HRA Gray and Pape
Cultural Resource Report

HRA Gray & Pape

INTENSIVE PEDESTRIAN CULTURAL RESOURCES SURVEY OF 74 ACRES ON BEHALF OF LDH ENERGY MONT BELVIEU L.P. IN CHAMBERS COUNTY, TEXAS

Lead Federal Agency:
The United States Army Corps of Engineers (USACE),
Galveston District

USACE Permit Application # SWG-2010-876

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ABSTRACT

HRA Gray & Pape, LLC was contracted by URS Corporation, Inc. on behalf of LDH Energy Mont Belvieu L.P. to conduct cultural resources survey of 4 block areas subsuming a total of 30 hectares (74 acres) in the city of Mont Belvieu, Chambers County, Texas. The Area of Potential Effects is defined as all 30 hectares (74 acres). This investigation was completed in compliance with United States Army Corps of Engineers permitting requirements.

This work was conducted to satisfy requirements set forth by the National Historic Preservation Act, specifically requirements set forth by 33 CFR Part 325, Appendix C - Procedures for the Protection of Historic Properties (Department of the Army 1973). All work was conducted following accepted standards set forth by the Texas Historical Commission and the Council of Texas Archeologists. The project is located entirely on privately owned properties; therefore, it did not require a Texas Antiquities Permit. Fieldwork was conducted in September 2010.

This report presents the results of intensive pedestrian cultural resources survey of 4 block areas subsuming a combined 30 hectares (74 acres) of private property. As a result of investigations, a total of 47 shovel tests were excavated. All shovel tests revealed clayey soils of Pleistocene age and were negative for cultural materials. No new or existing archaeological sites or historic-age structures were recorded within the Area of Potential Effects. Based on the negative results of survey, HRA Gray & Pape, LLC recommends no further work and that the proposed project be allowed to proceed as planned.

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1.0 INTRODUCTION

In September 2010, HRA Gray & Pape, LLC (HRA Gray & Pape) of Houston, Texas, at the request of URS Corporation, Inc., under contract with LDH Energy Mont Belvieu L.P. (LDH Energy) conducted intensive pedestrian cultural resources investigation on a combined 30 hectares (74 acres) of private property in Chambers County, Texas (Figure 1). This investigation was completed in compliance with United States Army Corps of Engineers (USACE) permitting requirements.

This work was conducted to satisfy requirements set forth by 33 CFR Part 325, Appendix C - Procedures for the Protection of Historic Properties (Department of the Army 1973). This Appendix establishes the procedures to be followed by the USACE to fulfill the requirements set forth in the National Historic Preservation Act of 1966, as amended (NHPA).

The goals of the cultural resources survey were to determine if land altering activities required to complete this project would affect any previously identified historic properties as defined by Section 106 of the NHPA of 1966, as amended (36 CFR 800), and to establish whether any previously unidentified cultural resources were located within the project's Area of Potential Effect (APE). Fieldwork and reporting activities were conducted following accepted standards set forth by the Texas Historical Commission (THC) and the Council of Texas Archeologists (CTA). The project is located entirely on privately owned properties; therefore, it did not require a Texas Antiquities Permit.

1.1 Project Description

The proposed project would include construction of: a pipeline from the existing LDH Energy Mont Belvieu facility, a fractionator facility with associated ancillary buildings and equipment, and a flare. Construction within this area will consist of clearing the necessary areas of vegetation, stripping most of the organics, establishing a minimum site grade to facilitate drainage using any excess soils and additional imported material, constructing foundations, installing equipment, constructing roadways, and sowing grass seed in non-process areas. The fractionator facility will be filled with a mixture of sand for general fill and clay suitable for structural support. Fifteen centimeters (6 inches) of fill will be placed across the facility site with 0.6 meters (2 feet) of fill in the equipment areas. Roads will be constructed within the fractionator facility footprint, and access to the site will be via existing roads. Stormwater and process water discharges will be made to an existing drainage ditch that is a tributary of Cedar Bayou.

The project consists of 4 block areas in Mont Belvieu, Texas near existing brine ponds, pipeline easements and other utility corridors, oil and gas fields, and industrial facilities. The project areas may be found on the *Mont Belvieu*, Texas United States Geological Survey topographic quadrangle map in Chambers County (Figure 1). The archaeological APE is defined as 30 hectares (74 acres), which includes all 4 block areas that make up the project.

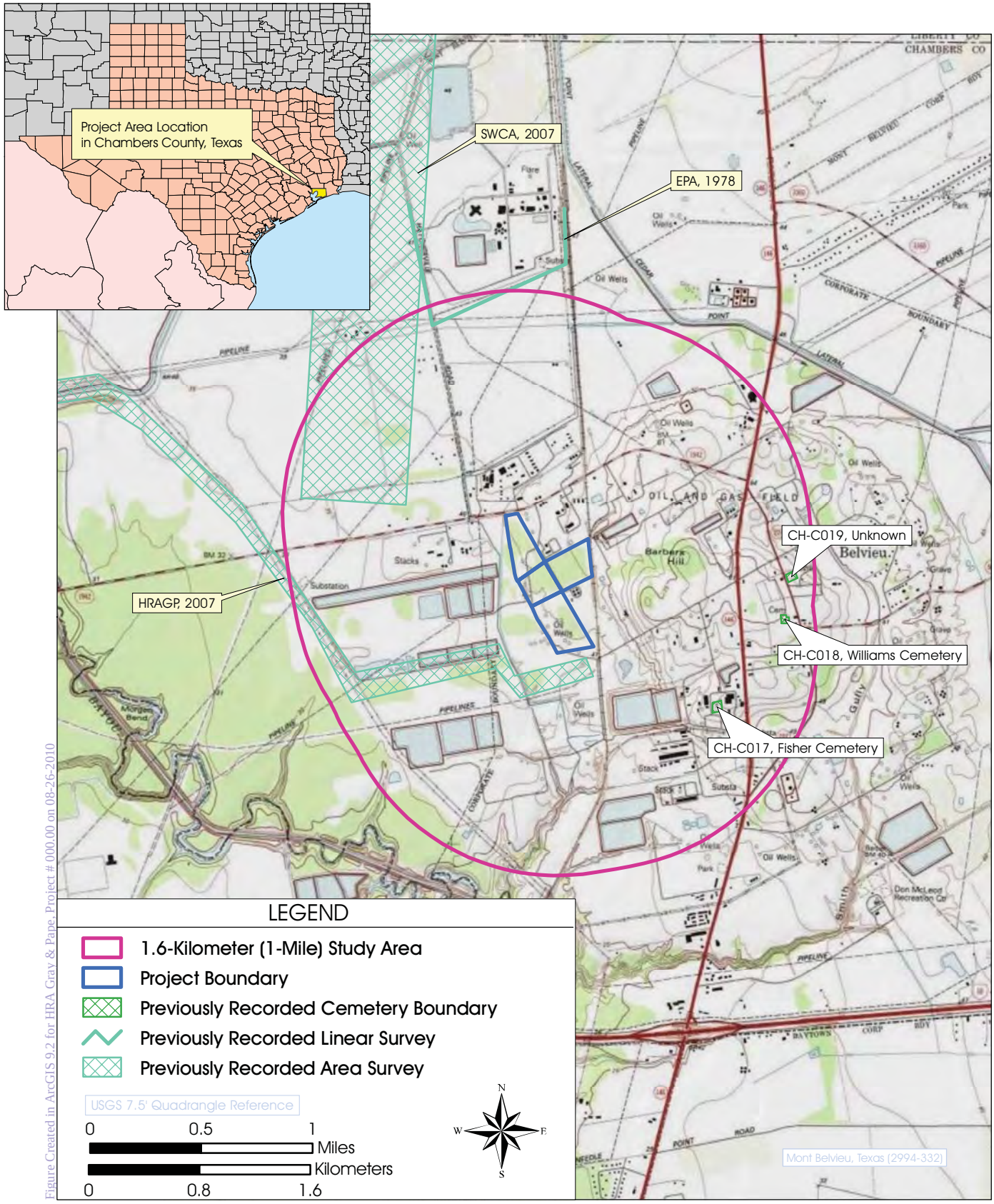

Figure Created in ArcGIS 9.2 for HRA Gray & Pape, Project # 000.00 on 08-26-2010

Project Area Location in Chambers County, Texas

HRA Gray & Pape LLC.

Figure 1

The project area is divided into 4 block areas that HRA Gray & Pape has labeled Block Areas A, B, C, and D. Block Area A is located in the northwest section of the APE and is approximately 7 hectares (18 acres) of property. The project area is described as a dense, wooded area with evidence of wetland vegetation. Gravel roads are located along the western boundary and running through the middle of the southern portion. The southern and eastern sides of the area are bounded by pipeline corridors.

Block Area B is located adjacent to Block Area A to the southeast and is approximately 4 hectares (11 acres) of property. The area is described as a dense, wooded area with evidence of wetland vegetation and the southeastern side of the area has remnants of Oil Waste. A gravel road runs along the western boundary of the area and pipeline corridors bound the northern, eastern, and southern sides. Block Area C is approximately 10 hectares (26 acres) of property and is located southeast and adjacent to Block Area B. The area is described as having wooded, wetland vegetation on the eastern side. Crout (1976) has recorded Oil Waste within the majority of the western side. The area has pipeline corridors along the northern, eastern, and southern boundaries and a gravel road along the western boundary. Block Area D is located adjacent to Block Area B on the eastern side. The area is approximately 8 hectares (19 acres) and is bounded by fence lines and pipeline corridors on the northern, western, and southern sides and Southern Pacific Railroad on the eastern side. The area is described as wooded and there are 2 cleared paths or "2-tract roads" running north-south on the western portion of the area.

1.2 Organization of the Report

This report is organized into 7 numbered chapters. Chapter 1.0 provides an overview of the project and summarizes the results of the field investigation. Chapter 2.0 presents an overview of the environmental setting and geomorphology of the project area. Chapter 3.0 presents a discussion of the cultural context associated with the project areas. Chapter 4.0 presents the research and field survey methods employed. The results of the research and field survey activities are presented in Chapter 5.0. A summary of the investigation and project management recommendations are provided in Chapter 6.0. Finally, Chapter 7.0 contains a list of literature references that are cited in the body of the report.

1.3 Acknowledgements

HRA Gray & Pape's Houston, Texas office completed the fieldwork and reporting for this project, which required approximately 96 person hours. Field Director Charles E. Bludau, Jr. led the field surveys with Crew Chief Jessica Bludau and archaeological field technicians David Treichel and Kenneth Fleming. Fieldwork was supervised by Principal Investigator Kristi Soltysiak and Project Manager James Hughey. Site file research was conducted by Charles E. Bludau, Jr. prior to mobilization and included consultation of on-line research archives maintained by the THC. Jessica Bludau prepared the content of this report with contributions by Kristi Soltysiak. Julia Balakirova prepared the graphics for this report. The report was produced by Jessica Bludau.

2.0 NATURAL SETTING

As part of the Western Gulf Coastal Plain, the environmental setting of the region is a combination of flat coastal zones and slightly rolling inlands set between eastern woodlands and western prairies (Finneman 1938). The entire area is associated with creeks, agricultural fields, marshlands, and urban or otherwise developed properties. Dunes, ridges, and incised stream channels break the flat topography of the coast, while upland terraces are at times dotted with natural sand mounds. The climate is mild with hot summers and warm winters with the occasional cold front bringing temperatures to around freezing. The region includes many vegetation zones. Those near the coast contain marsh, shortgrasses, and water-tolerant trees, while those further inland may include oak savannas, prairies, mixed hardwoods, and dense pines (Jones 1983).

2.1 Geomorphology

The Geologic Atlas of Texas, Beaumont Sheet, shows that the sediments underlying the proposed project area consist of Pleistocene deposits of the Beaumont Formation (University of Texas Bureau of Economic Geology [UT-BEG] 1982). The Beaumont Formation is dominated by clay and sand. Relict river channels shown by meander patterns characterize the Beaumont Formation. Pimple mounds on meanderbelt ridges, separated by low featureless deposits are also common (UT-BEG 1982).

2.2 Soils

Review of the Chambers County official soil survey indicates that the proposed project crosses several map units in Chambers County, Texas (Crout 1976). These include Beaumont clay, Morey silt loam, and Oil Waste. The soil textures of each are typically silty loam to silty clay or clay loam and contain few mottles. All of these soils are found on upland prairies and consist of loamy and clayey sediments of the Beaumont Formation. Soils considered somewhat poorly drained to poorly drained and maintain a high water table in the winter and early spring months.

Morey silt loam (Mo) (leveled) is a level to nearly level soil that is somewhat poorly drained. This soil is found on west side of the general project area. A typical profile for this soil is silt loam from surface to 31.38 centimeters (12 inches) underlain by silty clay loam down to 167.36 centimeters (64 inches) (Crout 1976).

Comprising the majority of the project area is Beaumont clay (Ba), which is a poorly drained, nearly level soil found in between the areas of the Beaumont - Urban Land Complex. The surface layer is dark gray to gray clay 53 centimeters (21 inches) thick. This layer gradually grades to become gray clay 100 centimeters (38 inches) thick. This then becomes a grayish brown clay mottled with light olive brown and strong brown to a depth of 185 centimeters (73 inches) (Crout 1976).

3.0 CULTURAL SETTING

3.1 Regional Prehistoric Overview

Most of the prehistoric cultural resources located near the coast between the Brazos River and Sabine Lake consist of shell middens found in estuaries or exposed in cutbanks along streams (Aten 1983; Patterson 1985). These middens usually contain faunal material as well as cultural remains such as lithic tools and pottery. Inland sites are less likely to consist of middens and are more similar to generalized open campsites. Sites of this type consist of little to no stratification due to a short occupation time, erosion, and land clearing. Thus, subsurface features are rare (Patterson 1985). In both areas, sites are most often found near stream channels.

3.2 Historic Overview of Chambers County, Texas

Chambers County was named for Thomas Jefferson Chambers and was formed in 1858 from portions of Jefferson and Liberty Counties. Prior to becoming a county, the land in this area was used by the French until they were driven from the area by the Spanish circa 1818. In 1821, Americans began settling the in the area (Williams 1986).

The economy of Chambers County was depended on rice and cotton agriculture, although later a sawmill and shipyard were constructed. The county's first post office was at Anahuac, and this was established in 1844. Chambers County voted to secede during the Civil War and many in the county were members of the military. During the Reconstruction Era, farming began to be replaced by ranching. A meat packing plant was built in Wallisville during the 1870s. The railroad did not reach the interior of the county until the late 1890s (Williams 1986).

Chambers County has suffered some hardships. A fire burned down the courthouse in 1875 and the county was hit by 2 hurricanes in 1875 and 1900. The county also suffered the smallpox epidemic in 1877. However, between 1880 and 1910 the population increased steadily. Around 1930, the oil boom hit Chambers County. The oil fields in the county provided jobs to the residents, which decreased the effects of the Great Depression on the county. In modern times, farming and oil still employ the majority of the county's residents (Williams 1986).

4.0 METHODOLOGY

4.1 Site File and Literature Review

Background review and site file research were conducted prior to fieldwork mobilization. The background literature search included a review of both archaeological site files and architectural resource files, and a review of previously conducted cultural resource surveys in the vicinity of the proposed project. This information was primarily obtained by reviewing records through the on-line Texas Archaeological Sites Atlas, maintained by the THC.

Site file research was performed in order to identify all previously recorded archaeological sites within a 1.6-kilometer (1-mile) study radius of the project area (see Figure 1), and all recorded historic structures eligible for National Register of Historic Places (NRHP) listing located adjacent to the project APE.

Site file research was used to provide a historic context to the archaeological survey, and additional documentary research was conducted in order to provide an understanding of the development and history of the APE, the surrounding area, and southeast Texas in general.

4.2 Field Survey Methods

The APE was subjected to intensive pedestrian survey. Archaeological investigations included a combination of pedestrian walkover and systematic shovel testing along west-east oriented pedestrian survey transects spaced 30 meters (100 feet) apart. Every other transect was subjected to subsurface testing in each block area. Per THC guidelines, the minimum standards for surface reconnaissance and subsurface testing in non-linear areas subsuming between 4.5– 40.5 hectares (11– 100 acres) in size, call for the excavation of 1 shovel test every 0.8 hectares (2 acres). Exceeding these standards, a total of 66 shovel tests were planned for excavation within the combined 30-hectare (74-acre) APE.

Vertical control of each shovel test was maintained by excavating in arbitrary 10-centimeter (4-inch) levels. One wall of each shovel test was profiled and the walls and floor of each shovel test were inspected for color or texture change potentially associated with the presence of cultural features. Whenever possible, shovel tests were excavated into sterile subsoil, and soils were screened through 0.64-centimeter (0.25-inch) wire mesh; soils with high clay content were hand sorted. For this project, it was determined that mechanical deep testing was not necessary and that intensive pedestrian survey and systematic shovel testing were sufficient to determine whether intact, buried archaeological sites were present within the project APE.

Although no new archaeological sites were recorded as a result of survey, if buried resources were located, an attempt would have been made to define their boundaries. Additional delineation shovel tests were excavated in four radiating directions in intervals between 10–30 meters (30– 100 feet) within the confines of the study corridor. In general, 2 sterile shovel tests would have been used to define a site's size and location. At a minimum, between 6 and

8 delineation shovel tests would have been excavated unless surrounding landforms or topography suggested the presence of a natural site boundary.

No historic structures appearing 50 years in age or older were identified during the surveys. However, if standing structures within or immediately adjacent to the APE were located, each would have been photographed during the survey and their locations plotted on field maps with Global Positioning System (GPS) points collected. General characteristics of each resource would also have been documented on standardized forms.

5.0 RESULTS OF INVESTIGATIONS

5.1 Results of Site File and Literature Review

Site file review indicated that no archeological sites, historic structures, NRHP properties, State Archaeological Landmarks (SALs), or Registered Texas Historic Landmarks (RTHLs), or historic markers were located within 1.6 kilometers (1 mile) of the project area (see Figure 1). Only 2 previous archaeological investigations have been conducted within a 1.6-kilometer (1-mile) radius of the project (see Figure 1). One of these surveys was completed by HRA Gray & Pape in 2007 on behalf of LDH Energy (Sick and Soltysiak 2007). A portion of the 2007 survey took place between both current project areas and along a portion of Cedar Bayou. No cultural resources were located as a result of the survey (Sick and Soltysiak 2007). The other survey, north of the current project area was completed by SWCA, Inc. in 2007 (see Figure 1). That survey was also negative for archaeological sites. Both previous investigations are documented on the online Texas Archaeological Sites Atlas, maintained by the THC.

5.2 Results of Field Investigations

For the current project, field survey efforts did not result in the identification of any newly recorded archaeological sites or historic structures. No artifacts or cultural features were encountered in any portion of the survey area. A total of 66 shovel tests were attempted within the entire project APE. Of those, 19 shovel tests were not excavated due to belowground disturbances such as pipelines and other buried utilities, and the presence of contaminated Oil Waste (Crout 1976) (Figure 2).

Shovel testing in Block Area A was conducted on 7 transects running west-east and labeled A-G. Seventeen shovel tests were attempted; however, 16 were excavated due to the disturbance of a pipeline corridor along the west side of Transect G (Figure 2). Wetland vegetation was observed in the southern portion of the area. Evidence of disturbance was observed in 1 shovel test along Transect E and 2 shovel tests along Transect F, as indicated by a gravel road and remnants of an oil pad in the southeast section of the area. Shovel tests ranged in depth from 15 to 50 centimeters (6 to 20 inches) upon which subsoil was encountered. Soils encountered were comparable to those mapped in the area and were most comparable to those of the Beaumont clay, which are of Pleistocene age. Morey silt loam was not encountered on the western boundary of the area. A representative test from this area is Shovel Test D1. Shovel Test D1 consisted of a surface layer of black (7.5YR 2.5/1) clay loam 5 centimeters (2 inches) deep followed by a layer of very dark gray (10YR 3/1) clay to a depth of 30 centimeters (12 inches).

Shovel testing in Block Area B was conducted on 4 transects labeled A-D, running west-east. Nine shovel tests were planned for this area; however, 8 were excavated due to Oil Waste and pipeline disturbance in the southern portion along Transect D (Figure 2). Wetland vegetation was noted in the central section of the area. Shovel tests were excavated to a depth of 30 centimeters (12 inches) upon which subsoil was encountered. Soils encountered were comparable to those mapped in the area and were most frequently Beaumont clay, which are

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Overview of Survey Results with Representative Photos

HRA Gray & Pape LLC

Figure 2

of Pleistocene age. Morey silt loam was not encountered on the western boundary of the area. A representative test from Block Area B is Shovel Test B2 which consisted of a layer of very dark gray (10YR 3/1) clay to a depth of 30 centimeters (12 inches).

Shovel testing in Block Area C was conducted on 7 transects labeled A-G running east-west. Twenty-four shovel tests were attempted in this area, however 17 shovel tests were not excavated due to the verified presence of Oil Waste disturbance and existing gravel roads in the western and southern halves of the area (see Figure 2). Oil wells and other oil-related facilities were observed throughout the western and southern halves of the area. Wetland vegetation was observed in the eastern section of the area where shovel testing was concentrated. Shovel tests were excavated to a depth of 30 centimeters (12 inches) upon which subsoil was encountered. Soils encountered were comparable to those mapped in the area and were most comparable to those of the Beaumont clay, which are of Pleistocene age. Morey silt loam was not encountered on the western boundary of the area. A representative test from this area is Shovel Test C2 and consisted of a surface layer of dark gray (10YR 4/1) clay loam 5 centimeters (2 inches) deep followed by a layer of very dark gray (10YR 3/1) clay to a depth of 30 centimeters (12 inches).

Shovel testing in Block Area D was conducted on 5 transects labeled A-E running west-east (see Figure 2). Sixteen shovel tests were excavated to depths ranging from 25 to 50 centimeters (10 to 20 inches) where subsoil was encountered. Shovel tests were offset a few meters west due the disturbance of pipelines and concrete well pads located in the far eastern section of the area. Soils encountered were comparable to those mapped in the area and were most comparable to those of the Beaumont clay, which are of Pleistocene age. A representative test from this Block Area D is Shovel Test D3 and consisted of a layer of very dark gray (10YR 3/1) clay to a depth of 30 centimeters (12 inches).

6.0 CONCLUSIONS AND RECOMMENDATIONS

This report presents the results of intensive pedestrian cultural resources surveys conducted for LDH Energy Mont Belvieu L.P. in Chambers County, Texas. The combined area comprising the APE for this project is 30 hectares (74 acres), all of which were subject to systematic subsurface and pedestrian surveys.

Fieldwork and reporting activities were completed with reference to state and federal guidelines. Fieldwork required approximately 96 person hours to complete. Field investigation within the project area consisted of a combination of pedestrian walkover and controlled surface inspection, and systematic shovel testing.

During this investigation, disturbances observed within the project area include the presence of Oil Waste, pipeline easements, and other utilities. Soils observed within the APE conform to those described by Crout (1976) and consisted of clayey sediments of Pleistocene age, that are considered to have a low geoarchaeological potential for containing buried deposits. Morey silt loam was not encountered along the western boundary of the area. Furthermore, the areas are typically considered to be low-lying and poorly drained, without a natural water source within 0.80 kilometers (0.5 miles). These conditions suggest that the project area would not have been the most favorable as a prehistoric living surface for short or long-term habitation.

As a result of the survey, a total of 47 negative shovel tests were excavated within soils of Pleistocene age, averaging 0.64 shovel tests per acre and exceeding the state's minimum standards. No evidence of archaeological sites or historic standing structures was recorded. Based on these results, HRA Gray & Pape recommends no further work within the surveyed areas and that the project be allowed to proceed as planned.

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