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Antiquities Permit 8003

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A CULTURAL RESOURCES ASSESSMENT FOR THE FOR THE MARSHALL IVY ROAD BRIDGE REPLACEMENT PROJECT IN ANGELINA COUNTY, TEXAS

BVRA Project Number 17-01

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Prepared for

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ABSTRACT

This report documents the results of a Phase I Intensive Survey by Brazos Valley Research Associates (BVRA) prior to the replacement of a bridge over Shawnee Creek in Angelina County, Texas. This project was conducted under Antiquities Permit 8003. The Federal Emergency Management Agency (FEMA) has considered the loss of the bridge to be a natural disaster worthy of partial funding and this agency is responsible for the proper management of this project. The number assigned to this project by FEMA is DR-4266, PW-00164 and it is referred to as the Angelina County Marshall Ivy Bridge project. The investigation was conducted on May 2, 2017 by William E. Moore with assistance from Terry Pitts, Councilman for Precinct 3 in Angelina County and two county employees. The size of the Area of Potential Effect (APE) is estimated to 0.03 acre. No cultural resource sites were found in the areas examined. It is, therefore, recommended that construction be allowed to proceed as planned. The records pertaining to this project are curated at Stephen F. Austin in Nacogdoches, Texas.

ACKNOWLEDGMENTS

I am appreciative of the assistance provided by others during this project. Councilman Terry Pitts was my main contact with the county. Kevin Gee is an engineer with Goodwin-Lasiter-Strong and the Project Manager for the bridge construction. He provided maps and details about the methods that would be used to construct the bridge and repair the road. I was assisted in the field by Terry Pitts and county employees Ronnie Lee and Gary Carswell. Lili G. Lyddon and Michele Amason prepared the figures and Ms. Amason created the shapefiles.

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FIGURES

INTRODUCTION

The bridge at the crossing of Marshall Ivy Road (formerly County Road 301 and old State Highway 69) and Shawnee Creek was washed out during a flood in March of 2016. The damage was so great that the entire bridge and segments of the road have to be repaired. FEMA is the federal agency overseeing the project and will provide part of the funding. The office of the State Historic Preservation Officer (SHPO) is involved in an advisory capacity. Angelina County contains significant prehistoric and historic sites and is an area where numerous cultural resources investigations have been conducted. The APE is in the central part of the county near the town of Huntington (Figure 1). There are no cemeteries or standing structures in or near the APE. Figure 2 depicts the APE on the USGS 7.5' topographic quadrangle Manning (3194-214).

The proposed construction consists of a single span precast concrete beam bridge that will be 26 feet wide and replace the earlier bridge that had a width of 20 feet. The roadway approaches will be 24 feet wide. The new abutments will be constructed using 16 inch precast pilings and cast-in-place caps. The span of the new bridge will be 70 feet and it will extend beyond the previous structure on each end. (Figure 3) It will be stronger than the now defunct crossing as it will be supported by six prestressed concrete pilings on both banks. The depth of these pilings has not been determined and will be based on the foundation design. It is safe to say at this point that the pilings will reach a depth of at least 30 feet. The only other ground disturbance in this area will consist of scraping to remove vegetation in those areas where fill will be added for the roadway approaches. Scraping also creates a better bond between the imported fill and the existing ground surface. The area between the pilings and the creek will be contoured and capped with concrete slope protection in an attempt to prevent future erosion of the banks. The contouring will affect a maximum of 18 inches of an area that was disturbed when the original bridge was constructed. The exact size of the APE is problematic but the best estimate is 0.03 acre, equally divided on each bank. The six holes for the pilings will occupy a footprint of 1,536 square inches, a size considered too small to convert to acres.

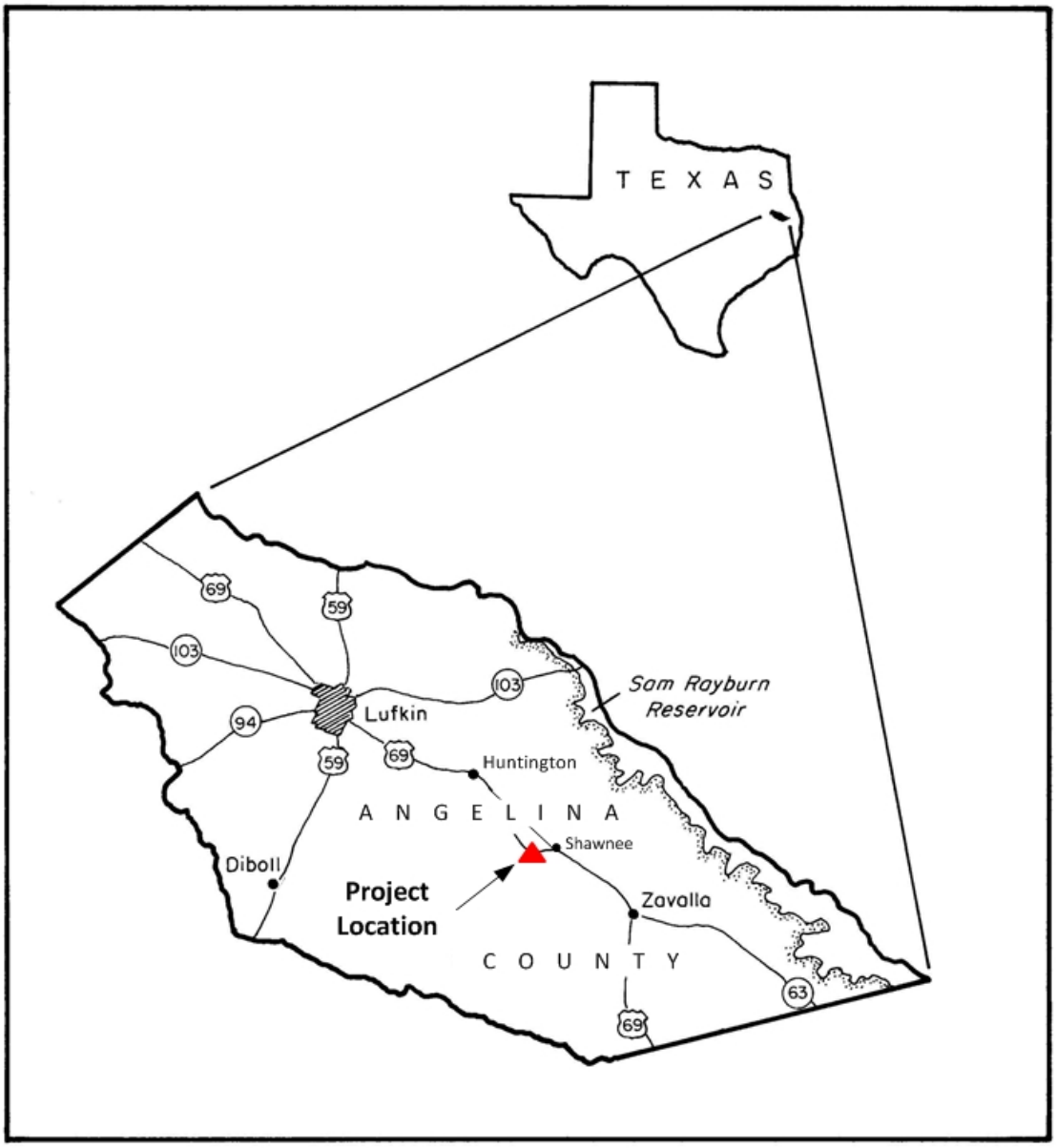

Figure 1. General Location of Project Area

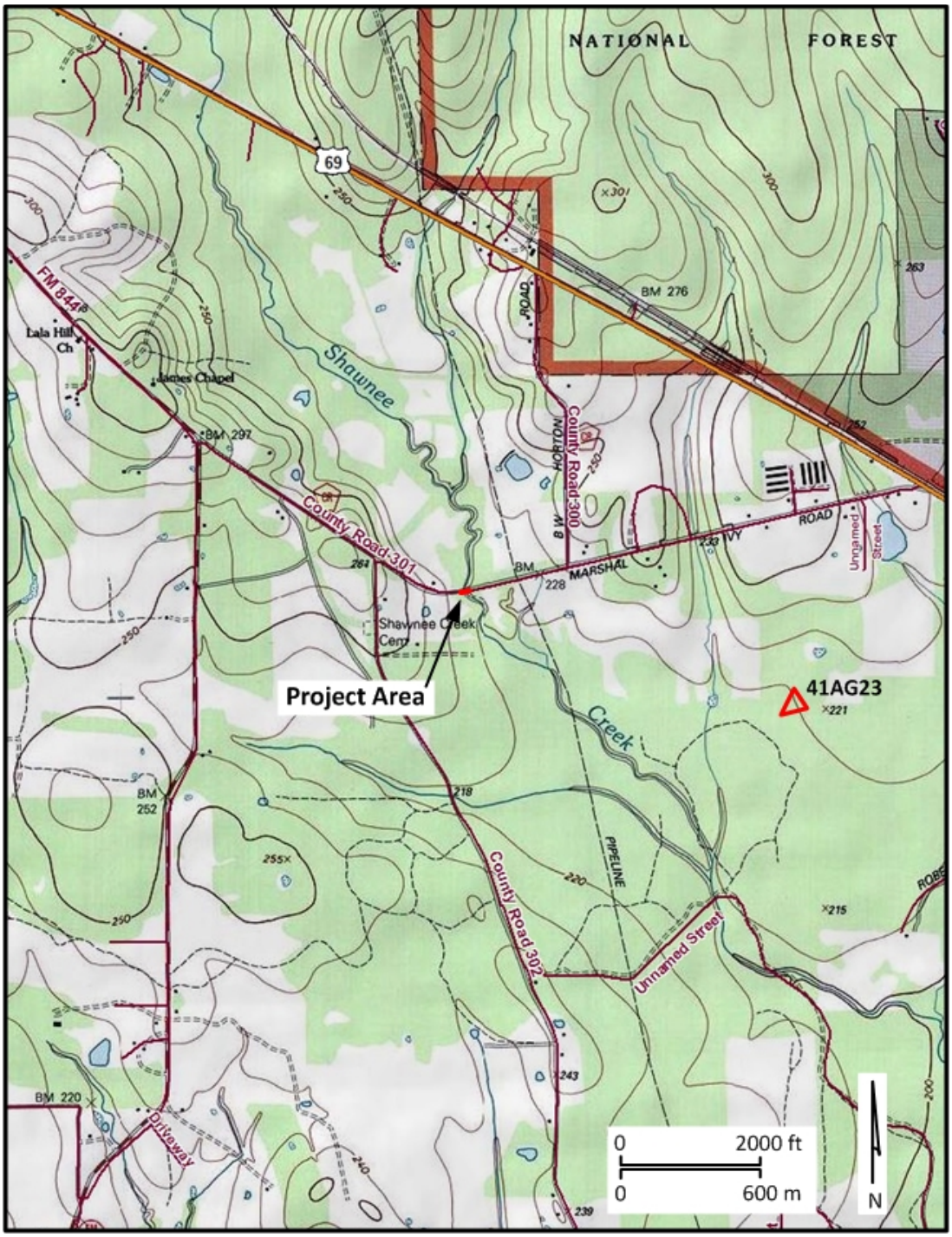

Figure 2. USGS 7.5’ Topographic Quadrangle Manning

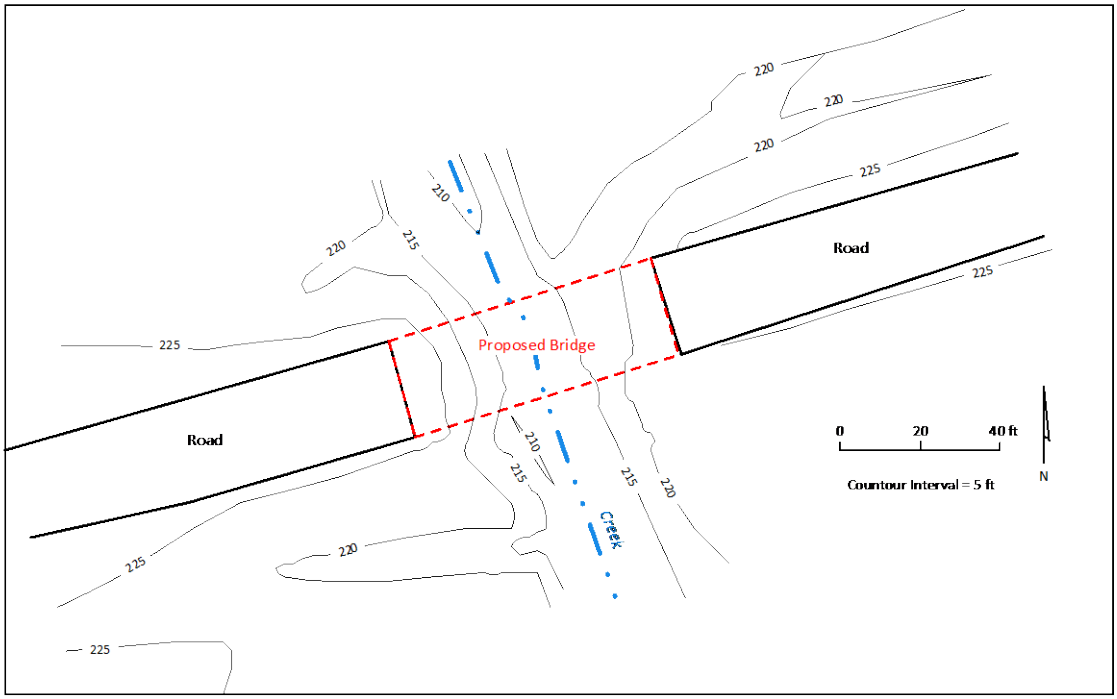

Figure 3. Footprint of New Bridge

ENVIRONMENT

General

Angelina County is located in the central part of East Texas. It is about 48 miles in length from northwest to southeast and about 24 miles from northeast to southwest. The western-southwestern boundary is the Neches River and the eastern-northeastern boundary is the Angelina River and Sam Rayburn Reservoir. The rest of the county is bounded on the northwest by Cherokee County and on the southeast by Jasper County. In 1988, the county consisted of 514,465 acres of land and 38,974 acres of water. Additional reservoirs built since that time would have changed this ratio. According to the soil survey for Angelina County (Dolezel 1988:1), the county is located within the East Texas Timberlands Land Resource Area. Dolezel (1988:1) writes that the soils in the county "formed mainly under forest vegetation in a humid environment" and that most soils are "light in color and low in natural fertility." The terrain varies from low, level areas to hills that rise and the variation in altitude ranges from 100 feet in the south to about 460 feet in the north. The low-lying areas are often wet and the steeper landforms erode easily. The drainage pattern in the northern and southern parts of the county, due to the presence of the Angelina and Neches rivers, is dendrtitic with many large streams. In the central part of the county, the drainage patterns are poorly defined. The January mean minimum temperature is 37° F and the July mean maximum temperature is 93° F. Rainfall averages 38.9 inches annually (Alvarez 2004:140).

Soils

According to the General Soils Map in the soil survey for Angelina County (Dolezel 1988:General Soil Map), the APE is located within two soil associations. The east bank is part of the Alazan-Moswell association that consists of "nearly level to strongly sloping, somewhat poorly drained or moderately well drained soils" and the west bank is in the Moton-Multey association that consists of "nearly level, mounded, somewhat poorly drained, or moderately well drained soils." The specific soil type on both banks is described by (Dolezel 1988:44-45) as "koury loam, occasionaly flooded." This is a deep level soil on nearly bottomlands of small streams and creeks. A typical profile is loam to 3 inches, sandy loam 3-10 inches, and loam from 10-17 inches. The subsoil to a depth of 70 inches is silt loam of various colors. It has a high available water capacity and runoff is slow. During the cool season, the water table has been measured at a depth of 1.5 to 2.5 feet in some areas. Periods of flooding restrict the utility of this soil for crops and other purposes where wetness is a problem.

Deidra Black is the FEMA archaeologist in charge of this project. In e-mail dated March 17, 2017, she expressed concern that "…there may be a buried Holocene A horizon" at "127 cm in the inceptisol mapped on the Holocene alluvial stream banks." An inceptisol is one of the 12 soil orders as defined in the U. S. Soil Taxonomy. They are relatively new in origin and are characterized by having only the "weakest appearance" of soil horizons produced by soil-forming factors. Profiles of this soil are able to provide some indication of clay and other accumulating layers but these deposits are not considered sufficient to classify the soil into an order defined by characteristic surface or subsurface horizons.

ARCHAEOLOGICAL BACKGROUND

General

According to a statistical overview of prehistoric sites in Texas by Biesaart, et al. (1985:Figure 15) and an archaeological bibliography of the Northeastern Region of Texas (Martin 1990), Angelina County is located in the Northeast Texas Cultural-Geographical Region, an area that encompasses 30 counties (Figure 4). It is one of the counties in the extreme lower reaches of this region and it borders Polk, Tyler, and Jasper counties in the Southeast Texas Cultural-geographical region (Moore 1989) . Because of the proximity of Angelina County to this adjacent region, some cultural traits were probably shared between the prehistoric inhabitants of both regions. The statistical overview cannot be viewed as 100% accurate but it does provide a time frame for comparisons. Sites are referred to by temporal period only. According to the overview no sites were identified as Paleoindian, 9 were classified as Archaic and 41 date to the Late Prehistoric. Only one site had been formally excavated while 21 sites are described as having been tested by hand. Surprisingly, only three sites are listed as having been disturbed by erosion and only two by construction. The major form of disturbance was caused by vandals at twenty-one sites and one site was described as destroyed. Information on the kinds of sites is also limited but the overview does report that five burials had been documented. In 1985, 50 sites had been recorded as opposed to 221 known to exist today. This is an increase of 110% that is related to a growing population of the area.

In 1991, an evaluation was made of significant sites in the Northeast Texas Archeological Region (Kenmotsu and Perttula 1993:Table 2.1.1). At this time, Angelina County contained 126 recorded prehistoric sites. Of this number, 19 were listed as not significant, 67 as unknown significance, 35 as probably significant, and 5 as significant. Unfortunately, site numbers are not provided.

The archaeological significance of Angelina County is partially reflected in the following statistics as of 1993. Kenmotsu and Perttula (1993:Figure 2.3.3) write that the county contained the second highest number of important hunter-gatherer sites in Northeast Texas (n=3). It also contained at least 13 important Late Caddoan sites (Kenmotsu and Perttula 1993:Figure 2.5.2). Unfortunately, there are major forces that continue to threaten the integrity of archaeological sites in Angelina County. These include population growth of the City of Lufkin and surrounding area, highway construction, surface lignite mining, Sam Rayburn Reservoir (formerly McGee Bend), and the lumbering industry.

THIS FIGURE HAS BEEN DELETED FOR PRIVACY CONCERNS

Figure 4. Northeast Texas Cultural-Geographical Region

Previous Research

The earliest archaeological research in the area was performed in the late 1930s and early 1940s by researchers from The University of Texas at Austin. At that time, prehistoric cemeteries and mound sites were considered to be of primary importance. Two key figures were G. E. Arnold and A. T. Jackson. They travelled about the state visiting known sites and plotting their approximate locations on highway maps. In some cases, testing and surface collecting was conducted. The nearest recorded site to the APE is 41AG23 (Figure 2). It was documented by Mr. Arnold as an "Indian Burial Ground approximately 200 feet in diameter and about 150 feet above Spring Branch on a hill with dense vegetation slightly above bottom land through which Spring Branch flows." He catalogued it as East Texas Site No. 263. The site form is not dated and is very sparse. There is no discussion of the burials and/or associated artifacts.

From the late 1940s until the mid 1970s, most of the archaeological research in East Texas was carried out in connection with reservoir construction and work by United States Forest Service personnel. Robert L. Stephenson (1948a, 1948b) published the results of his work at the proposed McGee Bend Reservoir in Angelina, Jasper, Nacogdoches, Sabine, and San Augustine counties. At the time, this was the only major archaeological investigation in the county performed by a professional archaeologist in a systematic manner.

In the 1970s, Ross Fields (1979) presented an overview of the cultural resources of the Davy Crockett, Sam Houston, Angelina, and Sabine National Forests of Texas. This document provides a brief discussion of all sites in each forest and 23 sites in Angelina County are mentioned. Another important document for this area is a cultural resource overview of the National Forests in Texas by John Ippolito (1983).

It is beyond the scope of this report to discuss in detail the archaeological background of Angelina County, especially when numerous contract reports are available. The interested reader is referred to the statistical overview (Biesaart et al. 1985), the planning document published by the THC (Kenmotsu and Perttula 1993), and Perttula's (2004) *Prehistory of Texas*.

High Probability Areas

Prehistoric sites in this part of Texas consist of campsites where hearths and debris from daily living would be present, earthen mounds that sometimes contain burials, and buried floodplain sites usually associated with the collection and consumption of riverine resources such as mussel shell, fish, and certain edible plants that grow near streams. Many of these resources were only available during certain seasons and the time spent in the area would best be described as ephemeral. The more permanent camps are virtually always situated on sandy hills and terraces near a dependable source of water. Burial mounds are usually associated with a nearby village such as the George C. Davis site (41CE19) in adjacent Cherokee County. Quarry sites are not a common occurrence in this area. Lag deposits in rivers and major streams were the primary source for raw material used to make stone tools. Stream washed gravels containing chert, jasper, and other materials were collected and fashioned into tools at other locations. Silicified wood was frequently used and it would have been found on the surface. Sites 41BL1060 and 41BL1070 in Bell County are examples of the kinds of buried floodplain sites that offer the potential for data that contributes to our knowledge of the lifeways in prehistoric times. These sites were documented by BVRA (Moore, et al. 1996) in a broad active floodplain of the Leon River in Bell County. They contained large amounts of mussel shell, bone, flakes, and an apparent intact hearth.

METHODS

Pre-Survey

Terry Pitts is the Councilman for Precinct 3 of Angelina County. It was he who retained my services to assist the county in satisfying the requirements of FEMA and the THC to clear the project for construction and be eligible to receive funding from the former. My first response was a budget, timeframe, and statement that backhoe trenching on both banks of the creek was the preferred method. At that time, I had not seen any maps or photos of the project area and my suggestion regarding the use of a backhoe was based on previous projects where buried sites were present because of frequent floods that deposited multiple layers of soil over a long period of time.

The next step was to evaluate the potential for the presence of an archaeological site within the APE. Once I had been provided maps and photos my research involved a check of the Archeological Sites Atlas (a restricted website that shows the location of previously recorded sites and surveys); a review of relevant literature; and conversations with the THC reviewer, the engineer hired to build the bridge, Soil Scientists at the local Natural Resources Conservation Office (NRCA), and colleagues with experience in investigating floodplain settings.

I concluded that the probability of a buried site at this location was extremely low. My findings were based on several factors.

- The APE is located in an area that floods often, has a shallow water table, and a B horizon at about 17 inches.

- The proposed construction will only affect a small area resulting in an APE on each creek bank of 650 square feet (0.015 acre). The six pilings will only affect 1,536 square inches.

- The entire APE has experienced disturbance because of the construction of the previous bridge and the erosional nature of the creek.

- The approaches to the abutments on both banks will be capped with concrete. This action will protect any buried site in these areas.

- Activities by prehistoric groups would have been temporary in nature and it is highly unlikely that cultural materials remain.

- Should any evidence of prehistoric activity be discovered, it would not represent an event considered to be so signifcant that construction would be affected.

E-mail from LaToya Leger (Environmental Historic Preservation Advisor at FEMA) to Mark Wolfe (State Historic Preservation Officer) dated February 3, 2017 appears to support my contention that a formal archaeological survey is not necessary. Among the headings at the top of the letter is this one which is followed by two paragraphs that provide the basis for the above statement.

“Assessment of Effects: No Adverse Affect to Historic Properties”

“The archaeological potential for the APE is inconclusive from the available information. The site meets several conditions that are statistically favorable to archaeological preservation, but, observed characteristics of the site diminish that potential.”

"The implication is that profound turbulence of the superficial archaeological environment occurs during a flooding event. If extrapolated historically to buried surfaces, a great deal of movement of materials should also be expected and the expository potential of any archaeology, if present, is degraded."

As part of a contractual obligation between FEMA and the Native American peoples who inhabited Texas in the past, three tribes were asked if they wanted to be involved in this project at any level. The tribes contacted were the Kiowa, Thlopthlocco, and Tonkawa. The latter two declined involvement and I am not aware of any formal response from the Kiowa but it should be said that their range in historic times was in the upper reaches of the Texas Panhandle and their ancestors came from states such as Colorado and Montana. There is no known connection with this tribe and that part of East Texas where Angelina County is located. The tribe that has a real connection to this area is the Caddo but they were not contacted per an agreement with FEMA.

Assessment Report

I discussed my concerns about requiring the Applicant to spend more time and money on this project with Sean Doyle who supported my idea.

"FEMA EHP has directed BVRA to complete the non-survey Assessment Report and it is currently being drafted and will be received by February 27, 2017 by FEMA for review."

"If THC concurs with BVRA's recommendations in the Assessment Report, it is our understanding that THC will not require a survey report to concur with FEMA's **determination of no historic properties affected**. Also, BVRA will no longer have any involvement in the project and no survey or fieldwork will be performed and the Assessment Report will satisfy the THC reporting requirements."

I submitted an assessment report to FEMA and the THC requesting agreement with my findings (Moore 2017). The THC concurred but this agency was overruled by FEMA who said a survey must proceed.

Field Survey

On May 2, 2017 I met with Terry Pitts and two other county employees at the east bank of the creek crossing (Figure 5). The original plan was to examine the subsurface with a backhoe. This was not possible due to the inability to get one to the area where it would be needed. The slope on each side of the road is 30° or greater and the distance from the road to the ditch is at least 6 feet. The road ends at a concrete abutment that forms a vertical drop of 90° to what is described here as a terrace, also 6 feet below the road. The slope of this terrace area varies but 29° is a fair estimated over most of it. Beyond that, there is a five foot drop over a distance of 12 feet with steeper slopes in several areas (Figure 6). Once on the terrace one is standing at the elevation of the original ground surface before the road and bridge were constructed. Given the possibility of a buried site, the only available method was a hand held auger that had a reach of four feet. Three auger pits were dug in this area to the maximum depth possible (Figure 3). The first six inches of soil consisted of a mixture of loam and clay with loam being the major component. This mixture was reversed throughout the remainder of the pits and the clay content was enough to make screening impossible. The auger was stopped at various intervals to make sure a change in the soil composition was not overlooked.

Figure 5. East Bank of Shawnee Creek

Figure 6. Crew on Terrace Near the Edge of Steep Slope

Phase II of the field survey was testing with an auger on the west bank (Figure 7). The concrete abutment was destroyed during the flood that washed away the bridge. The loss of the abutment was a positive event for this survey in that a somewhat level area representing the original land surface was exposed and use of the auger was much easier. The area below slopes steeply to the creek and is littered with large pieces of concrete to serve as a form of rip rap. Three auger pits were dug in this area to the maximum depth possible (Figure 3). The first 12 inches of soil had a much higher loam content than its counterpart on the opposite bank. This stratum of soil was screened using ¼ inch hardware cloth. Below that depth, however, the resulting soil contained a much higher content of clay and the ability to screen was no longer possible.

The six pilings will be placed in the footprint of the road. Even though they will penetrate into the subsurface of the original landform, they were not tested because we did not have the capability of reaching the depth where a site might be located. Plus, any cultural materials below the road grade are protected.

No cultural materials were observed from the auger pits on either bank or on the eroded surface adjacent to the creek. The field activities were documented by digital photoraphy, notes, and applicable logs (Appendix I).

Figure 7. West Bank of Shawnee Creek

RESULTS AND CONCLUSIONS

No cultural materials were observed on the surface or from soil excavated by the auger pits. Not one area was observed that could be described as the original ground surface in an undisturbed context. The road and much of the area along side it had been built up with imported fill. The only areas where the subsurface could be examined was the steeply sloping areas between the former bridge supports or abutments and the creek. There are several explanations that could explain why no evidence of a site was found. (1) The soils on both banks of the creek are identified as low-lying areas that flood regularly and have a shallow water table. (2) This topographic setting would probably have not been viewed as a favorable location for any activities other than those of a temporary nature. The creek may have provided some riverine resources but these would have been exploited on a seasonal basis and it is likely that very little evidence of such activities would be present today. The same can be said for the presence of edible plants. If this had been a reliable area for plant and animal resources, it is most probable that they would have been transported to a base camp for consumption. There have been is no archaeological evidence based on past investigations in the area that support the presence of a significant prehistoric site in a similar setting. (3) The size of the APE available for subsurface investigation was very small and this reduces the probability of recovering cultural materials. (4) Ms. Black's statement that there may be a buried Holocene A Horizon in the inceptisol mapped on the Holocene alluvial stream banks appears to contradict itself given the difficulty of classifying inceptisols by subsurface horizons as stated above. The above factors support the pre-survey decision to argue against additional funds being spent on an archaeological investigation in an area of such low probability.

RECOMMENDATIONS

It is recommended that the county be allowed to proceed with construction as planned. Should evidence of a prehistoric or historic site be encountered during any phase of construction in any of the areas investigated, all work must stop until the THC can evaluate the situation. This survey was conducted following consultation with FEMA and in accordance with the Minimum Survey Standards as outlined by the THC.

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Appendix I: Auger Test Log *

Test	Depth	Diameter	Results
		East Bank of Creek	
01	137.16 cm	10.16 cm	clay loam over clay at < 10 cm
02	137.16 cm	10.16 cm	clay loam over clay at < 10 cm
03	30.00 cm	10.16 cm	Terminated due to concrete fragments
		West Bank of Creek	
04	137.16 cm	10.16 cm	clay loam over clay at 40 cm
05	137.16 cm	10.16 cm	clay loam over clay at 40 cm
06	137.16 cm	10.16 cm	clay loam over clay at 40 cm

* No artifacts found in any of the six auger tests