

AN ARCHAEOLOGICAL SURVEY OF THE PROPOSED CAMP MOHAWK
COUNTY PARK IN EAST-CENTRAL BRAZORIA COUNTY, TEXAS

Texas Antiquities Permit Number 2384

by

William E. Moore

With contributions by

William A. Dickens and Linda Wootan Ellis

Brazos Valley Research Associates

Contract Report Number 76

2000

AN ARCHAEOLOGICAL SURVEY OF THE PROPOSED CAMP MOHAWK
COUNTY PARK IN EAST-CENTRAL BRAZORIA COUNTY, TEXAS

BVRA Project Number 00-03

Principal Investigator

William E. Moore

Prepared for

Brazoria County
313 West Mulberry
Angleton, Texas 77515

Prepared by

Brazos Valley Research Associates
813 Beck Street
Bryan, Texas 77803

ABSTRACT

Brazos Valley Research Associates (BVRA) performed an archaeological survey of a 55.84 acre tract, the site of the future Camp Mohawk County Park in east-central Brazoria County, Texas, in May 2000. This project was conducted under Antiquities Permit number 2384 with William E. Moore performing the duties of Principal Investigator. The project area was investigated by shovel testing and probing and backhoe trenching. Five prehistoric archaeological sites (41BO206-41BO210) were found. All five sites are located along the margins of two oxbow lakes, former channels of Chocolate Bayou.

Site 41BO206 was found on a low terrace or knoll adjacent to an oxbow lake in the northwest corner of the project area, sites 41BO207 and 41BO208 are located on high banks overlooking the opposite side of the same oxbow lake, and sites 41BO209 and 41BO210 were found on small pimple mounds adjacent to an oxbow lake in the southeast corner of the project area. Sites 41BO206 - 41BO209 are Late Prehistoric based on the presence of ceramics and a *Catahoula* arrow point which dates from A.D. 700 to A.D. 1100. Site 41BO210 did not contain any diagnostic artifacts. These small sites probably represent temporary occupation areas that were utilized for various activities such as tool manufacture and repair and subsistence tasks such as food processing/cooking, plant gathering, and base camps for hunting. Together they are part of the local subsistence pattern of this part of Southeast Texas. It is recommended that these sites be subjected to Phase II testing to determine their significance if they will be impacted by the proposed construction.

Also present in the project area are several buildings such as dormitories and rest rooms that were constructed for Camp Mohawk. Although the camp is supposed to date to the 1930s or 1940s, not one of these structures is from that period. They were built in the 1950s and 1960s and are not architecturally or historically significant.

Copies of the final report are on file at the Archeology Division, Texas Historical Commission (THC); Texas Archeological Research Laboratory (TARL); Brazoria County; and BVRA in Bryan, Texas. The artifacts and records have been placed in permanent curation at the Brazoria County Historical Museum in Angleton, Texas.

ACKNOWLEDGMENTS

I am appreciative of the assistance provided by Mr. Mark Hansen, Parks Director for Brazoria County, Texas. He supplied the field crew with project area maps, helped the field crew locate the project area boundaries in the field, and provided a backhoe and operator. In addition to the Principal Investigator, the field crew consisted of Roger G. Moore, Douglas Molineu, James E. Warren, Arthur F. Romine, and Bobby Jemison. Roger G. Moore of Moore Archeological Consulting is acknowledged for volunteering his time to visit the project area; his expertise in this area of Texas was especially useful. At the state level, Jean Hughes, Assistant Curator of Records at TARL checked the TARL files for previously recorded sites in the project area. Ed Baker of the THC, was the reviewer for this project, and his input is appreciated. Except for the artifact illustrations that were drafted by Bradley F. Bowman, all figures in this report were prepared by Lili G. Lyddon of Lyddon Illustrations, North Zulch, Texas. The lithics found during this project were examined by William A. Dickens, and the ceramics were analyzed by Linda Wootan Ellis.

CONTENTS

ABSTRACT	ii
ACKNOWLEDGMENTS	iii
INTRODUCTION	1
ENVIRONMENTAL SETTING	5
ARCHAEOLOGICAL BACKGROUND	9
METHODS	11
RESULTS AND CONCLUSIONS	13
RECOMMENDATIONS	17
REFERENCES CITED	18

Appendix I: Shovel Test Log

Appendix II: Backhoe Trench Profiles

Appendix III: Lithic Analysis (William A. Dickens)

Appendix IV: Ceramic Analysis (Linda Wootan Ellis)

Appendix V: Map of Sites and Shovel Tests and Probes

Appendix VI: Site Avoidance Plans

Figures

Figure 1. General Location of Project Area	2
Figure 2. Project Area on Liverpool Quadrangle	3
Figure 3. Project Area Map	4
Figure 4. Soils Map	7
Figure 5. (a) <i>Catahoula</i> Point from 41BO206; (b) End Scraper from 41BO208.....	14

INTRODUCTION

Brazoria County plans to develop Camp Mohawk County Park in east-central Brazoria County, Texas (Figure 1). The total area of land to be acquired for the proposed park consists of 55.84 acres, all of which will be donated to the County by private landowners. The project area is depicted on the topographic quadrangle, Liverpool (dated 1963 and photorevised in 1974) (Figure 2). A review of archaeological reports for the area revealed that Brazoria County contains significant prehistoric and historic sites. Therefore, an archaeological survey was recommended by the Texas Parks and Wildlife Department to be reviewed by the THC. In order to comply with this request, the County of Brazoria retained BVRA to conduct this service which was performed under Texas Antiquities permit 2384 with William E. Moore the Principal Investigator.

In addition to the cultural resource survey, a wetlands study will be conducted by the United States Corps of Engineers, Galveston District. This investigation will ensure that proper delineation of the wetlands is described and not impacted by park development.

The 55.84 acre project area is bounded on the north and east by the current channel of Chocolate Bayou and on the south and west by land in private ownership (Figure 3). Much of the project area is wooded; however, a large area has been cleared to accommodate the buildings and other use areas for Camp Mohawk. Two oxbow lakes, remnants of the former channel of the bayou, are present in the project area and contained water at the time of this investigation.

Camp Mohawk is believed to have been a religious camp since the 1930s or 1940s (Mark Hansen, personal communication, May 9, 2000); however, not one of the existing structures date to this period. According to Mr. Hansen, all of the current buildings were erected in the 1950s and 1960s. The County plans to renovate existing dormitories, restrooms, roads, and utility systems. Also, family camping areas and trails will be constructed. The proposed trails will parallel the bayou and meander throughout the park; however, the trail system will be constructed above ground and will not impact the subsurface. In addition to the existing facilities and roads, disturbance within the project area exists in the form of two oil wells that are the result of an oil, gas, and mineral lease executed in 1994 and easements for two underground natural gas pipelines that cross the property.

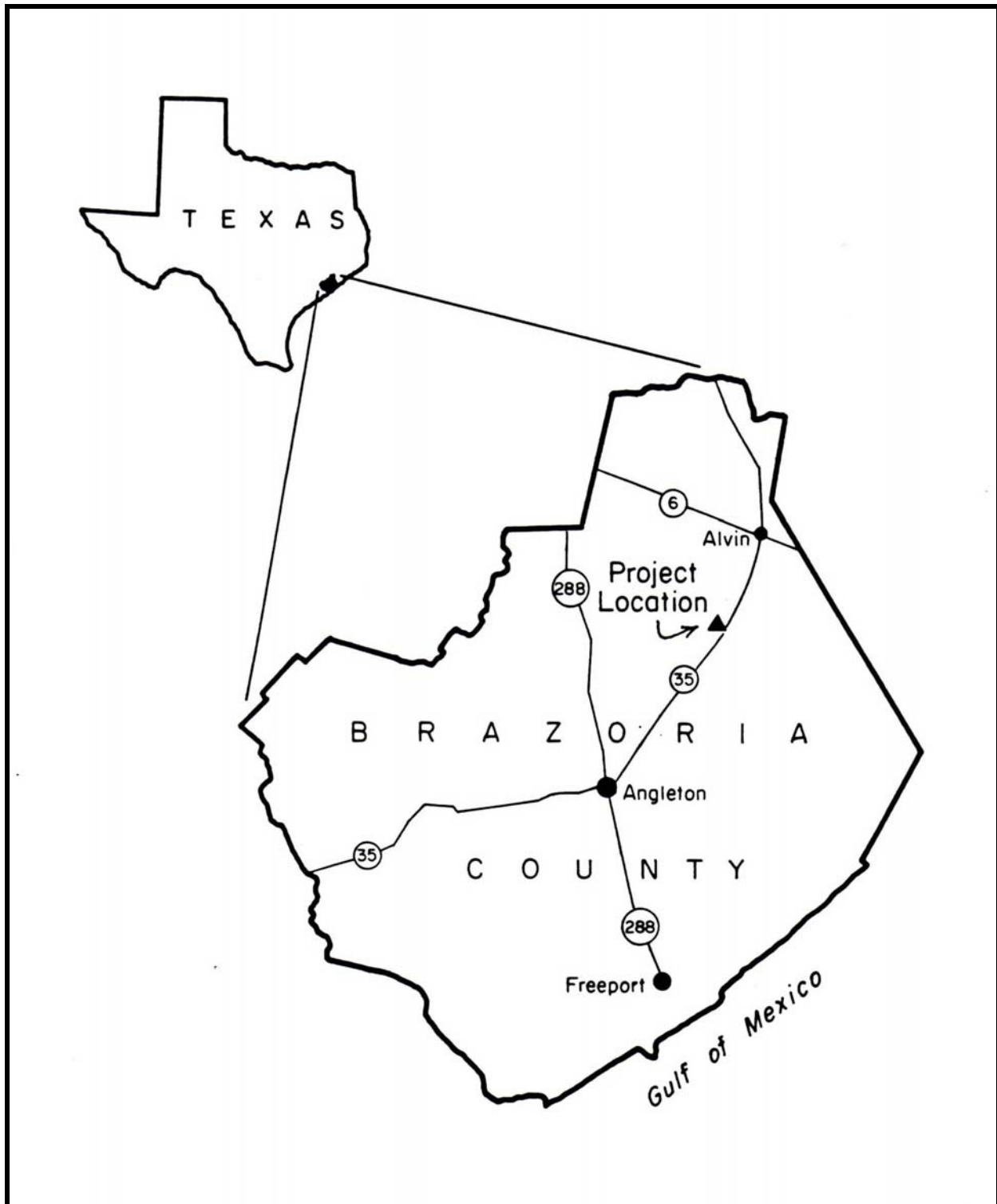


Figure 1. General Location of Project Area

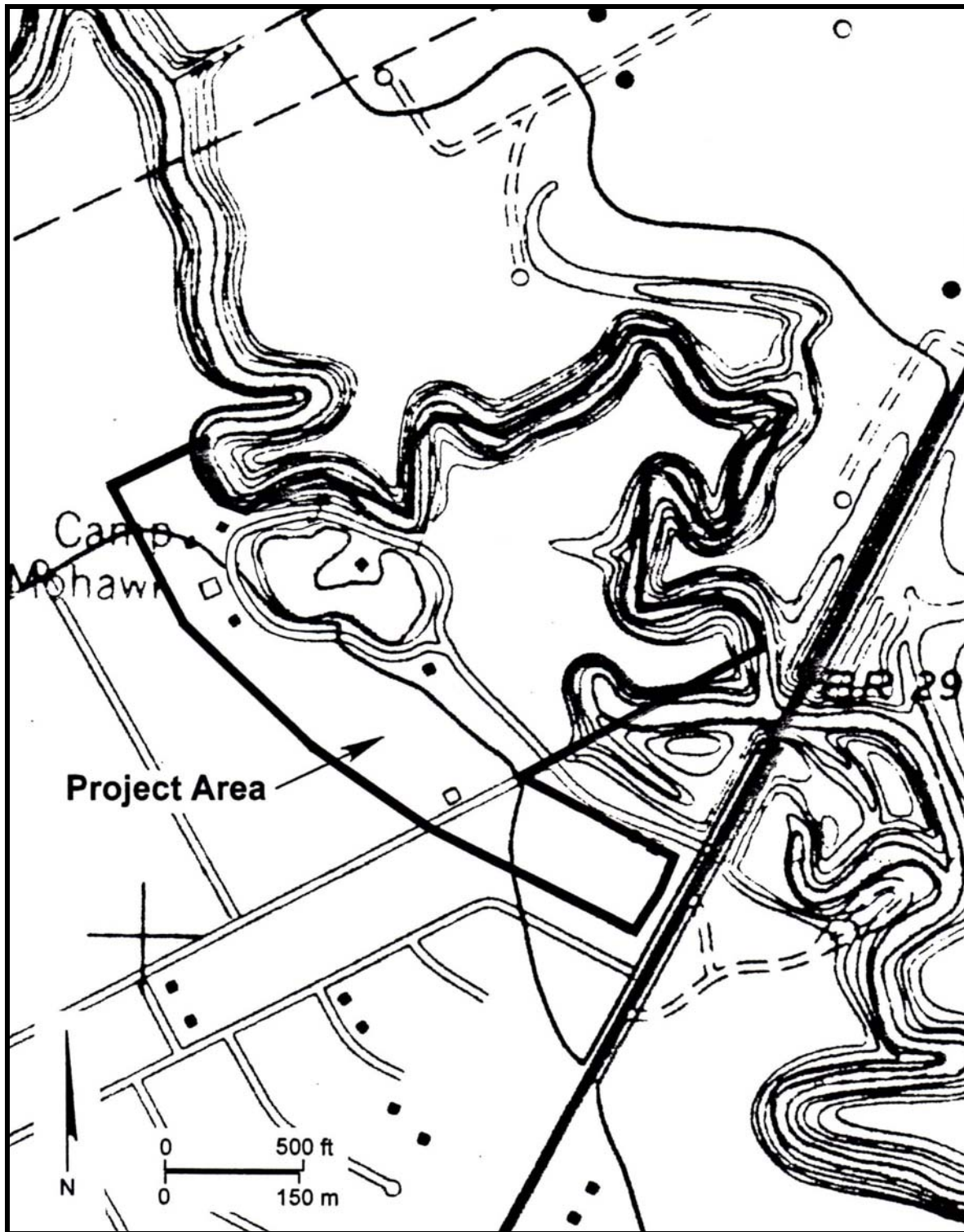


Figure 2. Project Area on Liverpool Quadrangle

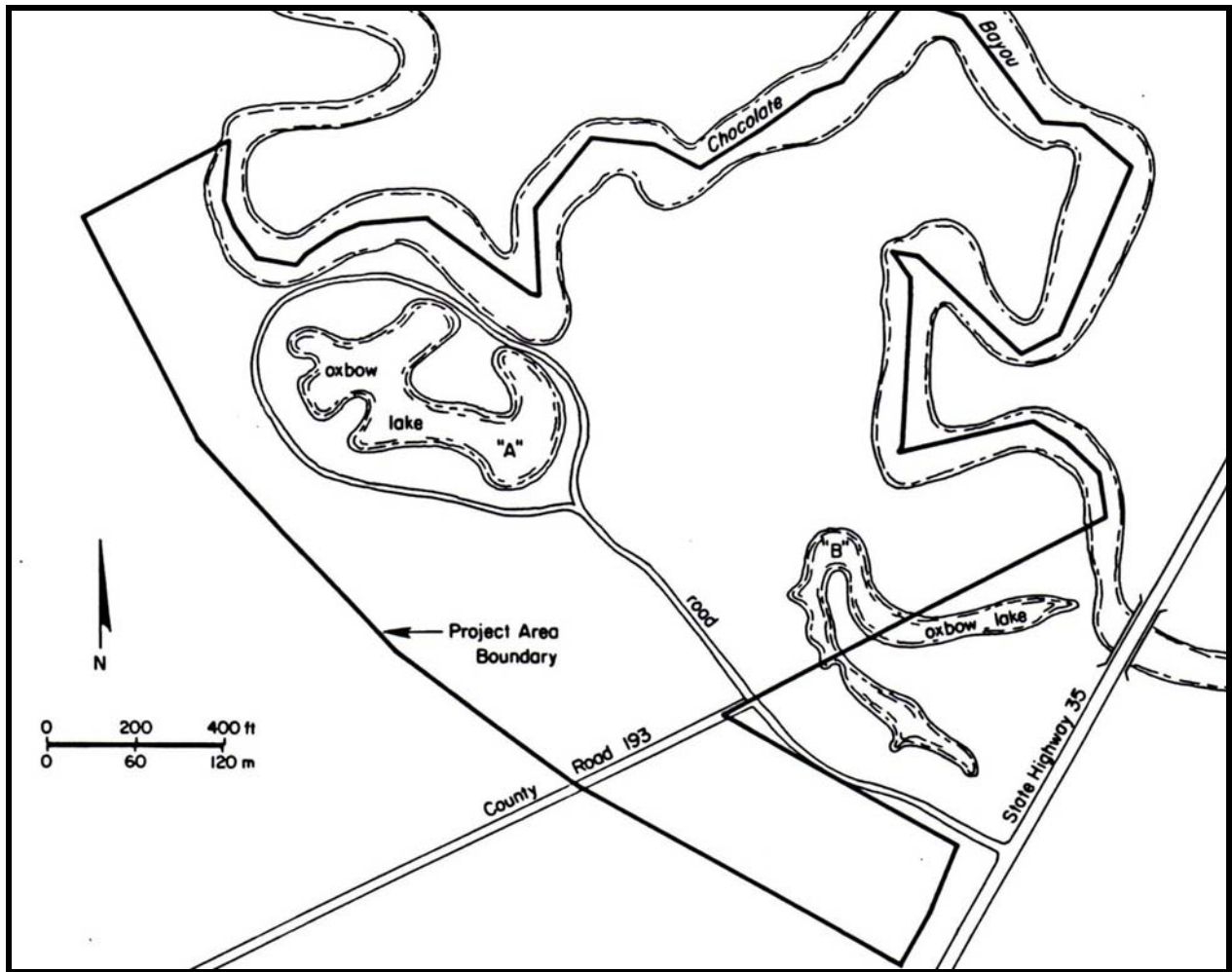


Figure 3. Project Area Map

ENVIRONMENTAL SETTING

Brazoria County is located in the southeastern part of Texas along the Gulf of Mexico. Much of the area is defined as Gulf Coast Prairie. According to the soils book for Brazoria County, the inland portion of the county belongs to the Gulf Coast Prairies Major Land Resource Area (Crenwelge et al. 1981:1). Along the coastal region the county contains mainly salty soils and is part of the Gulf Coast Marsh Resource Area (Crenwelge et al. 1981:1).

The land surface of the county is characterized as broad and nearly level. There are a few sloping areas that occur mainly adjacent to major drainages such as the San Bernard River, Brazos River, and Oyster Creek. Most drainages flow to the southeast through the major streams. Other streams empty directly into the Gulf of Mexico or into the bays adjacent to the Gulf (Crenwelge et al. 1981:1).

The project area lies on the west bank of Chocolate Bayou within the area known as "Austin's Woods" (also known as the Columbia Bottomlands). Approximately the eastern half of the project area remains undeveloped and consists of a native bottomland hardwood forest. The forest lands of the "Austin's Woods" are the only significant expanse of forest adjacent to the Gulf of Mexico in Texas. Approximately one-half of the area on this site consists of this forest as well as significant wetland areas. Along the east side of the site, bordering Chocolate Bayou, lies undeveloped native forest of both hardwood species and native loblolly pine, the only native stand of this pine within "Austin's Woods." Hardwood species are intermingled in some places with the loblolly pine and include sycamore, water oak, live oak, honey locust, cedar elm, cottonwood, sugar hackberry, green ash, and black willow. Understory vegetation in most of the undeveloped areas is dense with shrubs, vines, palmetto, and young trees.

The southeast corner of the site contains significant wetland areas that consist of meandering, interconnected sloughs and swamps which were once the Chocolate Bayou channel. Past floods have changed the course of Chocolate Bayou isolating the old channels from the active bayou channel, creating permanent wetlands and swamps in these areas. These wetlands support both submerged aquatic and emergent vegetation. Palmettos and several species of wetland grasses grow along the shoreline and on raised areas of soil extending between and into the wetland areas. Black willow, button brush, and palmettos grow along the steep banks and into the wetlands. The other previously listed tree species occur on higher banks at the edge of the wetland areas and on the higher ground out of the wetland sloughs. The wetland areas on this site provide an excellent habitat for waterfowl, including migratory birds.

According to the soils map on Sheet Number 27 (Crenwelge et al. 1981), the majority of the project area is located within the Edna fine sandy loam, 1 to 5 percent slopes mapping unit (14). This is a gently sloping, nonsaline soil on slopes adjacent to drains and bayous. Typically, this soil has a surface layer of medium acid, dark gray fine sandy loam about 4 inches thick. The subsoil to a depth of 60 inches is clay that is dark gray and medium acid in the upper part and light brownish gray and neutral in the lower part (Crenwelge et al. 1981: 17-18). Sites 41BO206 - 41BO208 were found in this soil type (Figure 4).

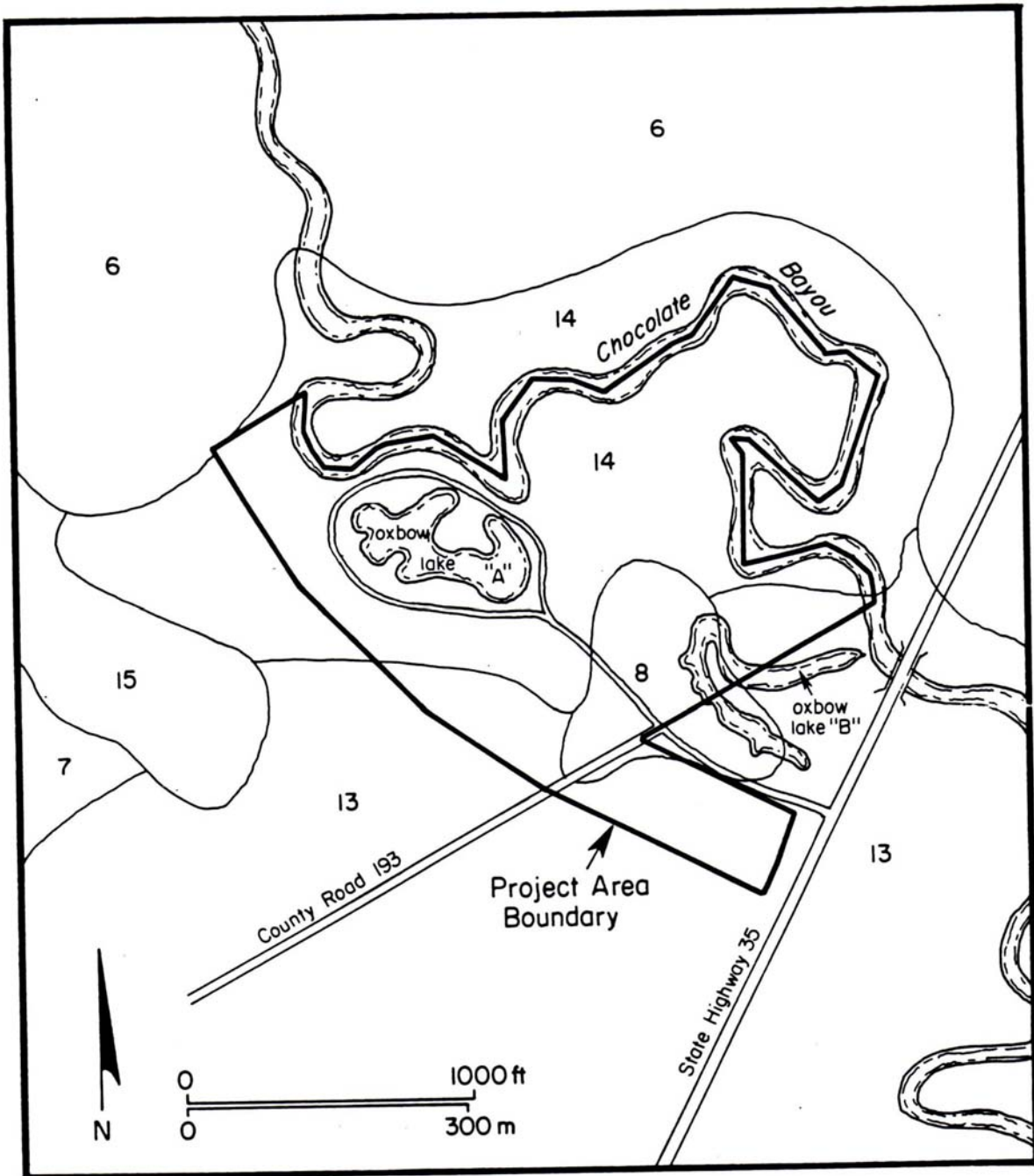


Figure 4. Soils Map

Very relevant to the prehistoric use of the project area is the presence of the Bernard-Edna Complex (8) that consists of nearly level, nonsaline soils as described by Crenwelge et al. (1981:14). The surface is mainly level and has many distinct knolls or pimple mounds about 0.5 foot high and 10 to 15 feet in diameter. Slopes average about 0.2 percent. Areas are irregular in shape and range from 5 to several hundred acres in size. This complex is about 60 percent Bernard clay loam and 20 percent Edna fine sandy loam. The Bernard soil is generally on the flats between the knolls and pimple mounds. The Edna soil is mainly on the knolls and mounds.

Typically, the Bernard soil has a surface layer of very dark grayish-brown clay loam about 12 inches thick. The subsoil to a depth of 60 inches is clay that is dark gray in the upper part and grayish-brown in the lower part. Typically, the Edna soil has a surface layer of slightly acid, dark gray fine sandy loam about 9 inches thick. The subsoil to a depth of 60 inches is dark gray clay that is slightly acid in the upper part and neutral in the lower part. The soils in this complex are somewhat poorly drained to poorly drained. Surface runoff is very slow. Permeability is very slow. Sites 41BO209 and 41BL210 were found in this soil type (Figure 4).

A small portion of the southwestern corner of the project area contains Edna fine sandy loam, 0 to 1 percent slopes (13) as described by Crenwelge et al. (1981:16-17). This is a nearly level, nonsaline soil. Slopes average about 0.2 percent. Areas are irregular in shape and range from 5 to several hundred acres. Typically, this soil has a surface layer of slightly acid dark gray fine sandy loam about 8 inches thick. The subsoil to a depth of 60 inches is clay that is neutral and very dark gray to gray in the upper part and moderately alkaline and light brownish-gray in the lower part. This soil is poorly drained. Surface runoff is very slow and permeability is very slow. No sites were found in this soil type.

ARCHAEOLOGICAL BACKGROUND

Brazoria County is located in the Southeast Texas cultural-geographical region of Texas as defined by the Texas Historical Commission in a statistical overview compiled in 1985 (Biessart et al. 1985:76). At that time, Brazoria County was fifth in the state in terms of numbers of sites recorded (1630) and percentage of sites recorded (8.06%). Within the region, Brazoria County was sixth with 89 sites (.44% of the state and 5.46% of the region). According to Biesart et al. (1985:114), all major periods of Texas prehistory were documented in Brazoria County in 1985. At that time, 89 sites had been recorded with the Texas Archeological Research Laboratory (TARL). Of this number, 43 sites were classified by temporal period as follows: Paleo-Indian (2 sites), General Archaic (11 sites), Middle Archaic (2 sites), Late Archaic (2 sites), and Late Prehistoric (26 sites). One site has been designated as a State Archeological Landmark (SAL), and one is listed on the National Register of Historic Places (NRHP). Information for the county in 1985 came primarily from surface collections (79 sites). Thirty-three sites were tested by hand in 1985, 12 were excavated, and 1 tested by machine. At the time of this survey 205 sites have been recorded in the county.

Recent work by Prewitt and Associates, Inc. in Galveston and Harris counties (Howard et al. 1992) and others have confirmed the presence of prehistoric sites ranging from the Paleo-Indian through Late Prehistoric periods. The dates for this span of time are believed to be from the early Holocene, about 10,000 to 7000 B.C. (Aten 1983:141, 144-152) through the influx of Europeans around A.D. 1700, otherwise known as the Historic Period.

Archaeological sites in the Clear Creek drainage basin have been identified as conforming to three types. These are shell middens, terrace sites, and natural mound sites. The interested reader is advised to consult the report by Howard et al. (1992), the scholarly work by Aten (1983), and *Archeology in the Eastern Planning Region, Texas: A Planning Document* published by the Texas Historical Commission (1993) for more detailed information regarding the kinds of sites found in the area. The report by Howard et al. (1992) is very thorough in its discussion of previous work in the region. Although Brazoria County was not included in their investigation, their report, because of the close proximity of their project area to the current study, is considered by this author as a major reference for all future work in the region including Brazoria County.

The 205 previously recorded sites in Brazoria County are indicative of a number of earlier investigations. Much of the work in the county consists of small area surveys, many of which did not locate cultural resources. State and Federal agencies such as the Corps of Engineers, Galveston District; Texas Water Development Board; and Texas Department of Transportation have been active in the county and surrounding area. The remaining studies have been conducted by universities, private contractors, and avocational archaeologists. Most of these projects can be found by checking the Abstracts in Texas Contract Archeology series sponsored by the Department of Antiquities Protection, Texas Historical Commission (Moore 1990, 1991, 1992a, 1992b, 1993, 1994), a bibliography of Southeast Texas (Moore 1989), and an ongoing database published by the Houston Archeological Society (Patterson 1989).

METHODS

This investigation was performed utilizing the pedestrian survey method supported by shovel tests and backhoe trenching. Shovel tests were concentrated in high probability areas, mainly in sandy areas along the margins of the two oxbow lakes, landforms rising significantly above the natural terrain (i.e., pimple mounds), and randomly along the current channel of Chocolate Bayou. Interior areas far from water were considered low probability and were examined by the survey crew for historic sites. The area around the oxbow lake ("A") in the northwest corner of the project area was fairly open with only sparse woods present. The lack of thick woods and the presence of structures drawn to scale on the project area map provided by the client made it easy to accurately locate shovel tests and archaeological sites found in this part of the project area. Figure 3 illustrates the project area with shovel test, shovel probe, and backhoe trench locations.

The area around oxbow lake "A" was thoroughly shovel tested, and three prehistoric sites (41BO206 - 41BO208) were found. All obvious sandy soils along the bank of the current channel of the bayou were shovel tested, and it was found that the overlying sandy mantle is shallow in this area. Three backhoe trenches were excavated along the bayou, and each one produced heavy dark clay at the surface and to a depth of an average of one meter with no buried sandy soil. In addition to the backhoe trenches, the areas between each trench were probed with a shovel and also produced clay at the surface. Therefore, the three backhoe trenches along the current channel are considered to be an adequate sample of the current bank in this part of the project area.

The area around oxbow lake ("B") in the southeast corner of the project area is located in a low-lying area that contains pimple mounds and low rises or knolls. The areas surrounding the mounds and knolls consists of a shallow sandy mantle with clay at or near the surface. The survey crew walked this area in an attempt to identify any sandy areas that might contain prehistoric sites. Two pimple mounds were observed. Both were shovel tested and produced cultural materials (41BO209 - 41BO210). Each mound was tested in its approximate center and dug to clay.

All excavated matrix from shovel tests and backhoe trenches was screened using 1/4 inch hardware cloth and recorded on a shovel test log (Appendix I). In all, 36 shovel tests and 23 shovel probes were excavated in the 55.84 acre project area (Figure 3). All shovel tests were excavated to clay when possible and ranged in depth from 10 to 90 cm. Once clay was encountered, the shovel tests were continued another 5 to 10 cm in most cases. Because the total area of the project area is 55.84 acres, the number of shovel tests (n=36) exceeds the number per acre required by the *Archeological Survey Standards for Texas* as recommended by the Texas Historical Commission.

Backhoe trenching was utilized to help define the northeast boundary of prehistoric site 41BO206 and to sample the current channel of the bayou. One trench (BT 5) was dug at the age of the woods in the vicinity of the two pimple mounds (41BO209 and 41BO210) and produced fine sandy loam (10YR 7/4) to a depth of 10 cm; from 10 cm to 90 cm was mottled yellow clay. Because of the mottled nature of the soil, no Munsell reading was taken in this stratum. Samples of the excavated matrix were passed through 1/4 inch hardware cloth. Each trench was 1.5 meters wide and 4 meters long. They were excavated to clay or through clay in an attempt to search for a buried sandy stratum. The three trenches along the bayou were excavated to 80 cm (BT 2) and 100 cm (BT 3 and BT 4). Each trench produced mottled yellow clay from the surface to the bottom. All backhoe trenches were profiled in the field and examples appear as Appendix II to this report.

Much of the area has been disturbed through existing structures and other improvements as well as oil and gas wells and pipelines. These were photographed to document the disturbed nature of the project area. The negatives of these photographs are housed at BVRA.

The artifacts were examined in a laboratory setting by William A. Dickens (lithics) and Linda Wootan Ellis (ceramics). The results of the lithics analysis are presented in Appendix III, and the ceramics study is presented in Appendix IV.

RESULTS AND CONCLUSIONS

Although a review of the literature revealed that significant prehistoric and historic sites are present in Brazoria County, the site records at TARL yielded no previously recorded archaeological sites in the project area and immediate vicinity. One previously recorded prehistoric site (41BO166) is located on the west bank of Chocolate Bayou approximately 1800 meters north of the current project area and is the nearest recorded site to the area investigated during this study. This site, recorded by James E. Warren yielded paleontological specimens in a lower stratum and lithic debitage in an upper stratum in a disturbed area along the bayou (Jim Warren, personal communication, May 10, 2000).

Five prehistoric sites were found in the project area (see Appendix V for a map of the site locations and shovel tests and probes). They were designated in the field as temporary sites 1-5 and later changed to 41BO206 - 41BO210 when recorded at TARL. The five sites are classified in this report as special activity areas where specific tasks such as tool manufacture and repair were performed as well as providing a base for subsistence activities such as food preparation, plant gathering, and hunting. The argument for tool manufacture and repair is based on the presence of lithic debitage ranging from primary to tertiary flakes. Subsistence activities are supported by the presence of pottery, an end scraper, and an arrow point.

Site 41BO206 was identified during the survey based on the recovery of flakes, an arrow point, and ceramics from three shovel tests. This site is situated on a low sandy terrace or knoll adjacent to Oxbow Lake "A" in the northwestern part of the project area. Artifacts were found between 10 and 90 cm below the existing ground surface. It appears that 41BO206 may be a single component site dating to the Late Prehistoric period. Based on the presence of a *Catahoula* arrow point (Figure 5a), this site dates from A.D. 700 to A.D. 1100 (Turner and Hester 1985:168). The presence of sandy paste pottery at the site is also an indicator of a Late Prehistoric occupation (Appendix IV). The positive tests were surrounded by negative shovel tests and probes and one backhoe trench resulting in a site area of approximately 20 meters in diameter.

Although a pipeline supposedly crosses this site, all of the shovel tests excavated in the site area were in undisturbed soil. It is believed that 41BO206 is an intact site that may contain significant research potential and should be tested if avoidance is not possible. This area will not be affected by the proposed construction at Camp Mohawk County Park.



Figure 5. (a) *Catahoula* Point from 41BO206; (b) End Scraper from 41BO208

Site 41BO207 was identified during the survey based on the recovery of flakes and ceramics from two shovel tests. This site is situated on a high sandy bank overlooking Oxbow Lake "A" in the northwestern part of the project area. Artifacts were found between 10 and 30 cm below the existing ground surface, and Shovel Test 18 yielded one flake between 0 and 15 cm at which point clay was encountered. The presence of pottery at the site is an indicator of a Late Prehistoric occupation; possibly post A.D. 1000 (Appendix IV). The positive tests were surrounded by negative shovel tests resulting in a site area of approximately 40 meters in diameter.

All of the shovel tests were in undisturbed soil. A road passes through the western edge of the site. Because of the proximity of the site to the edge of the high bank overlooking the oxbow lake, it is assumed that part of the site may have eroded into the lake at sometime in the past. Therefore, it is not believed that site 41BO207 is 100% intact; however, the shallow nature of the site suggests it may be a single component site. It is believed that 41BO207 may contain significant research potential and should be tested if avoidance is not possible. This area will not be affected by the proposed construction at Camp Mohawk County Park.

Site 41BO208 was identified during the survey based on the recovery of an end scraper (Figure 5b), flakes, and ceramics from two shovel tests. The site is situated on a high sandy bank overlooking Oxbow Lake "A" in the northwestern part of the project area. Artifacts were found between 10 and 30 cm below the existing ground surface; clay was encountered between 20 and 30 cm. The presence of bone-tempered and bone-and-grog tempered ceramics at the site are consistent with Late Prehistoric sites dating to post A.D. 1400 (Appendix IV). The positive tests were surrounded by negative shovel tests resulting in a site area of approximately 20 meters in diameter.

All of the shovel tests were in undisturbed soil. A road passes to the west of the site, and it is believed (based on shovel tests) that the site does not extend this far. Because of the proximity of the site to the edge of the high bank overlooking the oxbow lake, it is assumed that part of the site may have eroded into the lake at sometime in the past. Therefore, it is not believed that site 41BO208 is 100% intact; however, the shallow nature of the site suggests it may be a single component site. It is believed that 41BO208 may contain significant research potential and should be tested if avoidance is not possible. This area will not be affected by the proposed construction at Camp Mohawk County Park.

Site 41BO209 was identified during the survey based on the recovery of flakes and ceramics from one shovel test. The site is situated on a pimple mound adjacent to Oxbow Lake "B" in the southwestern part of the project area. Artifacts were found between 10 and 30 cm below the existing ground surface; clay was encountered at 40 cm. The presence of sandy paste ceramics at the site is an indicator of a Late Prehistoric occupation (Appendix IV). Because of the small size of the site (10 meters in diameter) on a well-defined landform only one shovel test was excavated.

The single shovel test was in undisturbed soil, and it is believed that the site is 100% intact except for a single rodent burrow. Because of the shallow nature of the cultural materials, 41BO209 may be a single component site. It is believed that this site may contain significant research potential and should be tested if avoidance is not possible. This area will not be affected by the proposed construction at Camp Mohawk County Park.

Site 41BO210 was identified during the survey based on the recovery of two flakes from one shovel test. The site is situated on a pimple mound adjacent to Oxbow Lake "B" in the southwestern part of the project area. Artifacts were found between 10 and 30 cm below the existing ground surface; clay was encountered at 50 cm. No ceramics or other diagnostic artifacts were found; therefore, the age of this site is not known. Because of the small size of the site (10 meters in diameter) on a well-defined landform only one shovel test was excavated.

The single shovel test was in undisturbed soil, and it is believed that the site is 100% intact. Because of the shallow nature of the cultural materials, 41BO210 may be a single component site. It is believed that this site may contain significant research potential and should be tested if avoidance is not possible. This area will not be affected by the proposed construction at Camp Mohawk County Park.

Five apparently intact prehistoric sites were found in the project area. These sites represent part of a regional pattern of utilization that was present during the Late Prehistoric period of Texas prehistory. It is, therefore, important to view these sites from a holistic perspective and not as individual sites, some containing few artifacts. When the sites are treated as part of a greater occupation of the area, it makes sense to view them as significant. Another argument for significance is the fact that work by professional archaeologists along this segment of Chocolate Bayou (a major tributary of the region) has been sparse, and few sites have been recorded. Also, pimple mounds are vanishing at an alarming rate, mainly due to development of the areas where they are known to occur. In the project area we have two undisturbed examples that should be protected or tested for significance if they are to be affected by construction.

RECOMMENDATIONS

Five prehistoric sites (41BO206 - 41BO210) were found within the project area. These sites are believed to possess research potential, and it is recommended that they be subjected to Phase II significance testing if avoidance is not possible. According to Mark Hansen, Parks Director for Brazoria County, the five sites will be avoided. Plans for site avoidance are discussed in Appendix VI to this report. It is recommended that construction be allowed to proceed as planned in the remainder of the project area. It is always possible that archaeological sites are missed during any archaeological survey. Should evidence of a prehistoric or historic site in the project area not discussed in this report be discovered during construction, all work in this area must cease immediately until the Archeology Division, Texas Historical Commission can evaluate the situation.

REFERENCES CITED

- Aten, Lawrence E.
1983 *Indians of the Upper Texas Coast*. Academic Press.
- Biesaat, Lynne A., Wayne R. Roberson, and Lisa Clinton Spotts
1985 *Prehistoric Archeological Sites in Texas: A Statistical Overview*. Office of the State Archeologist, Special Report 28. Texas Historical Commission.
- Crenwelge, Gerald W., Jack D. Crout, Edward L. Griffin, Michael L. Golden, and Janet K. Baker
1981 *Soil Survey of Brazoria County, Texas*. United States Department of Agriculture, Soil Conservation Service.
- Howard, Margaret A., Martha Doty Freeman, and C. Britt Bousman
1992 *Archeological Reconnaissance in the Third Reach of the Clear Creek Flood Control Project, Galveston and Harris Counties, Texas*. Prewitt and Associates, Inc., Report of Investigations Number 85.
- Moore, William E.
1989 *Archeological Bibliography for the Southeastern Region of Texas*. Texas Historical Commission, Office of the State Archeologist, Special Report 31.
- 1990 *Abstracts in Texas Contract Archeology 1988*. Texas Historical Commission, Department of Archeological Planning and Review, Abstracts in Texas Contract Archeology 1.
- 1991 *Abstracts in Texas Contract Archeology 1987*. Texas Historical Commission, Department of Archeological Planning and Review, Abstracts in Texas Contract Archeology 2.
- 1992a *Abstracts in Texas Contract Archeology 1990*. Texas Historical Commission, Department of Archeological Planning and Review, Abstracts in Texas Contract Archeology 3.
- 1992b *Abstracts in Texas Contract Archeology 1991*. Texas Historical Commission, Department of Antiquities Protection, Abstracts in Texas Contract Archeology 4.
- 1993 *Abstracts in Texas Contract Archeology 1989*. Texas Historical Commission, Department of Antiquities Protection, Abstracts in Texas Contract Archeology 5.

Moore, William E. (continued)

1994 *Abstracts in Texas Contract Archeology 1992*. Texas Historical Commission, Department of Antiquities Protection, Abstracts in Texas Contract Archeology 6.

Patterson, Leland W.

1989 *A Data Base for Inland Southeast Texas Archeology*. Houston Archeological Society Report 6.

Turner, Ellen Sue, and Thomas R. Hester

1985 *A Field Guide to Stone Artifacts of Texas Indians*. Texas Monthly Press.

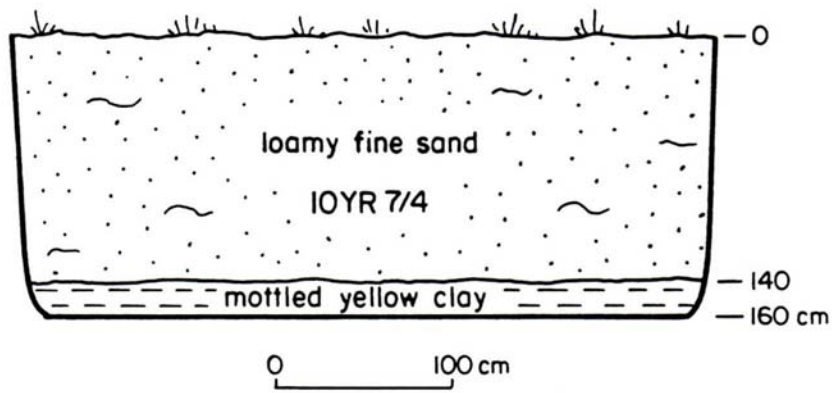
Appendix I: Shovel Test Log

Shovel Test	Depth	Diameter	Results
01	73 cm	30 x 50 cm	sterile (clay at 70 cm)
02	35 cm	30 x 50 cm	sterile (dug through fill and disturbed earth)
03	20 cm	30 x 50 cm	sterile (clay at 20 cm)
04	50 cm	30 x 50 cm	sterile (rusty iron pipe and unidentified pieces of rusty metal; clay at 50 cm)
05	10 cm	30 x 50 cm	sterile (clay at 5 cm)
06	55 cm	30 x 50 cm	3 flakes; 6 ceramics (clay at 50 cm) [41BO206]
07	53 cm	30 x 50 cm	12 flakes; 1 ceramic; 1 arrow point (clay at 48 cm) [41BO206]
08	10 cm	30 x 50 cm	sterile (clay at surface)
09	10 cm	30 x 50 cm	sterile (clay at 10 cm)
10	20 cm	30 x 50 cm	sterile (clay at 10 cm)
11	20 cm	30 x 50 cm	sterile (clay at 10 cm)
12	10 cm	30 x 50 cm	sterile (clay at surface)
13	10 cm	30 x 50 cm	sterile (clay at surface)
14	15 cm	30 x 50 cm	sterile (clay at 10 cm)
15	50 cm	30 x 50 cm	sterile (clay at 45 cm)
16	15 cm	30 x 50 cm	sterile (clay at 15 cm)
17	35 cm	30 x 50 cm	1 flake; 4 ceramics (clay at 30 cm) [41BO207]
18	15 cm	30 x 50 cm	1 flake (clay at 15 cm) [41BO207]

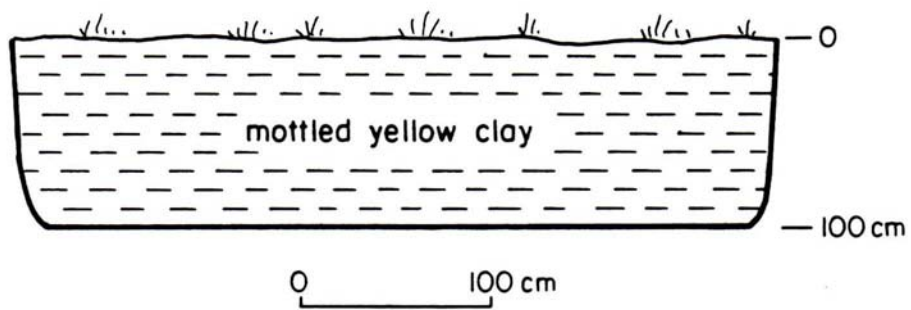
Shovel Test	Depth	Diameter	Results
19	05 cm	30 x 50 cm	sterile (clay at 5 cm)
20	20 cm	30 x 50 cm	sterile (clay at 20 cm)
21	20 cm	30 x 50 cm	sterile (clay at 20 cm)
22	25 cm	30 x 50 cm	3 flakes (clay at 25 cm) [41BO207]
23	10 cm	30 x 50 cm	sterile (clay at surface)
24	10 cm	30 x 50 cm	sterile (clay at surface)
25	10 cm	30 x 50 cm	sterile (clay at 10 cm)
26	15 cm	30 x 50 cm	sterile (clay at 12 cm)
27	20 cm	30 x 50 cm	sterile (clay at 20 cm)
28	20 cm	30 x 50 cm	1 end scraper; 5 flakes; 3 ceramics (clay at 20 cm) [41BO208]
29	35 cm	30 x 50 cm	5 flakes; 10 ceramics (clay at 30 cm) [41BO208]
30	15 cm	30 x 50 cm	sterile (disturbed; did not dig to clay)
31	10 cm	30 x 50 cm	sterile (clay at surface)
32	22 cm	30 x 50 cm	sterile (disturbed; did not dig to clay)
33	90 cm	30 x 50 cm	1 flake; 22 ceramics (did not dig to clay) [41BO206]
34	60 cm	30 x 50 cm	sterile (clay at 30 cm)
35	40 cm	30 x 50 cm	3 flakes; 2 ceramics (clay at 40 cm) [41BO209]
36	50 cm	30 x 50 cm	2 flakes (clay at 40 cm) [41BO210]

APPENDIX II
BACKHOE TRENCH PROFILES

Backhoe Trench I



Backhoe Trench 3



APPENDIX III: LITHIC ANALYSIS

Introduction

The survey conducted at Camp Mohawk by Brazos Valley Research Associates (BVRA) resulted in locating and testing five archaeological sites (41BO206 - 41BO210). All five sites are located along the margins of oxbow lakes, former channels of Chocolate Bayou. One site (41BO206) is located on a terrace or knoll adjacent to an oxbow lake in the northwest corner of the project area, two (41BO207 and 41BO208) are located on raised terraces overlooking the same oxbow lake, and two (41BO209 and 41BO210) are located on pimple mounds adjacent to an oxbow lake in the southeast corner of the project area. These sites yielded a total of one projectile point (41BO206), one edge modified blade/flake (41BO208); and 37 pieces of debitage: 41BO206 [n=17], 41BO207 [n=5], 41BO208 [n=10], 41BO209 [n=3], 41BO210 [n=2].

Lithic Analysis

The following is a discussion of the lithic artifacts recovered from each site. The analysis of flake debitage can be an invaluable tool in determining those activities and/or strategies conducted at a particular site. To accomplish this, a number of attributes were coded for and recorded for a statistical and comparative evaluation. The process began with size grading each flake. It has been determined that reductive processes and stages of reduction can be defined through the maximum size of a flake (Stahle and Dunn 1982:86); therefore, each flake was size graded through a series of eight nested screens. The screen sizes are: (1) 50 mm or 2 inches, (2) 37.5 mm or 1 1/2 inches, (3) 25 mm or 1 inch, (4) 19 mm or 3/4 inch, (5) 12.5 mm or 1/2 inch, (6) 9.5 mm or 3/8 inch, (7) 6.3 mm or 1/4 inch, and (8) less than 6.3 mm.

Additional debitage variables coded for included material type, presence of cortex, heat treatment, platform preparation, type of bulb of percussion, and flake termination. The type of material is useful in determining the method of material procurement, preparation, reduction, and ultimate artifact morphology (Dockall 1991). The presence and amount of cortex helps determine the type and degree of reduction applied to a core or flake. For example, most of the raw material from the project area are small chert gravels that are completely covered with a hard "rind" called cortex that is unsuitable for tool use. Thus, as the cobble is reduced, the cortex is also removed and, as the cobble is further reduced, the amount of cortex is proportionately reduced until finally removed. Three cortex stages have been established: (1) primary decortication flakes, or those whose platforms and most of the dorsal surfaces are completely with cortex; (2) secondary decortication flakes, or those partially covered with varying amounts of cortex on the platform and dorsal surface; and (3) interior or tertiary decortication flakes which are those having no cortex.

The identification of heat alteration can help determine whether purposeful annealing has occurred or if heating was from some other factor. The platform is the flat surface on top of the flake where the blow removing the flake was received (Whittaker 1994:14). These platforms are either natural (cortex covered) or prepared, and their use is a variable controlled by the knapper (Whittaker 1994:91). Thus, the recognition of platform types can help to further determine reduction strategies.

The type of bulb of percussion (a swelling immediately below the platforms) is usually an indicator of whether a hard hammer (stone) percussor or a soft hammer (bone, antler, or wood) percussor was used. Very prominent bulbs usually indicate hard hammer use, and more flattened or diffuse bulbs indicate soft hammer use (Whittaker 1994:185).

Finally, successful tool manufacture is dependant upon each successive flake removal. When a flake is removed from a core or biface, a "scar" is left on the core of the surface of the biface, and the type of termination of this scar can determine whether additional flakes can be removed with desired results. The most desirable termination type is known as "feathered," and flakes exhibiting feathered terminations contain distal and lateral edges that are thin and sharp. This flake type will allow additional flakes to be removed with few problems. However, "stack" or "hinge" terminations may prevent additional flake removal by failing to detach evenly or smoothly. Such terminations usually result in a buildup of material and/or diving into the surface forming "valleys," both of which could result in unsuccessful reduction and tool manufacture.

Results

41BO206: Shovel tests 6-7 and 33 yielded one projectile point and 17 pieces of debitage. The projectile point (see Figure 5a in the *Results and Conclusions* section of this report) is a small arrow point that can be classed as a *Catahoula*. It is typical of the type having recurved blade edges, wide flaring at the shoulder area, and squared barbs. The stem, which is missing in this example, usually is expanding, but occasionally straight-sided stems are encountered, and the basal edge is straight to convex. It dates to the Late Prehistoric between A.D. 700 and A.D. 1100 (Turner and Hester 1993:206; Davis 1995:202-203).

The debitage recovered was size graded and four fell within Grade 6 and 12 within Grade 7. One flake is a primary flake, 6 are secondary flakes, and 10 are interior flakes. Four contain natural platforms, and four have plain platforms with one that is strongly lipped; the rest being medial or distal fragments with no platforms remaining. Those containing bulbs of percussion include eight that are diffuse and one that is strong. Seven flakes can be classed as biface thinning flakes. Not one is heat altered, but one is crazed from post-manufacture burning. All of the materials used are regional gravels with some from the Brazos River and possibly the Colorado River.

These lithics suggest that some lithic reduction was preformed on the site. Since no bifaces or formal tools were recovered, except for a single arrow point, it is difficult to establish any specific type of tool manufacturing tasks present. The small size of the debitage, the biface thinning flakes, and the interior flakes with natural cortex covered platforms suggest middle to late stage biface reduction and tool rejuvenation tasks were preformed. The reduction of gravels, especially small-sized gravels once common in the region, usually requires that the lateral edges not be reduced until final thinning to preserve as much width as possible. Therefore, some of the lateral cortex will be retained until the last thinning stage and, as a result, will often be found on some platforms (Dickens 1993:134-136). Tool rejuvenation may require extensive tool remaking or may be as simple as edge sharpening or re-shaping, all of which usually result only in small flake debitage.

41BO207: Shovel tests 17-18 and 22 at this site resulted in the recovery of five flakes. These included 2 size grade 5, 1 size grade 6, and 2 size grade 7 flakes. One is a secondary flake, and the other four are interior. Only one contains a platform (which is natural) cortex covered with a diffuse bulb. Those flakes with distal terminations include 2 feathered, 1 hinged, and 1 overshot. One flake can be classed as a biface thinning flake. All are made of local gravels, and no burning is indicated.

The artifact recovery at this site is small with no diagnostics recovered. The few pieces of debitage found suggest activities in lithic maintenance represented here are similar to those at 41BO206. The single flake with a cortex platform and the various termination types from the other flakes, as well as the biface thinning flake, all suggest the probability that middle to late stage biface reduction and/or tool maintenance activities had occurred here.

41BO208: Shovel tests 28 and 29 at this site recovered one utilized flakes and ten flakes. The utilized flake is an end scraper made on a small flake with a prominent longitudinal dorsal ridge (see Figure 5b in the *Results and Conclusions* section of this report). This modified end is slightly curved downward, and the modification was preformed unifacially on the dorsal surface. Flakes having this ventral curve at the end of a flake and a longitudinal ridge on the dorsal surface (presumably for added strength) were often selected for use as thumb scrapers (Johnson 1997:222-223). Some minor abrasion and rounding are present on the modified edge, and the remaining portion is small, suggesting it was broken in use. Many of these tool types (end scrapers) were probably used for working with hides; however, the specific use of this particular piece cannot be determined.

The flakes included 3 Grade 5, 5 Grade 6, and 2 Grade 7 flakes. Six are secondary, and four are interior. Five have plain platforms with no preparation, 1 contains a strong bulb, and 4 are diffuse. Those with terminations include 4 feathered, 1 hinge, and 1 step. One lip flake and three biface thinning flakes are also represented. One flake is of opal or opalized wood, and the rest are of local gravels. One flake has been crazed from heat, and another is colored red on both of its surfaces from exposure to heat.

Activities indicated from these artifacts include middle to late stage biface reduction and tool maintenance tasks. The strong bulb of percussion indicates a hard hammer (stone) use, and the more diffuse bulbs of percussion indicate a soft hammer (bone, antler, or wood) use. However, diffuse bulbs can also be produced with a hard hammer. When the blow is light or "relaxed," the hard hammer is "dragged" over the platform, or the point of contact (platform) is struck by a wide or flattened hard hammer surface. Lipped flakes can also be produced in this same manner, but are more prevalent in the use of "softer" forms of hard hammers, such as some limestone. It is highly likely that a hard hammer was the primary reduction tool in use here, with final edge trimming and modifications accomplished through pressure flaking utilizing small antler or bone tools. Evidence for the latter would be very small flake debitage, size grades less than 7, none of which were recovered. The presence of an end scraper indicates that some subsistence or hunting activities were also conducted.

41BO209: The artifact recovery from this site (shovel test 35) comprises three flakes. One is size grade 5 and the other two are size grade 6. Two are secondary flakes, and one is an interior flake. Only one flake has a platform, which is plain with a diffuse bulb. No terminations are present, and no burning is indicated. All materials are of local gravels. The only activities represented by the debitage are some lithic reduction or tool maintenance tasks.

41BO210: The artifacts recovered (shovel tests 35 and 36) from this site are two flakes. Both are size grade 6. Two are secondary flakes, and one is an interior flake. The single platform represented is plain with a diffuse bulb and is lipped. The single termination is feathered and is a biface thinning flake. No burning is indicated, and all materials are from local gravels. Little can be said of the activities represented here. However, it is highly likely that those activities here (41BO210) are similar to those conducted at the other sites, especially 41BO209.

Discussion

The lithic analysis of the materials recovered from sites 41BO206 - 41BO210 indicate that typical reduction activities, tool maintenance tasks, as well as various subsistence activities were conducted on these sites. Many of the activities may have centered on hunting, plant gathering or other subsistence related tasks. The artifacts counts are small, but are sufficiently dense enough when considering these were recovered in 30 cm shovel tests, to expect that greater artifact densities may be present.

Pimple Mounds

At one time, pimple mounds were probably the most common type of site for archaeological remains in the region. These sandy mounds are geologic features that have origins in, at least, the late Pleistocene. The exact nature of their formation is still not clear, but it appears that some began formation in the Pleistocene, some have formed since, some still are, and supposedly will continue to form in the future. These mounds are usually 18 to 24 inches high and average 50 to 60 feet across. They appear to have been most abundant along watercourses, but they are also often found in areas devoid of streams. The very nature of these mounds makes them an important feature in the region. The sandy nature of their composition and the rise above the more flood prone terrain affords excellent protection from standing water, often very prominent in bottomlands throughout the region. Perhaps the earliest account of their usefulness was recorded by Nicolás de Lafora, who wrote a daily account of the Marqués de Rubí's 1767 *Inspection Tour of Northeastern New Spain* (Southeast Texas). At one point, approaching the Trinity River, in the vicinity of the Polk-Hardin-San Jacinto County line, Lafora recorded that they encountered an area where the ground was covered in water except for a number of flat-topped mounds, from 12 to 18 feet in diameter rising 3 to 6 feet above the water table. Passage through this area was considered impossible without the aid of these dry mounds, which served as resting places (Foster 1995:189).

Hundreds of sites containing thousands of these mounds once existed throughout the region, but over the last hundred years, expansion along all the regions major waterways has destroyed the majority of these sites. Local artifact collectors who know the worth of such sites have dug up many hundreds more. Archaeologists have traditionally ignored these sites due to their general overall low artifact yield, yet the very first archaeological dig in Harris County was conducted on a number of sites in the Addicks Reservoir by Joe Ben Wheat (1954). These sites were all sandy mounds, and these contained a very high density of cultural materials.

One problem with pimple mounds is they often have small artifact densities that attract little archaeological interest. Yet, many of these sites served for a multitude of small activities over a long period of time. The fact that mound formation, in many cases, may have also led to sporadic or only occasional use, due to an unsatisfactory low profile of a "young" mound. Some pristine mounds may have been visited any number of times, such as at Addicks Reservoir, while others were used only occasionally. Family units, for example, moving through the region could easily spread out and stay for a time on a number of mounds, conduct a number of subsistence related activities, and then move on. Small activity areas such as these probably made up the greatest number of sites in the coastal region of Texas. Therefore, the study of these sites, especially where groups of mounds exist, could easily provide a better picture of the region's prehistoric land use than is currently known.

It is not the purpose of this analysis to lead a campaign to save or study these mounds. However, since several were found in the project area and that these do contain cultural material, their value as an important regional site type should not be overlooked.

References Cited

Davis, Dan R. Jr.

- 1995 *Prehistoric Artifacts of the Texas Indians*. Pecos Publishing Company, San Antonio, Texas.

Dickens, William A.

- 1993 Tool Types, Reduction Strategies, and Local gravel: Analysis of Lithic Artifacts. In *The Brazos Valley Slopes Archaeological Project: Cultural resources Assessments for Texas A&M University Animal Science and Research Complex, Brazos County, Texas*, edited by Alston V. Thoms, pp. 113-144. Reports of Investigations Number 14. Archaeological Research Laboratory, Texas A&M University, College Station.

Dockall, John E.

- 1991 Chipped Stone technology at the NAN Ruin, Grant County, New Mexico. Unpublished Master's thesis, Department of Anthropology, Texas A&M University, College Station.

Foster, William C.

- 1995 *Spanish Expeditions Into Texas 1689-1768*. University of Texas Press, Austin.

Johnson, Jay K.

- 1997 Stone Tools, Politics, and the Eighteenth-Century Chickasaw in Northeast Mississippi. *American Antiquity* 62(2):215-230.

Stahle, David W., and James A. Dunn

- 1982 An Analysis and size Distribution of Waste Flakes from the Manufacture of Bifacial Tools. *World Archaeology* 14(1):84-97.

Turner, Ellen Sue, and Thomas R. Hester

- 1993 *A Field Guide to Stone Artifacts of Texas Indians*. Gulf Publishing Company, Houston, Texas.

Wheat, Joe Ben

- 1954 *The Addicks Dam Site: An Archaeological Survey of the Addicks Dam Basin, Southeast Texas*. River Basin Surveys Papers, Number 4, pp. 143-252. Smithsonian Institution Bureau of American Ethnology, Bulletin 154, Washington.

Whittaker, John C.

- 1994 *Flintknapping: Making and Understanding Stone Tools*. University of Texas Press, Austin.

APPENDIX IV

CERAMIC ANALYSIS: BY LINDA WOOTAN ELLIS

Ceramic Analyses – 41BO206, 41BO207, 41BO208, 41BO209

By Linda Wootan Ellis

This report describes 56 sherds recovered from four ceramic-bearing sites (41BO206, 41BO207, 41BO208, and 41BO209) identified during a survey of the Camp Mohawk area in Brazoria County. The site lies within a cultural area collectively referred to as the "Mossy Grove Culture/Tradition (Story 1990: Figure 39; see also Moore 1995a, 1995b)." In Story's (1990: 256) view, Mossy Grove sites depict both a general cultural pattern and a regional cultural tradition that partly parallels the Caddoan tradition to the north. As she points out (Story 1990: 256), this designation "is offered as a heuristic concept that links - and facilitates discussion of - a number of similar yet locally distinctive cultural developments (see also Moore 1995b:129-135)." Similarity of pottery is one of the uniting factors.

Within the greater Mossy Grove area, Aten (1983: Figure 11-1) has defined three relatively distinct archeological areas. Moving from east to west they are the Sabine Lake Area, the Galveston Bay area, and the Brazos Delta-West Bay area. The four sites, located in northeastern Brazoria County, all lie within the Brazos Delta-West Bay area.

Ceramic Description And Analysis

Initial sorting of the ceramics proceeded in two phases. First, each sherd was examined in an effort to identify all sherds that could be conjoined or confidently be determined to be part of the same vessel (i.e., fitters). Identifications were made on the basis of similarity in paste and/or distinctive surface modifications. Second, if sherds could be conjoined, it was noted whether the joined edges represented a "fresh break" (i.e., those broken during excavation or processing) or an "old break" (i.e., those broken prior to excavation). When fitters were identified, they were treated as single sherds for purposes of analysis. Treating fitters as single sherds served two purposes. First, it helped to avoid skewing the analysis toward attributes over-represented by multiple fragments of a single vessel. Second, it enabled a more accurate estimate of the minimum number of vessels represented in the recovered sherds.

During examination, 32 sherds were fitted with mates, reducing the sample size to 24. After fitters were identified, all undecorated body sherds with a maximum dimension of less than 3/8 inch were culled, counted, and recorded by provenience (Table 1). Size grading eliminated eight of the recovered sherds, leaving a total of 16 sherds in the analyzed sample.

The majority of the fitters have fresh breaks that occurred during excavation and/or laboratory processing. Based on their technological attributes and the fitter analysis, it is estimated that the 56 recovered sherds represent the remains of at least six separate vessels and possibly as many as 16.

Analysis

During analysis, the recovered sherds were characterized according to their technological style (i.e., the method of manufacture and execution used during the pottery manufacturing process) and their typological class. In all, 4 major technological attributes were recorded for each sherd in the analyzed sample: paste, surface treatment, decoration, and morphology. [For a detailed discussion of the potential usefulness of ceramic studies focusing on technological characteristics, as well as definitions of the major attributes, the reader is referred to Ellis (1992: Chapters 4 and 5; 1995; 1999)].

Paste Attributes

Sherds were microscopically examined under 10x20 power magnification and compared to a grain-size scale based on the Wentworth Scale (Wentworth 1933). Comparison of fresh breaks along the edge of each sherd enabled a determination of the presence or absence of non-plastic inclusions and predominant grain size. The paste categories established for this study are based on a consideration of those employed by Aten (1967, 1971, 1983) Ambler (1970, 1973), and Tunnell and Ambler (1967).

Microscopic examination of the 16 sherds in the analyzed sample indicates that 10 sherds (63%) were made from untempered sandy clays containing sand in the fine-to-very fine size range. Six sherds (37%) were the remnants of grog- and/or bone-tempered wares. Table 2 shows the count and percentage of paste types found at each site.

Exterior and Interior Surface Treatment

Both the exterior and interior surface of five of the recovered sherds were too weathered to accurately determine their original surface finish. Among the remaining 11 sherds, both the exterior and interior surfaces of eight sherds had been floated. One sherd had a floated exterior, but its interior surface was too eroded to accurately determine its original surface finish. On two sherds, both the exterior and interior surface had been smoothed. None of the sherds had been burnished. Tables 3 and 4 provide a breakdown of the various surface treatment attributes exhibited on sherds recovered from each site.

Form

Since so few whole vessels have been recovered in this region, vessel form is assessed primarily through the study of individual sherds. Toward that end, each sherd in the analyzed sample was classified according to its gross morphological category. The analyzed sample includes primarily body sherds (n=14). However, portions of two rim sherds were recovered at 41BO206. Unfortunately, the rim sherds were too fragmented to estimate vessel form or diameter.

Exterior and Interior Decorative Treatment

None of the sherds exhibited obvious decoration. Although the lip edge of one weathered rim may have been tick marked, it was too weathered to confidently determine with any degree of certainty.

Discussion

Table 5 lists the ceramic types found at each of the four sites. As can be seen, the majority (63%) of the sherds fit the typological definition of the *Goose Creek, Variety Unsp.* type.

Given the extremely small sample size, it is difficult to do more than describe the recovered ceramics. However, the presence of several distinctive paste types does allow for some tentative assumptions regarding the temporal span of at least two of the four ceramic bearing sites.

Sites 41BO206 and 41BO209 yielded only *Goose Creek, Variety Unsp.* sherds. The overall technology of these sherds lack any distinctive attributes that would differentiate them from any of the thousands of other *Goose Creek* sherds found throughout the region.

By contrast, the typological and technological attributes evidenced on sherds recovered from sites 41BO207 and 41BO208 suggest the presence of a somewhat different ceramic assemblage. At 41BO207, the presence of the *Baytown Plain, Variety San Jacinto* sherd points to a post A. D. 1000 occupation. At 41BO208, the presence of the bone-and bone-and-grog-tempered sherds is even more informative.

Bone-and-grog-tempered sherds are relatively rare in the Upper Texas Coastal region (see Aten 1983; Ellis 1992, 1995, 1999; Hall 1981; Nash *et al.* 1996; Weinstein 1991). If Aten's (1983: Figure 15.1) preliminary historical assessment of ceramic development in the Brazos Delta-West Bay area is reasonably accurate, then the presence of the bone-tempered sherds suggests an occupation date of post A. D. 1100. Although there are no known temporal correlates for the bone-and-grog-tempered sherds, their stratigraphic context at the Ernest Witte site, a site that has yielded the largest recorded number of bone-and-grog-tempered sherds, suggests a date of post A. D. 1400 (Hall 1981). Further, the presence of the

Baytown Plain, Variety *San Jacinto* sherd also supports a post A. D. 1000 date. Thus, elements of the ceramic evidence are consistent with the presence of a late prehistoric/proto-historic assemblage at 41BO208.

REFERENCES CITED

- Ambler, J. Richard
 1970 *Additional Archeological Survey of the Wallisville Reservoir Area, Southeast Texas*. Texas Archeological Salvage Project Survey Report 6. The University of Texas at Austin.
- 1973 *Excavations in the Trinity River Delta: The Lost River Phase*. Texas Archeological Survey, The University of Texas at Austin.
- Aten, Lawrence E.
 1967 *Excavations at the Jamison Site (41 LB 2), Liberty County, Texas*. Houston Archeological Society Report No. 1.
- 1971 *Archeological Investigations at the Dow-Cleaver Site, Brazoria County, Texas*. Texas Archeological Salvage Project Technical Bulletin No. 1. The University of Texas at Austin.
- 1983 *Indians of the Upper Texas Coast*. Academic Press, New York.
- Ellis, Linda Wootan
 1992 *Technological Style in Upper Texas Coastal Ceramics: A Case Study from Site 41HR616, Harris County, Texas*. Unpublished Master's thesis, Department of Anthropology, The University of Texas at San Antonio.
- 1995 *Ceramic Analysis*. In *Archeological Data Recovery Excavations at the Kingwood Site, 41HR616, Harris County, Texas*, edited by R. G. Moore, pp. 97-165. Report of Investigations Number 100. Moore Archeological Consulting, Houston.
- 1999 *Ceramics from the Figure Four Lake Site (41FB255)*. In *Data Recovery Excavations at the Figure Four Lake Site, Fort Bend County, Texas*. Report submitted to Robert Rogers, P. B. S. & J. Consulting, Austin, Texas. (Draft)
- Hall, Grant
 1981 *Allens Creek: A Study in the Cultural Prehistory of the Lower Brazos River Valley, Texas*. Texas Archeological Survey Research Report No. 61. The University of Texas at Austin, Austin.
- Moore, Roger G.
 1995a *Archeological Data Recovery Excavations at the Kingwood Site, 41HR616, Harris County, Texas*, Report of Investigations Number 100. Moore Archeological Consulting, Houston.
- 1995b *The Mossy Grove Model of Long-term Forager-Collector Adaptations in Inland Southeast Texas*. Unpublished PhD dissertation. Department of Anthropology. Rice University, Houston, Texas.
- Nash, Michael A., Linda Wootan Ellis, Robert M. Rogers, Patricia E. McCoy, Elizabeth A. Skokin, Leonard R. Voellinger
 1996 *Archaeological Data Recovery on the Jones Lake Site (41BO79) Brazoria County, Texas*. EH&A Document #950876, Espey, Huston, and Associates, Inc., Austin, Texas.

Story, Dee Ann

- 1990 Cultural History of the Native Americans. In *The Archeology and Bioarcheology of the Gulf Coastal Plain: Volume 1*. by Dee Ann Story, Janice A. Guy, Barbara A. Burnett, Martha Doty Freeman, Jerome C. Rose, D. Gentry Steele, Ben W. Olive, and Karl J. Reinhard. pp. 163-366. Arkansas Archeological Survey, Fayetteville, Arkansas.

Tunnell, Curtis D., and J. Richard Ambler

- 1967 Archeological Excavations at Presidio San Agustin de Ahumada. Texas State Building Commission Archeological Report 6. Austin, Texas.

Weinstein, Richard A.

- 1991 *Lido Harbor (41GV82): A Late Prehistoric Campsite and Extraction Locale, Galveston County, Texas*. Coastal Environments, Inc., Baton Rouge, Louisiana.

Table 1: Ceramic Recovery By Sites					
	41BO206	41BO207	41BO208	41BO209	Total:
Total # of Sherds Recovered:	37	4	13	2	56
# of Fitted Sherds:	28	2	2	0	32
Post-Fit Total:	9	2	11	2	24
Sherdlets Removed From Analysis:	2	0	5	1	8
Total # of Sherds in the Analyzed Sample:	7	2	6	1	16

Table 2: Paste Types By Sites						
Site	Fine Sandy Paste	Very Fine Sandy Paste	Grog Embedded in a Very Fine Sandy Paste	Bone-and-Grog Embedded in a Very Fine Sandy Paste	Bone Embedded in a Very Fine Sandy Paste	Grand Total
41BO206	1	6				7
41BO207		1	1			2
41BO208		1	1	2	2	6
41BO209	1					1
Total:	2	8	2	2	2	16

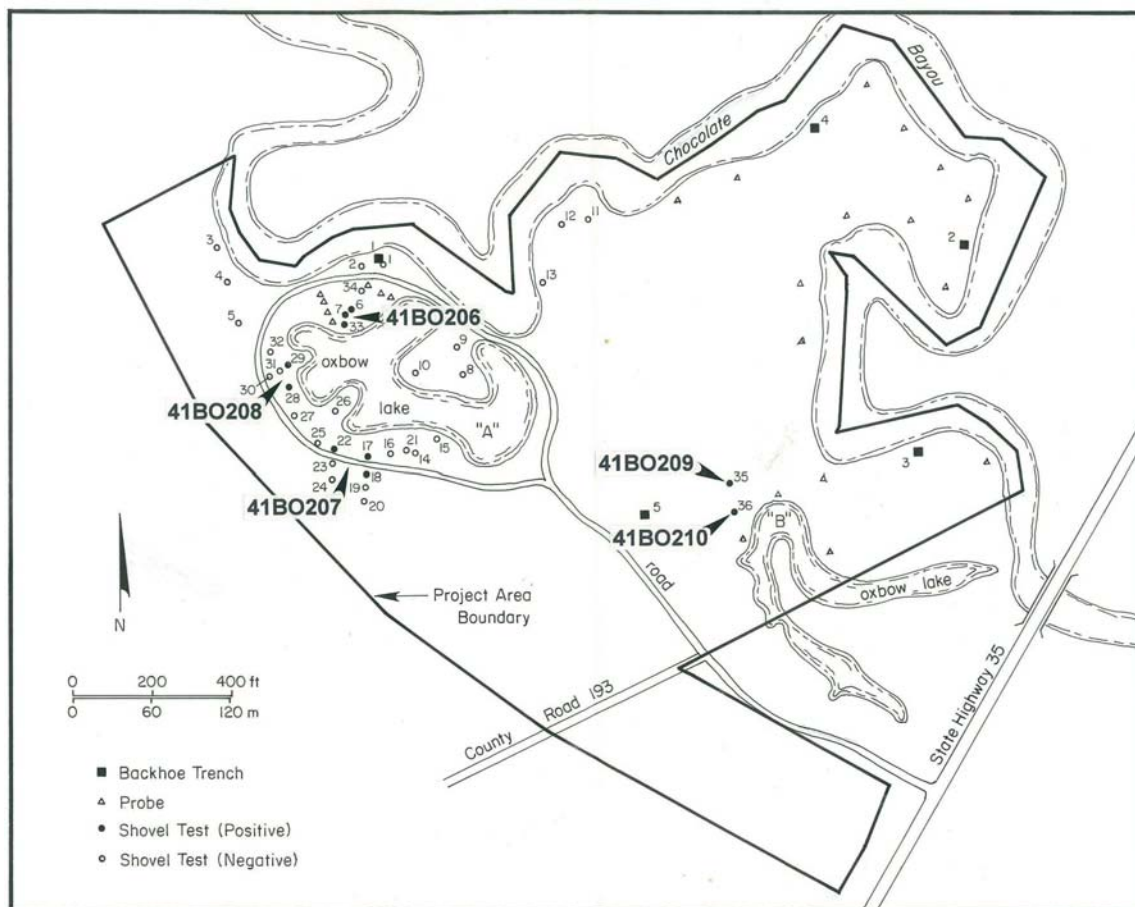
Table 3: Exterior Surface Treatment Attributes By Site				
Site	Smoothed/ Unburnished	Floated/ Unburnished	Indeterminant	Grand Total
41BO206		7		7
41BO207		1	1	2
41BO208	1	1	4	6
41BO209	1			1
Total:	2	9	5	16

Table 4: Interior Surface Treatment Attributes By Site				
Site	Smoothed/ Unburnished	Floated/ Unburnished	Indeterminant	Grand Total
41BO206		7		7
41BO207	1		1	2
41BO208		1	5	6
41BO209	1			1
Total:	2	8	6	16

Table 5: Ceramic Types By Sites					
Site	Goose Creek Plain, Variety Unspecified	Baytown Plain, Variety San Jacinto	Bone-and-Grog Tempered, Type Usp.	Bone-Tempered, Type Usp.	Grand Total
41BO206	7				7
41BO207	1	1			2
41BO208	1	1	2	2	6
41BO209	1				1
Total:	10	2	2	2	16

APPENDIX V

MAP OF SITES AND SHOVEL TESTS AND PROBES



APPENDIX VI
SITE AVOIDANCE PLANS

AFFECTS OF PROPOSED CONSTRUCTION

41BO206

This site is on a low sandy terrace or knoll adjacent to the margin of the main Oxbow Lake and is covered with grass and trees. It is between the lake and an adjacent, existing paved road. There are no plans for construction in this area as depicted on the *Site Plan: Existing Conditions, Proposed Facilities & Future Facilities* prepared by Duke Landscape Architecture + Planning. The site will remain a grassy area as confirmed by Mr. Hansen (personal communication to William E. Moore, June 1, 2000). The paved road, which does not affect the site area, will remain as is and will not be widened. No temporary or permanent easements are planned in this area.

41BO207

This site is located on a high sandy bank overlooking the main oxbow lake and is covered with some grass and a few trees. The main site area is between the edge of the bank and an adjacent existing, paved road. Shovel test 18, which produced 1 flake and clay at 15 cm, is on the other side of the road, but this is the only positive test found in this area. According to the *Site Plan: Existing Conditions, Proposed Facilities & Future Facilities* prepared by Duke Landscape Architecture + Planning, a wooden pier will be constructed on the lower terrace below the site. Access to the site will be by a trail that will be built up on the existing surface and wooden steps to the terrace below.

The site area will remain intact as confirmed by Mr. Hansen (personal communication to William E. Moore, June 1, 2000). The paved road, which passes through the southern edge of the site, will remain as is and will not be widened, and no temporary or permanent easements are planned for this narrow strip of land overlooking the lake. If there is a change in plans you will be notified immediately.

41BO208

This site is located on a high sandy bank overlooking the main oxbow lake and is covered with some grass and a few trees. The entire site, based on shovel testing, is between the edge of the bank and an adjacent existing, paved road. There are no plans for construction in this area as depicted on the *Site Plan: Existing Conditions, Proposed Facilities & Future Facilities* prepared by Duke Landscape Architecture + Planning. The site area will remain intact as confirmed by Mr. Hansen (personal communication to William E. Moore, June 1, 2000). The paved road will remain as is and will not be widened, and no temporary or permanent easements are planned for this narrow strip of land overlooking the lake.

41BO209

This site is located on a pimple mound in the wooded, natural area of the park. It is in an area where the only proposed improvements are a trail that will transport visitors through this interesting part of the park. The path of the trail as depicted on the *Site Plan: Existing Conditions, Proposed Facilities & Future Facilities* prepared by Duke Landscape Architecture + Planning is tentative and subject to change. According to Mr. Hansen, the route of the trail will be planned with avoidance of site 41BO209 in mind (personal communication to William E. Moore, June 1, 2000). It is important to note that construction of the trail will be built up on the existing surface and, no matter where it is placed; it will not affect the subsurface of the area.

41BO210

This site is located on a pimple mound in the wooded, natural area of the park. It is in an area where the only proposed improvements are a trail that will transport visitors through this interesting part of the park. The path of the trail as depicted on the *Site Plan: Existing Conditions, Proposed Facilities & Future Facilities* prepared by Duke Landscape Architecture + Planning is tentative and subject to change. According to Mr. Hansen, the route of the trail will be planned with avoidance of site 41BO210 in mind (personal communication to William E. Moore, June 1, 2000). It is important to note that construction of the trail will be built up on the surface and, no matter where it is placed; it will not affect the subsurface of the area.

Summary

It is the intention of Brazoria County to avoid all five archaeological sites present within the boundaries of Camp Mohawk County Park. The only site that may be affected is 41BO207. Should this be the case, Brazoria County is agreeable to additional shovel testing or significance testing prior to construction of the proposed elements that will affect the site.