

A CULTURAL RESOURCES SURVEY FOR THE TYPE V GG
LIQUID WASTE PROCESSING FACILITY
IN WASHINGTON COUNTY, TEXAS



By

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IN WASHINGTON COUNTY, TEXAS

Project Number 11-15

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ABSTRACT

A Phase I cultural resources survey for a proposed type V GG liquid waste processing facility on a 7.73 acre site in south-central Washington County, Texas was performed by Brazos Valley Research Associates on December 28, 2011. The project area is in the floodplain of Little Sandy Creek. It was investigated by backhoe trenches (n=7), and no evidence of prehistoric or historic sites was found. The processing facility will be constructed on a portion of the tract (1.55 acres) that has been covered with approximately five feet of fill dirt. Therefore, this area was not subjected to backhoe trenching. The seven trenches were excavated within the footprint of the proposed sewer line and randomly across the project area. It is recommended that construction be allowed to proceed as planned. Copies of the report are on file at the Texas Historical Commission, the Texas Archeological Research Laboratory, the Texas State Library, Brazos Valley Research Associates (BVRA), and L&G Environmental.

ACKNOWLEDGEMENTS

I am grateful to the following individuals for their assistance during this project. Lesley Pedde, PE of L&R Environmental Engineering, Inc. was my initial contact for this project. She discussed the project with me and provided photos and maps. Additional maps were provided by Kerry J. Koehler of Coursen-Koehler Engineering & Associates. Valgene Horak is the owner of L&G Environmental, LLC, and he provided a backhoe that he operated during the field survey. Rhonda Holley accompanied me to the project area. She took notes, filled out forms, and documented the project with digital photographs. Lili Lyddon of LL Technical Services drafted the maps that appear in this report. Ms. Lyddon and Ms. Holley were the editors for this project. Jonathan Jarvis is the TexSite & Atlas Coordinator at the Texas Archeological Research Laboratory on the campus of The University of Texas at Austin, and he checked the files for previously recorded sites in the project area and vicinity.

CONTENTS

| | |
|---------------------------------|-----|
| ABSTRACT | ii |
| ACKNOWLEDGEMENTS | iii |
| ENVIRONMENT | 5 |
| ARCHAEOLOGICAL BACKGROUND | 7 |
| METHODS | 10 |
| RESULTS AND CONCLUSIONS | 12 |
| RECOMMENDATIONS | 14 |
| REFERENCES CITED | 15 |

Appendix I: Profile of Backhoe Trench 7

Appendix II: Backhoe Trench Photographs

Appendix III: Backhoe Trench Log

FIGURES

| | |
|--|----|
| Figure 1. General Location | 2 |
| Figure 2. Elevated Pad (looking west) | 3 |
| Figure 3. Project Area on Topographic Quadrangle | 4 |
| Figure 4. Wooded Portion of the Project Area | 6 |
| Figure 5. Southeastern Archaeological Region | 8 |
| Figure 6. Backhoe Trenches | 11 |
| Figure 7. View of Upland Ridge to the North | 13 |

INTRODUCTION

L&G Environmental, LLC is the owner of the property that was investigated by BVRA for this report. The construction plans consist of a Type V GG waste processing facility on a 7.33 acre tract just north of the city limits of Brenham, Texas in Washington County (Figure 1). The site is bounded on three sides by private property and on the east side by State Highway 105. The project area occupies 5.60 acres on the north side of Little Sandy Creek and 2.13 acres on the south side of Little Sandy Creek in a sparsely wooded area that is currently being used as pasture for cattle. In order to protect the facility from floods, it will be placed on an existing elevated pad on the north side of Little Sandy Creek (Figure 2) and buffered by a concrete berm. The processing facility will consist of three areas. They are an unloading area, a storage containment area, and a dewatering area. The unloading area will be supported by a concrete slab that is 385 square feet in size and 10 inches thick. The storage containment area will be supported by a concrete slab that is 2862 square feet in size and 10 inches thick. The dewatering area will be supported by a concrete slab that is 981 square feet in size and 10 inches thick. Concrete curbs will be constructed around the perimeter of the unloading and dewatering areas. These curbs will be 14 inches wide and vary in depth from 12 to 14 inches. A concrete wall is proposed for the perimeter of the storage containment area. It will be 7 inches wide, and the depth will vary from 2.50 feet to 2.75 feet.

A sewer line (432.97 feet) will connect this facility with an existing City of Brenham sewer line on the south side of the creek. The diameter of the pipe is four inches, and it will be placed in a trench that is thirty inches wide and forty-eight inches deep. Part of the discharge line, approximately 120 linear feet, will be placed in areas of fill. About 60 feet of discharge line will be placed in fill beneath the elevated pad north of Little Sandy Creek, and approximately 60 feet of discharge line will be placed beneath the area of fill associated with the lift station south of Little Sandy Creek. The discharge line will cross the creek approximately three feet above the bottom of the creek bed using a technique described by engineers as an "aerial crossing." The aerial crossing segment of pipe will be housed in a steel casing supported by concrete piers. Access to the waste processing facility will be possible due to a road that will be approximately 360 linear feet long and twenty feet wide. This road will be constructed by scraping and removing the topsoil and vegetation, and it will be covered with road base. Previous disturbance to the site was caused by the installation of a temporary drain that was placed in a trench that varied from 3.5 feet to 6 feet in depth. This drain was removed before the fill was added to create the elevated pad.

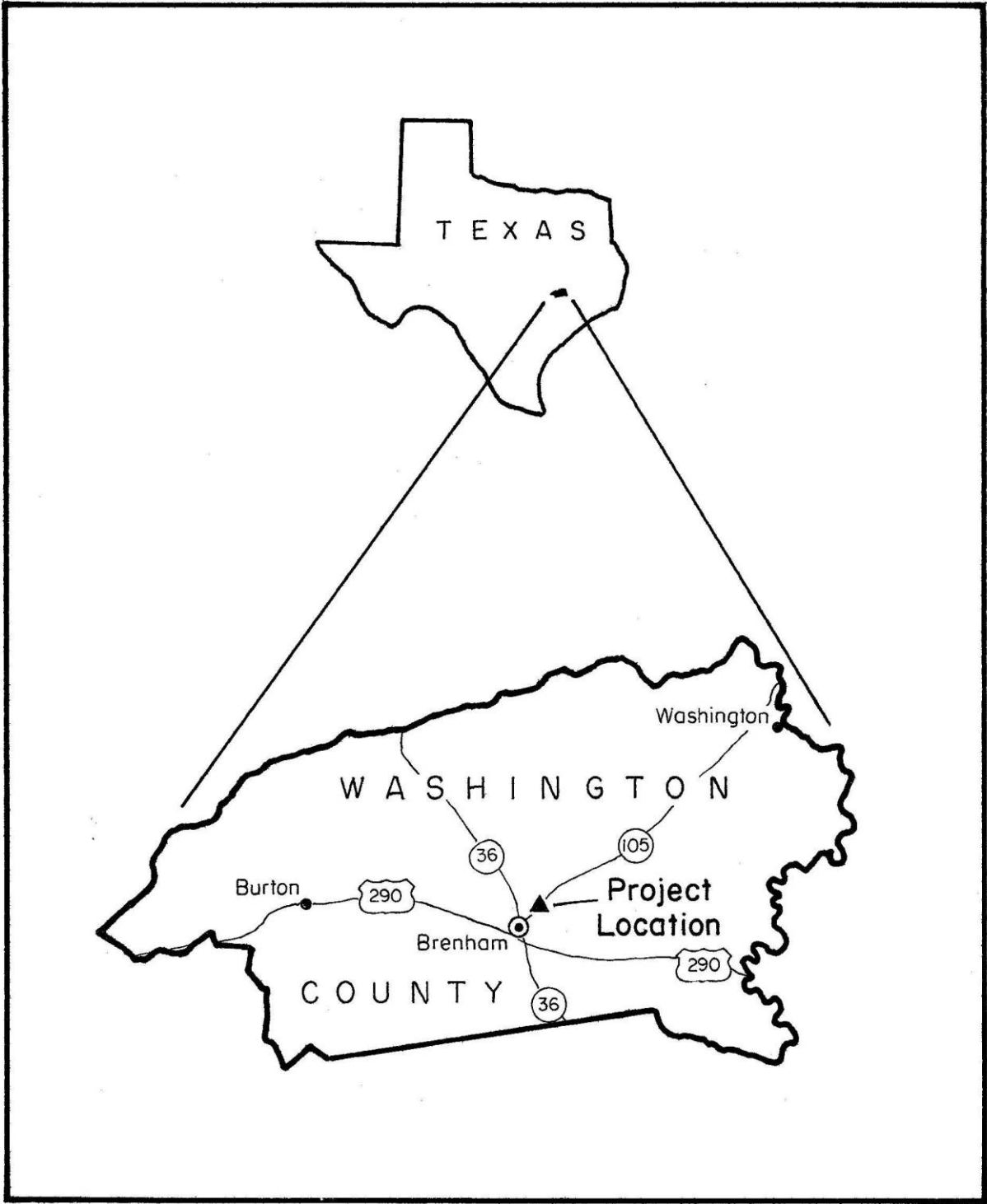


Figure 1. General Location



Figure 2. Elevated Pad (looking west)

Because the project area is located adjacent to an apparent dependable source of water (Little Sandy Creek) in a region known to contain significant archaeological sites, the THC viewed the area as a potential site for prehistoric and/or historic sites. Therefore, a Phase I cultural resource survey was required by the Archeology Division of the THC with Jeff Durst as the project reviewer. In order to satisfy this requirement, the client retained BVRA to perform the archaeological survey that was carried out on December 28, 2011.

The project area map was created from an engineering map prepared by Coursen-Koehler Engineering Associates, and it is depicted on the 7.5' U.S.G.S. topographic quadrangle Brenham, TX (3096-123) dated 1963 and photorevised 1989 (Figure 3).

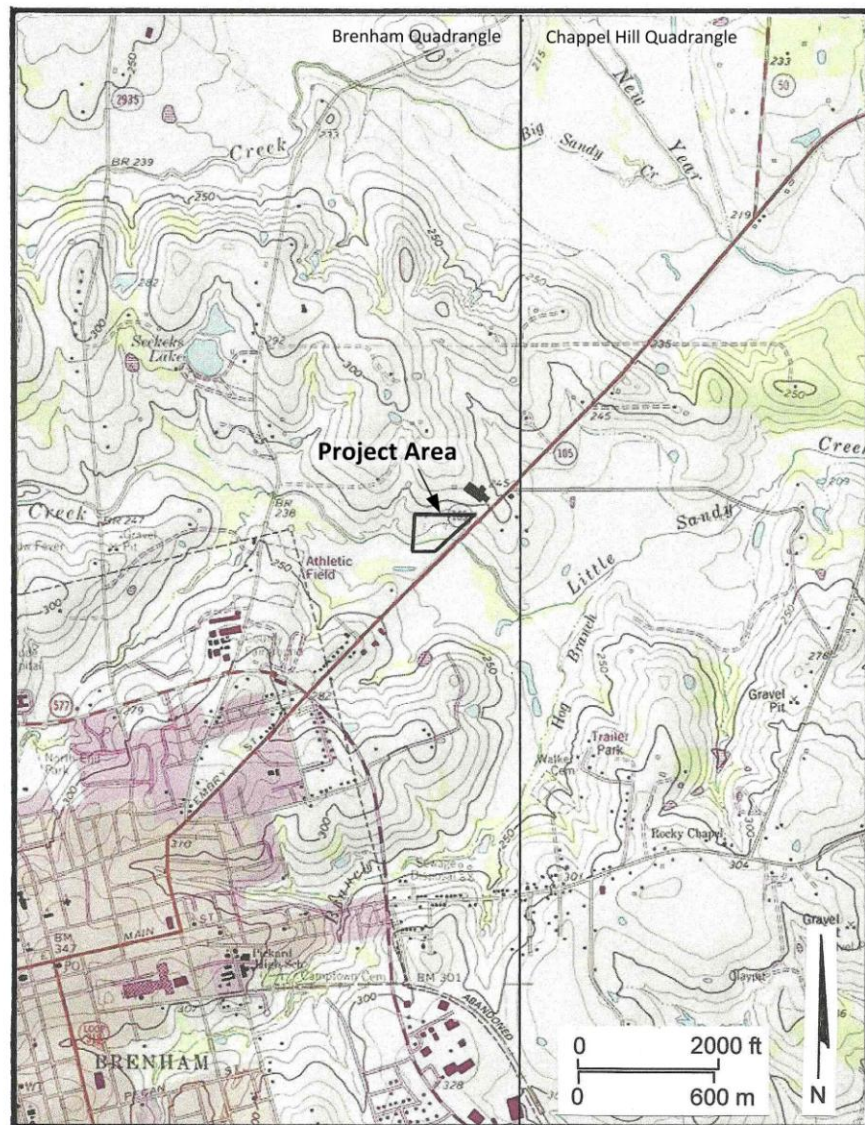


Figure 3. Project Area on Topographic Quadrangle

ENVIRONMENT

Washington County is located in Southeast Texas in the Blackland Prairies Land Resource Area and the Claypan Land Resource Area. The size of the county is 614 square miles (392,960 acres). The climate is considered to be moderate. In the winter, the average temperature is 52° and the average summer temperature is 83°. The total annual precipitation is 39.65 inches. Of this, 50% falls in April through September. Significant natural resources include soil, oil, gas, lignite, rock, gravel, and water.

The topography of the county consists of rolling prairies of sandy loam drained by the Brazos River and its tributaries. Elevations range from 200 to 500 feet with the highest landforms in the northern part of the county. According to the soil survey for Washington County (Chervenka et al. 1981), soils in Washington County formed under post oak and grass. Those soils that formed under timber are light colored fine sandy loams and loamy fine sands. Those that formed under grass are dark fine sandy loams, clay loams, and clays. If unprotected, these soils are subject to erosion. The soil in the project area is Bosque clay loam, frequently flooded (8). This deep, nearly level soil is found in bottomland settings. A typical soil profile is described as a dark gray clay loam about 22 inches thick at the surface that is followed by a mottled grayish-brown and pale brown loam from 22 to 40 inches and a dark gray clay loam from 40 to 62 inches. This soil is well drained, runoff is considered slow to medium, and permeability is moderate. Areas of this soil that have sparse to dense stands of pecan, elm, or hackberry trees are used mainly for native or improved pasture. A few of the higher areas are cultivated. At the time of this survey, the vegetation consisted of elms, hackberry, Texas Ash, Box Elder, Pecan, and Sycamore trees and a ground cover of native grasses that was predominately Johnson grass. Other plants observed were wild sage, wild onion, and poison ivy. Figure 4 depicts a small stand of native trees on the south side of the creek.



Figure 4. Wooded Portion of the Project Area

ARCHAEOLOGICAL BACKGROUND

Washington County is located in the Southeastern Region of Texas as defined by the Texas Historical Commission (Figure 5). It is only one county removed from the Central Texas Archeological Region to the north and borders the Southern Coastal Corridor Archeological Region to the south. No sites in Washington County listed as significant or critical appear in the Planning Document prepared by the Texas Historical Commission for the central and southern regions of Texas (Mercado-Allinger et al. 1996). However, due to its proximity to other regions it is likely that Washington County shares cultural traits with its neighboring counties. According to a statistical overview prepared by the Office of the State Archeologist (Biesart et al. 1985), there were only 16 sites recorded in the county in 1985. At that time, the number of sites in the county represented only .08% of the total for Texas. In 1985, 8 sites in Washington County were listed as Archaic and 8 were listed as Late Prehistoric, and all 16 sites experienced some form of disturbance.

A background check at the Texas Archeological Research Laboratory revealed that Washington County has a relatively low number of documented archaeological sites as compared to other counties in the state. Most of these sites have been recorded as the result of salvage work at Lake Somervell or during oil and gas related projects. Other sites have been recorded by individuals such as Nathan L. Winfield, Jr. who recorded 41WT7 - 41WT11 and 41WT13. The majority of the remainder of sites in Washington County have been recorded or evaluated by contract firms such as Espey, Huston & Associates, Inc. (41WT42 - 41WT47; 41WT60; 41WT65), Prewitt and Associates, Inc. (41WT25 - 41WT29; 41WT33 - 41WT40; 41WT48 - 41WT55; 41WT63 - 41WT64), BVRA (41WT68) and federal and state agencies such as the Texas Archeological Research Laboratory (41WT62), Texas Archeological Salvage Project (41WT1 - 41WT4) Texas A&M University (41WT17 - 41WT18), and the United States Corps of Engineers, Galveston District (41WT30 - 41WT31).

The earliest record of professional archaeological activity in Washington County was at Boggy Creek where Dee Ann Suhm and Rudolph C. Troike of the University of Texas visited the area and assisted Nathan L. Winfield, Jr. in a survey of this area in 1955 (Hasskarl 1961). Three areas containing cultural materials were examined; the Central Midden site, the South Knoll site, and the Creek site. Later, they were recorded together as 41WT12. In the Central Midden site arrow point types *Perdiz* and *Scallorn* were found in the top level mixed with dart point types *Gary*, *Morrill*, and *Palmillas*. Although *Gary* points were found in all levels, only the lower levels contained *Kent*, *Pedernales*, *Edgewood*, *Ellis*, *Ensor*, and *Yarbrough*. The Central Midden site and the South Knoll site contained an abundance of fresh water mussel shells and are described by Hasskarl (1961:298) as shell middens. The Creek site contained hearthstone fragments in addition to mussel shell. Unidentifiable ceramics were found at the Central Midden and Creek sites. Faunal remains from the three areas include mussel shell, deer, and antelope. Based on the records check at TARL, this is the only site in Washington County that has been tested.

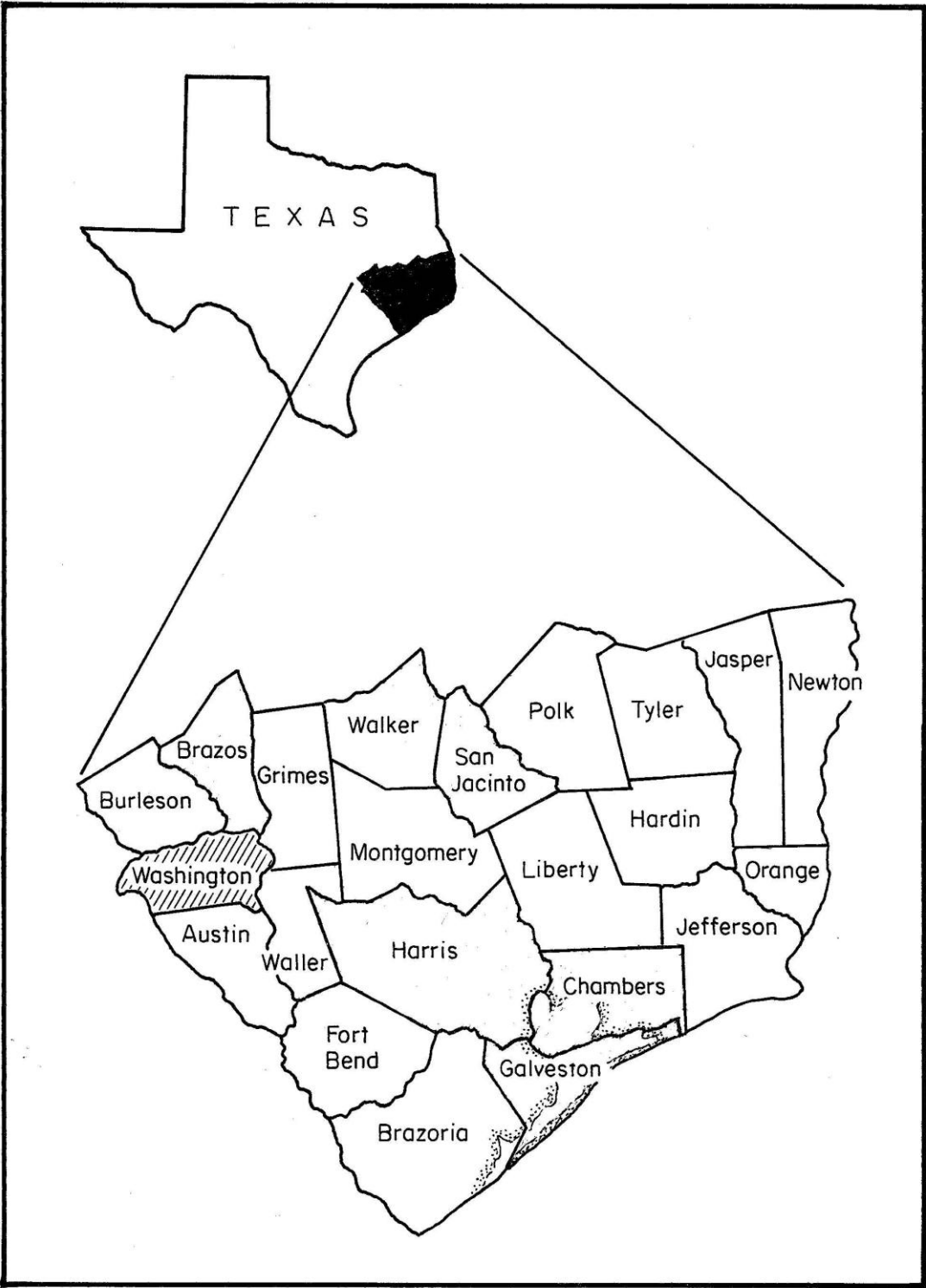


Figure 5. Southeastern Archaeological Region
(after Moore 1989)

There have been three archaeological surveys in the vicinity of the project area. These investigations were carried out by professional archaeologists working with or for the Rural Electrification Administration in 1984, the State Department of Highways and Public Transportation (now Texas Department of Transportation) in 1985, and the Farmers Home Administration in 1986. Not one of these projects recorded sites, and copies of the reports documenting these surveys were not available for review. Two prehistoric sites have been recorded between 530 and 570 meters of the project area. They are 41WT17 and 41WT18.

Site 41WT17 is located 570 meters west of the project area on the northern end of an upland spur overlooking Little Sandy Creek 250 meters to the north. This site was recorded in 1980 by Harry J. Shafer who described it as an "open lithic site," 3 x 5 meters in size, and destroyed when the City of Brenham constructed Linda Anderson Park. Material collected include chert, quartzite, and silicified wood flakes (some burned), biface fragments, and sandstone. Shafer believes that this site may date to the Late Archaic based on the character of the lithic debitage. No further work was recommended.

Site 41WT18 is located 530 meters southwest of the project area on a lower slope of an upland finger overlooking Little Sandy Creek 340 meters to the north. This site was recorded by Harry J. Shafer in 1989 who described it as an "open campsite" that is probably post-Archaic. Material collected include chert flakes and mussel shell. This site was destroyed when the City of Brenham constructed Linda Anderson Park. No further work was recommended.

METHODS

Prior to entering the field, the Principal Investigator checked the Texas Archeological Sites Atlas in order to identify any previously recorded archaeological sites in the project area and immediate vicinity. Jonathan Jarvis checked the site files at TARL and found that no sites have been identified in the current project area and that the area had not been investigated by a professional archaeologist. Several contract reports documenting work in Washington County were reviewed in order to ascertain the kinds of archaeological sites known in the area.

The field survey was conducted under the supervision of William E. Moore with assistance from Rhonda Holley and Valgene Horak. The area was investigated by a surface inspection and backhoe trenches. Three backhoe trenches were excavated within the footprint of the proposed wastewater discharge line, and four trenches were excavated randomly within the project area. Since the liquid waste processing facility will be constructed on a pad that was constructed by borrowed dirt that extends five feet above the ground surface, there was no reason to dig a trench in this area. The location of the backhoe trenches is depicted in Figure 6. The soil was uniform throughout except for Backhoe Trench 7 where several distinct lenses of soil were observed. A profile drawing was made in the field and professionally drafted for this report (Appendix I). Samples of earth from selected trenches were collected and analyzed by soil scientists at the Natural Resource Conservation Service office in Bryan, Texas. Photographs were taken of each trench (general view and profile), and they appear in Appendix II. Control for the backhoe trench map was created by measuring from the connecting point at the waste processing facility, the connecting point at the City of Brenham sewer line, and from the trenches to the creek with a metric tape. A backhoe trench log was maintained in the field and appears as Appendix III to this report. The area where the road will be improved was not shovel tested for two reasons. First, its distance from the creek makes it a very low probability area for a prehistoric site. Second, the impact from construction will be minimal as there is very little topsoil present in this area. The scraping that is planned will be mainly through a clay stratum.

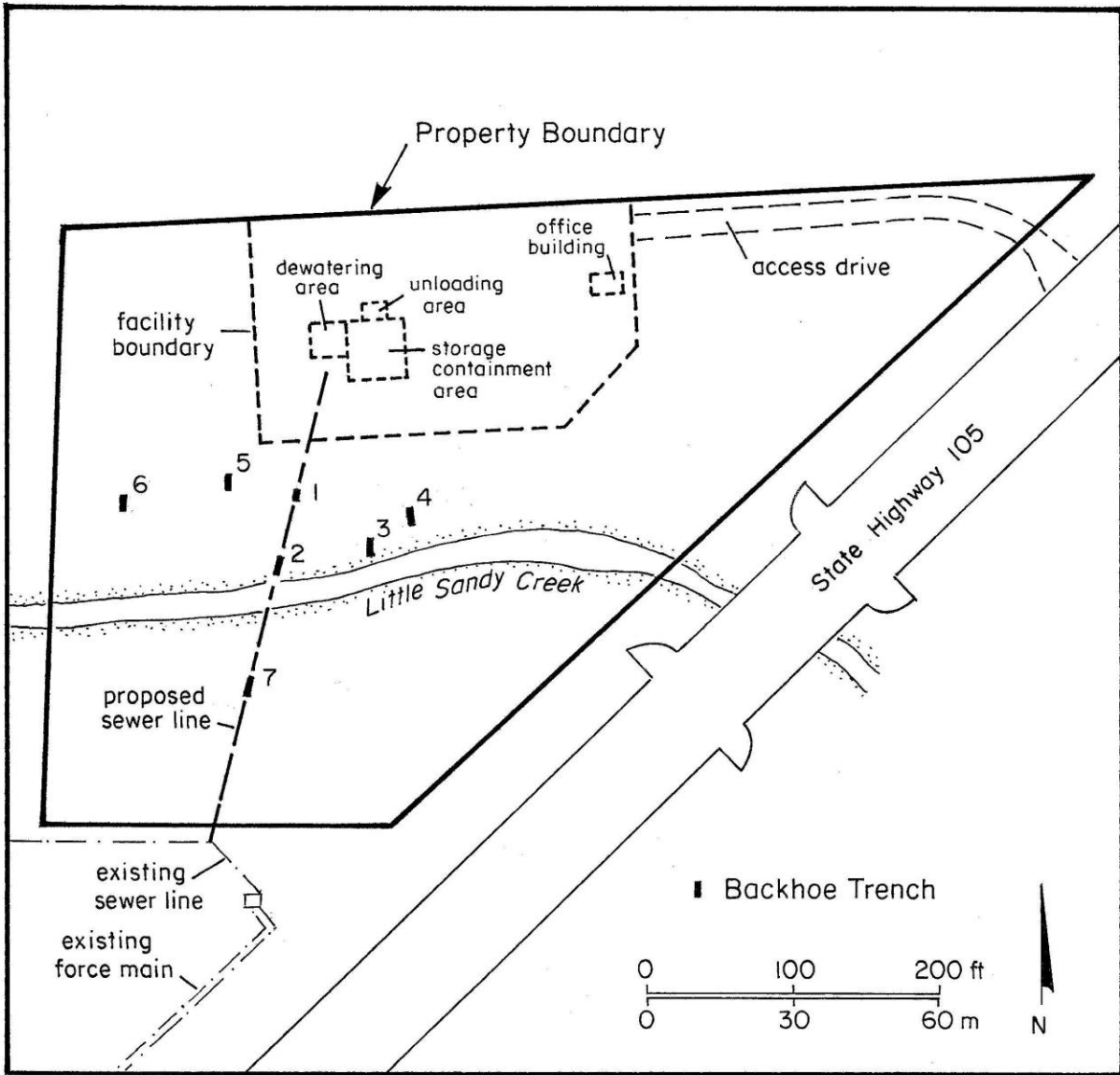


Figure 6. Backhoe Trenches

RESULTS AND CONCLUSIONS

No prehistoric archaeological sites were found within the 7.73-acre project area. The backhoe trenches revealed the presence of clay loam over clay, and standing water was present in one trench. The area investigated is considered to be a low probability area for a significant prehistoric site. It is not uncommon for prehistoric sites to occur in a floodplain setting where they have been buried by one or more flooding episodes. The most common use of floodplains in prehistoric times was related to the collecting of plants, animals, and riverine resources such as fish and mussel shell. Since mussel shell was found at site 41WT18 on the same creek, it was considered possible that this resource may have been exploited in that part of Little Sandy Creek adjacent to the project area. However, no shell was observed in any of the backhoe trenches or in the creek bank. The major form of disturbance was due to the clearing of trees to create pasture for cattle. Trees have extensive root systems, and any cultural materials within the path of a developing root would be moved from its original position. Therefore, it is unlikely that intact cultural materials are present beneath of the surface of the project area. Prior to the addition of the fill that created the elevated pad a temporary drain was placed in a trench that varied from 3.5 feet to 6 feet in depth. This drain was removed before the fill was added to create the elevated pad. The two known sites on Little Sandy Creek in the immediate area are situated on higher elevations in settings containing sandy soil. Just to the north of the project area is a ridge that contains sandy soil (Figure 7), and this is the most likely setting for a prehistoric site. The presence of alternating strata of clay and sand suggests four separate episodes of flooding, but backhoe trench 7 is the only area where this was observed.



Figure 7. View of Upland Ridge to the North

RECOMMENDATIONS

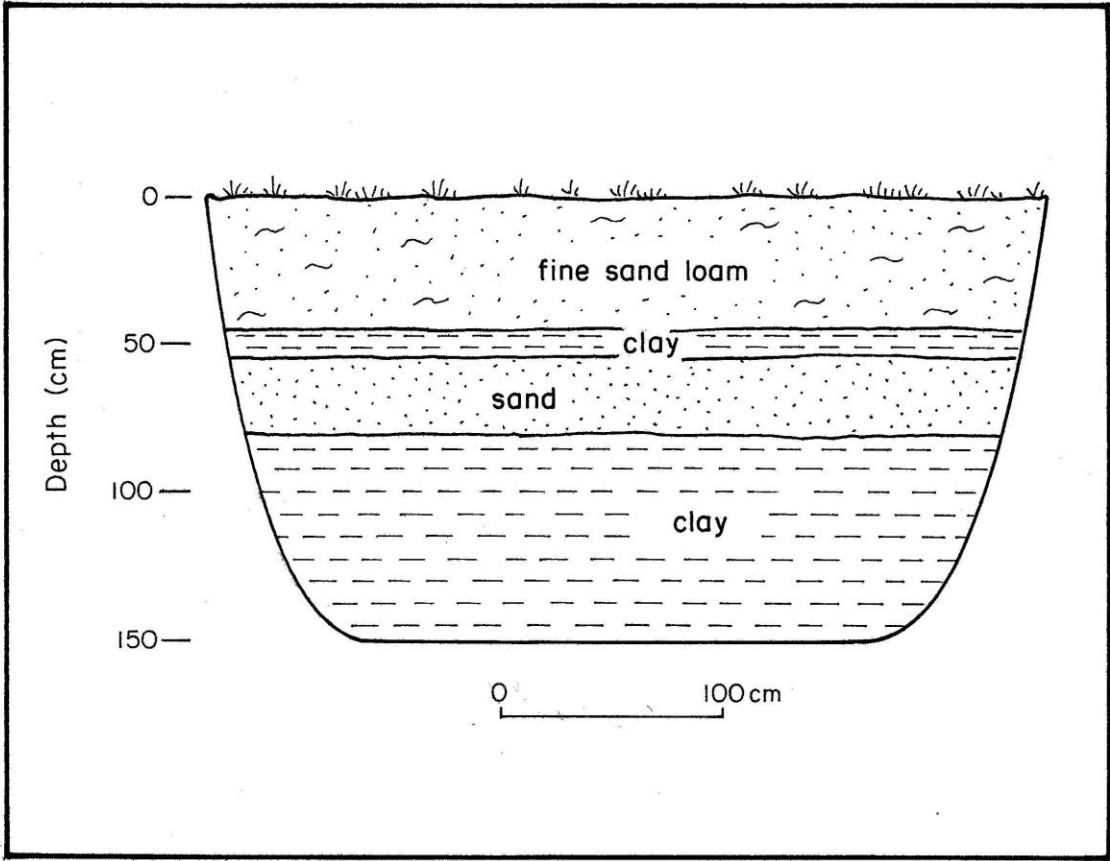
No significant archaeological sites were found during this cultural resources survey. Therefore, it is recommended that the City of Brenham be allowed to proceed with construction as planned. Should, however, cultural materials be identified in areas not discussed in this report, all work should cease until the situation can be evaluated by the Archeology Division, Texas Historical Commission, BVRA, and the City of Brenham.

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APPENDIX I

PROFILE OF BACKHOE TRENCH 7



APPENDIX II
BACKHOE TRENCH PHOTOGRAPHS



Backhoe Trench 1



Backhoe Trench 2



Backhoe Trench 3



Backhoe Trench 4



Backhoe Trench 6



Backhoe Trench 7

APPENDIX III

BACKHOE TRENCH LOG *

| Trench | Length | Width | Depth | Comments |
|--------|--------|-------|--------|---|
| 1 | 1.75 m | 36" | 1.5 m | clay throughout |
| 2 | 3.2 m | 36" | 1.7 m | clay throughout |
| 3 | 3.7 m | 36" | 1.7 m | clay loam over clay |
| 4 | 3.6 m | 36" | 1.55 m | clay loam over clay |
| 5 | 3.5 m | 36" | 1.54 m | clay throughout standing water at 1 m |
| 6 | 3.7 m | 36" | 1.5 m | clay throughout |
| 7 | 3.8 m | 36" | 1.5 m | 0-45 cm (clay) 45-54 cm (sand) 54-80 cm (clay) 80-1.5 m (clay) |

* All trenches were negative