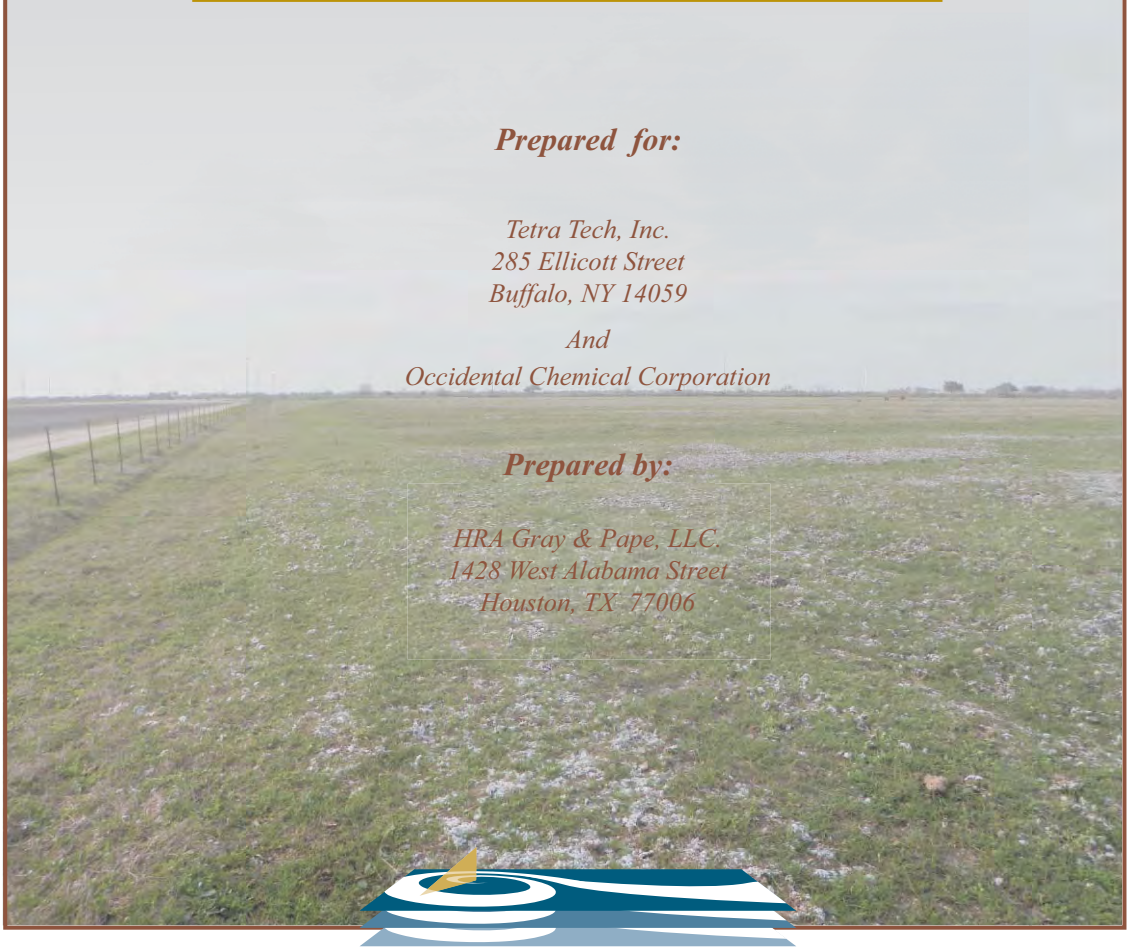
HRA Gray & Pape

PEDESTRIAN CULTURAL RESOURCES SURVEY FOR THE PROPOSED OCCIDENTAL CHEMICAL CORPORATION SAN PATRICIO PIPELINE IN SAN PATRICIO COUNTY, TEXAS

Lead Federal Agency:
United States Environmental Protection Agency - Region 6



Prepared for:

Tetra Tech, Inc.
285 Ellicott Street
Buffalo, NY 14059

And

Occidental Chemical Corporation

Prepared by:

HRA Gray & Pape, LLC
1428 West Alabama Street
Houston, TX 77006

SEPTEMBER 27, 2013

PEDESTRIAN CULTURAL RESOURCES SURVEY FOR THE PROPOSED OCCIDENTAL CHEMICAL CORPORATION SAN PATRICIO PIPELINE IN SAN PATRICIO COUNTY, TEXAS

Lead Federal Agency:
United States Environmental Protection Agency – Region 6

Prepared for:

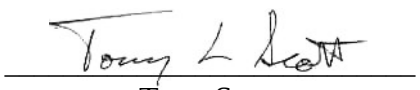
Tetra Tech, Inc.
285 Ellicott Street
Buffalo, NY 14059
Contact: Bonnie Locking
(716) 849 - 9419

and

Occidental Chemical Corporation
Contact: Mr. Mark Evans
(361) 776-6169

Prepared by:

Tony Scott, MA
With contributions by:
Kristi Soltysiak
And
Don Burden



Tony Scott
Principal Investigator

ABSTRACT

In February, May, and June 2012, HRA Gray & Pape, LLC, of Houston, Texas, completed a pedestrian walkover cultural resources survey and limited shovel testing in preparation for the installation of four new proposed pipelines (one natural gas liquids, one propane, one butane, and one ethane) within 30.93 kilometers (19.22 miles) of survey corridor in San Patricio County, Texas. This work was conducted on behalf of Tetra Tech, Inc. of Buffalo, New York, under contract with Occidental Chemical Corporation. In total, approximately 189 hectares (466 acres) of survey corridor for previous and current proposed pipeline alignments were surveyed as well as a 2-hectare (5-acre) proposed laydown yard. The Lead Federal Agency for the Project has been identified as the United States Environmental Protection Agency – Region 6.

Fieldwork was completed over two separate mobilizations carried out between February 22 and February 24, 2012, and May 31 to June 1, 2012. Field investigation was conducted entirely on privately-owned properties and consisted of surface inspection, walkover, and limited shovel testing within the Project. During this investigation, new archaeological sites, archaeological loci, and historic standing structures were located within and adjacent to the Project's survey corridor. Identified archaeological sites include two historic surface scatters (41SP257 and 41SP258), one prehistoric shell midden (41SP256), and one non-archaeological shell surface scatter (Locus 11-2). No further work is recommended at any of these locations as they are all confined to the plowed zone and have been disturbed by repeated farming activities. In addition, several historic standing structures (Standing Structures 3-1, 3-2, 10-1, 16-1, 16-2, and 17-1) were observed within or adjacent to the survey corridor. All are composed of early to mid-twentieth century homestead and farmstead structures that are recommended as not eligible for the National Register of Historic Places.

To date, with the exception of a 1.05-kilometer (0.60-mile) segment of survey corridor for which landowner permission was not granted at the time of survey, the entire current proposed route has been surveyed. Although access permission was later granted, HRA Gray & Pape is of the opinion that the lone remaining unsurveyed segment is not likely to contain intact and significant archaeological sites or historic structures based on a review of historic topographic maps and historic aerial imagery as well as survey results of adjacent segments. HRA Gray & Pape recommends that survey not be required on this segment, a recommendation that was consulted with and concurred by the Texas Historical Commission on June 14, 2012.

Finally, based on the results of the survey and lack of intact buried archaeological sites recommended as eligible for the National Register or the presence of significant architectural resources within or adjacent to the pipeline survey corridor, HRA Gray & Pape, LLC recommends no further cultural resources work be required and that the Project be allowed to proceed as planned.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF PLATES

LIST OF APPENDICES

LIST OF PLATES IN APPENDIX B

1.0 INTRODUCTION

This report presents the results of pedestrian walkover survey and assessments conducted by HRA Gray & Pape, LLC. (HRA Gray & Pape) of Houston, Texas on behalf of Tetra Tech, Inc. (Tetra Tech) of Buffalo, New York, under contract with Occidental Chemical Corporation (OxyChem). In February, May and June 2012, HRA Gray & Pape completed a pedestrian reconnaissance survey and limited shovel testing in preparation for the installation of four new proposed pipelines (one natural gas liquids, one propane, one butane, and one ethane) within 30.93 kilometers (19.22 miles) of survey corridor in San Patricio County, Texas (Figure 1).

To date, with the exception of a 1.05-kilometer (0.60-mile) segment for which landowner permission was not granted at the time of survey, the entire current proposed route has been surveyed. In sum, HRA Gray & Pape has completed survey of approximately 30.6 kilometers (19.0 miles) within a 60-meter (200-foot) wide survey corridor for a total of 189 hectares (466 acres). In addition, a 2-hectare (5-acre) laydown yard was also surveyed.

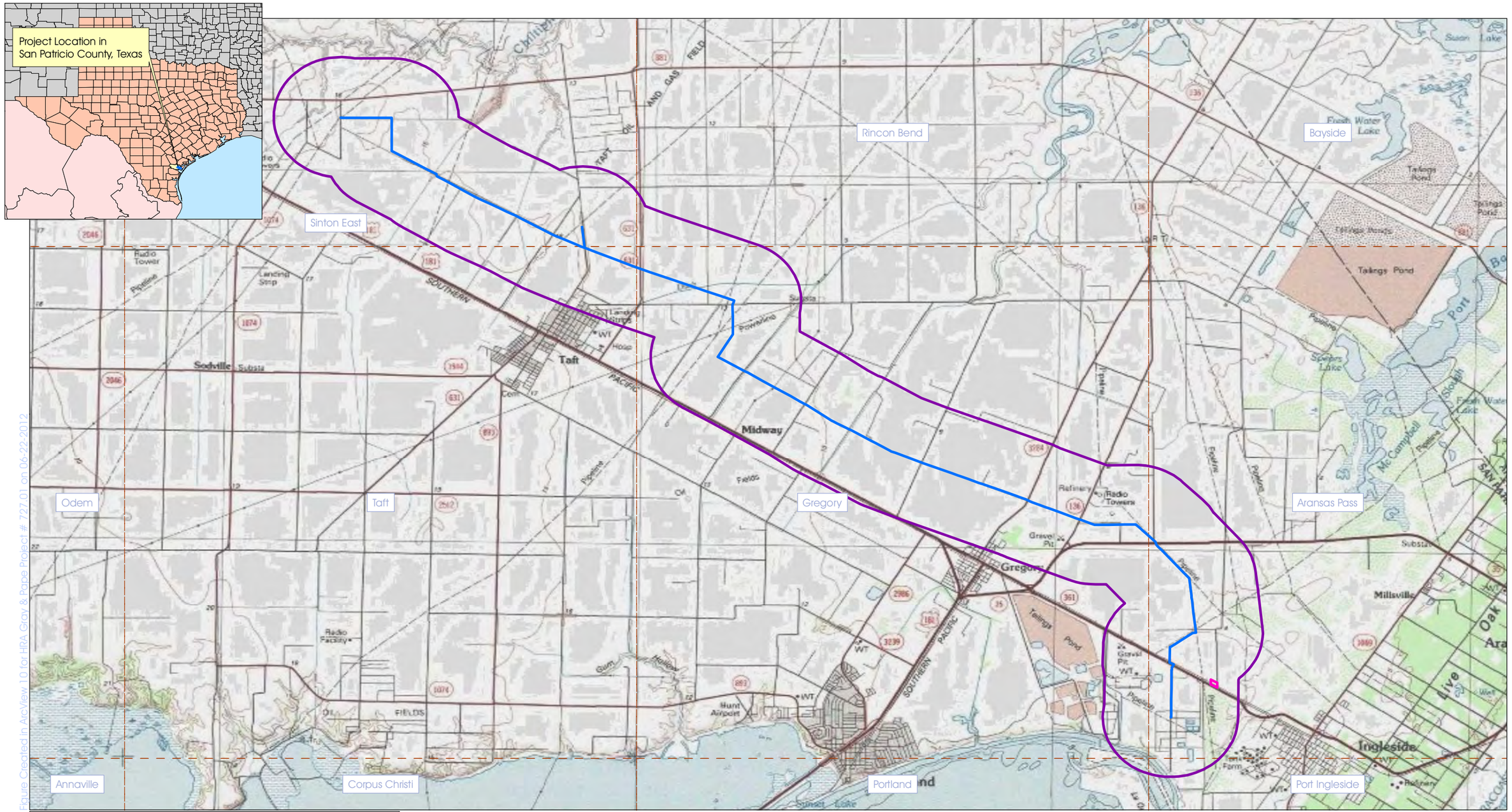
Much of the pipeline survey corridor had previously been surveyed with negative results; however the previous surveys and current survey corridor do not always overlap along the entire project (Project) length. After a meeting with the Texas Historical Commission (THC), Division of Archeology on February 7 2012, it was recommended that the current survey corridor be subjected to pedestrian reconnaissance survey with limited shovel testing on a judgmental basis.

For permitting requirements, the Lead Federal Agency for the Project has been identified as the United States Environmental Protection Agency – Region 6 (USEPA); therefore the Project is considered an undertaking subject to the provisions and review process provided in Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended. The goal of this study was to assist Tetra Tech and their client in determining whether or not the Project would affect any previously identified archaeological sites, and to establish whether or not previously unidentified buried archaeological resources were located within the Project's Area of Potential Effect (APE), and if so to provide management recommendations for these resources.

The Project is privately funded and entails privately owned property; therefore a Texas Antiquities Permit was not required from the THC Division of Archeology prior to conducting the archaeological survey. All fieldwork and reporting activities were completed with reference to state (the Antiquities Code of Texas [1969, as amended 1997]) and federal (NHPA 1966; United States Department of the Interior [USDI], National Park Service [NPS] 1981, 1983) law and guidance for conducting cultural resources surveys pursuant to Section 106 of the NHPA (Advisory Council on Historic Preservation [ACHP] 2004).

1.1 Project Description

OxyChem proposes to construct four hydrocarbon pipelines consisting of one natural gas liquids, one propane, one butane, and one ethane. The Project is located on the *Aransas Pass*,



LEGEND

- Proposed Centerline
- LayDown Yard
- 1.6-Kilometer (1-Mile) Study Radius
- USGS Quadrangle Boundary

USGS 7.5-Minute Quadrangle Reference

0 0.5 1 Miles

0 0.5 1 Kilometers

Locational Overview of the Proposed Occidental Pipeline Survey Corridor and Laydown Yard in San Patricio County, Texas

HRA Gray & Pape LLC.

Figure 1

Gregory, Taft, and Sinton East, Texas 7.5-minute topographic quadrangle maps. The Project's survey corridor extends approximately 30.93 linear kilometers (19.22 linear miles) and measures 60 meters (200 feet) wide. The Project begins south of Highway (Hwy) 361 approximately 5.2 kilometers (3.2 miles) southeast of the town of Gregory and zig-zags north for approximately 6 kilometers (4.8 miles) crossing the Hwy 35 bypass. At that point the survey corridor predominantly travels northwest for another 23.5 kilometers (14.7 miles) crossing several county roads. A 60-meter (200-foot) wide corridor was surveyed in an effort to cover the Project footprint and temporary workspaces. Thus, for the purpose of this report the APE for direct and indirect effects is defined as 189 hectares (466 acres) of pipeline survey corridor and 2 hectares (5 acres) of laydown yard.

The survey corridor does not cross any major waterways but does cross drainages that have been channelized into man-made canals. The parcels that intersect the survey corridor are almost entirely composed of agricultural field. The corridor intersects very little area that contains ground cover but these areas have likely been previously plowed.

1.2 Organization of the Report

This report is organized into eight numbered chapters and three lettered appendices. Chapter 1.0 provides an overview of the Project. Chapter 2.0 presents the environmental setting of the area. Chapter 3.0 discusses the cultural history of the region. Chapter 4.0 discusses the results of previous cultural resources investigations near the Project area. Chapter 5.0 presents the research design and field methods developed for this survey. The results of research and survey activities are presented in Chapter 6.0. Chapter 7.0 presents the investigation summary and conclusions. A list of professional references cited is provided in Chapter 8.0. Graphics illustrating survey coverage are provided in Appendix A. Representative photographs of artifacts, cultural loci, and historic structures are provided in Appendix B. Documented agency coordination is provided in Appendix C.

1.3 Acknowledgements

Fieldwork entailed approximately 116 person hours and was conducted in two separate mobilizations. The first mobilization was completed between February 22 and February 24 2012 by Project Principal Investigator Tony Scott and Archaeological Field Technicians Kenneth Fleming and Katrina Miller under the supervision of Tetra Tech's previous Project Manager Stuart Eldridge. The second mobilization was carried out by staff Principal Investigator Kristi Soltysiak and Technicians August Costa and Christina Grobmeier under supervision of Tetra Tech's present Project Manager, Ms. Bonnie Locking. Tony Scott prepared the content of the report with contributions by Kristi Soltysiak. Architectural Historian Don Burden assessed historic structures identified within and adjacent to the survey corridor and provided eligibility assessments for each. Mr. Scott and Julia Balakirova prepared the report graphics. Ms. Locking reviewed the report.

2.0 NATURAL SETTING

The following section provides a discussion of the general Texas Coastal Bend environment and geomorphologic characteristics found in the Project area. This discussion is followed by descriptions of soil morphology of the area.

2.1 Physiography and Geomorphology

The Texas Coastal Prairie is part of the larger Gulf Coastal Prairie, a low, level to gently sloping region extending from Florida to Mexico. The Texas Coastal Prairie reaches as far north as the Ouachita uplift in Oklahoma, and as far west as the Balcones Escarpment in central Texas. The basic geomorphological characteristics of the Texas coast and associated inland areas resulted from depositional conditions influenced by the combined action of sea level changes from glacial advance in the northern portions of the continent, and subsequent downcutting and variations in the sediment load capacity of the region's rivers. Regional Pleistocene formations, such as the Lissie and Beaumont, are the result of these processes. Soils and landforms in San Patricio County represent these respective formations. The Lissie formation dates to the middle Pleistocene and is represented by deposits consisting of clay, silt, and sand, with minimal representation of fine gravels. The Beaumont formation dates to the late Pleistocene and is defined as the youngest continuous terrace fringing the gulf coast. Like the Lissie soils, Beaumont soils are represented by clay, silt, and fine sands. However, this formation presents itself in three fashions: 1) high clay and mud with low permeability, high water retention, very high shrink-swell potential, and level to depressed topography, 2) clayey sand and silt with moderate permeability, low to moderate shrink-swell potential, and level topography containing some mounds and ridges, and 3) fine-grained sand without shell and having high permeability, low water retention, low shrink-swell potential, and low ridge and depressed topography (Abbott 2001; Van Siclen 1991).

2.2 Soils

The Project contained two soil associations: Victoria-Raymondville-Orelia and Orelia-Papalote. Victoria-Raymondville-Orelia generally occurs on nearly level to gently sloping landforms. They are defined as very slowly permeable, nonsaline through strongly saline, and clayey and loamy soils. The following discussion of these associations and the map units contained within them are largely derived from Guckian and Garcia (1979), and the U.S. Department of Agriculture, Natural Resources Conservation Service (USDA, NRCS) (2012, 2009).

The three soil series comprising the Victoria-Raymondville-Orelia association are defined as follows:

- Victoria soils have a surface layer of dark gray clay with a few calcium carbonate concretions (approximately 97 centimeters [38 inches] thick). This overlays light gray clay with vertical dark gray streaking and few pockets of gypsum crystals to a depth of approximately 147 centimeters (58 inches) below surface. Underlying these two soils is light gray clay with few gray streaks and a few pockets and seams of gypsum and

other salts to a depth of 183 centimeters (72 inches).

- Raymondville soils have a surface layer of dark gray overlaying very dark gray clay extending approximately 36 centimeters (14 inches). Below this, from 36-97 centimeters (14-25 inches), is gray clay containing calcium carbonate concretions. Soils from 64-97 centimeters (25-38 inches) are light gray clay and contain concretions and soft bodies of calcium carbonate. Underlying soils to a depth of approximately 152 centimeters (60 inches) are light gray clay with about 5% concretions and soft bodies of calcium carbonate.
- Orelia soils have a surface layer of gray fine sandy loam extending approximately 13 centimeters (5 inches) below surface. Underlying this layer to a depth of approximately 81 centimeters (32 inches) is dark gray sandy clay loam over light gray sandy clay loam with calcium carbonate concretions and soft bodies. Underlying soils extending to an approximate depth of 152 centimeters (60 inches) consist of light gray sandy clay loam with brownish mottles and has about 5% calcium carbonate.

These soils are typically cultivated, but are also utilized as wildlife habitat. Urban land use is low due to potential for water retention and shrink-swell potential.

The Orelia-Papalote soil association generally occurs on nearly level to gently sloping landforms. These soils are defined as very slowly permeable to slowly permeable, nonsaline through strongly saline, and loamy. Two soils series make up this association:

- Orelia Soils (See above).
- Papalote soils have a brownish gray over grayish brown fine sandy loam surface layer measuring approximately 36 centimeters (14 inches) in depth. Underneath this layer, to a depth of approximately 43 centimeters (17 inches), is dark gray sandy clay with brownish mottles. Grayish brown clay with reddish mottles and black concretions extend to approximately 76 centimeters (30 inches) over grayish brown sandy clay with yellowish, brownish, and grayish mottles with a few black concretions to about 91 centimeters (36 inches). Light brownish gray sandy clay loam extends to about 123 centimeters (48 inches). Underlying soil extending to a depth of 152 centimeters (60 inches) consists of pale brown sandy clay loam containing grayish and brownish mottles and concretions and soft bodies of calcium carbonate.

Specific soil units located across the Project area primarily consist of large expanses of Victoria Clay, 0 to 1% slopes (VcA) divided by narrow sections of Victoria Clay, depressional (Vd), Edroy clay (Ec), Orelia sandy or sandy clay loam (Or and Os), Raymondville clay loam (RaA), and Papalote fine sandy loam (PaA).

Victoria clay (VcA) is located in what may be considered upland areas of coastal flats across the region while Victoria clay (Vd) is generally found in depressed areas. The soils are derived from Late Pleistocene-aged clayey fluviomarine deposits. Victoria clay is somewhat poorly drained with a surface layer of dark gray clay to 96 centimeters (36 inches) followed by light gray clay to a depth of 147 centimeters (58 inches).

Edroy Clay (Ec) is a deep, poorly drained soil usually found on open depressions around weakly defined watercourses of the coastal plains. It has its source from Late Pleistocene-aged clayey over fluviomarine deposits. It has a surface layer of dark gray clay for 45 centimeters (18 inches) followed by gray clay to a depth of 106 centimeters (42 inches). Below this to a depth of 127 centimeters (50 inches) is light gray clay.

The Orelia sandy and sandy clay loam (Or, Os) is a somewhat poorly drained soil found on coastal flats in locations that are usually saturated in the fall and spring months. The material is derived from loamy fluviomarine deposits. The surface layer is gray sandy clay loam for 15 centimeters (6 inches) followed by dark gray neutral sandy clay loam to a depth of 50 centimeters (20 inches). Below this is a gray sandy clay loam to a depth of 71 centimeters (28 inches) and a light gray sandy clay loam to a depth of 152 centimeters (60 inches).

Papalote fine sandy loam (PaA) is a moderately well drained soil found on coastal flats and derived from loamy fluviomarine deposits. The soil is characterized by a surface layer of light brownish gray for the upper 20 centimeters (8 inches) and grayish brown for the lower 15 centimeters (6 inches). Below this to a depth of 43 centimeters (17 inches) is dark gray sandy clay with brownish mottles followed by grayish brown sandy clay with grayish and reddish mottles to 76 centimeters (30 inches). Following this layer to a depth of 152 centimeters (60 inches) is pale brown sandy clay loam with grayish and brownish mottles.

Raymondville clay loam (RaA) is found on meander scrolls of the coastal plains and is derived from a parent material of Late Pleistocene-aged loamy fluviomarine deposists. The surface layer is described as 12 centimeters (6 inches) of gray clay loam followed by dark gray clay loam to a depth of 36 centimeters (14 inches). Beyond that is a 63.5-centimeter (25-inch) layer of gray clay loam that gradually changes to light brownish gray clay to a depth of 94 centimeters (37 inches).

2.3 Flora and Fauna

The natural vegetation of the region consists of tall prairie grasses and forbs, with stands of mesquite and acacia trees (McMahan et al. 1984). Local wildlife includes deer, javelina, rabbit, raccoon, coyote, duck, geese, crane, and turkey.

2.4 Climate

The Project area is located within an area consisting of a humid subtropical climate subject to coastal weather conditions which means prevailing southeasterly winds from the Gulf of Mexico generally regulate temperatures and typically remove the potential for wild temperature swings. The average high temperature in summer is 96 degrees Fahrenheit (F) and the average low in winter is 46 degrees F. Peak rainfall occurs in September and October and again in the months of April through June (Guckian and Garcia 1979).

2.5 Land Use

The parcels containing the survey corridor are nearly entirely agricultural with the remains of the most recent cotton crop still visible. Portions of some agricultural fields also show the remains of gas well pads (Texas General Land Office [GLO] 2012). Currently the western half of the Project consists of agricultural fields sited with several wind turbines.

3.0 PREHISTORIC SETTING

3.1 Cultural Periods

Researchers have identified four archaeological time periods associated with Native Americans in south and south central Texas; in general, these include the Paleoindian, Archaic (with Early, Middle, and Late subdivisions), Late Prehistoric, and Historic Indian. The Paleo-Indian stage of south Texas has been dated to be between 9000-6000 B.C. The Archaic period is looked upon as having started around 6000 B.C. and ending some time around A.D. 800 (Prewitt 1981, 1985; Story 1985; Black 1989). The Late Prehistoric began at the end of the Archaic phase sometime around 800 A.D. After the Late Prehistoric, the Historic Indian stage began around 1600 A.D. with the exposure of the natives to European travelers. The chronologies developed by researchers are based primarily on changes in projectile point technologies within the region and the introduction of new technologies. It is generally recognized that a broad-based hunting and gathering lifestyle was utilized throughout all time periods.

3.1.1 Paleoindian Period

Evidence is sparse for Paleoindian habitation; much of what is known about the period in the area comes from a compilation of materials gathered from around the state of Texas and across North America. At the close of the Pleistocene, large game hunters crossed the Bearing Strait, and within a few millennia had penetrated into South America (Culberson 1993; Newcomb 1961). The Paleoindian people traveled in small bands (Culberson 1993) and were mega-fauna hunter-gathers with the bulk of their meat protein derived from mammoths, mastodons, giant bison, and giant sloths. In the Texas Gulf Coastal Plains it is highly likely that these small bands migrated from the plains and prairies to the coastal river bottoms in order to obtain new resources (McGraw and Hindes 1987; Campbell 1988). These groups carried with them an easily recognizable stone tool material culture, though admittedly, little is known about their wooden or bone tools or their clothing types. Diagnostic points such as fluted Clovis, Folsom, and Plainview points can be used to identify the Paleoindian component of a site, and the nature of these points demonstrate the nature of the hunting style. These points are large and designed to be attached to a spear. No evidence of bow and arrow hunting has been found associated with this period (Culberson 1993; Newcomb 1961).

3.1.2 Archaic Period

After the Pleistocene, the Gulf of Mexico started a transgression onto the Texas coast creating estuaries along the shoreline. The formation of these estuaries gave the Archaic people of the Texas coast a strong emphasis on marine resources (Jurgens 1989). This shift in food supply is seen as the pivotal transition point between the Paleo and Archaic periods (Culberson 1993; Biesaart et al. 1985; Newcomb 1961). Within the boundaries of the south Texas coast, Corbin (1974) has termed the Archaic period, the Aransas complex. Most of the material culture recovered from Archaic sites within the south Texas region consists of shell artifacts such as Conch columella gouges, adzes, hammers, and awls. There are three progressive stages

recognizable during the Archaic period: the Early, Middle, and Late.

Early Archaic people relied on hunter-gathering subsistence and organized in small, isolated bands that remained in relatively restricted regions (Aten 1984). Many researchers (Prewitt 1981, 1985; Story 1985; Black 1989) believe that the Early Archaic tradition in this area began around 6000 B.C. and is really a continuation of the Paleoindians. With the loss of the mega-fauna as a food source, the Early Archaic peoples adopted the hunting of smaller game such as bison and deer and increased their reliance on foraging (Culberson 1993). The material record fits the transitional makeup of this period because there was a dramatic shift from the large spear points of the Paleoindian period to a reliance on smaller "Dart" type points. Diagnostic designs for this period are Dalton, San Patrice, Angostura, Golondrina, Merserve, Scottsbluff, Wells, Hoxie, Gower, Uvalde, Martindale, Bell, Andice, Baird, and Taylor. These points are much more crudely made than their Paleo precursors, but remain designed for use on a spear shaft.

The Middle Archaic is believed have started around 3000 B.C. (Prewitt 1981, 1985; Story 1985; Black 1989) and has the largest growth in technology and in the number of stone tools utilized. Specialized tools appeared for the milling of wild plant foodstuffs (Culberson 1993) along with a large assortment of tools for food preparation and procurement. Many researchers believe there was an increased reliance on plant resources during the Middle Archaic. Gravers, scrapers, axes and choppers, knives, drills, and polished stone tools also known as ground stone tools, began to appear in large quantities (Newcomb 1961). Diagnostic points such as Gary, Kent, Palmillas, Nolan, Travis, Belvedere, Pedernales, Marshall, Williams, and Lange dominate the spectrum of dart points from the Middle Archaic period (Turner and Hester 1993; see also the Edwards Plateau Aspect [Newcomb 1961]). The advent of the spear-throwing device, the atlatl, also seems to be placed within this period (Culberson 1993).

The Late Archaic period is thought to have begun around 400 B.C. (Prewitt 1981, 1985; Story 1985; Black 1989) at which time there is a dramatic increase in the population densities of Native American groups. Human habitation of areas rich in diverse flora and fauna intensified, as did the variety of materials and artifacts (Culberson 1993; Aten 1984). Late Archaic peoples began relying heavily on foraging tubers, berries, and nuts and hunting small game such as deer, rabbits, raccoons, fish and shellfish, and birds. Groups became socially more complex than earlier periods and the result was an increasing intercommunication with neighboring groups. Culberson (1993: 55) states that a "Lapidary Industry" developed in which stone artifacts were made from exotic materials (jasper, hematite, quartz, shale, slate, etc.) acquired from sources great distances away. These materials were fashioned into an increasingly complex array of household goods such as celts, plummets, banner stones, mortars and pestles, and pendants; also during this period there is an increase in the occurrence of sandstone bowls (Culberson 1993). Diagnostic points of this period are difficult to distinguish from those of the Middle Archaic. Points such as Marcos, Montell, San Gabriel, Mahomet, Fairland, and Castroville also appear at times.

3.1.3 Late Prehistoric Period

The Late Prehistoric continues from the end of the Archaic period to the historic period

ushered in by the Spanish Missions and Anglo-American settlers. During the Late Prehistoric stage in south Texas, two cultural complexes appear to have existed. The first complex, located further east on the coast, is characterized by ceramics that appear similar to the Goose Creek ceramics found farther north (Jurgens 1989; Ricklis 2004). The second and later complex has been called the Rockport complex, and has been associated with the Karankawa groups (Newcomb 1961; Ricklis 2004).

Within south Texas there were two dominate cultural groups that extended south of Galveston Bay down to the Rio Grande and over as far west as present day San Antonio. The coastal group was known as the Karankawas and the inland group was known as the Coahuiltecans (Ricklis 1996). The Karankawas, whose language was also in the Hokan group (Aten 1984), extended from Galveston Bay southwestward as far as the present site of Corpus Christi Bay. As described by Newcomb (1961: 59), seven proper names are associated with the culture. Researchers subdivide these names into five distinct groups based on geography. The Capoques and the Hans lived in the area between Galveston Bay and the Brazos River. The Kohanis lived south of the Capoques and the Hans at the mouth of the Colorado River. The Karankawa proper (which included the Korenkake, Clamcoets, and Carancaguacas) lived in the region of Matagorda Bay. Along Copano Bay and St. Joseph Island were the Kopanos (Newcomb 1961).

In the seventeenth and eighteenth centuries, the Spanish and French relied heavily on interaction with Native American groups in the area to further their own interests (Newcomb 1961). Most destructive for all native groups in the region was the influx of European diseases. When Euro American settlers began moving into the area in mass around the 1850s, disease and warfare had decimated the groups to near extinction.

3.1.4 Protohistoric Period to the Post-Contact

Although archeological evidence suggests the Karankawas migrated to the Texas Gulf Coast from the Caribbean in the early 1400s, it is unknown exactly how early these Native Americans roamed the Texas Gulf Coast area. The first written account of this tribe came from the diary of Alvar Nunez Cabeza de Vaca in the early 1500s (Guthrie 1986).

The Karankawa tribe living in the San Patricio County region was made up of several bands. The Copanos lived along Copano Bay and St. Joseph Island, the Coahuiltecan inhabited the areas south of the Corpus Christi Bay and Mustang Island, and the main Karankawa band lived around the central section of the Texas coast known as the coastal prairie. In 1986, archeologists uncovered a Karankawa campsite at Round Lake near San Patricio, Texas that appeared to have been inhabited year-round from as early as 1410 (Guthrie 1986).

The Karankawas disappeared from the San Patricio area in the mid-1800s. In the early 1830s, clashes with white settlers forced many Karankawas into Mexico where they were eventually killed or died out. Any remaining Karankawas fled to Mexico to face the same end following the 1852 battle against William Kuykendall at Hyness Bay in Refugio County, Texas (Guthrie 1986).

The first Europeans to visit San Patricio County were the Spanish. In 1519, Alonso Alvarez

de Pineda sailed from Florida to chart the Gulf Coast. It is likely that Pineda made his way up the Texas coast and turned in at Aransas Pass to explore the bays surrounding San Patricio County. From 1527-28, Cabeza de Vaca explored Refugio County, Texas and is said to have reached the Nueces River at the site of present-day San Patricio (Guthrie 1986).

The French established a permanent presence in the Texas Gulf Coast region in 1685, when Robert Sieur de La Salle established a French colony and fort at Matagorda Bay, Texas. For the next six months, La Salle explored the area including San Patricio County, Texas on his way towards the Rio Grande River. Throughout the rest of the 1600s and into the 1700s, both the French and Spanish continued to visit and explore the area, landing on Harbor, Padre, Mustang, and St. Joseph Islands and exploring as far inland as Ingleside, Texas. The Spanish established several missions throughout South Texas during this time, and a few Spanish ranchers entered the area for brief periods in the early 1700s. However, despite a fairly consistent European presence in the area from 1500 through early 1800, no permanent settlements were ever made in San Patricio County, Texas (Guthrie 1986).

Following a series of events including the Louisiana Purchase in 1803, the War of 1812, and Mexican Independence in 1821, Americans turned their attention to Texas as a new area to be settled. In 1825, the Mexican State of Texas adopted colonization laws, and by 1828 a contract was issued to settle 200 Irish Catholic American families on certain lands in Texas located along the Nueces River. By 1830, the colony of Villa de San Patricio de Hibernia was established with a handful of colonists living there. By 1834, the colony was renamed as the municipality of San Patricio, with 84 families (about 500 people) owning land within the town site. The economic mainstay of the San Patricio community during this time was cattle ranching, with agriculture limited to production for independent use (Guthrie 1986).

As the War for Texas Independence heated up, the majority of San Patricio residents sided with the Texans. From 1835-1846, fighting between Mexican invaders and Texans raged in the San Patricio area. Most of the buildings were destroyed and the residents fled from the devastation. In 1845, Texas was annexed by the United States, and in August of that year General Zachary Taylor established a garrison at San Patricio. San Patricio served as a stop along the route that supplied Taylor with reinforcements and supplies during his invasion of Mexico until Taylor moved his army out of the area in 1846. After Taylor left, the residents of San Patricio returned to reestablish the town that had been nearly wiped out during the war (Guthrie 1986).

During the War for Texas Independence, Texas adopted the Constitution of the Republic of Texas. San Patricio was recognized in the 1836 Constitution as one of the original precincts of the Republic of Texas. In 1846, San Patricio precinct was established as San Patricio County, Texas. Around the same time, waves of settlers from all over the United States began moving into San Patricio County, Texas. By 1848, the town of San Patricio established a court as part of the 4th Judicial District. Settlement continued throughout the 1800s, and many towns sprang up throughout the county including Aransas Pass, Ingleside, White Point, Meansville, Sharpsburg, Rockport, Harbor City, Mathis, and Sinton. During this time, cattle ranching continued to dominate the local economy, although agricultural production slightly increased (Guthrie 1986).

On the eve of the American Civil War in 1860, San Patricio County, Texas was home to 95 slaves. During the war, the residents of San Patricio County supported the Confederacy, with the majority of men serving in the 29th Brigade of the 8th Texas Infantry regiment. The Federal Navy blockade of the Texas coast near San Patricio brought the war to the county in 1861. The blockade forced the Confederacy to find a new route to transport cotton for sale to Europe. The route, called the Cotton Road, passed directly through San Patricio County into Mexico. In 1864, a skirmish between Federal and Confederate troops occurred near San Patricio as part of a battle for control of the Cotton Road (Guthrie 1986).

Following the Civil War, San Patricio County continued to grow. Five ferries operated in San Patricio County in the 1870s. Many new roads were built between towns and several bridges were constructed. Cattle ranching and agriculture declined in the 1880s when the area was plagued by a severe drought, but the introduction of the railroad into the area helped refuel the economy. In 1885, the San Antonio and Aransas Pass railroad cut through the county, as did the St. Louis, Brownsville and Mexico railroad in 1904 and the San Antonio, Uvalde and Gulf Railroad in 1912 (Guthrie 1986).

The early 20th Century was further characterized by growth as land agents advertised San Patricio County to farmers. More settlers interested in agricultural pursuits came to the area, and the population and number of farms grew. Cotton became the most important crop grown in the county and ranchland was converted to cropland. Several more towns sprang up, with the city of Taft, the last to be established in the county, opening with a land sale in 1921 (Guthrie 1986).

In the 1920s, oil and gas was discovered in San Patricio County fueling further growth, but the Great Depression in the 1930s nearly wiped out the economy of the area. In the 1940s, oil and gas production increased significantly, becoming the economic mainstay of the area (Guthrie 1986). With the growth of oil and gas production, San Patricio County was poised to become a fully industrial area. In 1954, the Rob and Bessie Welder Wildlife Foundation was established to provide for the operation of a wildlife refuge in San Patricio County. The refuge occupies 3157 hectares (7800 acres) and is located 13 kilometers (8 miles) northeast of Sinton in San Patricio County. The refuge offer conditions where wildlife can live, forage, and propagate and it provides opportunities for research and education in wildlife conservation and related fields. Income from oil and gas leases and royalties from other lands support the foundation (Welder 2012).

Farming never fully rebounded, and oil and gas production remained the economic mainstay of San Patricio County until the 1970s. In the 1980s Reynolds Metals operated a plant in the area, and DuPont and Occidental Chemical built large plants on the ship channel. Two of the world's largest marine rig builders operated on the bay, and Ingleside was designated the homeport for the United States Navy's Battleship *Wisconsin* battle group. Aransas Pass was home to about 300 shrimp boats, bringing in millions of dollars in seafood revenue. As of 1990, 59,288 people lived in San Patricio County in eight incorporated and two unincorporated towns (Guthrie 2012).

4.0 PREVIOUS INVESTIGATIONS

At least seven terrestrial surveys have taken place within 1.6 kilometers (1 mile) of the Project area (see Figures A1 to A10). One of these occupies nearly the same location as the current survey corridor. Very limited information is available for some listed survey efforts. The following table (Table 1) summarizes the data available for previously conducted surveys and a short description for each follows.

Table 1. Previous cultural resource studies within a 1.6-kilometer (1-mile) radius of the Project area.

Date of Survey	Agency	Linear or Area Survey	Investigating Firm	Permit No.	Report Author & Year
2004		Area	HRA Gray & Pape, LLC.	3556	Hughey and Pritchard 2012
2004		Area	R. Goodwin & Associates, Inc.		Athens et al. 2004
2004		Linear	PBS&J		Perkins 2004
1997		Area/Linear	Archeological and Environmental Consultants	1924	Pikryl 1998
1998	TWDB	Linear	Unknown		Unknown
1987	USACE, Mobile	Area	USACE		USACE, Mobile
1979	EPA	Area	Unknown		Unknown

Of most importance pertaining to the current Project is a survey conducted in 2004 by R. Goodwin & Associates, Inc. (Goodwin). The survey consisted of intensive pedestrian investigations of approximately 42.2 kilometers (26.4 miles) of proposed pipeline corridor and several ancillary facilities. The surveyed pipeline corridor closely matches the survey corridor for the current project. As a result of the survey two historic standing structures were identified outside the pipeline corridor. The structures were located outside the proposed corridor and neither was determined to meet the criteria necessary to be eligible for listing on the National Register of Historic Places (NRHP). Due to lack of access the entire proposed corridor was not surveyed, however no further work was recommended for the pipeline (Athens et al. 2004).

In 2004, HRA Gray & Pape on behalf of URS Corporation and Vista del Sol Pipeline, LP conducted background research including literature review and site file search, and intensive pedestrian archaeological survey investigations for approximately 43.67 kilometers (27.15 miles) of proposed pipeline right-of-way (ROW). As with the Goodwin survey, portions of this survey corridor overlay or parallel the current survey corridor. In total, approximately 447 hectares (1,104.50 acres) of property were surveyed in Texas during these investigations. Following the work completed in 2004, the pipeline project was cancelled and the project is no longer planned for construction. During survey activities one historic site (41SP219) and one lithic isolate were identified. Historic Site 41SP219 was restricted to the plow zone and the

site did not have the potential to yield information important to understanding the history of San Patricio County. If the project had been constructed as planned, HRA Gray & Pape would have recommended that no further work be required at Site 41SP219 or at the location of the isolate find. Since the associated project was cancelled a final report was submitted on March 5, 2012, without comment by the THC (Hughey and Pritchard 2012).

In 1997, an archeological survey of the San Patricio Municipal Water District's proposed water system improvements project was conducted by Archeological and Environmental Consultants. The proposed project included approximately 49.07 linear kilometers (30.5 miles) of pipeline ROW, as well as 44.5 hectares (110 acres) planned for expansion of an existing water treatment plant and the construction of a water reservoir structure. Pedestrian survey, shovel testing, and backhoe trenching resulted in the identification of six archeological sites (41SP191 through 41SP196). Based on the results of the investigation, sites 41SP191-194 do not appear to be worthy of formal designation as State Archeological Landmarks and do not meet the criteria for inclusion in the NRHP. Sites 41SP195 and 41SP196 were located outside of planned project areas would not be affected by the project (Prikryl 1998).

A linear survey is recorded having been performed for the Texas Water Development Board (TWDB) near the San Patricio Water District's project area in 1998. No additional report information was available for this project area.

In 1987, cultural resources investigations were performed on a combined total of 146.5 hectares (362 acres) in preparation for a pipeline upland disposal site and wetland mitigation area. No cultural resource remains were found at either the upland disposal site or the wetland mitigation area. No additional cultural resource studies were recommended at either of these locations (United States Army Corps of Engineers [USACE] - Mobile District 1987).

A linear survey is recorded as having been performed by PBS&J in 2004. This linear survey area enters the project study radius near the western terminus of the current Project. No report information could be found associated with this survey.

Two survey areas, located within the Project study radius, reference the Environmental Protection Agency (EPA). These consist of two area surveys measuring 2.3 and 0.8 hectares (5.6 and 2 acres). While a date of 1979 was listed, no additional information was available for these surveys.

5.0 METHODOLOGY

5.1 Site File and Literature Review

The site file research and literature review was performed in order to identify all previously recorded archaeological sites and previous investigations within 1.6 kilometers (1 mile) of the Project area. This study radius can be seen on Figure 1. This work was conducted by reviewing online data available on the THC Online Archaeological Sites Atlas, an online resource maintained by the THC, as well as an online database of the NRHP (http://www.nationalregisterofhistoricplaces.com). Historic maps from the collection of David Rumsey (2003) were also consulted in cooperation with Google Earth (Burr 1839; United States GLO 1867) and researching maps maintained by the Texas GLO (2012).

Cultural resources identified during this literature search included previously recorded archaeological sites and previously conducted cultural resources surveys. This work 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 and the surrounding area in general. This research then was used to prepare an overview history of the area and provided an understanding of the contextual framework of San Patricio County's prehistory and history.

5.2 Field Methods

The archaeological investigations associated with the current undertaking were designed to identify and record the existence of cultural resources, including prehistoric and historic archaeological sites and above-ground historic age resources, within the APE. Because the pipeline will be below ground, the APE for direct and indirect effects is defined as the survey corridor and associated footprint of ancillary areas required for the Project. Much of the current survey corridor overlaps a previously surveyed project that resulted in negative findings (Athens et al. 2004), however the two survey areas do not match exactly. Some small segments of the current survey corridor fall outside of the previously surveyed area or closely parallel it.

A meeting with the THC, Division of Archeology on February 7, 2012, resulted in the recommendation that pedestrian reconnaissance survey was appropriate for the vast majority of the current Project's APE. Limited shovel testing would be undertaken at the Principal Investigator's discretion if warranted by the landscape.

5.2.1 Pedestrian Reconnaissance Survey

Survey of the Project area consisted of pedestrian reconnaissance, photo-documentation, and limited shovel testing. A handheld Global Positioning System (GPS) receiver capable of sub-meter accuracy data recording was used to assist in survey. To facilitate record keeping and to measure survey progress, the Project length was divided into segments divided by natural breaks in topography or environment or by development such as intersections and numbered

according to sequence in which they were surveyed. Subsurface testing, photos, and field notes were all referenced to these segments. Two to four transects were placed down the length of the survey corridor within each survey segment. Examples of transect configurations along the survey corridor are shown in Figure 2. Historic-age structures and objects within or immediately adjacent to the APE, if encountered, were photographed and plotted on project maps.

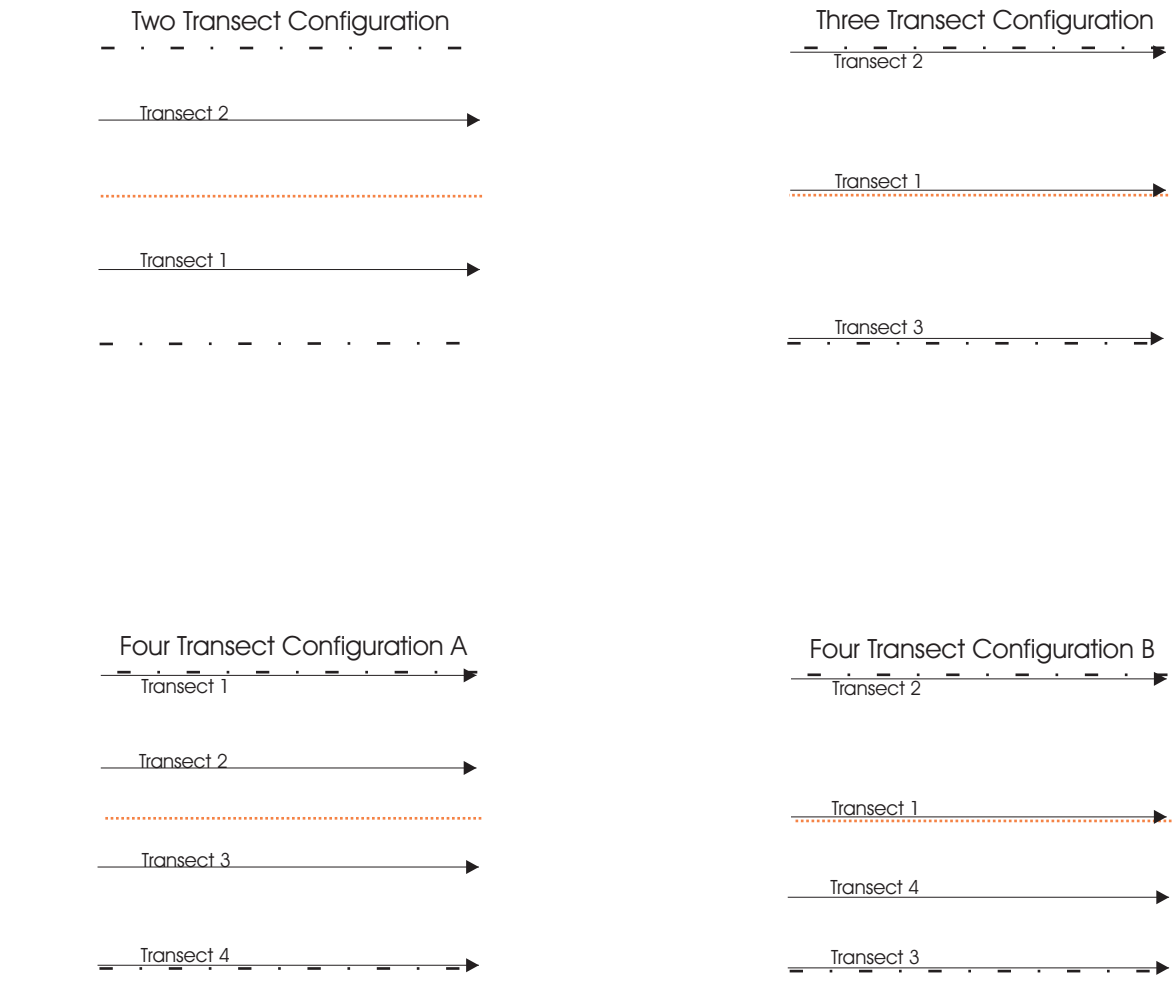
Landforms, mounds, or other areas of topography were subsurface tested on a judgmental basis. Shovel tests were not excavated in areas with 100% surface visibility, areas containing existing road, roadside ditches, standing water, areas directly above where underground utilities had been installed, or where previous disturbance was evident. Shovel testing consisted of 30 by 30-centimeter (11 by 11-inch) diameter holes excavated to a maximum depth of 100 centimeters (39.3 inches) into the underlying substratum. Vertical control was maintained by excavating each shovel test in 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. Soils were screened through ¼-inch wire mesh and descriptions of soil texture and color followed standard terminology and the Munsell (2005) soil color charts. Additional information concerning soils encountered was recorded on standardized shovel test forms for each excavation.

5.2.2 Site Definition

For each resource identified photographs were taken of the general vicinity and of any visible features. A sketch map was prepared showing site limits, feature locations, permanent landmarks, topographic and vegetational variation, and sources of disturbance. Sufficient information was included on each map to permit relocation of the site. In addition, a GPS point was taken to aid in later site relocation efforts. A description of the materials observed was recorded and, if present, potential diagnostic materials were collected. Given that the APE is nearly entirely composed of actively plowed agricultural fields with 100% surface visibility, it was not uncommon to find isolated or small amounts of cultural materials that had obviously been moved or redeposited by agricultural activities from nearby sources. Many surface scatters of isolated or sparse amounts of historic artifacts such as bottle glass or white ware fragments were recorded as loci until further investigations could confirm the nature and substance of materials. Identified sites were delineated to state standards unless documentary evidence was available to determine the nature and time frame of deposits.

5.3 Laboratory and Curation

During this survey effort, non-diagnostic artifacts were not collected. Potentially diagnostic artifacts were collected and are temporarily housed at the HRA Gray & Pape office in Houston, Texas. Artifacts recovered from private property will be prepared for return to the landowner upon completion of the Project.



Examples of Transect Configurations Utilized During Survey

HRA Gray & Pape, LLC

Figure 2

6.0 RESULTS OF INVESTIGATIONS

The primary purpose of this investigation was to; 1) determine if any previously identified cultural resources or eligible or listed NRHP properties were located within a 1.6-kilometer (1-mile) radius of the Project area; 2) determine if any previous cultural resource investigations had been conducted in or near the Project APE; 3) determine whether or not any previously unidentified and intact cultural resources were present within the Project area by conducting an intensive pedestrian survey; and 4) provide management recommendations based on the research and survey activities.

6.1 Results of Site File Research

A review of the THC Online Archaeological Sites Atlas, an online resource maintained by the THC, determined no previously recorded sites are located within the APE. A total of 11 previously recorded archaeological sites are located within a 1.6 kilometers (1 mile) study radius of the Project, and to date the National Register status of these resources has not been determined, (Table 2). Maps showing previously recorded site locations near the Project are provided in Appendix A. All are at a sufficient distance from the currently proposed Project to ensure that both permanent and temporary impacts to these resources will be avoided.

Table 2. Previously recorded cultural resources within a 1.6-kilometer (1-mile) radius of the Project area.

Trinomial	Other Designations	Resource Type	Cultural Affiliation	Description	NRHP Status*
41SP47	77B2-9; THC-013018	Unknown	Unknown	Not Available	Unknown
41SP48	77B2-8; THC-013019	Unknown	Unknown	Not Available	Unknown
41SP49	77B2-7; THC-013020	Lithic Scatter	Unknown Prehistoric	Lithic flakes	Unknown
41SP53	Edwards Field Site	Shell Midden	Late Archaic / Early Neo-American	Lithic flakes, fire hardened clay, projectile points, pottery, bone	Unknown
41SP54		Shell Midden	Unknown Prehistoric	Lithic flakes, fire hardened clay, shell	Unknown
41SP55	THC-013026	Multi-Component Scatter	Unknown Prehistoric / Unknown Historic	Lithic tools, metal fragments, whiteware ceramics, glass	Unknown
41SP56	THC-013027	Prehistoric Scatter	Unknown Prehistoric	Lithic flakes, projectile points, pottery, bone	Unknown
41SP191		Prehistoric Scatter	Unknown Prehistoric	Shell fragments and lithic flakes	Unknown
41SP192		Prehistoric Scatter	Unknown Prehistoric	Shell fragments and lithic flakes	Unknown

41SP193		Shell Scatter	Unknown Prehistoric	Oyster and conch shell fragments	Unknown
41SP226	Miller Field	Shell Midden	Late Prehistoric / Neo-American, Late Archaic	Lithic flakes and tools, projectile points, shell tools, bone, burned clay	Unknown

*These cultural resources are located outside of the Project APE, and were not subject to investigation or National Register evaluation as part of the current Project.

Many of the sites listed above have little or no information associated with them, however it can be postulated that prehistoric archaeological sites identified in the inland regions of the Gulf Coastal Plain tend to be composed of ephemeral, shallow deposits. Typically, these sites consist of temporally non-diagnostic lithic scatters, thin subsurface deposits, or suggest the presence of multiple cultural components within a mixed context. Historic sites near the Project area typically consist of farms or homesteads dating to the late nineteenth or early twentieth centuries. Prehistoric sites in the area generally consist of shell middens located near existing or former water sources. These sites are generally considered seasonally occupied campsites and contain occupational refuse consisting of marine shell, lithic debris and tools, burned clay and animal bone, bone and shell tools, and pottery (Mercado-Allinger et al. 1996; Ricklis 1999, 1996).

6.2 Results of Field Investigations

Fieldwork was completed in two separate mobilizations. The first was carried out between February 22 and February 24, 2012 and required 76 person hours to complete. The second mobilization was completed on May 31 and June 1, 2012 and required approximately 40 person hours. Results for each survey segment are summarized in Table 3 and discussed below. Maps showing survey results are supplied in Appendix A.

Table 3. Results of Survey by Segment

Survey Segment	Figure	Segment Length (mi)	Survey Method	Shovel Tests	Comments
1	A1	0.8	Walkover / Shovel Test	3	Located south of Hwy 361. Walked in four transects from southern end of survey corridor north to Hwy 361. Empty agricultural field for the southern 0.8-kilometer (0.5-mile), which corresponds to an area previously unsurveyed. Remainder was grass covered and reduced to two transects due to a fenced DuPont facility. The grassy area was previously surveyed by HRAGP in 2004. Three judgmental shovel tests were performed in grassy area adjacent to DuPont facilities. Survey resulted in no cultural resources identified.
2	A1-A2	0.7	Walkover	5	Located west of County Road (CR) 4343. Walked in four transects from a property line at the northern end of segment to the southwest / south to Hwy 361. Empty agricultural field for the northern 0.8-kilometer (0.5-mile) which corresponds to an area previously unsurveyed. The remainder was grass and scrub covered but previously surveyed by HRAGP in 2004. Survey resulted in the discovery of Site 41SP256.

Survey Segment	Figure	Segment Length (mi)	Survey Method	Shovel Tests	Comments
3	A3	0.6	Walkover	0	Located east of Hwy 136 and west of CR 4195. Walked in four transects southeast / east from Hwy 136. Grass-covered for the first 0.2-mile from Hwy 136 to CR 1836 but showed signs of previous disturbance from plowing. A large excavated ditch outlines the property north of CR 1836. No materials were observed in the backdirt. This portion is outside of the Goodwin survey corridor. The remainder of Segment four is empty agricultural field east from CR 1836 to CR 4195. This area overlaps the Goodwin survey area. One locus of historic materials identified (Locus 3-1). Two groups of standing structures observed outside the survey corridor (SS3-1 and SS3-2).
4	A3-A4	0.8	Walkover	0	Located east of CR 3284 and west of Hwy 136. This segment overlaps the northern portion of the Goodwin survey corridor but extends further north. Walked in two transects west from Hwy 136. Empty agricultural field for entire segment. Survey resulted in no cultural resources identified.
5	A4	0.7	Walkover	0	Located west of CR 3284 and ends at a former dirt road. This segment overlaps the northern portion of the Goodwin survey corridor but extends further north. Walked in two transects west from CR 3284. Empty agricultural field for entire segment. Survey resulted in the discovery of Site 41SP257.
6	A4-A5	1	Walkover	0	Located east of CR 3865 and west of the dirt road that marks the end of Segment 5. This segment overlaps the northern portion of the Goodwin survey corridor but extends further north. The segment was walked in two transects from the dirt road west to CR 3865. Empty agricultural field for entire segment. Survey resulted in no cultural resources identified.
7	A5	0.4	Walkover	0	Located west of CR 3865 and continues west to a gravel path leading to a graveled pad of an abandoned gas well. This segment overlaps the northern portion of the Goodwin survey corridor but extends further north. The segment was walked in two transects from the gravel well pad road east to CR 3865. Empty agricultural field for entire segment. Survey resulted in no cultural resources identified.
8	A5	0.8	Walkover	0	Located east of Private Road 3741 and west of a gravel path leading to a graveled pad of an abandoned gas well. This segment is outside of Goodwin's coverage and was previously unsurveyed. The segment was walked in two transects from the gravel well pad road west to Private Road 3741. The segment was empty agricultural field for 0.5-mile until it reached a gravel road and fenced pasture. The pasture showed signs of previous disturbance from plowing and exhibited large furrows. Survey resulted in no cultural resources identified.
9	A7-A8	3	Walkover	0	This segment is located north CR 1458 and extends northwest crossing CR 3561, Hwy 631, and CR 3349 until reaching CR 3261. The segment parallels and overlaps the Goodwin survey corridor to the south for approximately two miles, after which it crosses Goodwin's survey and overlaps it to the north. Pedestrian reconnaissance was performed in four transects starting at CR 1458 and continuing northwest. The segment consisted entirely of empty, 100% visible, agricultural field for its entire length and crosses two man-made canals. Survey resulted in no cultural resources identified.

Survey Segment	Figure	Segment Length (mi)	Survey Method	Shovel Tests	Comments
10a	A8-A9	2	Walkover	0	Located West of CR 3261 and east of CR 3087. The segment parallels CR 1178 to the south. The segment corresponds to Goodwin's corridor for 0.6-mile and overlaps the southern portion of Goodwin's survey for the remainder. The segment was walked in three transects from CR 3261 and continuing northwest. The segment consisted entirely of empty, 100% visible, agricultural field for its entire length and crosses the intersection of two canals where they meet CR 1178. Survey resulted in the identification of two historic loci (Loci 10-1 and 10-2) within the survey corridor and one standing structure (Standing Structure 10-1) located adjacent to the survey corridor.
10b		0.4	Walkover	0	This segment consists of what appears to be a narrow linear workspace that stretches north from Segment 10a along the west side of CR 3349. The segment was walked in one transect south to north and consisted entirely of empty, 100% visible, agricultural field for its entire length. Survey resulted in no cultural resources identified.
11	A5-A6	0.8	Walkover	0	Located west of Private Road 3741 and east of CR 3677. The segment is just outside of Goodwin's survey corridor to the north. The segment was walked in three transects beginning at CR 3677 and continuing southeast. The segment consisted entirely of empty, 100% visible, agricultural field for its entire length. Survey resulted in the identification of one site (41SP258) and one non-archeological locus (Locus 11-2).
12	A6	0.5	Walkover	0	Located west of CR 3677 and continues west to a field break and row of transmission lines. Half of this segment overlapped the northern portion of the Goodwin survey and the remainder corresponded to it. The segment was walked in three transects beginning at CR 3677 and continuing northwest. The segment consisted entirely of empty, 100% visible agricultural field for its entire length except where it crossed a gravel road leading to a graveled pad of a gas well. Survey resulted in no cultural resources identified.
13	A6-A7	0.85	Walkover	2	Located west of CR 3579 and continues northwest / north to a field break near a row of electrical transmission lines. This segment begins outside of Goodwin's surveyed corridor, then crosses it and parallels it to the north. The segment was walked in three transects beginning at CR 3579 and continuing northwest. The segment consisted entirely of empty, 100% visible, agricultural field for its entire length. Survey resulted in no cultural resources identified. One non-archaeological shell scatter (Locus 11-2) was recorded.
14		1.80	Walkover	0	Located immediately south of Hwy 35 and west of CR 4343. This segment overlaps Goodwin's surveyed corridor along its entirety. This area was surveyed during mobilization #2 on June 1, 2012 during which time the entire segment was composed of mature sorghum crops. Regardless of large crops, surface visibility was good at 50-60%. The segment was subject to 100% pedestrian surface survey along three transects. No cultural resources were identified.

Survey Segment	Figure	Segment Length (mi)	Survey Method	Shovel Tests	Comments
14.1		0.60	Not Surveyed	0	Located between Hwy 35 and CR 91 (also called CR 4195). Landowner permission to survey was not granted as of June 1, 2012. Therefore, this segment has not been subject to survey by Goodwin or HRA Gray & Pape to date. In June 2012, the segment appeared to be composed entirely of mature sorghum crop rows, similar to surveyed Segment 14. Based on negative finds at adjacent Segment 14, HRA Gray & Pape is of the opinion that Segment 14.1 is unlikely to contain intact archaeological sites and believes that survey is not warranted.
15		0.50	Walkover	0	Located between CR 3579 and CR 3677 approximately 1.6 kilometers (1 mile) north of Hwy 181 near the town of Taft. This segment partially overlaps Goodwin's surveyed corridor. This area was surveyed during mobilization #2 on May 31, 2012 during which time the entire segment was composed of mature sorghum crops. Regardless of large crops, surface visibility was good at 50-60%. The segment was subject to 100% pedestrian surface survey along three transects. No cultural resources were identified.
16		0.90	Walkover	0	Located between CR 1458 and CR 3579 approximately 1.6 kilometers (1 mile) north of Hwy 181 near the town of Taft. Goodwin's surveyed corridor crosses this segment twice; once in the south and once in the north. This area was surveyed during mobilization #2 on May 31, 2012 during which time the northern half was composed of young blooming cotton crops and the southern half was composed of mature sorghum crops. Regardless of large crops, surface visibility was good at 50-90%, and was particularly good within the cotton cropland. The segment was subject to 100% pedestrian surface survey along three transects. No archaeological sites were found, although two groups of standing structures (Standing Structures 16-1 and 16-2) were recorded at the north end of the Segment 16 within the eastern half of the survey corridor and adjacent.
17		2.14	Walkover and limited shovel testing	12	Located between CR 3021 (also called CR 63A) and CR 3087 approximately 1.6 kilometers (1 mile) north of Hwy 181 near the town of Taft. Goodwin's surveyed corridor crosses this segment once in the north, east of CR 3021. This area was surveyed during mobilization #2 on May 31, 2012 during which time the segment was composed of sorghum crops, young blooming cotton crops, and open cattle pasture at a channelized drainage. Surface visibility ranged between 10% within open pasture which was subject to shovel testing and 90% within the cotton cropland. The segment was primarily subject to pedestrian surface survey along two-three transects, depending on the presence of a parallel gravel road (CR 1178). Shovel testing was focused in the open pasture with little visibility and near an old drainage that has been channelized. No archaeological sites were found, although Standing Structure 17-1 was recorded adjacent to the south of the survey corridor.
Laydown Yard	A1	5 acres	Walkover	0	Located west of CR 4343 and north of railroad tracks north of Hwy 361. This area was previously unsurveyed. The area was walked in approximately six overlapping transects beginning at the yard's northern boundary and continued south. The segment consisted entirely of empty, 100% visible, agricultural field. Survey resulted in no cultural resources identified.

Field investigation consisted of surface inspection, walkover, and limited shovel testing within the Project area, although subsurface investigation was typically not required as the surface visibility was 100% during the first field mobilization effort in February of 2012, and 50% visibility during the second field mobilization effort in May of 2012 (Plates 1 and 2). When shovel tests were excavated, they were dug to depths ranging between 40 centimeters and 70 centimeters (16 inches and 27.5 inches). The tests resulted in soils typical of those mapped for the area.

Years of agricultural use within the properties containing the Project's survey corridor have likely disturbed the upper several centimeters of soil below the surface. Typical disturbances observed include plowed soils, utility lines and previous pipeline construction, graveled gas well pads and wind turbine construction, utility access roads, county road and bridge construction, and creek / drainage channelization (Plates 3 and 4). Agricultural activities within the county have been dominant since 1900 (Guthrie 2012). Available historic topographic maps and aerial imagery has verified that portions of the survey corridor have been farmed for nearly 100 years.

6.2.1 Newly Recorded Resources

During this investigation, no previously recorded cultural remains, features, or structures were identified within the Project's survey corridor. However the survey identified new archaeological resources including two historic surface scatters (41SP257 and 41SP258) and three historic loci (Loci 3-1, 10-1, and 10-2), one Prehistoric shell midden (41SP256), and one non-archaeological shell surface scatter (Locus 11-2). In addition several standing structures were observed within or immediately adjacent to the survey corridor (Standing Structures 3-1, 3-2, 10-1, 16-1, 16-2, and 17-1). These resources are discussed in the following section.

Site 41SP256

Prehistoric Site 41SP256 is located along a former estuarine channel that now consists of a thoroughly plowed field (Figure 3). Although the site appears centralized outside the survey corridor to the north, portions extend to the south into the survey corridor. The site boundary measures approximately 30 meters (98 feet) north/south and 50 meters (164 feet) east/west within an empty field that appeared to have been recently tilled (late May) prior to the site visit in June 2012 (Figure 3). Approximately 10 meters (30.3 feet) of the site's southeastern boundary extends to within the northern side of the survey corridor. At this location, there is an existing natural gas pipeline co-located with the proposed pipeline route (Figure 3).

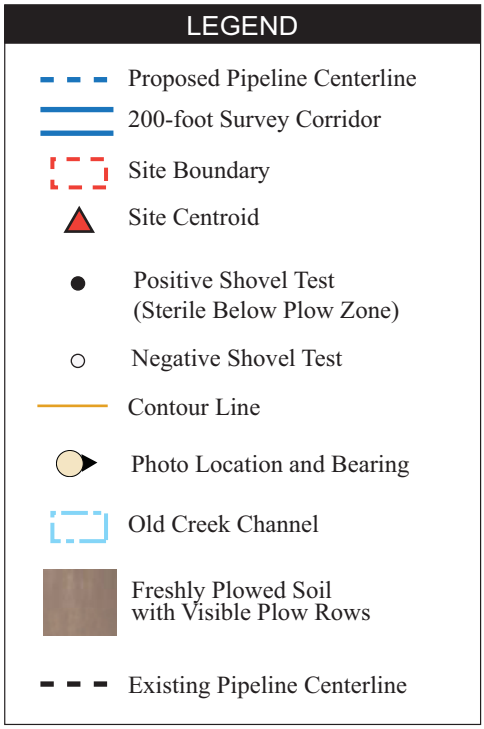
The site was discovered during the initial pedestrian walkover survey in February 2012 and was revisited in June 2012 to perform the subsurface testing. During the initial walkover survey the site was identified by a moderate surface scatter of mostly crushed shell fragments measuring between 2 to 4 centimeters (0.8 to 1.6 inches) in size. Shell fragments that could be identified included freshwater clam, oyster (Rangia), whelk, and conch (Figure 3 Photo A). Surface finds produced a total of six lithic artifacts consisting of four pieces of debitage and two biface tools (Appendix B: Plate B1). In addition, two bone fragments and five burned clay nodules were observed.

Plate 1. Example of field conditions observed within the survey corridor during the first field mobilization. Photograph taken in February 2012. View is to the north.

Plate 2. Example of field conditions observed during the second field mobilization. Photograph taken in May 2012. View is to the south.

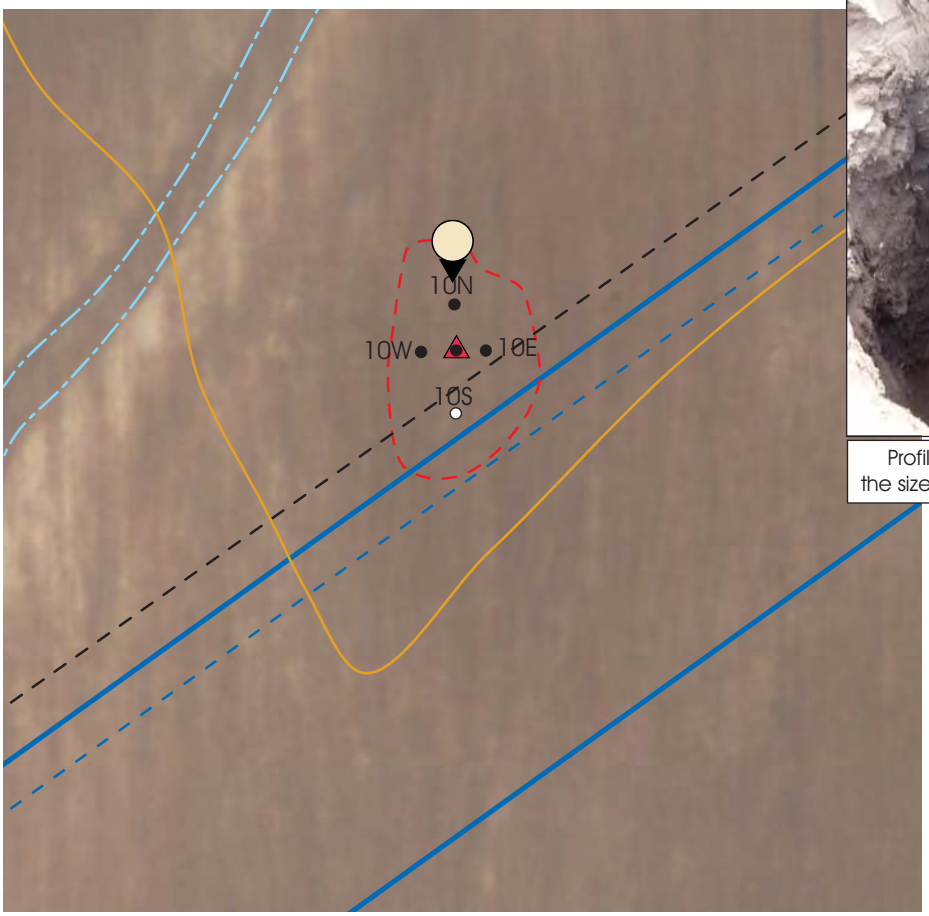
Plate 3. Wind turbine located outside the survey corridor in Segment 9. Photograph taken in February 2012. View is to the north.

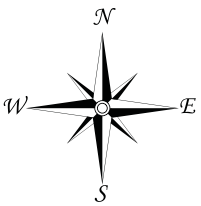
Plate 4. Drainage ditch separating Segments 8 and 11. Photograph taken in February 2012. View is to the northwest.

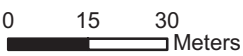


Overview of Site 41SP256. Photograph taken in February 2012.
View is to the south.

Profile of Datum Shovel Test showing
the size and the extent of shell fragments.







Planview of Site 41SP256

HRA Gray & Pape, LLC

Figure 3

Table 4. Newly identified cultural resources within the Project survey corridor.

Field Site Number	Trinomial	Type	Temporal Affiliation	Description	Figure	Plate(s)
2-1	41SP256	Prehistoric Surface Scatter	Unknown Prehistoric / Possibly Archaic	Midden remains containing shell fragments, lithic debris and tools, burned clay and faunal bone. Confined to the Plow Zone	A2	B1
5-1	41SP257	Historic Surface Scatter	1940s to Modern	Occupational remains including clear and colored glass, porcelain, whiteware, metal fragments and tools, cut bone.	A4	B3
11-1	41SP258	Historic Surface Scatter	1940s to Modern	Occupational remains including clear and colored glass, porcelain, whiteware, metal fragments.	A5	B4
Locus 11-2	Not Recommended	Shell Surface Scatter	Unknown	Surface scatter of oyster shell. Non-archaeological in nature	A6	B5
Locus 3-1	Not Recommended	Historic Surface Scatter	Likely associated with nearby mid 20th century structures	Sparse amount of clear and colored glass, porcelain, and metal fragments	A3	B6
Locus 10-1	Not Recommended	Historic Surface Scatter	Likely re-deposited material from former early to mid 20th century structures located elsewhere on property	Sparse amount of brick, glass, and metal fragments	A9	B7
Locus 10-2	Not Recommended	Historic Surface Scatter	Re-deposited rubble from former mid 20th century bridge crossing of CR 1179	Mortar and Concrete rubble	A9	B8-B9
SS3-1	Not Applicable	Standing Structure	1960	Cinderblock office building	A3	B10
SS3-2	Not Applicable	Standing Structure	1920	One-and-a-half story, wood-frame hipped-roof bungalow/barn, horse stall, and pole barn	A3	B11
SS10-1	Not Applicable	Standing Structure	1958	Hipped roof Ranch house and modern outbuidlings	A9	B12
SS16-1	Not Applicable	Standing Structure	1935	Side-/Front-gabled Ranch house and outbuilding	A7	B13

Field Site Number	Trinomial	Type	Temporal Affiliation	Description	Figure	Plate(s)
SS16-2	Not Applicable	Standing Structure	1935	Vernacular, one-story gabled-L house	A7	B14
SS17-1	Not Applicable	Standing Structure	1940s with modern facade	Two-story, vernacular house with a hipped roof	A10	B15-B16

A total of five shovel tests were excavated within the visible extent of the shell scatter. Of those, four tested positive for shell fragments, burned clay nodules and gravels, and small bone fragments. As a result of subsurface testing the site was found to be concentrated on/near the surface with a sparse amount of small shell fragments making up approximately 10% of the matrix within each shovel test. Along with shell fragments the subsurface tests produced a total of less than 10 unidentifiable bird and small mammal fragments of faunal bone, and 10 to 15 fired clay fragments found within the soil matrix between 10 to 40 centimeters (3.9 to 15.7 inches) below surface. The bulk of the materials were located within the first 30 centimeters (12 inches) below the surface. Recorded faunal bone included a piece of unidentifiable tooth enamel and nearly all fragments showed burn traces (Plate B1). No lithic or other artifacts were recovered from within shovel tests.

Recorded soils were represented by two strata. Stratum I was recorded extending to the depths of approximately 40 centimeters (15.7 inches) below surface and consisting of dry and loose very dark gray (10YR3/1) clay loam. The transition between strata was marked by gradual increase in moisture content and the change from clay loam to clay (Stratum II). Stratum II was recorded as black, sticky clay with blocky structure of black color (10YR2/1). The extent of the cultural material was confined to the first stratum, or the top 40 centimeters (15.7 inches) with shell fragments completely disappearing between 40 to 50 centimeters (15.7 to 19.7 inches) below surface (Figure 3 Photo B).

Site 41SP256 appears to be concentrated on or near the surface. Since a typical plow zone extends to a depth of 20 to 30 centimeters (8 to 12 inches) the bulk of the observed materials have been impacted by agricultural activities. While the site does not appear to be intact its good preservation may offer some research potential. The portion of the site located within the Project survey corridor was limited to the surface and did not contain buried deposits. Because the site's main concentration is located outside of the proposed workspace for the current Project, and is separated from the Project by an existing pipeline, no further work is recommended for this site in regard to the Project.

Site 41SP257

Site 41SP257 consists of a surface scatter of historic material including clear, amethyst, and blue glass fragments, porcelain and ceramic whiteware fragments, cut bone, unidentified metal and tool fragments, and shell. Research suggests that the historic surface scatter is associated with the former location of a group of structures. These structures are visible in aerial imagery dating to 1949 and topographic maps beginning in 1952 but do not appear on topographic maps dating between 1949 to 1918. The structures are depicted on modern topographic maps dating to 1993 but have been moved or demolished by 1995 based on aerial imagery. The location is now a plowed field and multiple existing natural gas and nitrogen pipelines

cross the location and are collocated with the current Project alignment (Figure 4). Based on the artifactual material observed in the field and available mapping, the site dates to no earlier than 1940-1950. No further work is recommended for this site.

Site 41SP258

Site 41SP258 consists of a surface scatter of historic material including clear, amethyst, and blue glass fragments, porcelain and ceramic whiteware fragments. Preliminary research suggests that the historic surface scatter is associated with the former location of a group of structures. These structures are visible in aerial imagery dating to 1949 and topographic maps beginning in 1952 but do not appear on topographic maps dating between 1949 to 1918. The structures are depicted on modern topographic maps dating to 1993 but have been moved or demolished by 1995 based on aerial imagery. The location is now a plowed field and existing nitrogen and natural gas pipelines cross the location and are collocated with the current Project alignment and an abandoned gas well pad is located adjacent to the site's north edge (Figure 5). Based on the artifactual material observed in the field and available mapping the site dates to no earlier than 1940-1950. No further work is recommended for this site.

Field Locus 11-2

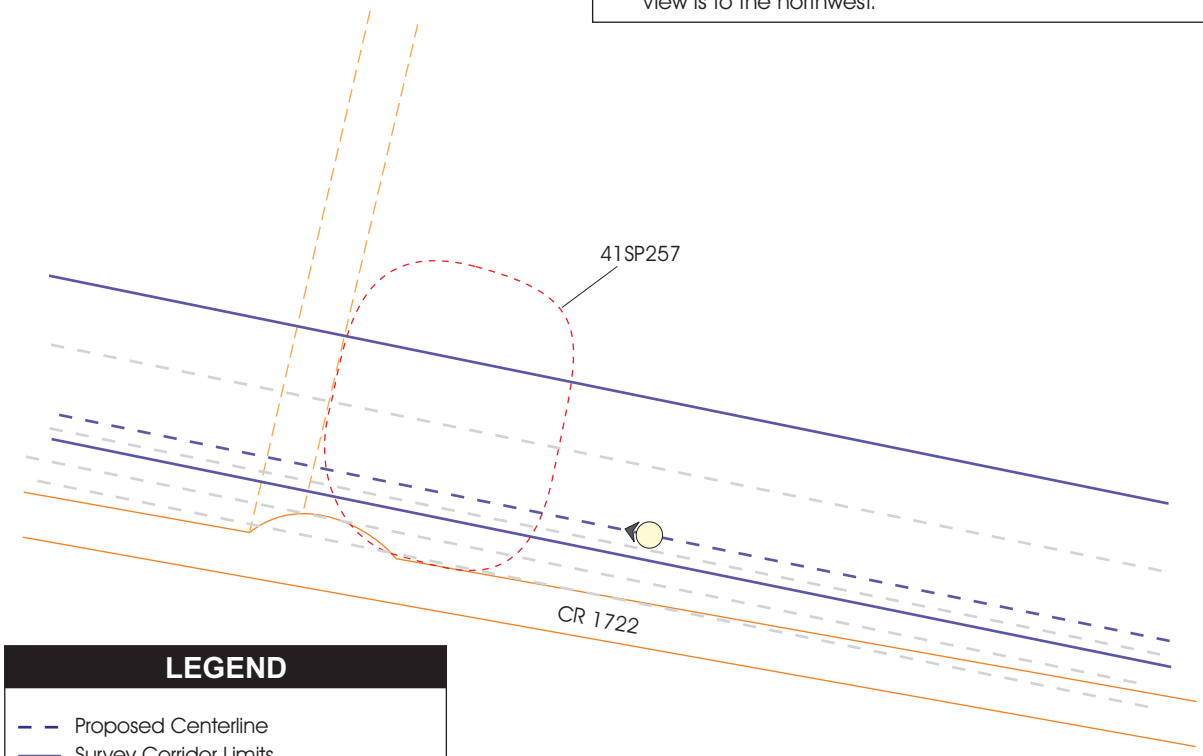
Locus 11-2 is location in a plowed field (Plate B2) and consists of a surface scatter of oyster and clam shells that appears centralized outside the survey corridor to the south but extends within it. The material does not appear on aerial imagery dating back to 1950 and does not appear to be associated with roads or structures located nearby on historic topographic maps dating back to 1918. The shells are broken and crushed and are composed primarily of oyster and clam. No whelk or conch shells were recorded. A systematic walkover survey in closely spaced pedestrian transects did not result in the identification of any prehistoric or historic artifacts in association with the scattered shell. The scatter extends from the east edge of the County Road (CR) 3677 road bed to approximately 200 meters (656 feet) west. The scatter is approximately 20 meters (66 feet) wide within the south side of the survey corridor. It appears to extend only slightly beyond the south boundary of the surveyed corridor. Two shovel tests were placed in the area of highest shell concentration resulting in no shell beneath the plowed zone at 40-50 centimeters (16-20 inches) below surface. The shovel tests were void of any cultural material to suggest prehistoric human occupation. Based on the lack of any archaeological artifacts or features indicative of a site, HRA Gray & Pape is not seeking an official state-issued trinomial for this locus. Although undefined, based on work conducted at this location, this find is believed to be non-archaeological in nature.

Three other loci of historic materials (Loci 3-1, 10-1, and 10-2) were identified but preliminary research suggests these materials were likely associated with nearby standing structures or were redeposited from elsewhere on their respective properties as a result of land clearing and leveling activities.

Field Locus 3-1

Locus 3-1 is located in a plowed field (Plate B3) and consists of a light scatter of clear, amethyst, and blue glass fragments, porcelain and metal fragments. Multiple existing

Overview of Site 41SP257. Photograph taken in February 2012. View is to the northwest.

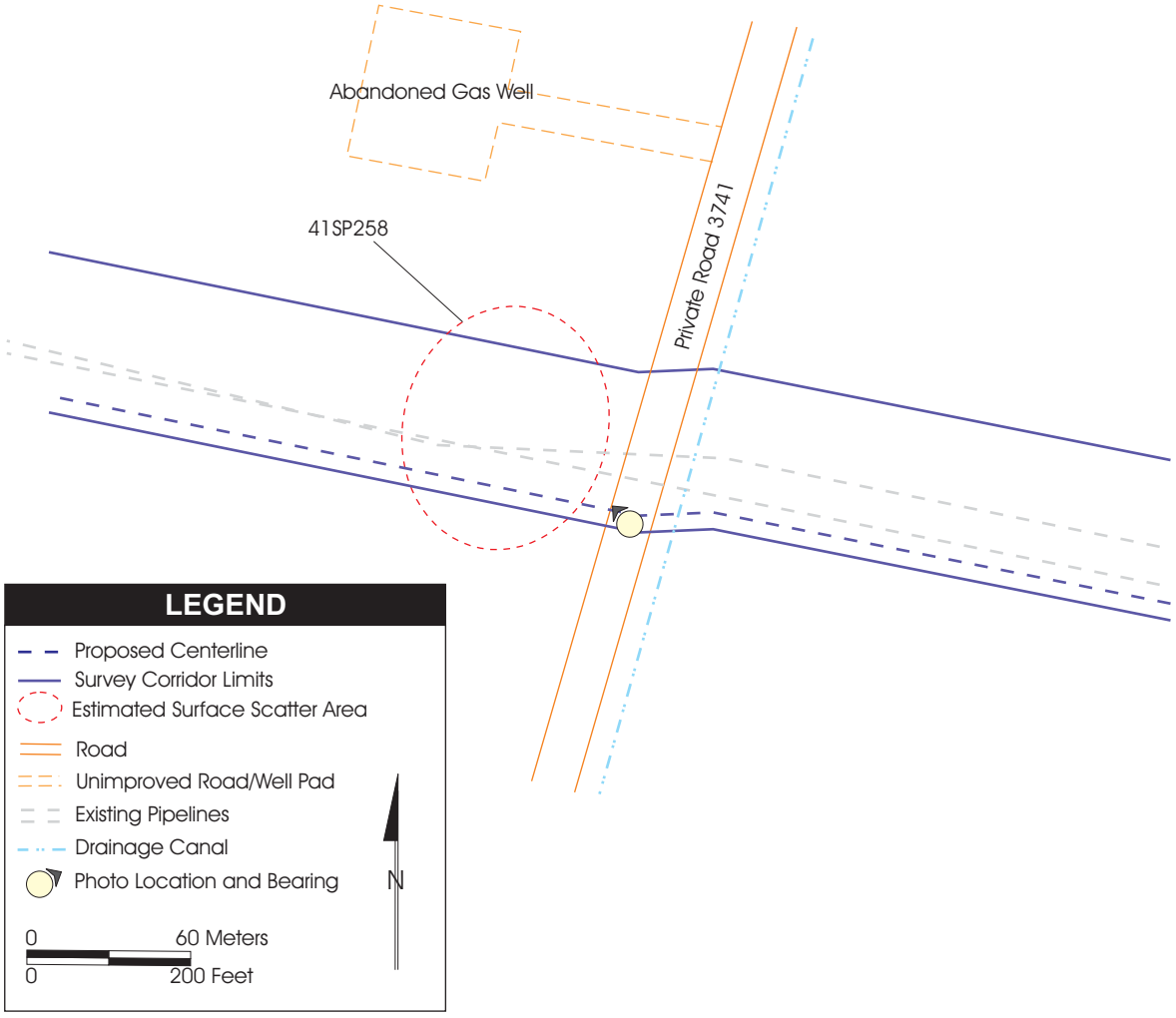


Planview of Site 41SP257

HRA Gray & Pape, LLC

Figure 4

Overview of Site 41SP258. Photograph taken in February 2012. View is to the northwest.



Planview of Site 41SP258

HRA Gray & Pape, LLC

Figure 5

condensate, crude oil, and natural gas pipelines intersect at the location and the current Project will be collocated with a natural gas pipeline that travels east-west across the spot. A search of historic aerial imagery and historic topographic maps fail to show any structures located in the location, however it is known that structures located across the road appear by the 1940s. It is likely that the material was discarded from those residences and through earth-moving activities came to rest in the current location.

Field Locus 10-1

Locus 10-1 consists of a light scatter of brick fragments, glass, and metal fragments located in plowed field where three man-made canals meet under CR 1178. The material is located on all sides of the canals where they meet south of the road (Plate B4). The current Project will be collocated with an existing natural gas pipeline that crosses the locus. A review of historic aerials and topographic maps show structures located 500 to 800 meters (1640 to 2625 feet) south on the associated parcels. The structures are gone by the mid-1990s. This material is likely redoposited from those structures and was pushed to the edge of the canals to clear the parcel for agriculture.

Field Locus 10-2

Locus 10-2 consists of a pile of fragmented mortar and concrete blocks located south of where a man-made canal crosses under CR 1178 (Plate B5). The current Project will be collocated with two or more existing natural gas pipelines that cross the locus. This material appears to be the remains of a former bridge on CR 1178. While the bridge railings appear older, the substructure is modern, suggesting that the material identified as Locus 10-2 is composed of the older substructure.

To date, several standing structures were observed near to but outside of the survey corridor. One group of structures (Standing Structure 16-1) was documented within the survey corridor. These and other structures are discussed below.

Standing Structures 3-1 and 3-2

This complex of buildings is located on the north side of CR 1836, which is located just north of Texas-35 East. It includes a small, cinderblock office building (3-1); a bungalow that has been converted into a barn and stables (3-2); and a small pole barn. The office fronts CR 1836 and is oriented from south to north. Both of the outbuildings are oriented in a northwesterly to southeasterly direction or what amounts to about a 45° angle in relation to CR 1836.

Standing Structure 3-1 is a ca.1960, one-story, vernacular office building (Plate B6 and B7). Built of cinderblock, this small, rectangular-shaped utilitarian building features a flat roof with a slight, overhanging eve. Standing Structure 3-1 includes only two, small, plate glass windows; both of which are located in the south wall facing CR 1836. Pedestrian doors are located in the east and west sides of the building. The west wall shows evidence of an in-filled door toward the north side of the wall. The building rests atop a concrete slab foundation. It appears to have served as an office for a local agricultural operation.

Research in local libraries and other repositories did not reveal the building to be associated with any significant events or persons. The building therefore is not eligible for inclusion in the NRHP under Criterion A or B. It is not representative of a distinctive type, period, or method of construction. As an undistinguished vernacular building, the building is not eligible under NRHP Criterion C. Consequently, Structure 3-1 is recommended as not eligible for the National Register of Historic Places.

Building 3-2 is ca.1920, one-and-a-half story, wood-frame hipped-roof bungalow that has been converted into a barn (Plates B8 and B9). This complex of structures was previously described in Athens et al. (2004). A hipped dormer sits atop what was originally the front porch of the house. The front porch has been entirely enclosed and most or all of the windows of the house have been covered with plywood. A large, barn door has been installed in the southwest side of this former house. An extensive, ca.1950s or 1960s, one-story horse stall addition extends from the southwest and southeast sides of the bungalow. Built of wood, the horse stall features a low-pitch gable roof. A series of large window openings extends along the southwest side of the stall. The stall appears to consist of a series of subsequent additions that have been cobbled together over time. Some portions of the addition rest atop brick footers while other parts of the building consist of pole-barn construction.

The odd orientation of the bungalow indicates that someone probably moved it to its current location. Indeed, the building does not appear on topographic maps prior to 1950. It does, however, appear on an aerial photo dating to 1950, indicating that someone probably moved it into place about that time.

Research in local libraries and other repositories did not reveal the building to be associated with any significant events or persons. The building therefore is not eligible for inclusion in the NRHP under Criterion A or B. It is not representative of a distinctive type, period, or method of construction. Furthermore, drastic alterations to the building, including its likely relocation, infilling of doors and windows, and large additions, have compromised its integrity of location, workmanship, design, feeling, and materials. As a vernacular building that has lost historic integrity, the building is not eligible under NRHP Criterion C. Consequently, Structure 3-2 is recommended as not eligible for the National Register of Historic Places.

Standing Structure 10-1

Standing Structure 10-1 is located on the north side of CR 1178 (also known as CR 100), just outside of Survey Segment 10. The property includes a residence; a detached garage; and a pair of metal-sided pole barns. All of the buildings are oriented in a northwesterly to southeasterly direction. Existing pipelines are located south of CR 1178 and are collocated with the current Project alignment.

The residence at Standing Structure 10-1 is a ca.1958, hipped roof Ranch house (Plate B10). The building likely started out as an L-plan house with a detached garage. At some point in time the owner enclosed the breezeway between the house and the garage, which was then converted into an extra room. They also built a small L-shaped addition at the southeast corner of the house. The roof is covered with asphalt shingles and the walls are clad with aluminum siding. The house rests atop a concrete slab foundation.

Research in local libraries and other repositories did not reveal the building to be associated with any significant events or persons. The building therefore is not eligible for inclusion in the NRHP under Criterion A or B. It is not representative of a distinctive type, period, or method of construction. Furthermore, alterations to the building, including additions and replacement siding, have compromised its integrity of workmanship, design, feeling, and materials. As a vernacular building that has lost historic integrity, the building is not eligible under NRHP Criterion C. Consequently, Structure 10-1 is recommended as not eligible for the National Register of Historic Places.

Conversion of the original garage into an extra room created the need for a new garage building. To this end the owners built a wood-frame and metal sided garage building at the northwest corner of the original garage building. This one-story, front-gabled building remains entirely open at the south end, providing easy access for vehicles. Assessor's records indicate that the garage building is less than fifty years of age.

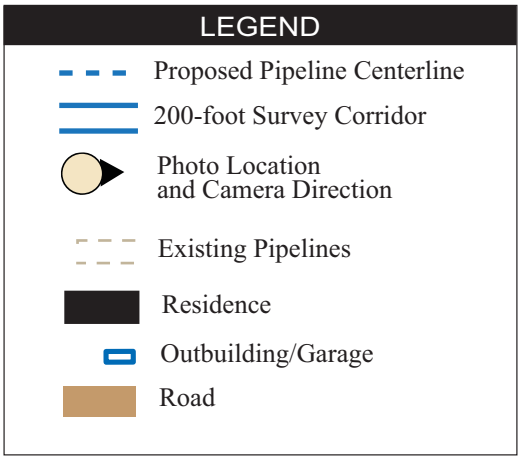
Additional buildings on the property include a pair of metal-sided pole barns (Plate B11). Located north of the house, these buildings possibly include pre-fabricated frames and trusses. The buildings may be used to store farm machinery. Assessor's records indicate that the pole barns are less than fifty years of age.

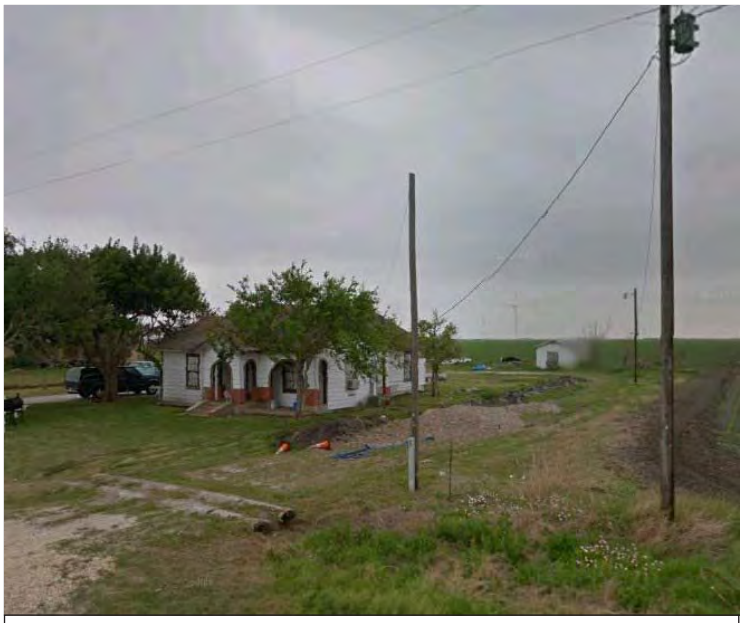
Standing Structure 16-1

Standing Structure 16-1 includes a residence and an outbuilding. These resources are located on the south side of CR 1458 (also known as CR 102) within the east half of the survey corridor (Figure 6). The outbuilding appears to be either a workshop or possibly a shop that has been converted into a residence. The buildings are oriented from north to south. Existing butane, propane, and refined products pipelines are located to the west of the structures.

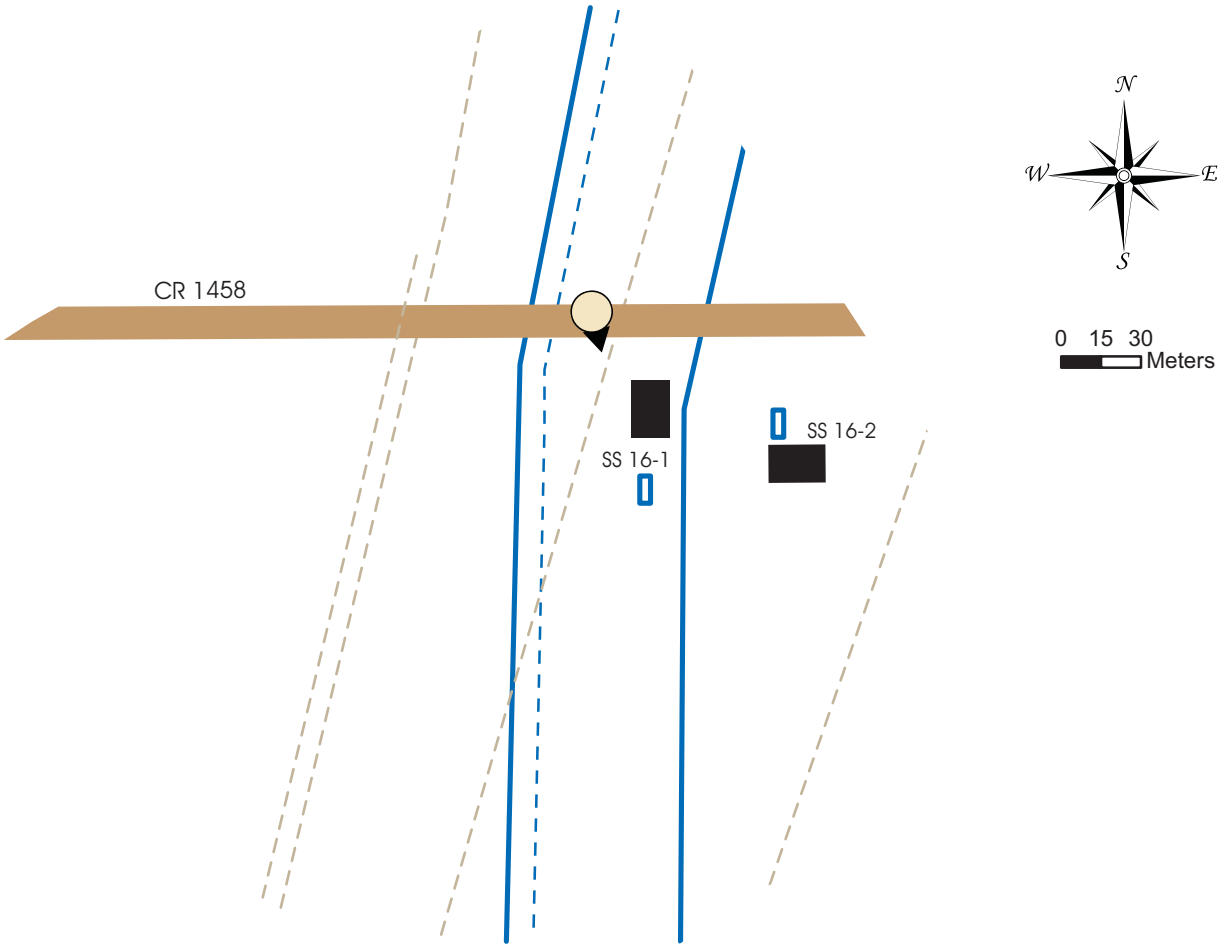
Built as early as ca.1935, the residence at Standing Structure 16-1 includes what appears to be two separate periods of construction. Precisely which part of the house the owners built first remains uncertain. The front portion of the house consists of what would otherwise be a side-gabled Ranch house (Plate B12). This portion of the house features a center entrance with a gabled porch cover extending from the facade. The center entrance and west half of the façade includes a recessed porch that is punctuated with a series of five, arched openings. Suggestive of a Spanish style colonnade, the arched openings lend this otherwise undistinguished façade a sense of style. A large, gabled wing extends from the south side of the side-gabled, front portion of the house (Plate B13). This section of the house stands a foot or two taller than the side-gabled portion of the house, causing the ridge of the cross-gable to peer over the top of the smaller, side-gabled building. A small, gabled addition extends from the south end of the wing. The roof of the building is covered with asphalt shingles and the walls are clad with aluminum siding. Fenestration consists of 6/6 double-hung windows. The house rests atop concrete footers.

Research in local libraries and other repositories did not reveal the building to be associated with any significant events or persons. The building therefore is not eligible for inclusion in the NRHP under Criterion A or B. It is not representative of a distinctive type, period, or





Standing Structure 16-1 as seen from CR 1458. Image modified from GoogleEarth, June 2012. View is to the southweast.



Planview of Standing Structure 16-1 within the Survey Corridor

HRA Gray & Pape, LLC

Figure 6

method of construction. Furthermore, alterations to the building, including additions and replacement siding, have compromised its integrity of workmanship, design, feeling, and materials. As a vernacular building that has lost historic integrity, the building is not eligible under NRHP Criterion C. Consequently, Structure 16-1 is recommended as not eligible for the National Register of Historic Places. At first glance, the rear portion of the house would appear to be the addition. However, the neighboring house, also built ca.1935, bears a striking resemblance to the south wing of Standing Structure 16-1, suggesting that the cross-gabled, front portion of the house might actually comprise a later addition. Given that the roof lines do not match up, someone might have moved a side-gabled Ranch house into position at the front of what might have originally been a front-gabled dwelling.

A long and narrow, one-story side-gabled building rests near the southwest corner of the residential lot (Plate B14-B15). This wood-frame building features an asphalt shingle roof, plywood siding, and a garage door in the east wall. Pedestrian doors are located in the north and east walls. The west wall is punctuated with a series of three windows. The original function of the building remains unknown but it might have served as a workshop or garage. The owners may have converted into a residence at some point in time.

Research in local libraries and other repositories did not reveal the building to be associated with any significant events or persons. The building therefore is not eligible for inclusion in the NRHP under Criterion A or B. It is not representative of a distinctive type, period, or method of construction. A vernacular building that lacks distinction, the outbuilding associated with Structure 16-1 is not eligible under NRHP Criterion C. Consequently, the building is recommended as not eligible for the National Register of Historic Places.

Standing Structure 16-2

Standing Structure 16-2 is located on the south side of CR 1458 (or CR 102), just east of Building 16-1. The property includes the house itself and a detached garage. The buildings are oriented from north to south. Existing natural gas and crude oil pipelines are located to the southeast of the structures.

Built ca.1935, the residence at Standing Structure 16-2 is a vernacular, one-story gabled-L house. It features an asphalt shingle roof, original clapboard or drop siding, and what appear to be casement windows (Plates B16). The house probably rests atop concrete footers. According to Assessor's records, this house was built about the same time as its neighbor to the west. The rear portion of Building 16-2 looks similar in massing and gable pitch as that found on the rear portion of Building 16-1. Quite possibly the two houses were built by the same carpenter.

Research in local libraries and other repositories did not reveal the building to be associated with any significant events or persons. The building therefore is not eligible for inclusion in the NRHP under Criterion A or B. Although the house retains reasonable integrity, it is not representative of a distinctive type, period, or method of construction. As an undistinguished, vernacular building, structure 16-2 is not eligible under NRHP Criterion C. Consequently, Structure 16-2 is recommended as not eligible for the National Register of Historic Places.

The property also includes a detached garage/workshop. This one-story, front-gabled building

is located immediately north of the house (Plate B17). It features an asphalt shingle roof, large sliding doors in the facade, and 1/1 replacement sash windows in the front and sides of the building. A lean-to car-port or storage shelter extends along the north side of the garage.

Research in local libraries and other repositories did not reveal the building to be associated with any significant events or persons. The building therefore is not eligible for inclusion in the NRHP under Criterion A or B. Although the garage retains reasonable integrity, it is not representative of a distinctive type, period, or method of construction. As an undistinguished, vernacular building, the garage building associated with structure 16-2 is not eligible under NRHP Criterion C. Consequently, this building is recommended as not eligible for the National Register of Historic Places.

Standing Structure 17-1

Standing Structure 17-1 is located on the south side of CR 1178 (or CR100) at the south end of Segment 17. The property includes a residence and a pole barn/machine storage building. The buildings are oriented in a northwesterly to southeasterly direction. These resources are located outside, but immediately adjacent to, the survey corridor. An existing natural gas pipeline routes around the structures and is collocated with the current project alignment.

Built ca.1940, the residence at Standing Structure 17-1 is a two-story, vernacular house with a hipped roof (Plate B18). It features an asphalt shingle roof, vinyl siding, 1/1 vinyl or aluminum replacement sash windows, and faux-rock siding along the foundation of the house. The house has been highly-modified in recent years, with large additions, vinyl siding, and replacement windows obscuring or replacing the original features of the house. Only the south wall of the house retains original wood siding (Plate B19).

Research in local libraries and other repositories did not reveal the building to be associated with any significant events or persons. The building therefore is not eligible for inclusion in the NRHP under Criterion A or B. It is not representative of a distinctive type, period, or method of construction. Furthermore, recent alterations to the building, including additions, and replacement siding and windows, have compromised its integrity of workmanship, design, feeling, and materials. As a vernacular building that has lost historic integrity, the building is not eligible under NRHP Criterion C. Consequently, Structure 17-1 is recommended as not eligible for the National Register of Historic Places.

A large pole-barn and machine storage building is located about 70-feet south of the house. This large, side-gabled building is divided into two sections by a central breezeway (Plate 20). The roof and sides of the building are covered with corrugated steel. The west half of the building includes a pair of large, rollaway doors in the north wall.

Research in local libraries and other repositories did not reveal the building to be associated with any significant events or persons. The building therefore is not eligible for inclusion in the NRHP under Criterion A or B. It is not representative of a distinctive type, period, or method of construction. As an undistinguished vernacular outbuilding, the pole barn associated with Structure 17-1 is not eligible under NRHP Criterion C. Consequently, this building is recommended as not eligible for the National Register of Historic Places.

7.0 CONCLUSIONS AND RECOMMENDATIONS

On behalf of Tetra Tech and OxyChem, this report presents the findings of an archaeological background literary review and a pedestrian reconnaissance cultural resources survey with limited shovel testing for a proposed liquid hydrocarbon pipeline corridor in San Patricio County, Texas. HRA Gray & Pape has completed survey of 189 hectares (466 acres) of current proposed pipeline survey corridor including portions of a previously planned pipeline route and a 2-hectare (5-acre) proposed laydown yard for the Project.

Prior to fieldwork, initial investigation consisted of a background literature and site file search to identify the presence of previously recorded sites within a 1.6-kilometer (1-mile) radius of the Project area. No previously recorded resources were identified within the Project's survey corridor or within the Project's APE. Eleven previously recorded sites are located within 1.6 kilometers (1 mile) of the Project's survey corridor; each is at a sufficient distance from the proposed Project's APE that there will be no impacts to these cultural resources.

The survey corridor consists mostly of agricultural fields with surface visibility ranging between 50-100% depending on whether crops are actively growing. In addition, portions of the current survey corridor were previously surveyed by both HRA Gray & Pape and Goodwin & Associates. Consultation with the THC on February 7, 2012, confirmed the methodology of pedestrian reconnaissance with limited shovel testing within the study area. Fieldwork was conducted between February 22 and February 24, 2012 and completed on May 31 and June 1, 2012. Field investigation consisted of surface inspection, walkover, and judgmental shovel testing within the Project area. Years of agricultural use within the properties containing the Project's survey corridor have likely disturbed the upper several centimeters of soil below the surface. Typical disturbances observed include plowing, previous utility line and pipeline construction, gas well pad and wind turbine construction, and access roads, county road/bridge construction, and creek/drainage channelization.

During this investigation, cultural remains or features were located within and adjacent to the Project's survey corridor. This includes three sites, four loci, and six groups of historic structures. One or more existing pipelines cross all three newly identified sites. Based on delineation and mapping efforts, 41SP256, a prehistoric shell midden, is confined to the plowed zone and contains no intact deposits. It is recommended not eligible for the National Register. Preliminary investigations suggest that historic scatters 41SP257 and 41SP258 are no older than the mid-twentieth century. These sites likely do not contain information that could contribute to the understanding of this region's history. Loci 3-1, 10-1, and 10-2 consist of sparse historic surface scatters and were likely associated with nearby standing structures or were re-deposited from elsewhere on their respective properties as a result of agricultural activities. Likewise, Locus 11-2 contains no evidence to suggest that it is archaeological in nature and it too is confined to the plowed zone adjacent to an existing road bed. Based on their questionable context and lack of research value, these loci are recommended as not eligible for the National Register and official state trinomials are not requested for them. No further work is recommended at any of the newly recorded resources.

All identified standing structures are composed of early to mid-twentieth century homesteads and farmsteads that are recommended as not eligible for the National Register of Historic Places. Further, most including Standing Structures 3-1, 3-2, 10-1, 16-2, and 17-1 are located outside of the survey corridor and separated from it by existing improved roads. While they may be subjected to the temporary vibration of heavy equipment they are in no danger of direct impact from the Project. While Standing Structure 16-1 is located inside the survey corridor, it should not be directly impacted by construction efforts and the resultant Project will be underground and will not result in a visual impact to the viewshed. No architectural coordination is recommended concerning these structures.

To date, with the exception of a 1.05-kilometer (0.60-mile) segment for which landowner permission was not granted at the time of survey, the entire proposed pipeline route has been surveyed. Although access permission was later granted, HRA Gray & Pape is of the opinion that the remaining unsurveyed segment of corridor is not likely to contain intact and significant archaeological sites or historic structures based on adjacent survey results and a review of historic topographic maps and historic aerial imagery. HRA Gray & Pape recommends that survey not be required on this segment, a recommendation that was consulted with and concurred by the THC on June 14, 2012 (Appendix C).

Finally, based on the results of survey and lack of intact buried archaeological sites recommended as eligible for the National Register or the presence of significant architectural resources within or adjacent to the pipeline survey corridor, HRA Gray & Pape recommends no further cultural resources work be required for the remainder of the Project and that the Project be allowed to proceed as planned.

8.0 REFERENCES

Abbott, James T.
2001 Houston Area Geoarcheology: A Framework for Archeological Investigation, Interpretation, and Cultural Resource Management in the Houston Highway District. Texas Department of Transportation, Environmental Affairs Division.

Aten, Lawrence E.
1984 Woodland Cultures on the Texas Coast. In *Perspective on Gulf Coast History*, edited by Dave D. Davis, pp. 72-93. Ripley P. Bullen Monographs in Anthropology and History, No. 5. Florida State Museum, University Presses of Florida, Gainesville.

Athens, William P., Rebecca Sick, Manny Moss, Susan Barrett, Peter Cropley, Ashley Sanders, and Martin Handly
2004 Phase I Cultural Resources Survey and Archeological Inventory of the Proposed San Patricio Pipeline Project, San Patricio County, Texas. Report produced by R. Christopher Goodwin & Associates, Inc.

Biesaart, Lynne A., Wayne R. Roberson, and Lisa Clinton Springs
1985 Prehistoric Archaeological Sites in Texas: A Statistical Overview. Office of the State Archaeological Report 28. Texas Historical Commission, Austin.

Black, S. L.
1989 South Texas plains. Pages 39-62 in *From the Gulf to the Rio Grande: Human Adaptation in Central, South, and Lower Pecos Texas,* by T. R. Hester, L. L. Black, D. G. Steele, B. W. Olive, A. A. Fox, K. J. Reinhard, and L. C. Bement. Arkansas Archeological Survey Research Series No. 33. Center for Archaeological Research at the University of Texas at San Antonio, Texas A&M University, and the Arkansas Archeological Survey.

Burr, David H.
1839 *Map of the United States of North America*. Published in: The American Atlas; Phillips 4525-1, 1379a-1. Publisher: John Arrowsmith, London.

Campbell, T. N.
1988 *Indians of Southern Texas and Northeastern Mexico,* Selected Writings of Thomas Nolan Campbell. Texas Archeological Research Laboratory, The University of Texas at Austin.

Corbin, James E.
1974 A Model of Cultural Succession for the Coastal Bend of Texas. *Bulletin of the Texas Archeological Society* Volume 45:29-54.

Culberson, Linda C.
1993 *Arrowheads and Spear Points in the Prehistoric Southeast: A Guide to Understanding*

Cultural Artifacts. University Press of Mississippi, Jackson.

Guckain, William J. and Ramon N. Garcia
1979 Soil Survey of San Patricio and Aransas Counties, Texas. Report produced by the U.S. Department of Agriculture, Soil Conservation Service, in cooperation with the Texas Agricultural Experiment Station.

Guthrie, Keith
2012 "SAN PATRICIO COUNTY," *Handbook of Texas Online* (http://www.tshaonline.org/handbook/online/articles/hcs04), accessed February 29, 2012. Published by the Texas State Historical Association.

1986 *History of San Patricio County*. Nortex Press: Austin.

Hughey, James, and Christy Wood Pritchard
2012 Cultural Resource Management Survey of the Vista Del Sol Natural Gas Pipeline Project in San Patricio County, Texas. Report produced by HRA Gray & Pape, LLC, Houston.

Jurgens, Christopher J.
1989 Additional Archeological Survey of Proposed Wastewater System Construction at Riviera Water Control and Improvement District, Kleberg County, Texas. Construction Grants Division, Texas Water Development Board.

McGraw, A. J. and K. Hindes
1987 Chipped Stone and Adobe: A Cultural Resources Assessment of the Proposed Applewhite Reservoir, Bexar County, Texas. Center for Archaeological Research, Archaeological Survey Report No. 163 University of Texas at San Antonio.

McMahan, Graig A., Roy G. Frye, and Kirby L. Brown
1984 *The Vegetation Types of Texas, Including Cropland*. Wildlife Division, Texas Parks and Wildlife Department, Austin.

Mercado-Allinger, P. A., N. A. Kenmotsu, and T. K. Perttula (editors)
1996 Archeology in the Central and Southern Planning Region, Texas: A Planning Document. Office of the State Archeologist Special Report 35 and Cultural Resource Management Report 7, Department of Antiquities Protection, Texas Historical Commission, Austin.

Munsell Color
2005 Munsell Soil Color Charts. Revised edition (1993). Macbeth Division of Kollomorgan Instruments Corporation, New Windsor, New York.

Newcomb, W.W. Jr.
1961 *The Indians of Texas From Prehistoric to Modern Times*. The University of Texas Press, Austin, Texas.

Prewitt, E. R.
1981 Cultural Chronology in Central Texas. Bulletin of the Texas Archeological Society 52: 65-90.

1985 From Circleville to Toyah: Comments on Central Texas Chronology. Bulletin of the Texas Archeological Society 54 (for 1982): 201-238

Prikryl, Daniel J.
1998 An archeological survey of the San Patricio Municipal Water Districts Proposed water system improvements project, San Patricio County , TX. Report of Investigations No 10. Report produced by Archeological and Environmental Consultants, Austin.

Ricklis, Robert
1996 *Karankawa Indians of Texas: An Ecological Study of Cultural Tradition and Change*. University of Texas Press, Austin, Texas.

1999 Archaeological Survey of Port of Corps Christi Tracts 1 and 2, North Shore of Corpus Christi Bay, San Patricio County, Texas. Report prepared for Port of Corpus Christi Authority. Report prepared by TAS, Inc. and Coastal Archaeological Research, Inc. Corpus Christi, Texas.

2004 Prehistoric Occupation of the Central and Lower Texas Coast; A Regional Overview in *The Prehistory of Texas*. Edited by Timothy K. Perttula, College Station.

Rumsey, David
2003 *Originally published: "Tales from the Vault: Historical Maps Online" by David Rumsey, Vol 3: No. 4, July 2003, of Common-place. Reprinted, updated and revised, with permission of Common-place.
Available URL: "http://www.davidrumsey.com/index.html" [Accessed February 16, 2012]

Story, Dee Ann
1985 Adaptive Strategies of Archaic Cultures of the Western Coastal Plains. Pages 19-56 in *Prehistoric Food Production in North America*, edited by R. I. Ford. Museum of Anthropology, Anthropological Papers Volume 75, University of Michigan, Ann Arbor.

Texas General Land Office
2012 Interactive Land Lease Mapping Program
Available URL: "http://gisweb.glo.texas.gov/glomap/index.html" [Accessed February 16, 2012]

Turner, E.S. and T.R. Hester
1993 *A Field Guide to Stone Artifacts of Texas Indians, 2nd Edition.* Texas Monthly Field Guide Series. Gulf Publishing Co., Houston

The National Historic Preservation Act (NHPA)
1966 Section 106 as amended, Public Law 89-665; 16 U.S.C. 470 *et seq.*

United States Department of the Interior (USDI), National Park Service (NPS)
1981 *Department of the Interior's Regulations, 36 CFR Part 60: National Register of Historic Places.*

1983 Archeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines. *Federal Register* 48(190): 44716-44742.

United States Army Corps of Engineers (USACE), Mobile District
1987 Trans American Natural Gas Company Upland Disposal Site and the Mustang Island Wetland Mitigation Area for the Corpus Christi/Ingleside, Texas, Navy Homeport Site. Report produced by USACE, Mobile District.

U.S. Department of Agriculture, Natural Resources Conservation Service
2012 Soil Survey Division Soil Series Query Facility. Available URL: (https://soilseries.sc.egov.usda.gov/osdnamequery.asp), Accessed March 1, 2012.

2009 Soil Survey Geographic (SSURGO) database for San Patricio and Aransas Counties, Texas, Fort Worth, Texas. Available URL: (http://SoilDataMart.nrcs.usda.gov/), Accessed March 1, 2012.

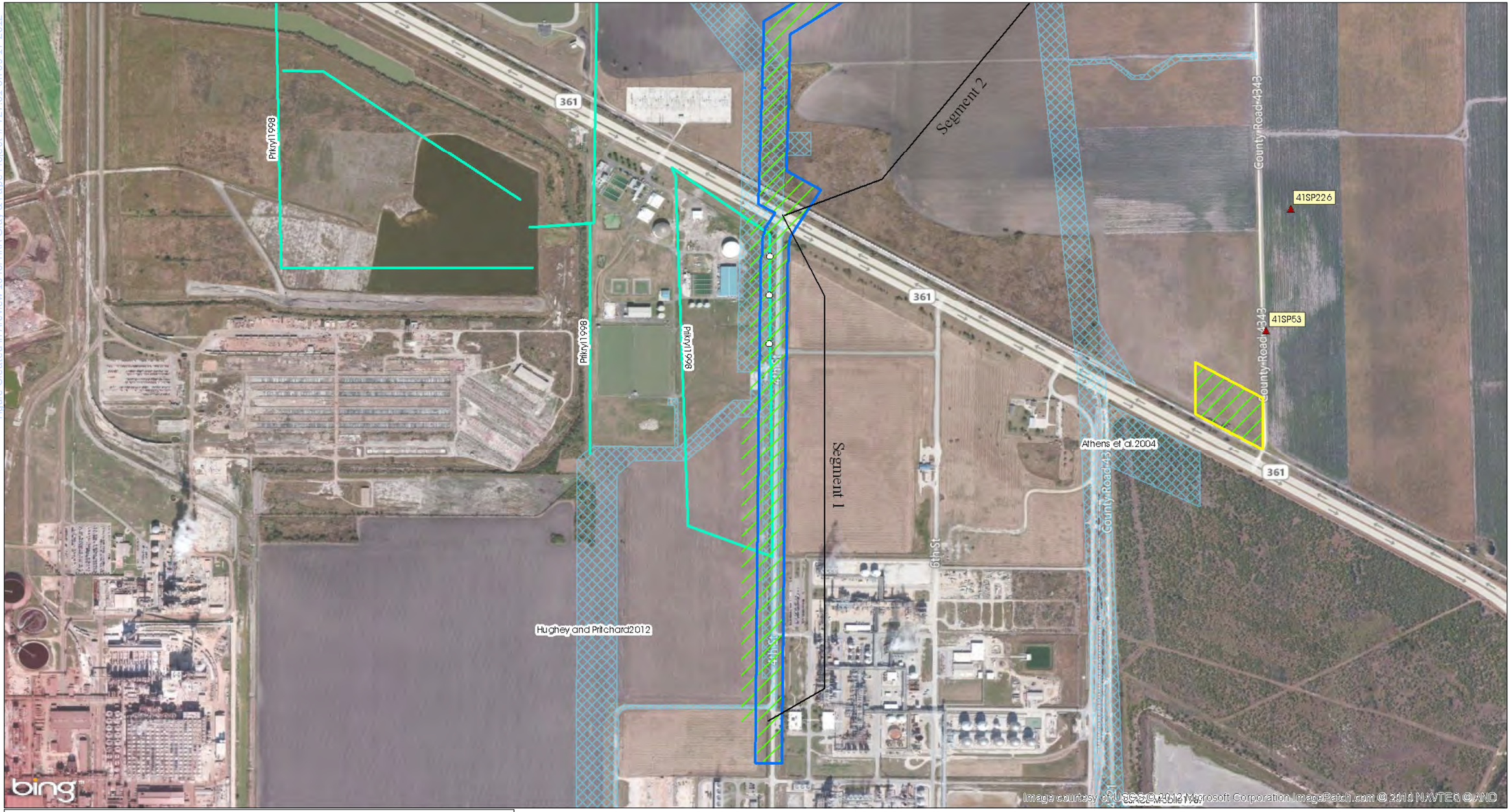
U.S. General Land Office
1867 Map of the United States and Territories. Published in: *Report of the Commissioner of General Land Office, for the Year 1867*; P-Maps p. 916. Publisher: Government Printing Office, Washington.

Van Siclen, D.C.
1991 Surficial Geology of the Houston Area: An Off-lapping Series of Pleistocene (& Pliocene?) highest Sea Level Fluviodeltaic Sequences. Transections of the Gulf Coast Association of Geological Societies, Volume 41:651-666

Welder, Mrs. Patrick H.
2012 "Bob and Bessie Welder Wildlife Foundation and Refuge." The Handbook of Texas Online. Available URL: (http://www.tsha.utexas.edu/handbook/online/articles/view/RR/gbr1.html), Accessed March 1, 2012.

APPENDIX A:

FIGURES A1 - A10



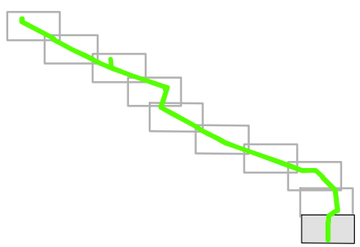
LEGEND

- LayDown Yard
- Survey Status
  - Complete
  - Not Surveyed (No Survey Recommended)
  - Negative Shovel Test
  - Previously Recorded Site Centroids
- Newly Identified Resource Type
  - Site
  - Locus
  - Standing Structure
  - Previously Recorded Area Survey
  - Previously Recorded Linear Survey

N, W, E, S

0 50 100 Meters

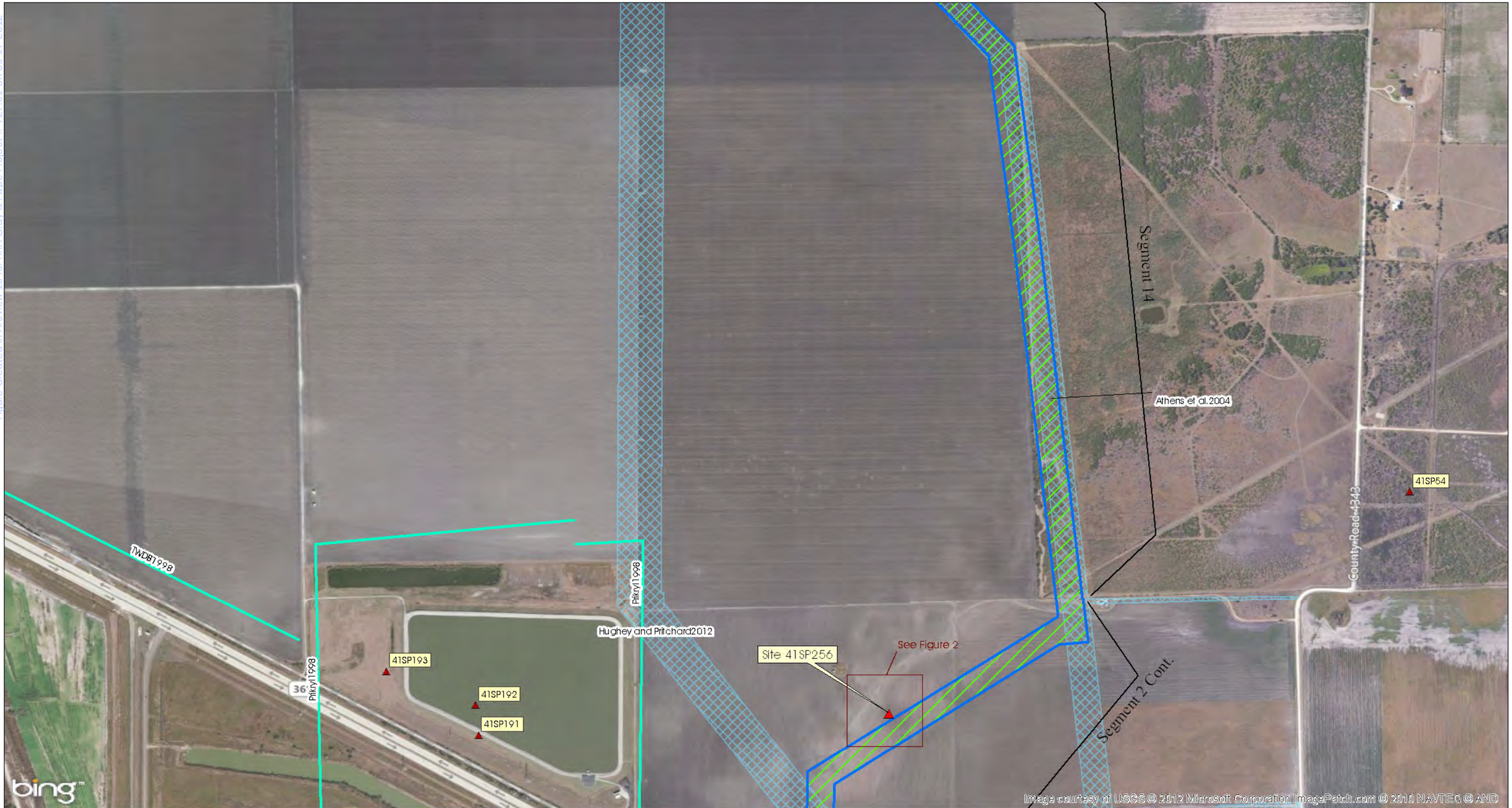
0 0.125 0.25 Miles



Survey Results for the Proposed Occidental Pipeline Survey Corridor

HRA Gray & Pape LLC.

Figure A1



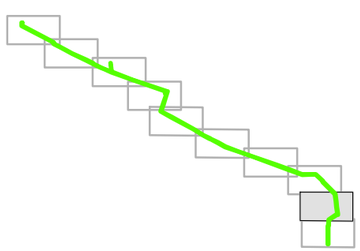
LEGEND

- LayDown Yard
- Survey Status
  - Complete
  - Not Surveyed (No Survey Recommended)
  - Negative Shovel Test
  - Previously Recorded Site Centroids
- Newly Identified Resource Type
  - Site
  - Locus
  - Standing Structure
  - Previously Recorded Area Survey
  - Previously Recorded Linear Survey

N W E S

0 50 100 Meters

0 0.125 0.25 Miles



Survey Results for the Proposed Occidental Pipeline Survey Corridor

HRA Gray & Pape LLC.

Figure A2

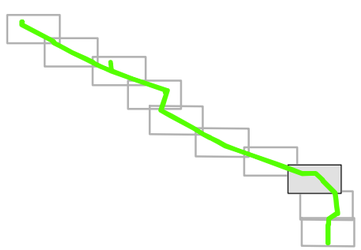
LEGEND

- LayDown Yard
- Survey Status
  - Complete
  - Not Surveyed (No Survey Recommended)
  - Negative Shovel Test
  - Previously Recorded Site Centroids
- Newly Identified Resource Type
  - Site
  - Locus
  - Standing Structure
  - Previously Recorded Area Survey
  - Previously Recorded Linear Survey

N W E S

0 50 100 Meters

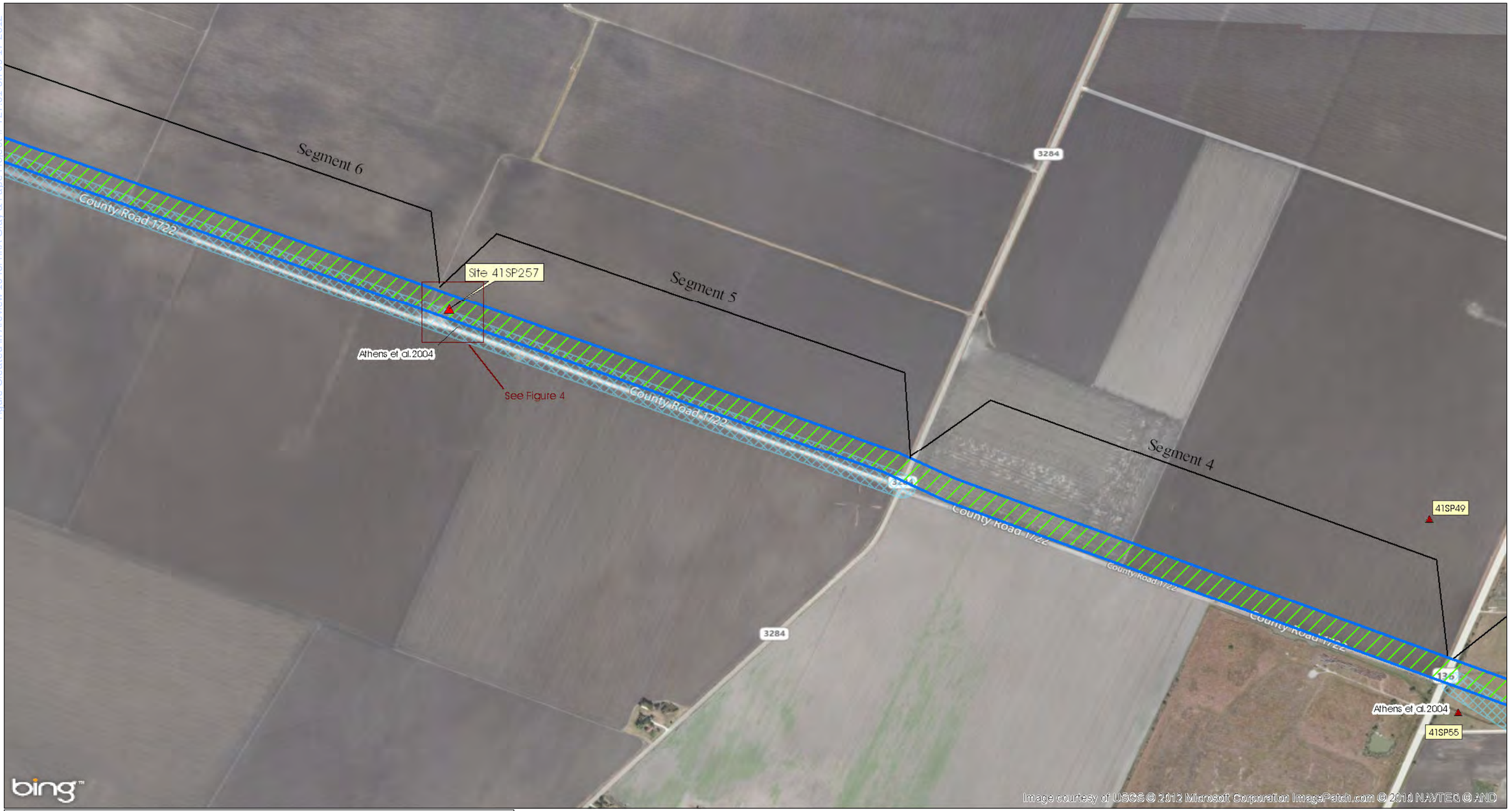
0 0.125 0.25 Miles



Survey Results for the Proposed Occidental Pipeline Survey Corridor

HRA Gray & Pape LLC.

Figure A3



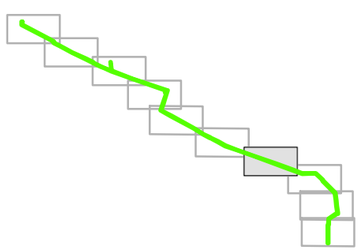
LEGEND

- LayDown Yard
- Survey Status
  - Complete
  - Not Surveyed (No Survey Recommended)
  - Negative Shovel Test
  - Previously Recorded Site Centroids
- Newly Identified Resource Type
  - Site
  - Locus
  - Standing Structure
  - Previously Recorded Area Survey
  - Previously Recorded Linear Survey

N, W, E, S

0 50 100 Meters

0 0.125 0.25 Miles



Survey Results for the Proposed Occidental Pipeline Survey Corridor

HRA Gray & Pape LLC.

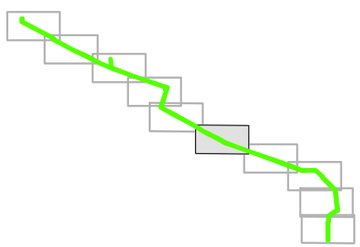
Figure A4

LEGEND

- LayDown Yard
- Survey Status
  - Complete
  - Not Surveyed (No Survey Recommended)
  - Negative Shovel Test
  - Previously Recorded Site Centroids
- Newly Identified Resource Type
  - Site
  - Locus
  - Standing Structure
  - Previously Recorded Area Survey
  - Previously Recorded Linear Survey

0 50 100 Meters

0 0.125 0.25 Miles



Survey Results for the Proposed Occidental Pipeline Survey Corridor

HRA Gray & Pape LLC.

Figure A5

LEGEND

- LayDown Yard

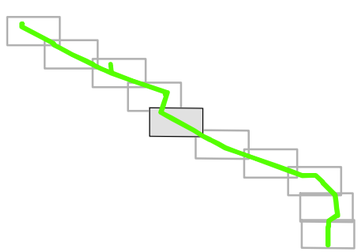
Survey Status
- Complete
- Not Surveyed (No Survey Recommended)
- Negative Shovel Test
- Previously Recorded Site Centroids

Newly Identified Resource Type
- Site
- Locus
- Standing Structure
- Previously Recorded Area Survey
- Previously Recorded Linear Survey

N, W, E, S

0 50 100 Meters

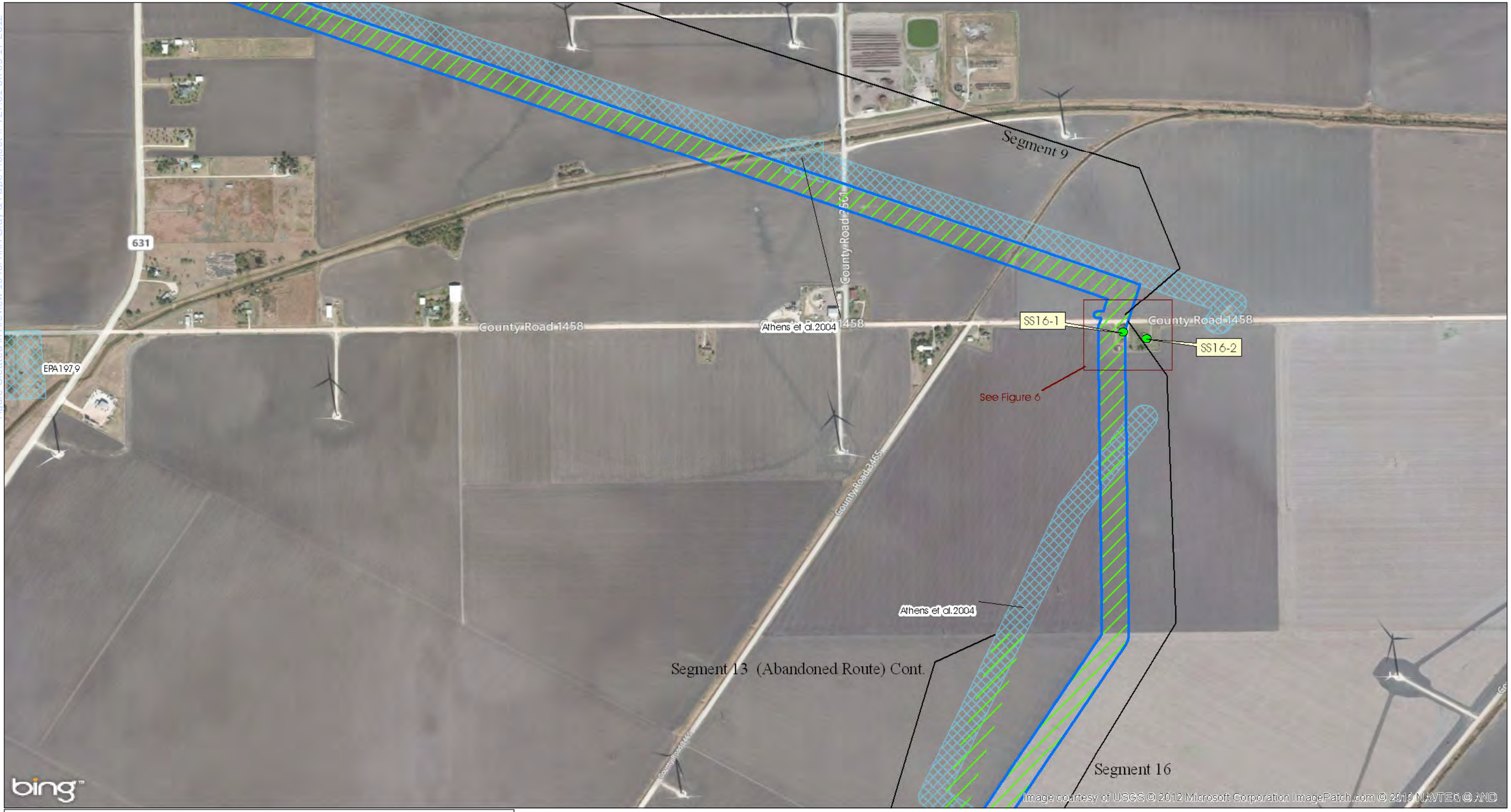
0 0.125 0.25 Miles



Survey Results for the Proposed Occidental Pipeline Survey Corridor

HRA Gray & Pape LLC.

Figure A6



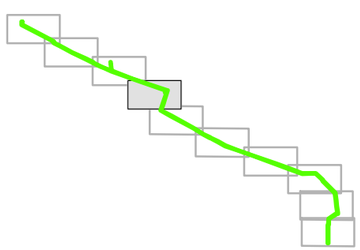
LEGEND

- LayDown Yard
- Survey Status
  - Complete
  - Not Surveyed (No Survey Recommended)
  - Negative Shovel Test
  - Previously Recorded Site Centroids
- Newly Identified Resource Type
  - Site
  - Locus
  - Standing Structure
  - Previously Recorded Area Survey
  - Previously Recorded Linear Survey

N W E S

0 50 100 Meters

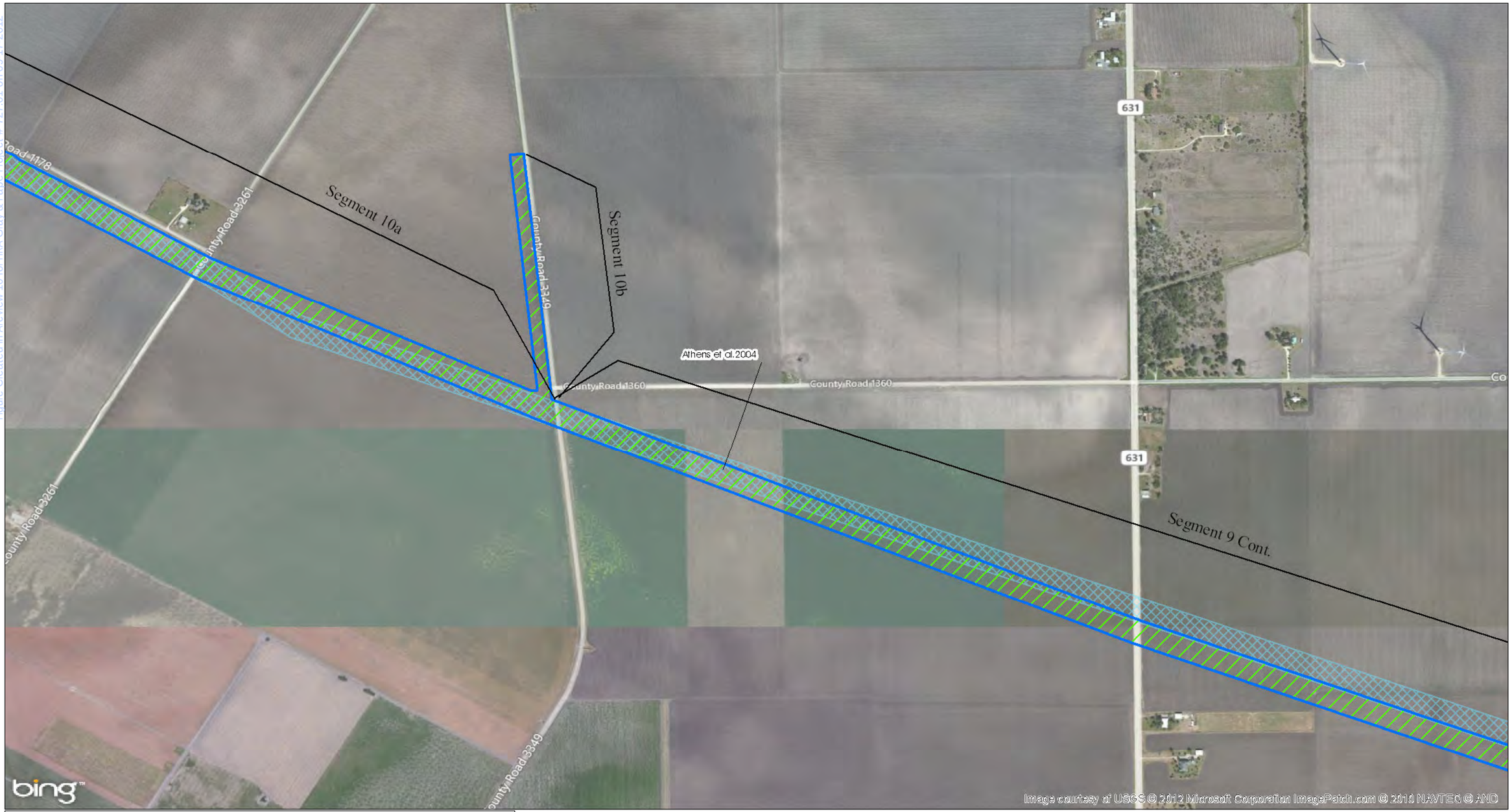
0 0.125 0.25 Miles



Survey Results for the Proposed Occidental Pipeline Survey Corridor

HRA Gray & Pape LLC.

Figure A7



LEGEND

- LayDown Yard

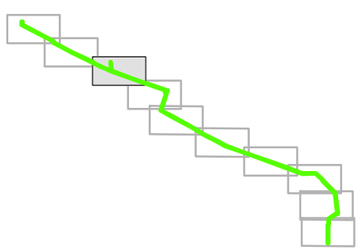
Survey Status
- Complete
- Not Surveyed (No Survey Recommended)
- Negative Shovel Test
- Previously Recorded Site Centroids

Newly Identified Resource Type
- Site
- Locus
- Standing Structure
- Previously Recorded Area Survey
- Previously Recorded Linear Survey

N, W, E, S

0 50 100 Meters

0 0.125 0.25 Miles



Survey Results for the Proposed Occidental Pipeline Survey Corridor

HRA Gray & Pape LLC.

Figure A8

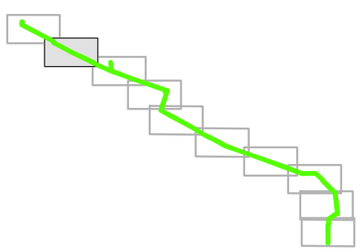
LEGEND

- LayDown Yard
- Survey Status
  - Complete
  - Not Surveyed (No Survey Recommended)
  - Negative Shovel Test
  - Previously Recorded Site Centroids
- Newly Identified Resource Type
  - Site
  - Locus
  - Standing Structure
  - Previously Recorded Area Survey
  - Previously Recorded Linear Survey

N W E S

0 50 100 Meters

0 0.125 0.25 Miles



Survey Results for the Proposed Occidental Pipeline Survey Corridor

HRA Gray & Pape LLC.

Figure A9

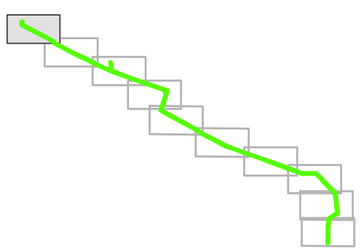
LEGEND

- LayDown Yard
- Survey Status
  - Complete
  - Not Surveyed (No Survey Recommended)
  - Negative Shovel Test
  - Previously Recorded Site Centroids
- Newly Identified Resource Type
  - Site
  - Locus
  - Standing Structure
  - Previously Recorded Area Survey
  - Previously Recorded Linear Survey

N W E S

0 50 100 Meters

0 0.125 0.25 Miles



Survey Results for the Proposed Occidental Pipeline Survey Corridor

HRA Gray & Pape LLC.

Figure A10

APPENDIX B:

PLATES B1 – B20

Plate B1. Artifacts collected from Site 41SP256 from left to right: two lithic bifaces and a burned faunal bone fragment.

Plate B2. Overview of Locus 11-2. Photograph taken in February 2012. View is to the southeast.

Plate B3. Overview of Locus 3-1. Photograph taken in February 2012. View is to the west-northwest.

Plate B4. Overview of Locus 10-1 located between and on either side of two man-made canals. Photograph taken in February 2012. View is to the south.

Plate B5. Overview of Locus 10-2. Photograph taken in February 2012. View is to the west-northwest.

Plate B6. Overview of Standing Structure 3-1. Photograph taken in February 2012. View is to the northwest.

Plate B7. Overview of Standing Structure 3-1. Photograph taken in February 2012. View is to the northeast.

Plate B8. Overview of Standing Structure 3-2. Photograph taken in February 2012. View is to the northeast.

Plate B9. Overview of Standing Structure 3-2. Photograph taken in February 2012. View is to the northwest.

Plate B10. Overview of a group of structures referred to as Standing Structure 10-1. Street view image ca. 2012 provided by GoogleEarth. View is to the northeast.

Plate B11. Overview of outbuildings associated with Standing Structure 10-1. Street view image ca. 2012 provided by GoogleEarth. View is to the northeast.

Plate B12. Front view of Standing Structure 16-1. Street view image ca. 2012 provided by GoogleEarth. View is to the south.

Plate B13. Rear view of Standing Structure 16-1. Photograph taken in May 2012. View is to the northwest.

Plate B14. Side view of outbuilding associated with Standing Structure 16-1. Photograph taken in May 2012. View is to the west.

Plate B15. View of outbuilding of Standing Structure 16-1 as seen from CR 1458. Street view image ca. 2012 provided by GoogleEarth. View is to the southeast.

Plate B16. View of the southwest corner of Standing Structure 16-2. Photograph taken in May 2012. View is to the northeast.

Plate B17. View of the front of Standing Structure 16-1 and detached garage/workshop as seen from CR 1458. Photograph taken in May 2012. View is to the southwest.

Plate B18. Overview of the residence of Standing Structure 17-1. Photograph taken in May 2012. View is to the southwest.

Plate B19. Previous condition of Standing Structure 17-1. Photograph taken from Athens et al. (2004). View is to the southwest.

Plate B20. Pole barn and machine storage buildings of Standing Structure 17-1. Photograph taken in May 2012. View is to the southwest.

APPENDIX C:

AGENCY CONSULTATION

TETRA TECH

January 30, 2012 **SENT VIA E-MAIL**

Bill Martin, Assistant Team Leader, State and Federal Review Section
Texas Historical Commission
1511 Colorado, Austin, TX 78701

RE: Proposed Ingleside Fractionator Project
Occidental Energy Ventures Corp.
Project Introduction

Dear Bill:

Tetra Tech, Inc. (Tetra Tech) has been contracted by Occidental Energy Ventures Corp. (OEVC) to obtain environmental clearances and consultations for a proposed fractionation facility and associated liquid hydrocarbon pipelines near Ingleside, TX (Ingleside Fractionator Project). Presently, the project area is confined within San Patricio County. Tetra Tech, on behalf of OEVC, is requesting information regarding cultural resource constraints that may be located within the proposed project study area. We have attached a project location map for your review. Tetra Tech is requesting countywide data to accurately assess potential impacts on historic properties associated with proposed fractionation facility and various pipeline route alternatives.

Project Description
The project consists of the construction and operation of a natural gas liquids (NGL) fractionation plant with associated aboveground storage tanks, control buildings, and appurtenant facilities to produce liquid products (ethane, butane, propane, natural gasoline). Products would be shipped to market via barges at an existing barge dock, truck loading facility, rail, and pipelines. The general locations of the fractionation plant and single corridor for the NGL feedstock and three send-out product pipelines are shown on the attached general project location map.

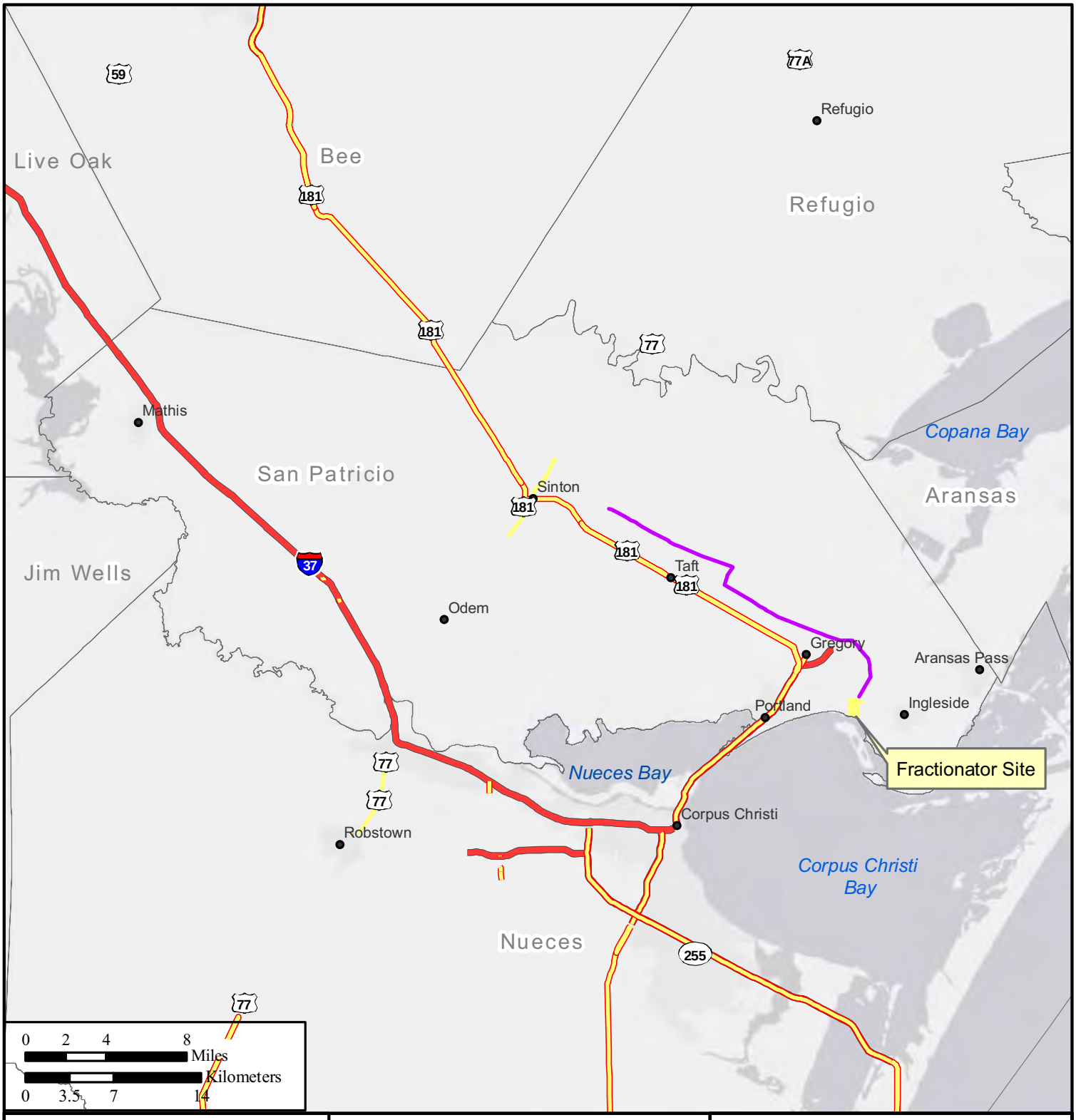
We appreciate your assistance and look forward to your cooperation and participation in the evaluation of the proposed Project. If you have any questions or require additional information, please contact Dr. Stuart Eldridge by e-mail at stuart.eldridge@tetratech.com or by phone at 207-879-9496, ext. 246. OVEC looks forward to meeting with you and THC staff on February 7, 2012 to introduce the project and confirm guidelines, scope of work, and proper methodology for cultural resource investigations for the project.

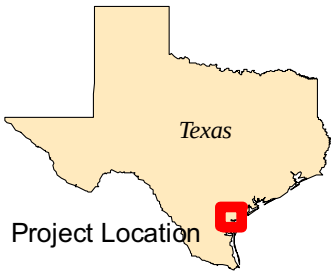
Sincerely,

Stuart A. Eldridge, Ph.D., RPA
Cultural Resources Task Lead

cc: Mark Evans, OxyChem
Kevin Pilkington, OEVC
Jeff Hanig, OEVC
Steve Compton, Tetra Tech
Jim Hughey, HRA Gray & Pape

Tetra Tech, Inc.
2901 Wilcrest Drive, Suite 425, Houston, Texas 77042
Tel: 832.251.5191 **Fax:** 832.251.5170
www.tetratech.com





Coordinate System:

NAD_1983_StatePlane_Texas_North_FIPS_4201_Feet, GCS_North_American_1983

Legend

- Cities
- San Patricio Pipeline LLC Route
- Limited Access
- Highways
- Fractionator Site
- County Boundaries

N

Ingleside Fractionator Project General Location Map

Prepared For: Occidental Energy Ventures Corp.

Prepared By: TETRA TECH

Date: 01/2012

z:\projects\100-nns-t27819-texas\gis\mxd\field\ttp_20120125k1_oxy_general.mxd

Tony Scott

From: Eldridge, Stuart [Stuart.Eldridge@tetratech.com]
Sent: Friday, March 30, 2012 6:58 AM
To: Bill Martin
Cc: Jeff Durst (Jeff.Durst@thc.state.tx.us); MARK_EVANS@oxy.com; Jim Hughey; Tony Scott; Compton, Steve
Subject: 2.7.2012 Meeting Minutes OXY Ingleside Fractionator Project
Attachments: THC MEETING NOTES 2.7.2012 Final.pdf

Hi Bill,

In looking through my email strings, I appear to have been remiss in forwarding you the meeting minutes for our pre-app meeting with you all last February 7th, re: the OXY Ingleside Fractionator Project attended by yourself, Jeff, Mark, Jim, Tony, and myself. Please accept my apologies, I know it is a tad late in the sending, but good for refreshing the collective memories as the revised Fractionator report will soon be forthcoming, as agreed.

Regards,
Stu

Stuart A. Eldridge, Ph.D., RPA | **Principal Investigator, Archaeology, Sci. Proj. Mgr. II**
Main: 207.879.9496 ext. 246 | Fax: 207.879.9481
stuart.eldridge@tetratech.com

Tetra Tech | Complex World, **Clear Solutions™**
451 Presumpscot Street | Portland, ME 04103 | www.tetratech.com

MEETING NOTES

Location: Texas Historical Commission, Austin, Texas

Date: 02/07/2012

Time: 11:00 am

Attendees: Stuart Eldridge – Tetra Tech
Mark Evans – OXY
Bill Martin – THC
Jeff Durst – THC
Jim Hughey – HRA Gray & Pape
Tony Scott – HRA Gray & Pape

Summary:

Mark Evans of OXY initiated the meeting with a brief overview of Phase 1 of the OXY Ingleside Fractionator Project (Project) consisting of proposed construction that will take place within and adjacent to the original Vista del Sol Terminal project and the existing San Patricio Pipeline alignment. Jim Hughey of HRA Gray & Pape (HRA) then established the nature of the previous archaeological survey originally conducted by HRA for the Vista del Sol Terminal project and suggested that this survey may be adequate review and compliance for the Fractionator portion of the Phase 1 of the Project. Bill Martin of the Texas Historical Commission (THC) then signified that THC wished to break out their recommendations into two separate categories, recommendations for the Fractionator portion of the Project and recommendations for the San Patricio Pipeline portion of the Project.

Project Fractionator:

Bill Martin of the THC recommended no new archaeological survey for the area originally surveyed for the Vista del Sol Terminal by HRA or for the location for the proposed fractionation area. THC recommended resubmitting the original Vista del Sol Phase I archaeological investigation report with revisions to the Abstract and Introduction and adding a cover letter that describes the currently proposed Phase 1 of the Project. Specifically the cover letter should state that there will be no adverse impacts along the shoreline and the remainder of the Project areas have had a long history of use as agricultural fields and require no new survey efforts.

Bill Martin also requested the implementation of an Unanticipated Discoveries Plan (UDP) and affirmed that aside from using standard language and format for the UDP he had no other recommendations at this juncture regarding UDP content. S. Eldridge of Tetra Tech and J. Hughey of HRA agreed to cooperate to provide proper content and adequate protocols for the UDP, subject to THC review.

THC affirmed that should any Project related activities take place in the La Quinta Channel the THC's marine archaeologist should be informed to coordinate avoidance measures that should be undertaken regarding a previously recorded anomaly located in the channel. THC recommended that background research confirm the location and nature of the previously recorded anomaly in the channel.

Finally, THC also recommended that a qualified archaeological monitor be present during any shoreline construction actions on the part of the Project, on that portion of the Project comprising the original Vista del Sol Terminal parcel.

Project San Patricio Pipeline:

Bill Martin recommended that a separate, stand-alone Phase I archaeological investigation report should be submitted regarding the associated San Patricio Pipeline construction portion of the Project. It was established at this meeting that the proposed San Patricio Pipeline alignment may have already been archaeologically surveyed for the OXY San Patricio Pipeline project in 2004 but currently it is unknown if that survey covers the entire Project proposed alignment and if the earlier survey was undertaken with the appropriate methodology. Coordination with the THC will continue and determine the amount, if any, of remaining archaeological survey to be performed for the Project San Patricio Pipeline and the appropriate methodology. THC initial assumptions are that the proposed Project San Patricio Pipeline alignment is through agricultural fields and that any new archaeological survey work would require only a pedestrian archaeological visual survey and report.

Respectfully Submitted,

Tony L Scott

Tony Scott, Principal Investigator, Archaeology
HRA Gray & Pape

Stuart A Eldridge

Stuart A. Eldridge, Ph.D., RPA
Tetra Tech, Inc.

Tony Scott

From: Bill Martin [Bill.Martin@thc.state.tx.us]
Sent: Thursday, June 14, 2012 2:29 PM
To: Tony Scott
Cc: Jeff Durst
Subject: RE: Occidental Energy Pipeline - Consultation regarding a No-Access Area

I seriously doubt anything significant will be found in this location. I say we should omit it from the survey, unless you have archival information showing a house along that precise location. I will print this out and track it in so we have a record of it.

From: Tony Scott [mailto:tscott@hragp.com]
Sent: Thursday, June 14, 2012 2:17 PM
To: Bill Martin
Subject: FW: Occidental Energy Pipeline - Consultation regarding a No-Access Area

Hi Bill,

I sent this to Jeff earlier but found out he's in the field. If you can give me an opinion on this that would be great.

Thanks,

Tony

Tony Scott| GIS Specialist/Principal Investigator- Archaeology
HRA Gray & Pape, LLC
1428 West Alabama St.| Houston, TX 77006
713.541.0473 ext. 11 | fax 713.541.0479 | cell 713.299.6917
tscott@hragp.com | www.hragp.com

From: Tony Scott
Sent: Thursday, June 14, 2012 1:37 PM
To: 'jeff.durst@thc.state.tx.us'
Subject: Occidental Energy Pipeline - Consultation regarding a No-Access Area

Hello Jeff,

I don't know if you would recall or not but Jim Hughey, myself, and some personnel with TetraTech and OXY came to Austin to consult with yourself and Bill Martin for a Fractionator Site and Pipeline for OXY to be located in San Patricio County, TX, all on private property. The pipeline closely follows a survey corridor that Goodwin and Associates surveyed in 2004 for a different project. Based on that it was decided that we could perform a pedestrian surface survey of the latest alignment with shovel testing performed on a judgmental basis. We've managed to survey nearly the entire project length with the exception of about 0.5-mile that they didn't have access to (see attached images and GoogleEarth file). I was wondering what your thoughts would be about potentially writing that segment off considering we surveyed either side of it and didn't come across anything of substance. Historic to modern aerials and topos don't hint at any historic structures being there. But as far as I can tell it hasn't been surveyed. Goodwin didn't survey that segment because it was no-access in 2004 as well.

I just received word that they do now have access but the client is pushing this project to wrap up so I thought I would check with you before we scheduled another mobilization for it.
I appreciate any guidance you can give.

Thank you,

Tony

Tony Scott| GIS Specialist/Principal Investigator- Archaeology
HRA Gray & Pape, LLC
1428 West Alabama St.| Houston, TX 77006
713.541.0473 ext. 11 | fax 713.541.0479 | cell 713.299.6917
tscott@hragp.com | www.hragp.com

APPENDIX D:

CURRICULUM VITAE OF PRINCIPAL INVESTIGATOR

HRA Gray & Pape, LLC

TONY L. SCOTT

TITLE

GIS Director

Senior Principal Investigator

EXPERTISE

Section 106 Compliance

GIS Equipment & Programs

Graphics Software

NAGPRA Compliance

Biological Archaeology

Osteological Analysis

Plains Prehistoric Archaeology

Historic Urban Archaeology

EDUCATION

Master of Arts, Anthropology, 2003
Wichita State University

Bachelor of Arts, Anthropology, 1997
University of Nebraska

SUMMARY OF EXPERIENCE

Mr. Scott has over eighteen years of experience working on Phase I, II, and III archaeological survey, testing, and mitigation projects relating to the pipeline, transportation, and construction industries as well as research based projects and academic documentary research. Projects that he has been involved with have included locations in Nebraska, Kansas, Missouri, Illinois, Oklahoma, Texas, Arkansas, Louisiana, and Mississippi. He served as an Archaeologist with the United States Department of the Interior Bureau of Reclamation, monitoring several reservoir, canal, and waterway modification projects.

He has experience working with the United States Army Corps of Engineers in the Fort-Worth and Galveston Districts. He is knowledgeable with state and federal regulations and requirements and has corresponded on a project-by-project basis with State Historic Preservation Offices in multiple states. His employment and academic experience includes GIS services, graphics creations, prehistoric and historic site excavations, surveys, research, human burial and forensic cases, and laboratory analyses.

His most recent work has highlighted the use of probability modeling to aid in the discovery of previously unrecorded prehistoric and historic sites. He is proficient in mapping software including office utilities including multiple versions of ArcView/ArcGIS, Pathfinder Office, and Trimble Geomatics Office. He is also skilled with field recording software including SOLO Field and TerraSync.

SELECTED PROFESSIONAL EXPERIENCE

Principal Investigator– Evaluation of the Water's Sugar Mill, Arcola Plantation, Fort Bend County, Texas, for Hillwood Development.

Principal Investigator/GIS Specialist- Cultural Resources Management Survey for 10 Miles of the Blue Water Highway Reconstruction Project in

Brazoria County, Texas, for Berg-Oliver Associates, Brazoria County, and the Texas Department of Transportation.

Principal Investigator/GIS Specialist- Cultural Resources Management Survey for the Wister Lake Roads Expansion Project, Le Flore County, Oklahoma for Black & Veatch/GEC and U.S. Army Corps of Engineers, Tulsa District.

Principal Investigator/GIS Specialist- Cultural Resource Management Survey for the LIT-37 Pipeline Project in De Soto Parish, Louisiana, for Gulf Engineers & Consultants, Inc.

Principal Investigator/GIS Specialist- Cultural Resource Management Survey for the J-113 Pipeline Project in White County, Arkansas, for Gulf Engineers & Consultants, Inc.

Principal Investigator/GIS Specialist- Cultural Resource Management Survey for the Crosby M.U.D. Wastewater Utility Project in Harris County, Texas, for Berg-Oliver Associates.

Principal Investigator/GIS Specialist- Cultural Resource Management Survey for the Kluge Road Expansion Project in Harris County, Texas, for Berg-Oliver Associates and Harris County Public Infrastructure Department.

Principal Investigator/GIS Specialist- Cultural Resources Management Survey for 15 Miles of the Interstate Highway 10 Project in Austin and Waller Counties, Texas, for Berg-Oliver Associates and the Texas Department of Transportation.

Principal Investigator/GIS Specialist- Cultural resources records review and probability modeling of a proposed pipeline alignment in Cotton and Jefferson Counties, Oklahoma, and Clay, Jack, and Wise Counties, Texas, for Kellogg Brown & Root Services, Inc.

GIS Specialist- Cultural resources assessment for the Lake Kemp Reallocation Study Project Area, Baylor County, Texas, for Black & Veatch/GEC and U.S. Army Corps of Engineers, Tulsa District.

GIS Specialist- Cultural resources records review of the Toledo Bend Reservoir shoreline in Newton, Sabine, Shelby, and Panola Counties, Texas and Vernon, Sabine, and De Soto Parishes, Louisiana, for Devine Tarbell & Associates, Inc. (DTA) and the Sabine River Authorities of Texas and Louisiana.

Principal Investigator/GIS Specialist- Cultural Resource Management Survey for the Auburn Trails Development Project in Montgomery County, Texas, for Berg-Oliver Associates.

Principal Investigator/GIS Specialist- Cultural Resource Management Survey for the Thousand Oaks Development Project in Montgomery County, Texas, for 1488 Land Development, Inc.

Principal Investigator/GIS Specialist- Cultural Resource Management Survey for the Farm to Market Road 1488 Extension Project in Montgomery County, Texas, for Carter & Burgess Associates.

Archaeological Monitor- Monitoring of Construction in Houston's Historic 4th Ward District in Harris County, Texas, for Hicks & Company.

Principal Investigator/GIS Specialist- Cultural Resource Management Survey for the Graystone Hills Development Project in Montgomery County, Texas, for Berg-Oliver Associates.

Principal Investigator/GIS Specialist- Cultural Resource Management Survey for the ENSTOR Houston Hub Storage and Transportation Project in Liberty County, Texas, for Conestoga-Rovers & Associates, Inc.
GIS Specialist- Cultural Resources Records Review for a Pipeline Reroute in Tulsa and Wagoner Counties, Oklahoma, for ENSR International and Conoco Phillips.

GIS Specialist- Archaeological survey of the Clarity Pipeline Project in Anderson, Houston, Polk, Liberty, Hardin, Jasper, and Orange Counties, Texas, for URS Corporation and Enbridge Energy.

Principal Investigator/GIS Specialist- A Cultural Resource Management Survey of the Proposed Temporary Crossing Over Old Oyster Creek in Fort Bend County, Texas, for Great America Companies.

GIS Specialist- Cultural Resource Management Survey on approximately 30 hectares (73 acres) proposed for development in Aransas County, Texas, for Berg-Oliver Associates and De Ayala Properties L.L.C.

GIS Specialist- Cultural Resource Management Survey for a proposed pipeline project in Johnson, Hill, Ellis, Navarro, Freestone, and Anderson Counties, Texas, for URS Corporation.

Principal Investigator/GIS Specialist- Cultural Resource Management Survey of Approximately 4 Miles of FM 529 for Roadway Expansion in Harris County, Texas, for Berg-Oliver Associates and the Texas Department of Transportation.

GIS Specialist- Cultural Resource Management Survey and deep testing of 329 acres associated with a proposed sandpit project in Montgomery, County, Texas, for the Southern Crushed Concrete Company.

GIS Specialist- Cultural Resource Management Survey for the Southeast Expansion Pipeline Project in Simpson, Smith, Jasper, and Clarke Counties, Mississippi and Choctaw County, Alabama, for ENSR International and Gulf South Engineering.

GIS Specialist- Cultural Resource Management Survey for the Leaf River Pipeline Project in Jasper and Clarke Counties, Mississippi, for the Leaf River Energy Center, LP.

Principal Investigator/GIS Specialist- Cultural Resource Management Survey of 224 Acres Proposed for the Graystone Hills Development, Montgomery County, Texas, for Berg-Oliver Associates.

Principal Investigator/GIS Specialist- Cultural Resource Management Survey for the Cinco Ranch Trails Project in Fort Bend County, Texas, for TCB, Inc.

Principal Investigator/GIS Specialist- Cultural Resource Management and Reconnaissance Cultural Resources Survey for the Proposed SH 288 and CR 101 Expansion Project in Brazoria County, Texas, for Berg-Oliver Associates and the Texas Department of Transportation.

Field Director/Graphics Specialist- Alattar 13.03 Acre Wetland Mitigation Survey, Brazoria and Galveston Counties, Texas, for the U.S. Army Corps of Engineers and Frank Alattar.

Field Director/Graphics Specialist- Huffmeister Road Expansion and Detention Basin Survey, Harris County, Texas, for Harris County Public Infrastructure Department and Crouch Environmental Services, Inc.

Field Director/Graphics Specialist- Greens Road Extension Survey, Harris County, Texas, for Berg-Oliver Associates, Inc.

Graphics Specialist- Rummel Creek Archaeological Survey, Harris County, Texas, for the Harris County Flood Control District.

Field Director/Graphics Specialist- Three Bridge Replacement Projects, Fort Bend and Waller Counties, Texas, for Turner Collie & Braden, Inc.

Field Director/Graphics Specialist- Mason Road Extension Survey, Harris County, Texas, for Berg-Oliver Associates, Inc.

Field Director/Graphics Specialist- Egret Bay 531-Acre Survey, Harris County, Texas, for Berg-Oliver Associates, Inc.

Field Director/Graphics Specialist- Cultural Resource Management Survey for the Farm to Market 2218 and 1640 Expansion Project, Fort Bend County, Texas, for the Texas Department of Transportation and Turner Collie & Braden, Inc.

Field Director/Graphics Specialist- Cultural Resource Management Survey for the Golden Pass Pipeline Project, Jefferson, Newton, and Orange Counties, Texas and Calcasieu Parish, Louisiana, for Amec Paragon and Golden Pass LNG, L.P.

Field Director/Graphics Specialist- Cultural Resource Management Survey for the Rummel Creek Project, Harris County, Texas, for the Harris County Flood Control District.

Field Director/Graphics Specialist- Brazoria County Spaceport Cultural Resource Management Survey, Brazoria County, Texas, for the Federal Aviation Administration and Turner Collie & Braden, Inc.

Field Director/Graphics Specialist- Golden Pass Mitigation Site Survey, Jefferson County, Texas, for Golden Pass Terminal LP and the URS Corporation.

Field Director/Graphics Specialist- Texas Brine Corporation Underground Storage Facility and Pipeline Right-of-Way Survey, Harris County, Texas, for the United States Environmental Protection Agency and Amec Paragon.

Field Director/Graphics Specialist- West Ranch Residential Development Cultural Resource Management Survey, Galveston County, Texas, for the U.S. Army Corps of Engineers and Berg-Oliver Associates, Inc.

Field Director/Graphics Specialist- White Oak 100-Acre Cultural Resource Management Survey, Montgomery County, Texas, for Berg-Oliver Associates, Inc.

Field Director/Graphics Specialist- Cultural Resource Management Survey for the Farm to Market 1484 Expansion, Montgomery County, Texas, for Texas Department of Transportation and Turner Collie & Braden, Inc.

Field Director/Graphics Specialist- Cultural Resource Management Survey for the State Highway 3 Expansion, Harris and Galveston Counties, Texas, for the Texas Department of Transportation and Turner Collie & Braden, Inc.

Field Director/Graphics Specialist- Conroe ISD Sports Complex Cultural Resource Management Survey, Montgomery County, Texas, for Turner Collie & Braden, Inc.

Field Director/Graphics Specialist- Cultural Resource Management Survey for Galveston West-End Sewer, Galveston County, Texas, for Claunch & Miller, Inc., and the City of Galveston, Texas.

Field Director/Graphics Specialist- Cultural Resource Management Survey for the Village of Bees Creek Subdivision Project, Fort Bend County, Texas, for Berg-Oliver Associates, Inc. and Sienna Johnson Development.

Field Director/Graphics Specialist- Miller's Lake Lateral Pipeline Cultural Resource Management Survey, Evangeline Parish, Louisiana, for ENSR International.

Lab Assistant- Wichita State University Biological Anthropology Laboratory (WSU-BAL).

City Archaeologist- City of Wichita, Wichita State University, Department of Anthropology.
Archaeologist Level GS-05- U.S. Department of the Interior, Bureau of Reclamation: Nebraska-Kansas Area Office.

Archaeologist Level GS-05- National Park Service Midwest Archaeological Center.

Archaeological Field Technician Level GS-02- National Park Service Midwest Archaeological Center/University of Nebraska, Department of Anthropology.

ARCHIVAL RESEARCH
Numerous projects using records in SHPO offices and state and county repositories on urban and rural land use and development projects associated with predictive modeling activities, and developing testing and mitigation strategies for NHPA eligibility studies, archaeological data recovery, and NEPA compliance.

SELECTED PUBLICATIONS

Scott, Tony (*Unpublished Master's Thesis)*
Discontinuous Cranial Traits: Methods and Variants; Manuscript on file, Wichita State University Department of Anthropology, Wichita, Kansas.

Fugate, Thomas and Tony Scott (2008)
Cultural Resource Management Survey for the ENSTOR Houston Hub Storage and Transportation, LP Houston Hub Project, Liberty County, Texas.

Scott, Tony and James Hughey (2006)
An Intensive Pedestrian Survey for the Proposed Conroe ISD Sports Complex and Assessment of an 88-Acre Wetland Mitigation Area in Montgomery County, Texas.

Scott, Tony and Kerry McGuire (2007)
Archaeological Survey of 224 Acres Proposed for the Graystone Hills Development, Montgomery County, Texas.

Cultural Resources Management Services for Proposed Expansion of FM 2218 and FM 1640 and Associated Detention Basin Construction in Fort Bend County, Texas (with James Foradas); submitted to Turner Collie & Braden, Inc.

Cultural Resource Management Survey of the Proposed Millers Lake Lateral Pipeline Project in Evangeline Parish, Louisiana (with Thomas Pickering and James Hughey); submitted to ENSR Corporation and Pine Prairie Energy Center, LLC.

Intensive Pedestrian Survey and Deep Testing in 200 Acres of the Proposed Village of Bees Creek Residential Development, and Archaeological Assessment of a 4.8-Acre Village of Bees Creek Offsite Mitigation Area, Sienna Plantation, Fort Bend County, Texas (with James Foradas); submitted to Berg-Oliver and Associates and Sienna Johnson Development.

Intensive Pedestrian Survey of the Sate Highway 3 Expansion Project in Harris and Galveston Counties, Texas (with Thomas Pickering); submitted to Turner Collie & Braden, Inc.

An Intensive Pedestrian Survey of the FM 1484 Expansion Project in Montgomery County, Texas (with Thomas Pickering and James Hughey); submitted to Turner Collie & Braden, Inc.

Intensive Pedestrian Survey of 10 Acres on the Camp Swift in Bastrop County, Texas (with James Foradas); submitted to the University of Texas MD Anderson Cancer Center.

An Intensive Pedestrian Survey for the Proposed Expansion of FM 762 in Fort Bend County, Texas (with James Hughey); submitted to Berg-Oliver Associates, Inc. and the Texas Department of Transportation.

A Reconnaissance Survey Along State Highways 87 and 124 in Galveston County, Texas (with James Hughey), submitted to Berg-Oliver Associates, Inc. and the Texas Department of Transportation.

Intensive Pedestrian Survey and Deep Testing for the Proposed T.C. Jester Extension Project in Harris County, Texas (with James Hughey and James G. Foradas); submitted to Berg-Oliver Associates, Inc. and Harris County Public Infrastructure.

Intensive Pedestrian Cultural Resources Survey of the Proposed Wilderness Park Boat Ramp in Brazoria County, Texas (with James Hughey); submitted to the City of Lake Jackson Parks and Recreation Department and the United States Army Corp of Engineers, Galveston District.

Phase I Cultural Resources Survey of the Proposed Paul Dickson No.1 Well Access Road in Jefferson County, Texas (with James Hughey); submitted to C.H. Fenstermaker & Associates, Inc., Penn Virginia Oil & Gas Corporation, and the United States Army Corp of Engineers, Galveston District.

Literature and Site File Review on Property Proposed for the ConocoPhillips Pipeline Reroute in Tulsa and Wagoner Counties, Oklahoma (with James Hughey); submitted to the ENSR International.

Cultural Resource Management Survey of the Proposed Golden Pass LNG Pipeline Route in Jefferson, Orange, and Newton Counties, Texas (with James Hughey and John Picklesimer); submitted to Federal Energy Regulatory Commission, Environmental Resources Management, Inc., and Golden Pass LNG Terminal LP.

PROFESSIONAL ORGANIZATIONS

Council of Texas Archeologists