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Intensive Archeological Survey for the Bridge Replacement on County Road 279 at Kings Creek, Kaufman County, Texas

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Report for Archeological Survey

Intensive Archeological Survey for the
Bridge Replacement on County Road 279
at Kings Creek, Kaufman County, Texas

Dallas District

Jon Budd, Principal Investigator

Texas Antiquities Permit No. 8438

CSJ: 0918-11-093

June 15, 2018

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated 12-16-14, and executed by FHWA and TxDOT.

Abstract

On behalf of the Texas Department of Transportation (TxDOT), SWCA Environmental Consultants (SWCA) conducted an intensive archeological survey on June 6–7, 2018, of a potential bridge replacement consisting of approximately 2.0 acres of new and existing right-of-way (ROW) along County Road (CR) 279 in Kaufman County, Texas. Because the project will receive funding from the Federal Highways Administration, it qualifies as an undertaking as defined in Title 36 Code of Federal Regulations (CFR) Part 800.16(y) and, therefore, the work was conducted in compliance with Section 106 of the National Historic Preservation Act (54 U.S. Code 306108). Furthermore, the project must also comply with the Antiquities Code of Texas (9 Natural Resources Code 191). Jon Budd served as Principal Investigator under Texas Antiquities Code Permit No. 8438.

The total area of potential effects (APE) is defined as the existing 38- to 52-foot-wide CR 279 ROW beginning 130 feet west of the intersection CR 279 centerline and extending 470 feet east. In addition, the APE includes approximately 1.0 acre of proposed new ROW that is distributed on both sides of the existing ROW. Finally, a new, permanent, 0.3-acre easement is required and is located south of the proposed new ROW, south of the bridge. According to typical design, the depth of impacts is estimated to be up to 53 feet for the bridge supports and up to 4 feet for the rest of the project. The APE comprises approximately 2.0 acres.

Background research identified no archeological surveys, cemeteries, or known historic resources in or adjacent to the APE; however, there are eight prehistoric archeological sites within a 0.6-mile (1-kilometer) radius review area. All of these sites are located more than 300 feet (91.5 meters) from the APE and will not be impacted. No historic structures were illustrated in or near the APE on any historic U.S. Geological Survey (USGS) topographic maps (USGS 2018) nor were there any historic domiciles illustrated on the 1936 Texas State Highway Department of Kaufman County map.

The field investigation of the proposed project APE consisted of an intensive pedestrian survey with shovel testing and mechanical backhoe trenching. The existing ROW is heavily disturbed by prior roadway and bridge construction activities. The investigations identified no archeological resources within the APE.

SWCA has made a reasonable and good faith effort to locate and identify historic properties as per 36 CFR Part 800.4(b)(1), and cultural resources as per Subchapter A of Chapter 26 of the Texas Administrative Code throughout the proposed project APE. Based on the results of the survey, SWCA recommends a finding of “no historic properties affected,” and no further archeological investigations are recommended within the APE.

Project Identification

Date: 06/15/2018

Date(s) of Survey: 06/06-07/2018

Archeological Survey Type: Reconnaissance Intensive

Report Version: Draft Final

Jurisdiction: Federal State

Texas Antiquities Permit Number: 8438

District: Dallas District

County or Counties: Kaufman County

USGS Quadrangle(s): Terrell South

Highway: County Road (CR) 279 at Kings Creek

CSJ: 0918-11-093

Report Author(s): Jay King and Benjamin Morton

Principal Investigator: Jon Budd

Texas Historical Commission Approval

Signature

Date

Project Description

Project Type: Bridge replacement

Total Project Impact Acreage: 2.0 acres

New Right of Way (ROW) Acreage: 1.0 acre

Easement Acreage: 0.3 acre

Area of Pedestrian Survey: 2.0 acres

Project Description and Impacts: The proposed project would replace the existing bridge and approaches on CR 279 in Kaufman County, Texas (Figures 1 and 2). The existing, one-lane, timber deck bridge, built in 1982, measures 54 feet in length and 16.2 feet in width. The proposed new structure would measure 70 feet in length and 36 feet in width. The approaches would be widened to match the wider structure. The vertical alignment would be raised by approximately 2 feet. Approximately 1.0 acre of proposed new ROW and 0.3 acre of new, permanent easement would be required.

Area of Potential Effects (APE): The APE is defined as the existing 38- to 52-foot-wide CR 279 ROW beginning 130 feet west of the intersection CR 279 centerline and extending 470 feet east. In addition, the APE includes approximately 1.0 acre of proposed new ROW that is distributed on both sides of the existing ROW. Finally, a new, permanent, 0.3-acre easement is required and is located south of the proposed new ROW, south of the bridge. According to typical design, the depth of impacts is estimated to be up to 53 feet for the bridge supports and up to 4 feet for the rest of the project. The APE comprises 2 acres.

Project Area Ownership: The existing ROW is owned and managed by Kaufman County and the Texas Department of Transportation (TxDOT).

Project Setting

Topography: The project area intersects Kings Creek and, as such, consists predominantly of a low floodplain. Elevation ranges from a maximum of 420 feet above mean sea level (amsl) at the Kings Creek channel to 430 feet amsl on its terraces.

Geology: Due to the project's floodplain location, its underlying geology is primarily (73 percent) Holocene alluvium (Figure 3). These soils are low terrace deposits of clay, silt, and sand. These sediments have historically demonstrated potential for the presence of buried, intact archeological deposits. Therefore, the APE does possess the potential for the presence of buried intact archeological deposits (Barnes 1967).

Additionally, the Nacatoch Sands encompass approximately 27 percent of the project area (see Figure 3). This formation is composed of Late Cretaceous age fine-grained quartz sand with local lenses of compact silty clay (Barnes 1967).

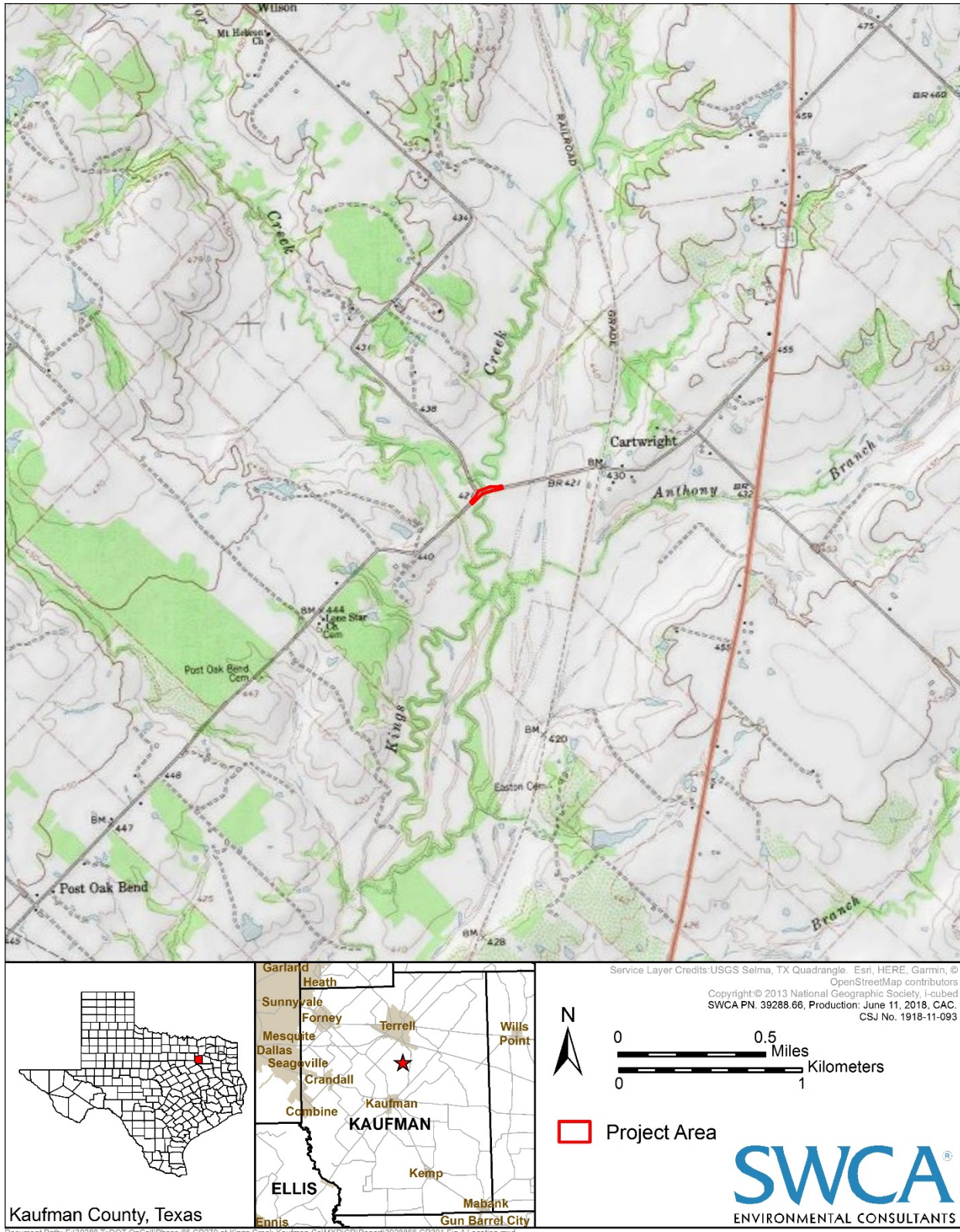


Figure 1. Project location map.

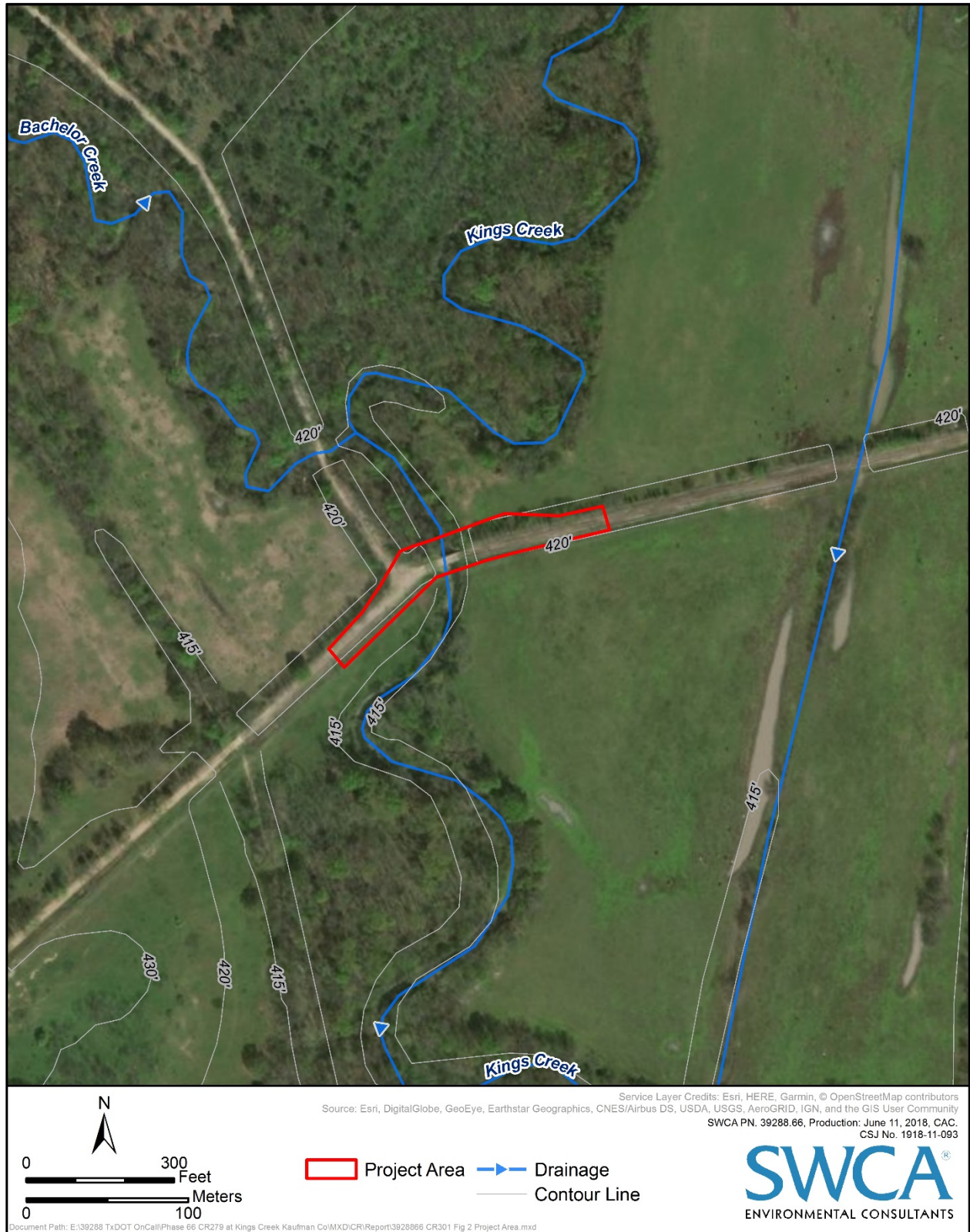


Figure 2. Project area map.



Figure 3. Project area geology.

Soils: According to the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) Web Soil Survey, the APE is located within the Kaufman clay and Gowen clay loam soil series (Figure 4).

The Kaufman clay consists of very deep, moderately well drained, very slowly permeable soils that formed in clayey alluvium derived from mudstone. Occurring on floodplains, river valleys, and dissected plains, these soils are nearly level with slopes typically less than 1 percent but range up to 2 percent. This soil series belongs to the Vertisol order of soil taxonomy (NRCS 2018).

The Gowen clay loam consists of very deep, well drained, moderately permeable soils that formed in loamy alluvium of Holocene age. Located on nearly level floodplains, these soils are located on slopes that are predominantly less than 1 percent but range up to 2 percent. This soil series belongs to the Mollisol order of soil taxonomy (NRCS 2018).

Land Use: The immediate project area is a utility and transportation corridor with a riparian zone along the wooded creek. The surrounding area is mainly mixed woods interspersed with mixed grass clearings used as cattle pastures.

Vegetation: The project is in the Blackland Prairie ecoregion, which is typified by tall grasses such as bluestem, Indiangrass, and switchgrass; many of these grasses have been replaced by food and forage crops. Vegetation in the project area is bordered by mixed hardwoods with moderate to thick undergrowth.

Estimated Ground Surface Visibility: 40–90 percent

Previous Investigations and Known Archeological Sites: SWCA Environmental Consultants (SWCA) reviewed the Texas Historical Commission's (THC's) (2018a) online Texas Archeological Sites Atlas (Atlas) database, which showed no previous cultural surveys or cemeteries recorded within 0.6 mile (1 kilometer [km]) of the project area. Eight archeological sites are within 0.6 mile (1 km) of the project APE; 41KF12, 41KF15, 41KF17, 41KF20, 41KF55, 41KF86, 41KF110, and 41KF111 (Table 1).

Site 41KF12 is located 0.22 mile (354 m) southwest of the project and consists of prehistoric pottery, projectile points, and sinkers. Site 41KF15 is 0.24 mile (392 m) northwest of the project and consists of prehistoric pottery fragments, projectile points, and sinkers. Site 41KF17 is 0.53 mile (863 m) north of the project and consists of prehistoric pottery, projectile points, and sinkers. Site 41KF20 is 0.6 mile (1 km) northeast of the project at its nearest point and consists of four mounds, red clay pottery, projectile points, and sinkers. Site 41KF86 is 0.47 mile (753 m) southeast of the project; no data is available on the Atlas as to what was identified at this site. Site 41KF110 is 0.32 mile (600 m) west of the project and consists of Waco sinkers, dart points, one biface, and one polished stone fragment. Site 41KF111 is 0.60 mile (1.0 km) northwest of the project; no data is available on the Atlas as to what was identified at this site. All the above sites were recorded in 1940 as part of the Fred Wendorf collection; those sites without specific details likely contained similar artifacts to those that were documented.

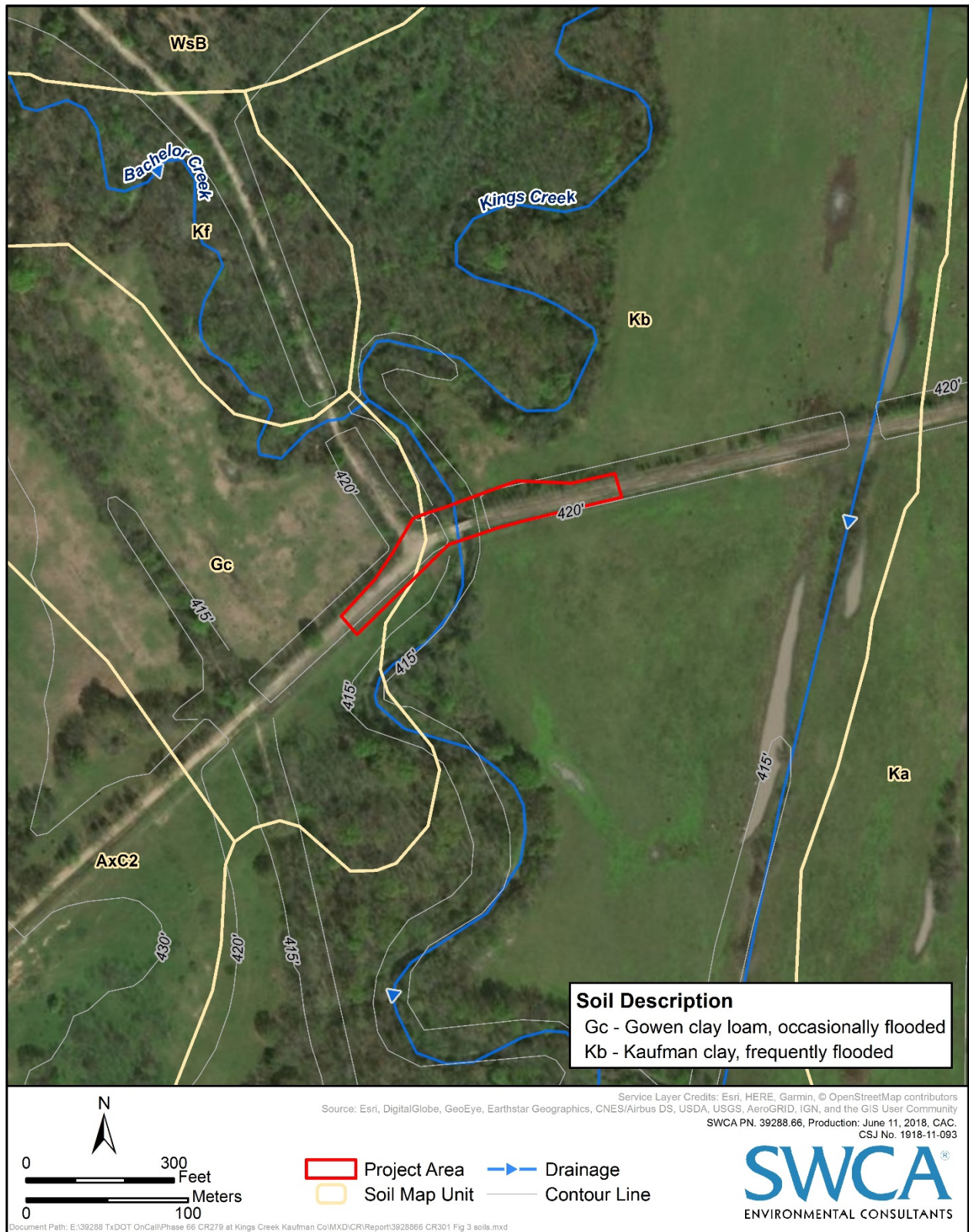


Figure 4. Project area soils.

Finally, site 41KF55 is 0.56 mile (897 m) northeast of the project; no data is available on the Atlas as to what specifically was identified at this site. This site was recorded by R.K. Harris, although it too may belong to the Wendorf collection and therefore likely included similar artifacts. None of these sites are within 300 feet (100 m) of the project and none will be impacted by project activities.

Table 1. Previously Recorded Archeological Sites within 0.6 mile (1 km) of the Project APE

| Site No. | Site type | Description | Location in Relation to APE | NRHP and SAL Eligibility | Comments |
|----------|-------------|--|-----------------------------|--------------------------|---|
| 41KF12 | Prehistoric | Pottery, projectile points, and sinkers | 0.22 mile SW | Unevaluated | Recorded in 1940 by Fred Wendorf |
| 41KF15 | Prehistoric | Pottery, projectile points, and sinkers | 0.24 mile NW | Unevaluated | Recorded in 1940 by Fred Wendorf |
| 41KF17 | Prehistoric | Pottery, projectile points, and sinkers | 0.53 mile N | Unevaluated | Recorded in 1940 by Fred Wendorf |
| 41KF20 | Prehistoric | Four mounds, red clay pottery, projectile points, and sinkers | 0.6 mile NE | Unevaluated | Recorded in 1940 by Fred Wendorf |
| 41KF55 | Unknown | No data available on Atlas | 0.56 mile NW | Unevaluated | Recorded by R.K. Harris; might be same site as Fred Wendorf's site KF11 |
| 41KF86 | Unknown | No data available on Atlas | 0.47 mile SE | Unevaluated | Recorded in 1940 by Fred Wendorf |
| 41KF110 | Prehistoric | Waco sinkers, dart points, one biface, and one polished stone fragment | 0.32 mile W | Unevaluated | Recorded in 1940 by Fred Wendorf |
| 41KF111 | Unknown | No data available on Atlas | 0.6 mile NW | Unevaluated | Recorded in 1940 by Fred Wendorf |

Additionally, SWCA reviewed maps contained in the TxDOT Historic Overlay, a mapping/geographic information system (GIS) database with historic maps and resource information covering most portions of the state (Foster et al. 2006). SWCA also reviewed historical U.S. Geological Survey (USGS) topographic maps available on USGS TopoView (USGS 2018). These sources contain information on the nature and location of previously conducted cultural resources investigations, previously recorded prehistoric and/or historic archeological sites, National Register of Historic Places (NRHP) districts and properties, State Antiquities Landmarks (SAL), Official Texas Historical Markers, Registered Texas Historic Landmarks, and local neighborhood surveys in, or within 0.6 mile (1 km) of, the proposed project APE. The review did not identify any potentially historic structures, historic districts or properties, landmarks, or historic markers in or within 0.6 mile (1 km) of the project APE.

Comments on Project Setting: The APE within the existing ROW has been extensively modified by previous roadway and bridge construction and maintenance. In addition, an existing transmission line runs east to west along the southern side of CR 279.

Survey Methods

Surveyors: Miles Martin, Jay King, and Jared Wiersema

Methodological Description: The field investigations complied with the THC Archeological Field Survey Standards (THC 2018b). The investigations entailed an intensive pedestrian survey of approximately 2.0 acres, augmented with the excavation of shovel tests (STs) and backhoe trenches (BHTs) in accessible locations that appeared most favorable to contain intact cultural resources (e.g., areas with less visible disturbance, fewer utilities, and/or not inundated). Survey efforts resulted in the excavation of three BHTs and three STs within the 2.0-acre APE (Table 2).

Table 2. Excavations in Project APE

| Method | Quantity in Existing ROW | Quantity in Proposed New ROW | Quantity in Temporary Easements | Total Number per Acre |
|----------------------|--------------------------|------------------------------|---------------------------------|-----------------------|
| Shovel Test Units | 3 | 0 | 0 | 1.5 |
| Auger Test Units | 0 | 0 | 0 | 0 |
| Mechanical Trenching | 3 | 0 | 0 | 1.5 |

SWCA archeologists excavated the STs in arbitrary 4-inch (10-centimeter [cm]) levels and sifted all materials through ¼-inch mesh. The STs measured 12 inches (30 cm) in diameter and were excavated to compact soils. Archeologists recorded each ST on data forms, and included information on texture, consistency, color, and cultural materials collected. Soil colors were described per Munsell soil color charts. Furthermore, archeologists photographed each ST and recorded their locations with a global positioning system (GPS) unit with sub-meter accuracy.

Three BHTs were placed in the existing ROW on the northern side of CR 279 within the Kings Creek floodplain. Archeologists thoroughly documented and photographed the entire excavation process and recorded BHT location on a GPS unit. Upon completion of the trench, the BHT was backfilled, levelled, and returned as much as possible to its original state. SWCA performed all work in accordance with Occupational Safety and Health Administration regulations (29 Code of Federal Regulations [CFR] 1926).

Other Methods: None.

Collection and Curation: NO YES If yes, specify facility.

Comments on Methods: THC archeological survey standards do not specify a density of BHTs per unit area; however, the THC does require a minimum of two STs per acre for projects between 2 and 10 acres in size (THC 2018b); the excavation of three STs and three BHTs for this project exceeds the required THC standards.

Survey Results

Project Area Description: SWCA archeologists conducted pedestrian survey with shovel testing and backhoe trenching within the 2.0-acre APE (Figure 5; Tables 3 and 4). The project consists of existing and new ROW within the Kings Creek floodplain and associated terraces (see Figure 5). No right of entry was granted for the new ROW and easement; consequently, all excavations were limited to the existing ROW, using any available exposures to assess the inaccessible areas. The existing ROW has been disturbed by road and bridge construction, maintenance (including grading, fill, and runoff culverts), and buried utilities (Figures 6 and 7).

Shovel Testing: SWCA archeologists excavated three STs (i.e., MM001–MM002 and CNR002) on the eastern side of Kings Creek and the southern side of CR 279 (see Table 3 and Figure 5). The STs encountered a very dark brown or very dark gray (10YR 2/2 or 10YR 3/1) clay, terminating at approximately 40 cm below surface (cmb) due to compact soils (Figure 8). No cultural materials were identified within any of the three STs.

Backhoe Trenching: SWCA archeologists excavated three BHTs (i.e., A, B, and C) on the northern side of CR 279 (see Table 4 and Figure 5). BHT A was located on the western side of Kings Creek, while BHTs B and C were located on the eastern side of Kings Creek. All trenches were approximately 10 feet (3 m) long, 3 feet (0.9 m) wide, and ranged in depth from 4.6 feet (1.4 m) to 11.7 feet (3.6 m).

BHT A was located on the western side of Kings Creek and north of CR 279. It measured approximately 10 feet (3 m) long, 3 feet (0.9 m) wide, and 4.6 feet (1.4 m) deep (Figure 9; see Table 3). Soils in the BHT exhibited a grayish brown (10YR 5/2) sandy clay loam over a dark grayish brown (10YR 4/2) sandy clay. The third stratigraphic layer consisted of a dark grayish brown (10YR 4/2) clay. No cultural materials were identified within the BHT and inclusions were limited to modern trash, roots, rootlets, and pebbles.

BHT B was located on the eastern side of Kings Creek and north of CR 279. It measured approximately 10 feet (3 m) long, 3 feet (0.9 m) wide, and 11.7 feet (3.6 m) deep (Figure 10; see Table 3). Soils in the BHT exhibited a very dark brown (10YR 2/2) clay over a dark gray (10YR 4/1) silty clay. The third stratigraphic layer consisted of a reddish brown (2.5YR 5/4) silty clay. An additional level was excavated to assess the potential for deeply buried cultural material. The soils observed in the fourth stratigraphic layer consisted of a light yellowish brown (2.5YR 6/4) clay. No cultural materials were identified within the BHT and inclusions were limited to roots and rootlets.



Figure 5. Results map.

Table 3. Shovel Testing Results

| Shovel Test No. | Depth (cmbs) | Munsell* | Soil Color* | Soil Texture | Inclusions | Cultural Material (Y/N) | Comments / Reason for Termination |
|-----------------|--------------|----------|-----------------|--------------|------------|-------------------------|---|
| CNRO02 | 0-50 | 10YR 2/2 | very dark brown | Clay | - | N | No cultural material encountered. Terminated at compact soil. |
| MM001 | 0-40 | 10YR 3/1 | very dark gray | Clay | - | N | No cultural material encountered. Terminated at compact soil. |
| MM002 | 0-30 | 10YR 3/1 | very dark gray | Clay | - | N | No cultural material encountered. Terminated at compact soil. |

*indicates colors recorded dry

Table 4. Backhoe Trenching Results

| BHT | Depth (cmbs) | Munsell* | Soil Color* | Soil Texture | Consistency | Structure/Inclusions | Lower Boundary | Comments |
|-----|--------------|-----------|-----------------------|-----------------|-------------|--|-----------------|--|
| A | 0-70 | 10YR 5/2 | grayish brown | Sandy Clay Loam | Firm | Structureless, Weak, Roots: 5%, Rootlets: 5%, Pebbles: 5%, Trash: 1% | abrupt / smooth | - |
| | 70-105 | 10YR 4/2 | dark grayish brown | Sandy Clay | Firm | Blocky Subangular, Moderate | abrupt / smooth | - |
| | 105-140 | 10YR 4/2 | dark grayish brown | Clay | Extra Firm | Blocky Subangular, Moderate, Roots: 5%, Rootlets: 5% | Unobserved | - |
| B | 0-30 | 10YR 2/2 | very dark brown | Clay | Firm | Blocky Angular, Moderate, Roots: 5%, Rootlets: 5% | gradual / wavy | Soils in stratum possibly deposited by runoff from the road into the ditch. |
| | 30-134 | 10YR 4/1 | dark gray | Silty Clay | Extra Firm | Blocky Angular, Strong, Roots: 5%, Rootlets: 5% | gradual / wavy | Mottling may be redox features. |
| | 134-170 | 2.5YR 5/4 | reddish brown | Silty Clay | Extra Firm | Blocky Angular, Moderate | clear / smooth | Distinct change in soil color. No inclusions; however, soils may be pre-Holocene due to depth and soil change. |
| | 170-356 | 2.5Y 6/4 | light yellowish brown | Clay | Extra Firm | Massive to Blocky Angular, Strong | Unobserved | - |

| BHT | Depth (cmts) | Munsell* | Soil Color* | Soil Texture | Consistency | Structure/Inclusions | Lower Boundary | Comments |
|-----|--------------|----------|-------------------------|-----------------|-------------|--|----------------|---|
| C | 0-60 | 10YR 3/2 | very dark grayish brown | Sandy Clay Loam | Friable | Granular, Structureless, Weak | clear / wavy | - |
| | 60-180 | 10YR 4/1 | dark gray | Clay | Extra Firm | Blocky Angular, Strong, Roots: 5%, Rootlets: 5%, Pebbles: 5% | clear / wavy | - |
| | 180-305 | 2.5Y 4/4 | olive brown | Silty Clay | Extra Firm | Blocky Angular, Moderate | Unobserved | Distinct change from previous BHT B. Soils continue past 10 feet. |

*indicates colors recorded dry



Figure 6. Overview of CR 279 showing bridge to be replaced, facing west



Figure 7. Overview of CR 279 showing disturbances from transmission line and road construction, facing east.



Figure 8. Shovel test CNR002 showing compact clay soils.



Figure 9. BHT A northern wall profile from approximately 0–140 cmbs, facing north.



Figure 10. BHT B northern wall profile from approximately 0–170 cmbs, facing northeast.

BHT C was located on the eastern side of Kings Creek and north of CR 279. It measured approximately 10 feet (3 m) long, 2 feet (0.6 m) wide, and 10 feet (3 m) deep (Figure 11; see Table 3). Soils in the BHT exhibited a very dark grayish brown (10YR 3/2) sandy clay loam over a dark gray (10YR 4/1) clay loam. An additional level was excavated to assess the potential for deeply buried cultural materials. The third stratigraphic layer consisted of an olive brown (2.5YR 4/4) silty clay. No cultural materials were identified within the BHT and inclusions were limited to roots, rootlets, and pebbles.

Archeological Materials Identified: No cultural materials were observed. Although no access was available for new ROW and easements, the results of the investigations within the existing ROW are recommended as applicable to the approximately 20-foot-wide strips of new ROW on each side of the roadway and for the easement. The new ROW falls within the standard transect width (100 feet wide) according to THC and CTA standards.

APE Integrity: The proposed APE exhibits evidence of prior disturbance caused by buried utilities and road and bridge construction and maintenance, which has compromised the integrity of the APE.



Figure 11. BHT C southern wall profile showing deep testing from approximately 0–300 cmbs, facing south.

Recommendations

Comments on Evaluations: None.

Further Work: No further work is recommended within the APE.

Justification: Investigators did not encounter any historic or prehistoric cultural materials during investigations of the APE. The field investigation of the proposed project APE consisted of a pedestrian survey with shovel testing and mechanical backhoe trenching. The existing ROW is heavily disturbed by prior roadway, bridge construction activities, and buried and overhead utilities. The extensive disturbances throughout the APE have greatly decreased the potential for encountering intact cultural deposits. As such, no further investigations are recommended to assess deep impacts from project construction within the approximately 2.0-acre APE.

Investigations were conducted in compliance with the Antiquities Code of Texas and Section 106 of the National Historic Preservation Act. As per the federal and state implementing regulations at 36 CFR 800.4(b)(1) and 13 Texas Administrative Code 26, SWCA has made a reasonable and good faith effort to identify all archeological resources within the APE and recommends no further investigations.

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This report was written on behalf of the Texas Department of Transportation by



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