AN ARCHAEOLOGICAL SURVEY FOR THE CGG VERITAS' MIDDLETON RANCH 3-D SEISMIC SURVEY IN CHAMBERS COUNTY TEXAS

Permit Number
SWG-2009-01025

By
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Brazos Valley Research Associates
Contract Report Number 246

2010

AN ARCHAEOLOGICAL SURVEY FOR

CGG VERITAS' MIDDLETON RANCH 3-D SEISMIC SURVEY

IN CHAMBERS COUNTY, TEXAS

BVRA Project Number 10-21

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2010

ABSTRACT

An archaeological survey of a high probability area that was identified in a previous avoidance plan for the Middleton Ranch 3-D seismic survey project in Chambers County, Texas was examined by Brazos Valley Research Associates (BVRA) and Dixie Environmental Services Co., LP (DESCO). This study was carried out on July 20-23, 2010 for CGG Veritas of Houston. The permit application number for this project is SWG-2009-01025. The area investigated consisted of seventy-one source point locations within an 890-acre tract. These areas are approximately thirty square meters in size, and the total number of acres for the areas physically investigated during this project is sixteen. No prehistoric or historic sites were found, and no artifacts were collected. Copies of the final report are on file at the United States Army Corps of Engineers, Galveston District (USACE), Texas Historical Commission (THC), Texas Archeological Research Laboratory (TARL), the Texas State Library, CGG Vertias, DESCO, and BVRA.

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FIGURES

DEFINITION OF STUDY AREA

CGG Vertias of Houston, Texas plans to drill at seventy-one selected source points in a portion of a high probability area established during the preparation of the Middleton Ranch 3-D seismic project avoidance plan entitled *Low Impact Methodology and Cultural Resources Avoidance Plan for CGG Veritas' Middleton Ranch 3-D Seismic Project in Chambers County, Texas* by William E. Moore and Edward P. Baxter (2009). The general location of the current survey and the area included in the previous avoidance plan are depicted in Figure 1 below. A stipulation of the avoidance plan was that an archaeological survey should be performed at any source point locations selected to be drilled in any areas determined to be high probability for an archaeological site as a result of the avoidance plan. The size of the areas investigated for this project consisted of a thirty square meter area centered on each of the source point locations (sixteen acres). The current project area for this archaeological survey is depicted on the USGS 7.5' topographic quadrangle Anahuac (2994-342) (Figure 2).

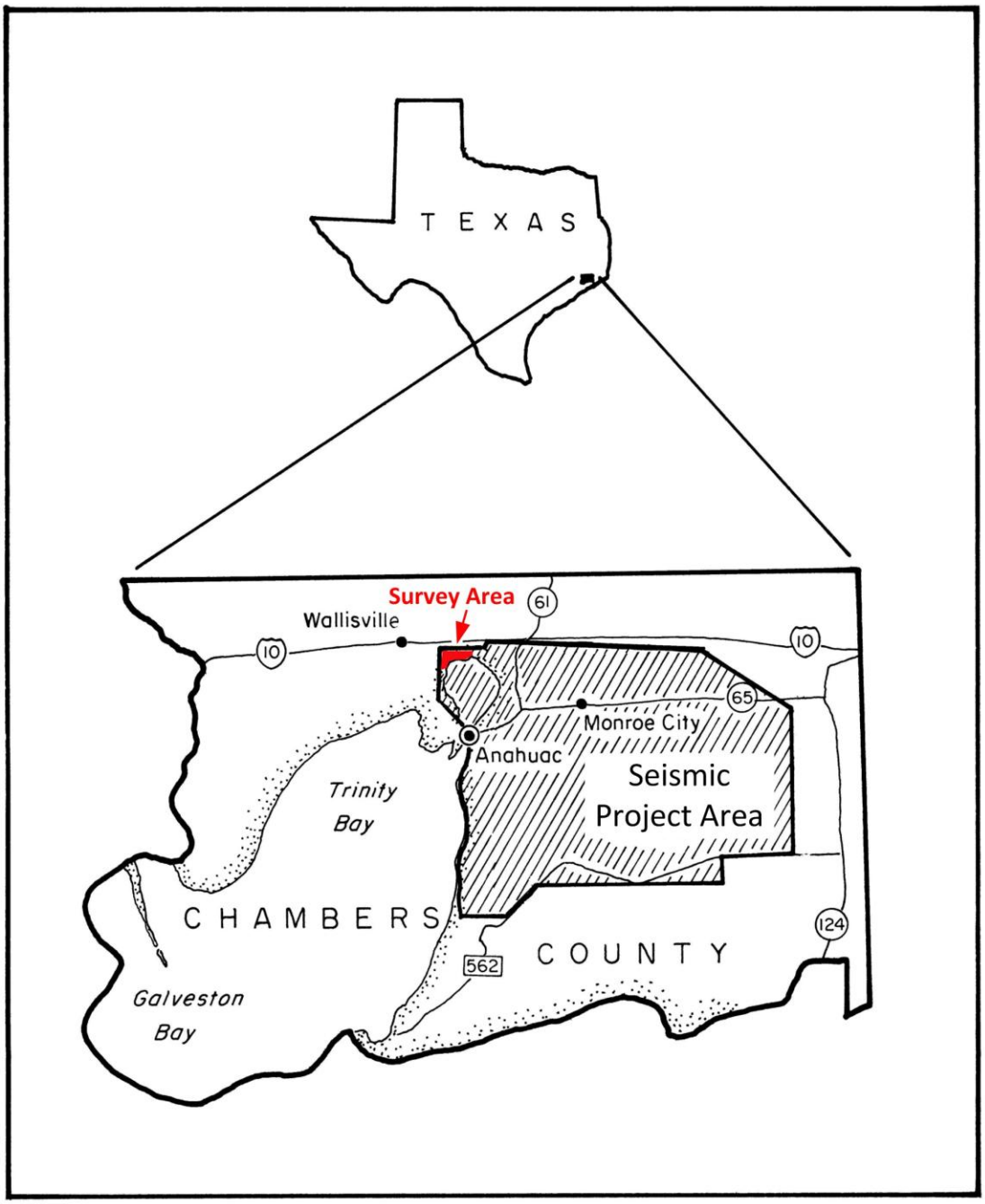

Figure 1.General Location

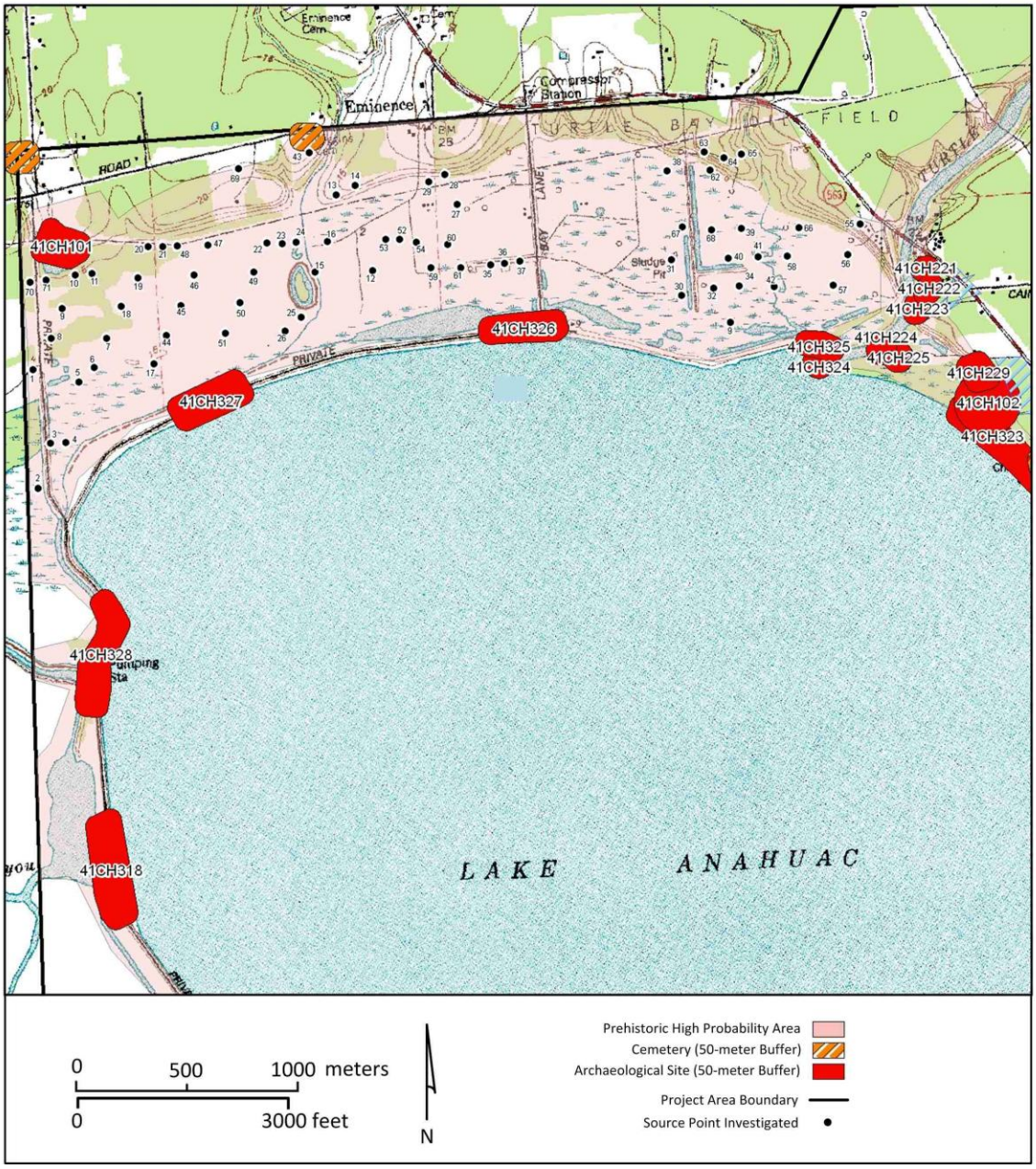

Figure 2. Project Area on Topographic Quadrangle Anahuac

MANAGEMENT SUMMARY

This project was performed in order to identify any cultural resources that might be present at selected source point locations within a high probability area previously identified during the earlier avoidance plan for CGG Veritas of Houston, Texas. The seismic project area covered by the avoidance plan is depicted in Figure 3 of this report. William E. Moore was the Principal Investigator, and Edward P. Baxter was the Project Archaeologist. The field survey crew consisted of Phillip C. Bishop and J. P. Washington. The field survey involved 50 person hours and was performed on July 20-23, 2010. The regulatory agency is the USACE, and Jerry L. Androy is the agency representative for this project. This project will also be reviewed by the THC.

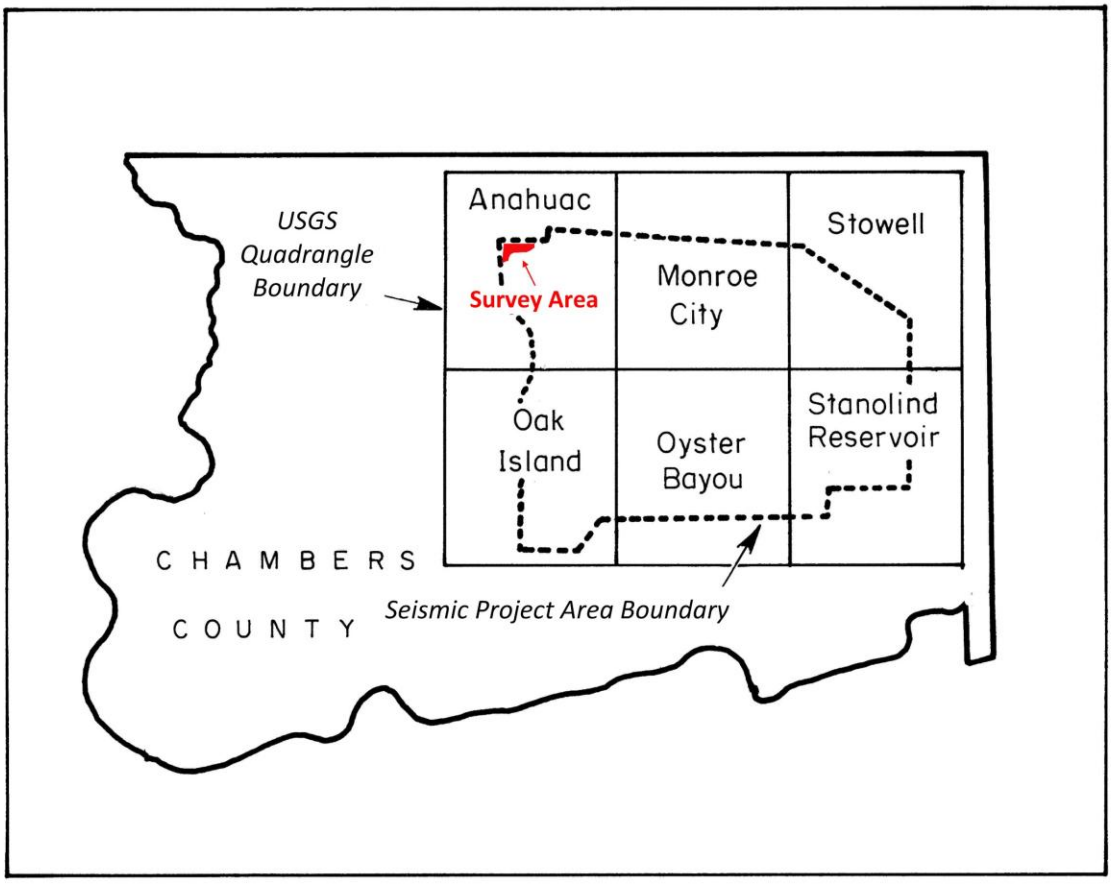

Figure 3. Topographic Coverage of Project Area

CULTURAL CHRONOLOGY

The project area is located in the Southeastern Region of Texas as defined by the Texas Historical Commission (Figure 4). Detailed summaries of Southeast Texas prehistory have been prepared by various researchers with the most notable examples being the scholarly works by Lawrence E. Aten (1983a, 1983b) and Dee Ann Story, et al. (1990). In Ensor's (1991:5) prehistoric overview prepared for the Cypress Creek study, he states that the best chronological and stratigraphic data currently available for interpreting the successive cultural adaptations in Southeast Texas are found in the following sources: Wheat (1953), Shafer (1968, 1975, 1988), Patterson (1979, 1983), Hall (1981), Aten (1983b), and Ensor and Carlson (1988, 1989).

It is generally accepted by most archaeologists that Southeast Texas prehistory is divided into three basic prehistoric periods: Paleo-Indian, Archaic, and Late Prehistoric. Some archaeologists (Kotter 1981) believed that there was a Formative Period that existed prior to Historic contact. More specific to the project area, however, is the chronology discussed by Ambler (1970:4-7). His comments are inserted into the general chronology below.

Paleo-Indian Period

The common conception of the Paleo-Indian period is the time following the last ice age in North America when man wandered about the continent in pursuit of mega fauna such as mammoth, mastodon, and now-extinct species of bison. Although not much is known about their diet, plants and other smaller animals were probably as important to the Paleo-Indians as an occasional mammoth or other large animal. Sites with *in situ* deposits dating to this period are few in number in Southeast Texas. Paleo-Indians are also noted for the manufacture of unique and distinctive projectile points. In Southeast Texas, a variety of Paleo-Indian points have been found, with most of the specimens obtained through surface collections. Two of the best-known types associated with this period in Southeast Texas are *Clovis* and *Folsom*. The *San Patrice* point is viewed as a transitional type between the Paleo-Indian period and the emerging Archaic Period. Descriptions of these and other types discussed in this report are described in Turner and Hester (1985) and Suhm and Jelks (1962). In Southeast Texas, the Paleo-Indian period is thought to have lasted about 2000 years, from 10,000 B.C. to 8000 B.C. (Ensor 1991:8). There are no known sites dating to this period in the project area.

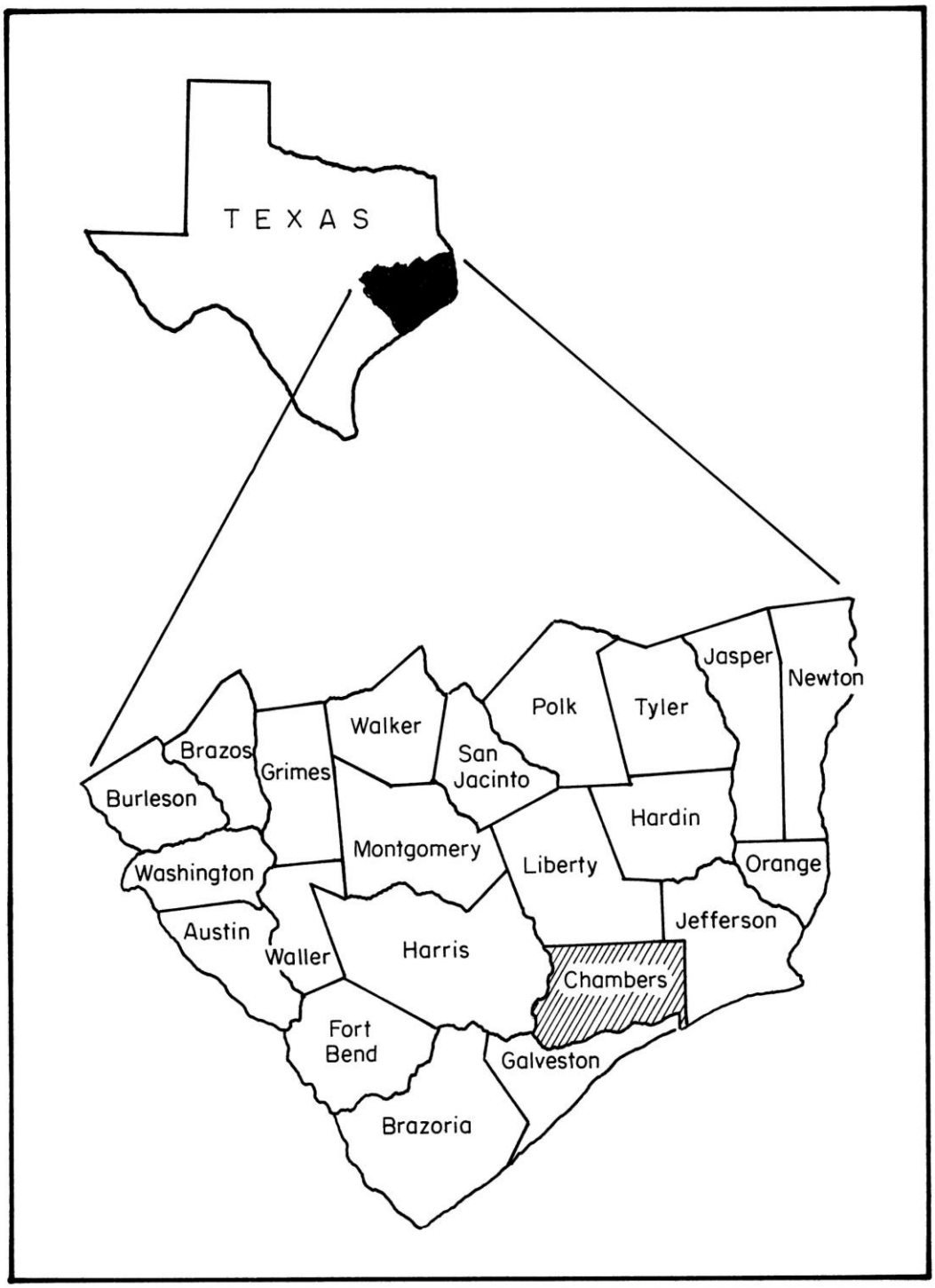

Figure 4. Southeastern Region of Texas
(after Moore 1989)

Archaic Period

The Archaic period is generally defined as the period following the extinction of Pleistocene mega fauna during which small bands of hunters and gatherers roamed the countryside in search of plants and animals. During this time the overall population increased as evidenced by a greater number of sites. This period is divided into the Early, Middle, and Late periods. According to Ambler (1970:5), the term Archaic is used to refer to the pre-ceramic components found at several sites in the Wallisville Reservoir area. Sites containing Archaic materials in the Wallisville area are, according to Ambler, few in number. Sites cannot be classified simply on the basis of an absence of ceramics, because some shell middens may lack artifacts completely, and the ceramics that were present on the surface could have been taken from the site by collectors. Subsurface testing is needed to make this determination. The presence of dart points at shell middens, especially the *Kent* type, is an indicator of an Archaic occupation. There are no known pure Archaic sites in the project area.

Late Prehistoric

This period, also referred to as the Neo-Archaic, is marked by the addition of arrow points and the use of ceramics. Kotter (1981:33) believes few, if any, changes in subsistence strategies occurred during this time. The association of *Gary* points and ceramics strengthens his argument. No direct evidence of horticulture is known from this region. He also states that the Late Prehistoric period probably continued to the time of Historic contact. Ensor (1991:8) separates the Neo-Archaic into Early and Late Ceramic periods with the Early Ceramic Period dating from A.D. 400 to A.D. 800, and the Late Ceramic Period dating from A.D. 800 to A.D. 1750. Cultural materials diagnostic of this period are common in the region. Late Prehistoric sites are found both along mainstream riverine and tributary environments indicating the same localities that were exploited during the Late Archaic Period were utilized. According to Ensor (1991:8), the Early Ceramic Period combines ceramics with *Godley, Gary,* and *Kent* dart points. Arrow points appeared during the latter part of the Late Prehistoric period beginning with *Catahoula* and *Frilley* types. Later, other types (from oldest to youngest) such as *Alba, Bonham, Scallorn, Perdiz,* and *Cliffton* were utilized. Pottery found at Late Prehistoric sites in the area consists of decorated and undecorated types with undecorated sandy-paste types being the most common. During the Late Prehistoric period in Southeast Texas there is a demonstrable relationship between this region and adjacent cultural areas. Trade and cultural borrowing with groups in East, North-Central, Southeast, and Coastal Texas is believed to have been present. Dates for this phase are estimated at A.D. 100 to A.D. 500 or later (Ambler 1970:5). Sixteen of the twenty-two prehistoric sites in the project area date to the Late Prehistoric period based on the presence of ceramics and arrow points. All of these sites are associated with shell middens that were probably occupied on a seasonal basis. Six of the shell middens did not yield diagnostic artifacts; therefore, the age of these sites is not known.

Formative Period

This stage is viewed by Kotter (1981:34) as a time when changes in social and economic organization occurred. These changes were accompanied by a dependence on agriculture. The presence of mound and village sites in the area is viewed as evidence of this period. However, if agriculture was practiced in the region it was probably not widespread. Sorrow and Cox (1973) believe that evidence of this stage in the region may exist due to the large number of sites in the Navasota River Basin containing ceramics. There are no sites associated with this period in the project area.

METHODS

During the development of the avoidance plan, the site records at the Texas Archeological Research Laboratory (TARL) and the Texas Archeological Sites Atlas were checked for the presence of previously recorded sites and other archaeological projects and surveys in the project area and vicinity. Not one of the points investigated was within fifty meters of any recorded cultural resource. Staked source point locations within the current project area were investigated by a surface inspection and shovel tests where appropriate. The majority of areas investigated were in settings where clay or water was present at or near the surface. Seventy-one source points were investigated. Forty-seven source points were investigated by a surface inspection and the remaining twenty-four were shovel tested (Figure 2). Shovel test depths ranged from 10 cm to 40 cm below the ground surface. Excavated earth from the tests was screened using ¼ inch hardware cloth, and the results documented on a field points of investigation log. The project was documented through a hand-held GPS, field notes, and digital photography.

RESULTS

During the process of preparing the avoidance plan, the site records at the Texas Archeological Research Laboratory were checked for the presence of known sites in the project area. The Texas Archaeological Sites Atlas (hereafter referred to as the Atlas) was checked for known sites and previous archaeological projects and sites in the project area and vicinity. Soils in the project area consist mainly of fine Spurger fine sandy loam (McB), Acadia silt loam (Ac), Harris clay (Ha), Kaman clay, frequently flooded (Ka), and two types of Vamont clay (VaA and VaB). Portions of the project area were in low-lying marshy areas, and this is illustrated in Figure 6. There are fifteen prehistoric sites in the vicinity of the current project area (Figure 2), and ten of these are located in close proximity to the source points investigated. Most of these sites are described by the recorders as shell middens. Not one of these will be affected by the seismic project as it is currently proposed. It is our opinion that the area investigated was probably not selected for habitation or other use by prehistoric groups because of better locations nearby and poor surface conditions.

Figure 5. View of Marsh in the Project Area

RECOMMENDATIONS

No evidence of a prehistoric or historic site was found as a result of this survey. It is, therefore, recommended that the client be allowed to proceed with seismic operations as planned. Should evidence of an archaeological site be encountered during drilling, all work must stop until the THC can evaluate the situation. This survey was conducted in accordance with the Minimum Survey Standards as outlined by the THC.

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Appendix I - Log of Points Investigated

Investigation Number	Source Point Number	Shovel Test Depth	Comments	Date
1	6692/1509	10 cm	edge of road (wet clay)	07/20/10
2	6684/1509	no test	marsh (mud and water)	07/20/10
3	6684/1510	no test	marsh (mud and water)	07/20/10
4	6684/1511	no test	marsh (mud and water)	07/20/10
5	6684/1512	no test	marsh (mud and water)	07/20/10
6	6684/1513	no test	marsh (mud and water)	07/20/10
7	6684/1514	no test	road bed (dredge spoil)	07/20/10
8	6692/1510	15 cm	mixed marsh (water at 10 cm)	07/20/10
9	6692/1511	no test	water (yupon and cypress)	07/20/10
10	6692/1512	10 cm	mud thicket (water at 5 cm)	07/20/10
11	6692/1513	no test	standing water	07/20/10
12	6652/1532	10 cm	marsh and marsh grass (clay at surface)	07/20/10
13	666/01530	40 cm	silty clay (0-32 cm)	07/20/10
14	6660/1531	25 cm	edge of road in pasture (clay at 20 cm)	07/20/10
15	6660/1528	no test	marsh (mud and water)	07/20/10
16	6660/1529	25 cm	edge of canal (levee spoil)	07/20/10
17	6676/1517	10 cm	marsh (mud present)	07/20/10
18	6684/1515	25 cm	silt loam (wet clay at 20 cm)	07/22/10
19	6684/1516	10 cm	wet clay at surface	07/22/10
20	6684/1517	20 cm	silt loam (wet clay at 15 cm)	07/22/10
21	6684/1518	no test	marsh (wet clay at surface)	07/22/10
22	6668/1525	no test	marsh (wet clay at surface)	07/22/10
23	6668/1526	10 cm	marsh (wet clay at surface)	07/22/10
24	6668/1527	10 cm	marsh (wet clay at surface)	07/22/10
25	6660/1527	10 cm	marsh (wet clay at surface)	07/22/10
26	6660/1526	no test	marsh and cypress (wet clay at surface)	07/22/10
27	6644/1538	no test	marsh (standing water)	07/22/10
28	6652/1537	15 cm	sandy loam (clay at 10 cm)	07/22/10
29	6652/1536	10 cm	wet clay at surface	07/22/10
30	6628/1545	no test	mud flat (silty soil and no vegetation)	07/22/10
31	6612/1552	no test	mud flat (silty soil and no vegetation)	07/22/10
32	6604/1555	10 cm	marsh (sandy clay)	07/22/10
33	6620/1548	no test	marsh (standing water)	07/22/10
34	6620/1549	no test	marsh (standing water)	07/22/10
35	6636/1540	no test	road bed (shell and rock dredge)	07/22/10
36	6636/1541	no test	road bed (shell and rock dredge)	07/23/10
37	6636/1542	no test	road bed (shell and rock dredge)	07/23/10
38	6620/1551	12 cm	base of slope (clay at 10 cm)	07/23/10
39	6604/1557	no test	pasture (wet clay at surface)	07/23/10
40	6604/1556	no test	marsh (standing water)	07/23/10
41	6620/1550	no test	marsh (standing water)	07/23/10
42	6596/1559	no test	marsh (standing water)	07/23/10
43	6668/1522	30 cm	mowed pasture (hydric (fe) clay loam)	07/23/10
44	6676/1518	no test	marsh (standing water)	07/22/10
45	6676/1519	no test	marsh (standing water)	07/22/10

Investigation Number	Source Point Number	Shovel Test Depth	Comments	Date
46	6676/1520	no test	marsh (standing water)	07/22/10
47	6676/1521	no test	marsh (standing water)	07/22/10
48	6684/1519	no test	marsh (standing water)	07/22/10
49	6668/1524	no test	marsh (standing water)	07/22/10
50	6668/1523	no test	marsh (standing water)	07/22/10
51	6668/1522	no test	marsh (standing water)	07/22/10
52	6652/1534	no test	marsh (standing water)	07/22/10
53	6652/1533	no test	marsh (standing water)	07/22/10
54	6652/1535	no test	marsh (standing water)	07/22/10
55	6588/1565	no test	road bed (shell and rock dredge)	07/22/10
56	6588/1564	no test	marsh (standing water)	07/22/10
57	6588/1563	no test	marsh (standing water)	07/22/10
58	6596/1560	no test	marsh (standing water)	07/22/10
59	6644/1536	no test	marsh (standing water)	07/23/10
60	6644/1537	no test	marsh (standing water)	07/23/10
61	6628/1546	no test	marsh (standing water)	07/23/10
62	6612/1555	30 cm	silt loam and sandy clay loam (clay at 25 cm)	07/23/10
63	6612/1554	40 cm	silt loam and sandy clay loam (clay at 32 cm)	07/23/10
64	6612/1556	25 cm	sandy loam (0-15 cm); clay at 20 cm	07/23/10
65	6612/1557	20 cm	sandy loam (0-10 cm); clay at 12 cm	07/23/10
66	6596/1561	no test	marsh (standing water)	07/23/10
67	6612/1553	no test	marsh (standing water)	07/23/10
68	6628/1547	no test	marsh (standing water)	07/23/10
69	6676/1523	17 cm	mottled hydric clay loam	07/23/10
70	6700/1509	no test	clay at surface	07/23/10
71	6700/1510	no test	clay at surface	07/23/10