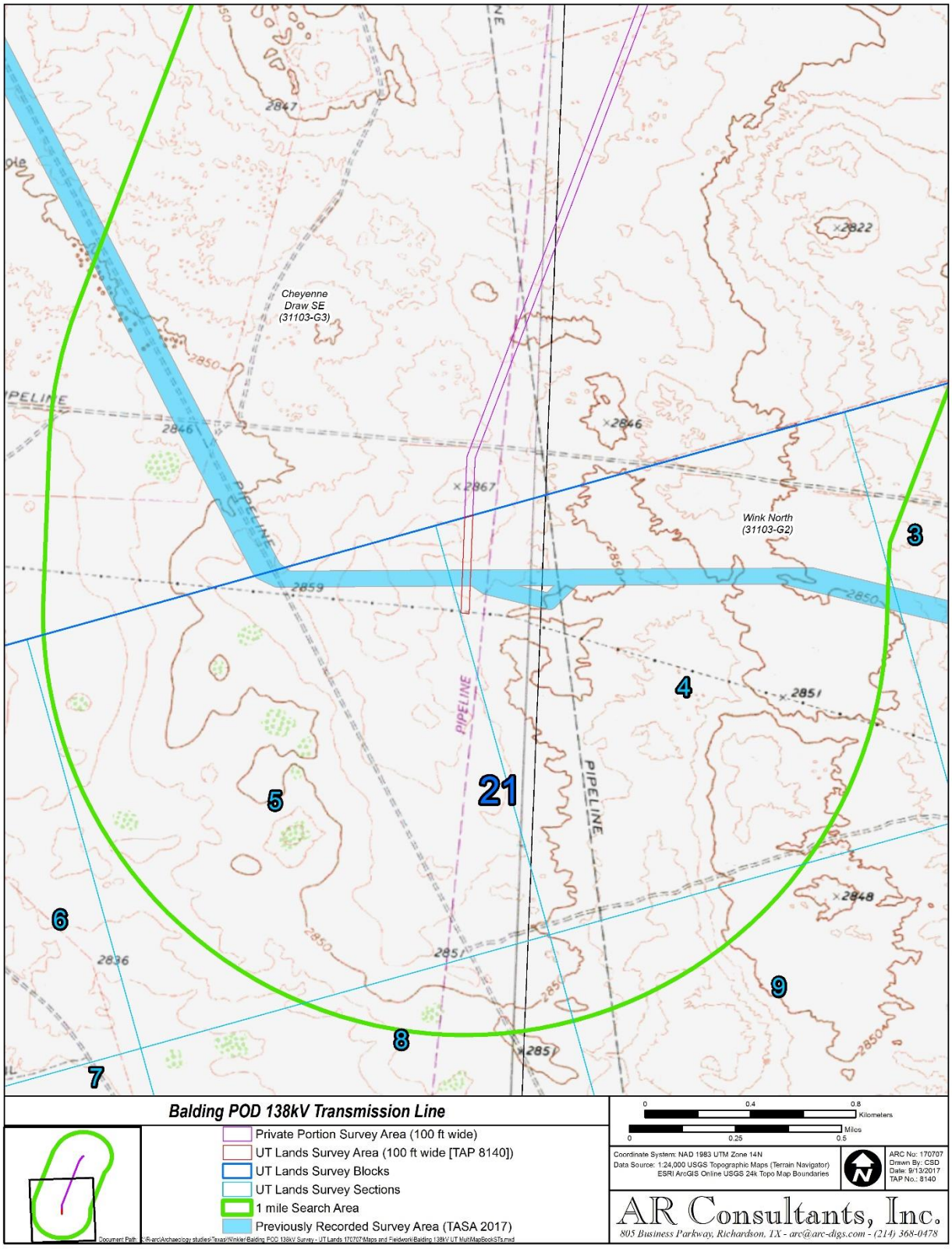

Figure 2. The proposed Balding POD 138kV Transmission Line project area shown in relation to previous archaeological investigations on portions of the Cheyenne Draw and Wink North, TX 7.5' USGS maps.

Administrative Information:

Sponsor:	Oncor Electric Delivery Company, LLC with Halff Associates, Inc. managing permitting and design
Review Agency:	Archeology Division of the Texas Historical Commission.
Principal Investigator:	Cody S. Davis, MA
Field Dates:	August 30, 2017
Field Crew:	Cody S. Davis and Joy Tatem
Field Person Days:	1
Acres Surveyed:	approximately 2.7 acres
Sites Investigated:	None
Curation:	Records only; Center for Archaeological Studies, Texas State University, San Marcos

NATURAL ENVIRONMENT

Winkler County is located in the Chihuahuan Basins and Playas ecoregion, which consists of relatively low-lying flats, slopes, dunes, basins, hills, and ridges punctuated by isolated mountains and plateaus (Griffith et al. 2007:8). The Pecos River valley is to the west and south of the proposed transmission line. No perennial nor intermittent streams are mapped within or around the project area. The transmission line is mapped as crossing recent and Pleistocene-age caliche and lesser areas of Holocene-age windblown sand that are found in the form of sheets, dunes, and dune ridges (Bureau of Economic Geology 1975). Though chert from the Fredericksburg Formation has been documented in Winkler County and north towards Andrews County (Blaine et. al 2017:12), no knappable tool stone have been reported within the project boundary.

Winkler County has a distinctly xeric climate, receiving a mean of only 13 inches of precipitation annually (Griffith et al. 2007:8). Several playas are shown to occur on the surface of the caliche deposits in the vicinity of the route. These shallow depressions retain water after periods of significant rainfall (Young 2003:10). Additional water sources in the region are the Pecos and Rio Grande rivers as well as underground aquifers associated with the prevalent sediment-filled basins (Griffith et al. 2007:9). The high demand for irrigation and industrial water in the region has reduced the flow of both rivers while the use of wells has led to a 100-foot decline in ground water levels since the beginning of the 20th century (Griffith et al. 2007:9).

This is a region characterized by a semi-arid climate with a dominance of stunted xerophytic vegetation (Tharp 1952). Dominant plants expected in the area are sotol, lechuguilla, ocotillo, one-seed juniper and various cacti. Other plant species include Torrey yucca, agarita, four-wing saltbush, ephedra, creosote bush, snakeweed, as well as a variety of flowers and grasses.

The proposed route crosses over two gently undulating soil associations: the Wickett-Sharvana complex and the Pyote fine sand (Reeves 1999). The Wickett-Sharvana complex is generally characterized by a 16- to 35-cm-thick, brown/yellowish red loamy fine sand A-horizon, underlain by dark reddish brown/ yellowish red sandy clay loam B-horizon soils. The Pyote fine sand soil series is generally characterized by 91 cm of yellowish red fine sand underlain by yellowish red fine sandy loam.

CULTURAL HISTORY

A well-defined cultural chronology for Winkler County has not been developed, as relatively few archaeological investigations have been conducted in this area. Winkler County is in the Pecos Valley of West Texas, transitioning from the Llano Estacado ecoregion of the Southern High Plains in the northeast to the majority of the county that lies in the arid Trans-Pecos region, where the project area is situated (Johnson and Holliday 2004; Miller and Kenmotsu 2004). A brief overview of the cultural history for these regions of Texas is synthesized from previous archaeological investigations. This region has not been intensively studied, and only a few large-scale archaeological projects have been conducted (Miller and Kenmotsu 2004:206). As the study area is situated on the southwestern portion of the Southern High Plains archaeological region, as defined by Perttula (2004:9), a brief chronology of the region is included here (Table 1). The cultural history of this region is generally divided into four major periods: Paleoindian, Archaic, Late Prehistoric, and Historic (Miller and Kenmotsu 2004).

Table 1. Cultural Chronology.

Period	Dates
Anglo-American Settlement	1815 to present
Historic European	1550 to 1815
Late Prehistoric	1,500 to 450 B.P.
Late Archaic	4,000 to 1,500 B.P.
Middle Archaic	6,000 to 4,000 B.P.
Early Archaic	9,000 to 6,000 B.P.
Paleoindian	12,000 to 9,000 B.P.

Paleoindian Period

Prehistoric Native American settlement in Texas began at least 12,000 years ago, as attested by the presence of dart points and radiocarbon dated site deposits. The Paleoindian period is associated with distinctively shaped Clovis, and later Folsom and Midland, lanceolate projectile points (Bousman et al. 2004). There are a few examples of Clovis, Folsom, and Midland projectile points discovered in the Trans-Pecos region of Texas, and the bordering Plains/Panhandle region exhibits a relatively high density of Clovis points compared to most other regions of Texas (Bever and Meltzer 2007:75). At least two Clovis points have been found in Winkler County (Bever and Meltzer 2007: Table 1). There are other examples of Clovis, Folsom, and Midland projectile points discovered in this region of Texas, including four Clovis points found in neighboring Ward County and six in Andrews County to the north. Little is currently known about the Clovis Complex in the region outside of some isolated discoveries of distinctive fluted projectile points associated with the complex (Holliday 1997; Miller and Kenmotsu 2004:214). The lack of cultural materials from this earliest stage of the Paleoindian period may indicate that early inhabitants were widely spread with sparse occupation (Sanchez 1999:31; Bever and Meltzer 2007:76), or may reflect the lack of archaeological work conducted in the region. By contrast, much more is known about the Folsom and Midland complexes (Miller and Kenmotsu 2004:215), and some of the most noteworthy Paleoindian sites have been found in the southernmost extension of the Southern Great Plains to the north and east of Winkler County (Holliday 1997). Folsom and later Paleoindian materials are not uncommon in the Trans-Pecos region, with significant sites such as Bonfire Shelter in Val

Verde County (Byerly et al. 2007) and Chispa Creek (Lindsay 1969:103) in Culberson County. Shifting Sands, a significant Folsom/Midland site, and Winkler-1, a significant Midland site, are located in Winkler County and in neighboring Lea County, New Mexico, respectively (Blaine et al. 2016; Rose 2011). Both sites held Paleoindian artifacts in dune deposits.

Archaic Period

This period, which is the longest in Texas prehistory, lasting approximately 7,500 years, is divided into three stages: Early Archaic, Middle Archaic, and Late Archaic. In the Early Archaic (ca. 9,000 to 6,000 B.P.), population were relatively low and widely distributed. Despite the continued use of Paleoindian lithic technology, the emergence of a broadly-based hunting and gathering adaptation, especially an increase in evidence of gathering, marks the advent of the Archaic (Lintz et al. 1993:52). The appearance of grinding stones in period assemblages suggests that the exploitation and processing of plant resources began to play a part, and the appearance of stone-lined hearths suggests a general refinement in food processing. The appearance of burned-rock middens marks the end of this cultural stage. Burned rock middens are the dominate feature of sites from the Middle Archaic (ca. 6,000 to 4,000 B.P.). Burned rock middens suggest the increasing importance of food processing and possibly specialized food harvesting. Yucca and sotol, which would have been continually available in the cyclically xeric climatic conditions of the period, are present at several Middle Archaic sites (Johnson and Goode 1994:26). The Late Archaic (ca. 4,000 to 1,500 B.P.) is distinguished by broad-body, expanding stem dart points such as Castroville, Marcos, and Montell. The period is marked by a general increase in populations, as evidenced by the density of Late Archaic deposits at stratified sites found in the region, which are disproportionately well-represented compared to earlier or succeeding periods (Prewitt 1985:217).

Late Prehistoric Period

The introduction and spread of the bow and arrow mark the beginning of the Late Prehistoric Period. During the Late Prehistoric period some plant cultivation, primarily of beans, squash, and maize, occurred in the western part of the Lower Pecos but overall hunting and gathering continued to provide major food sources. Bison appeared during mesic periods and were a prominent subsistence source. Pottery makes its appearance in this period. Pottery styles range from plainware to polychrome painted vessels, and imported ceramics have been found at sites in the area (Miller and Kenmotsu 2004; Simmons et al. 1989). Site types remain the same as during the Archaic with the addition of wickiups associated with ring and crescent middens (Young 1981). At approximately A.D. 1400, the area may have been abandoned.

Historic Period

The Protohistoric period refers to the transition between the prehistoric and historic periods. Protohistoric Native American sites are virtually unknown in most parts of the region, and the primary evidence of occupation is the occasional discovery of a glass trade bead, metal arrowhead, or crevice burial (Skinner 2016).

Historic sites are highly varied within the Southern Great Plains and Trans-Pecos regions and include forts, trails, settlements, homesteads, cemeteries, trading posts, dugouts, trash scatters, and caches. Winkler County was reportedly part of Apache territory until the 1700s (Smith 2017). The

Comanche moved into the South Plains, driving out the Apache (Richardson 1996), and established meeting places in the White Sandhills and Blue Mountain areas. Blue Mountain is in northeastern Winkler County, as part of the southern escarpment of the Llano Estacado.

Though generally sparse in West Texas, evidence of Euro-American occupation begins during the time of exploration and trade (A.D. 1541 to 1820) and steadily increased until the Depression period (A.D. 1900 to 1940) (Hays et al. 1989). The Spanish exploration era ranges from A.D. 1540 to 1821. Spanish explorers visited the Pecos River during this time, but left little evidence of their presence (Chipman 1992). Early exploration was then followed by early Anglo-American settlers from 1820 to 1860 in the Panhandle and Plains (Hays et al. 1989), while Mexican forces controlled the Trans-Pecos until 1846 (Miller and Kenmotsu 2004:258-265). Though the Civil War (1860-1865) was an important period of political and social upheaval, there was only limited military action in West Texas. Settlement increased after the Civil War, after changes in the southern economy, population growth, immigration, the release of large numbers of men from military conscription, and the development of railroads. Regional drought and the Great Depression impacted the region heavily, with economic and ecological disaster provoking massive migration from West Texas, Oklahoma, and Kansas to California (Hays et al. 1989). While many West Texas counties remain sparsely populated, large scale ranching and vegetable farming are viable industries in the region and the oil industry has brought various economic booms.

Winkler County was established in 1887 from territory previously included under Tom Green County, with only a few ranchers populating the area (Smith 2017). From 1901 to 1905, the county experienced a land rush after state law allowed land sales on generous credit terms. In 1910, Winkler County was organized. The early economy was primarily agricultural, which nearly resulted in the county becoming uninhabited during the drought of 1916 to 1926, when many farmers and ranchers abandoned their land. The population did not rebound until oil was discovered in 1926, which led to the establishment of the town of Wink. With the impact of the drought and the advent of oil production, the cultivation of crops declined. Livestock production increased through the 1950s, replacing crop production, and the livestock industry continues to be a key contributor to the county's economy. Over the last 50 years, oil production and ranching have fluctuated periodically due to drought and variable prices for crude (Smith 2017).

Previous Investigations

The lack of large-scale surveys and excavated sites is the main reason that the archaeology of the Trans-Pecos region is not well understood; however, the geomorphology of the area also contributes to this dearth of archaeological information, as this would expose archaeological resources if they existed in the area. The study area is in the arid Trans-Pecos region, transitioning from the Southern High Plains, where water is limited to the major waterways like the Pecos River.

The generic research design (PBS&J Corporation 2008) calls a 1-kilometer (km) search area around the study area, however, ARC typically uses a one-mile (1.6 km) search area for projects. No prehistoric or historic archaeological sites have been recorded within one mile of the study area (Figure 2). One previous archaeological survey crosses the proposed transmission line route. The Bureau of Land Management sponsored an investigation by Statistical Research, Inc. (SRI) on behalf of Tetra Tech for the Alpha Crude Connect and Carlsbad Connector pipeline project in 2014 and 2015. The pipeline extended from the City of Wink and surrounding areas to the New Mexico

border in Loving County. While information on the project itself is unavailable, three historic archaeological sites were recorded as part of the study. Site 41WK87 lies northeast of the City of Wink, outside the study area, and is a deconstructed oil well pad dated to the mid-twentieth century. Site 41WK89 also lies northeast of the City of Wink, and consists of a historic trash dump/campsite dating to the 1930s or 40s. Site 41WK88 consists of a historic trash dump likely from the early to mid-twentieth century, and is located 5 miles northwest of the study area. None of these sites recorded by SRI were deemed eligible for inclusion on the NRHP.

Historic Map Review

In addition to a review of previous archaeological investigations, a historic map review was conducted. The 1936 and 1956 Winkler County general highway maps (GHMs) were reviewed. The 1:250,000-scale series U.S. Army Map Service (now maintained by the USGS) topographic 1954 Pecos and 1957 Pecos maps, the 1:100,000-scale series USGS 1986 Kermit topographic map, and the more accurately scaled 7.5' USGS 1970 Wink North topographic map were also inspected. No historic structures were apparent along the proposed project route. Mapped windmills do appear in areas surrounding SH 302 on the 1954 and 1957 Pecos USGS maps, but lie outside the study area. In researching additional resources on the potential for historic resources, the THC Atlas was reviewed and indicated that no historical markers or cemeteries are in the area. The National Park Service lists no districts or properties within one mile of the study area that are on the National Register of Historic Places.

RESEARCH DESIGN AND METHODOLOGY

Research Design

The generic research design (PBS&J Corporation 2008) calls for the study area to be classified into High Probability Areas (HPAs), Moderate Probability Areas (MPAs), and Low Probability Areas (LPAs) on the basis of perceived likelihood for the occurrence of unidentified archaeological sites. This stratification is based on extant site distributions, soils, geomorphology, topography, prior disturbances, and distance from permanent and intermittent water sources (i.e., creeks, rivers, and springs). These areas were identified prior to fieldwork, though were adjusted as necessary during the actual field survey based on extant ground conditions, soil depth, and surface erosion or disturbances.

HPAs for prehistoric archaeological sites were defined as relatively level, well-drained soils on interfluve summits, shoulder slopes, alluvial and colluvial fans, natural levees, upland edges adjacent to alluvial valleys, and stream confluences. Holocene-age alluvial terraces and floodplains were also classified as HPAs. Alluvial deposits offer the greatest preservation potential for prehistoric sites, which may be deeply buried and stratified. Though such sites have the greatest research potential, sites in such settings are typically deeply buried and exhibit low surface visibility. As such, they are typically located through deep mechanical excavation or by observing eroding stream banks.

MPAs include areas that may contain archaeological remains, but their presence is considered to be less likely due to greater distances to water, strongly sloping areas, and/or eroded soils. These areas include upland margins, Pleistocene terraces, and gently sloping hillsides and toe slopes within 500 m of streams. Though surface site visibility in MPAs tends to be higher than in HPAs due to decreased vegetation and shallower soils, MPAs are less likely to exhibit the geologic conditions necessary for the burial and preservation of cultural materials. Furthermore, mixing of cultural components and near surface ground disturbances are more likely to occur and affect the potential integrity of archaeological deposits in MPAs.

LPAs are those areas in which prehistoric archaeological sites are unlikely to be present because of steeply sloping topography, significant distance to water (e.g. >500 m to water), and may be eroded, deflated, or otherwise impacted from modern construction. Any prehistoric archaeological sites in these settings would not likely retain integrity.

Based on the research conducted prior to survey, the prosed route is considered to be moderate to low probability, and therefore two hypotheses were developed. First, it was hypothesized that there was low potential for encountering prehistoric sites given the lack of a reliable water source near the project area and also the absence of knappable tool stone. Additionally, the level landscape does not provide adequate shelter from inclement weather. The lack of previously recorded prehistoric sites in the surrounding area would typically warrant low potential here as well, though this stems from the small number of surveys which in turn provides limited data for the area.

The second hypothesis stated that there was low potential for encountering historic sites as well. No structures are shown within the project area on any of the aerials or historic maps reviewed.

While historic maps and aerials demonstrate that structures are not likely to be found, even regarding the windmills outside the project boundary, historic trash scatters may be present within the survey area.

Methodology

Field personnel walked a 100 percent the proposed route within a 100-foot survey corridor and shovel tests were excavated approximately every 100 m (328 ft) along the single 30 m (100 ft) wide transect. Personnel made notes about the ground exposure, soil types, drainages, and disturbed areas where subsoil was exposed. As recommended by the THC (n.d.), shovel tests averaged 30 cm in diameter and were excavated in 10 cm (4 in). Sandy soils were inspected visually and sifted through a ¼" wire mesh in order to determine if cultural materials were present. Soils with high clay content were troweled through and visually inspected. Soils were described on the basis of color and texture, and the Munsell Soil Color Chart was used to identify the specific soil colors in each test (Munsell Color 2009). The shovel tests were marked with a handheld Garmin GPSmap78 receiver. Photographs were taken with a 16-megapixel, GPS-equipped camera. Artifacts recovered from subsurface shovel tests would have been collected. The collection of surface artifacts from newly recorded sites would have been limited to temporally diagnostic artifacts. Isolated occurrences would have also been noted. No cultural resources were identified through shovel testing during the course of survey, therefore no collection was necessary.

Upon identification of an archaeological site, the boundaries would have be delineated on the basis of the surface distribution of artifacts and features. In areas where buried deposits were suspected, site boundaries would be defined by a series of shovel tests along transects radiating in four cardinal directions or, if more appropriate, along perceived major and minor axes. The location of each site would be recorded on a USGS topographic map or other appropriate field map or aerial photograph and a sketch map would be drawn. A temporary field designation was to be assigned to each site and a TexSite form would be completed and submitted to TARL for assignment of a permanent trinomial designation. No cultural resources were identified during the course of survey; therefore, no site recording procedures were required.

Identification of geoarchaeologically-sensitive areas within the proposed ROW that would be adversely affected by construction of a support structure on a proposed transmission line would normally involve trenching at the proposed location of a transmission line structure. Although backhoe trenching is used to prospect for deeply buried archaeological deposits in certain depositional settings, it is not recommended in areas where transmission structures are to be constructed because trench excavations could be potentially destabilizing to the structure foundations. In order to overcome this issue, an assessment of the geoarchaeological potential of the project area was conducted. Geoarchaeological potential refers to the likelihood that the soils could contain deeply buried cultural deposits with sufficient integrity context to be eligible for inclusion in the NRHP or to merit designation as a SAL. The geoarchaeological assessment was based on field surveys, and geologic and pedologic data. Any transmission tower structures that would be placed in areas exhibiting geoarchaeological potential would be recommended for geoarchaeological monitoring during foundation excavations. Any necessary monitoring activates would be conducted in accordance with the specifications outlined in the generic research design

(PBS&J Corporation 2008). Based upon the setting of the proposed route, there was not potential for encountering deeply buried sites.

No archaeological or historic sites were observed and no artifacts were collected during survey. At the conclusion of the project, all field documentation and any other data collected during the course of the project will be prepared for curation according to relevant curation specifications.

RESULTS

This chapter is divided into two sections. The first describes the study area's natural setting along with results of the pedestrian survey. Conclusions derived from the survey close the chapter. While shovel tests are described generally within the survey results, they are detailed at the end of the results section below (Table 2).

Survey Result

Four shovel tests (STs) were excavated along the proposed transmission line (Figure 3). The general vegetation included knee- to waist-high grasses, yucca plants, tarbush, and creosote bushes (Figure 4). This resulted generally in poor ground visibility, though moving the grasses or coming across open expanses provided almost 100-percent visibility (Figure 5). Calcium carbonate, gravels, and degrading caliche bedrock were observed on the surface, particularly in areas where pipeline ROW and two-track roads intersect the project area. North of ST1, a seismic monitor was also observed on the surface. The shovel tests generally revealed the same soil profile consisting of dry pinkish gray fine sand underlain by reddish yellow fine sand, with the last 10 cm becoming more clayey. In the northernmost area of the route at ST4, caliche bedrock was reached at 50 cm below the surface. The last 50 meters of the route crosses an existing pipeline ROW, therefore a ST was not excavated here. The survey confirmed that no knappable tool stone was present in the project area.

Table 2. Shovel Test Descriptions

ST#	Depth (cmbs)	Description	Comments/ Artifacts
1	0-15 15-80	Pinkish gray (7.5YR6/2) fine sand, dry Reddish yellow (7.5YR6/6) fine sand, moist and more clayey in last 10 cm	None
2	0-10 10-80	Pinkish gray (7.5YR6/2) fine sand, dry Reddish yellow (7.5YR6/6) fine sand, moist and more clayey in last 10 cm	None
3	0-10 10-80	Pinkish gray (7.5YR6/2) fine sand, dry Reddish yellow (7.5YR6/6) fine sand, moist and more clayey in last 10 cm	None
4	0-10 10-50 50+	Pinkish gray (7.5YR6/2) fine sand, dry Reddish yellow (7.5YR6/6) fine sand, moist and more clayey in last 10 cm Bedrock	None

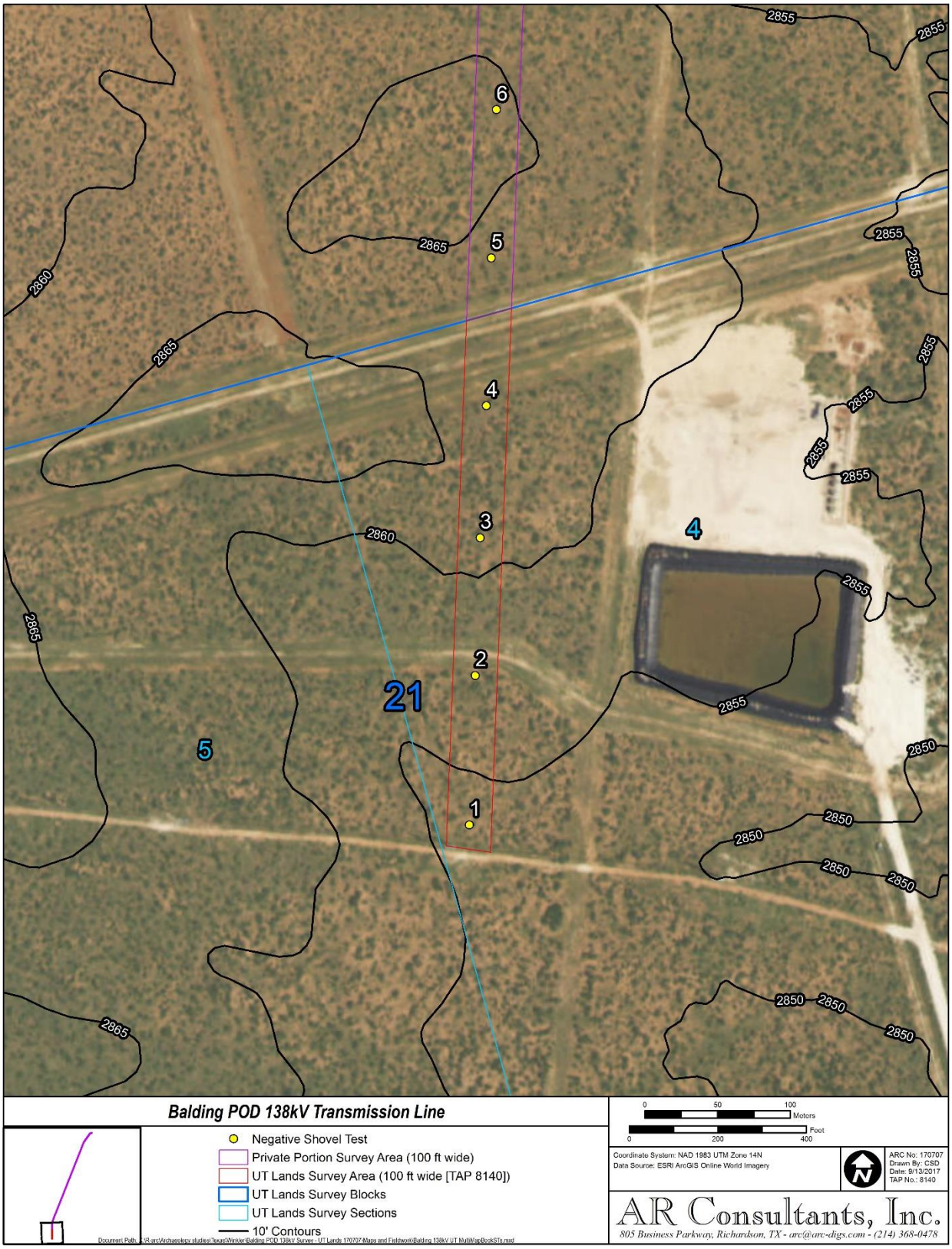

Figure 3. Shovel test locations shown on a recent aerial photograph.

Figure 4. General environment of project area, at location of ST4 facing south.

Figure 5. Example of good ground visibility, near ST1.

Conclusions

No cultural resources (structures, features, or artifacts) were found during the survey or the excavation of four STs along UT Lands portion of the Balding POD 138kV Transmission Line project. In terms of prehistoric cultural resources, this is expected because the project area lies the uplands in a xeric setting without a reliable water source or knappable raw materials. As expected, no historic cultural resources were encountered. Ground disturbances in the project area include erosion, deflation, bioturbation, existing pipeline and transmission corridors, and prior impacts from oil and gas industry activities. Across the project area, soil parent materials consist of residuum weathered from underlying bedrock, and highly weathered pre-Holocene sedimentary deposits. In either instance, the project area does not exhibit the necessary conditions for the deep burial and preservation of cultural deposits, and no geoarchaeological monitoring of transmission pole emplacement is required.

RECOMMENDATIONS

The purpose of this investigation was to determine if significant cultural resources are present within the proposed UT Lands portion of the Balding POD 138kV Transmission Line project area in Winkler County, Texas. Results of the survey were negative. Due to previous impacts and the lack of any identified sites during the survey, the proposed project should have **No Effect** on significant cultural resource sites. Therefore, it is recommended that construction of the proposed transmission line project be allowed to proceed and that no additional archaeological investigations are necessary. However, should the proposed ROW alignment change through the addition of reroutes, additional archaeological survey may be necessary. Also, if previously unidentified archaeological deposits are encountered during construction, it is recommended that the discovery be evaluated by a professional archaeologist in consultation with THC.

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