

US EPA ARCHIVE DOCUMENT



Cultural Resources Reconnaissance Review for the  
Proposed Frac-3 and Frac-4 Expansion of the Mont  
Belvieu Natural Gas Liquids Fractionation Facility in  
Chambers County, Texas



**ONEOK Hydrocarbon, L.P.**

**Project No. 75471**

**January 2014**

**Cultural Resources Reconnaissance Review for  
the Proposed Frac-3 and Frac-4 Expansion of the  
Mont Belvieu Natural Gas Liquids Fractionation  
Facility in Chambers County, Texas**

prepared for

**ONEOK Hydrocarbon, L.P.  
Tulsa, Oklahoma**

January 2014

Project No. 75471

prepared by

**Burns & McDonnell Engineering Company, Inc.  
Austin, Texas**

**Principal Investigator and Report Author: Sarah Loftus**

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## ABSTRACT

Burns & McDonnell Engineering Company, Inc. was contracted by ONEOK Hydrocarbon, L. P. (OHLP) to perform a cultural resources review for the proposed expansion of the Mont Belvieu Natural Gas Liquids (“NGL”) Fractionation Facility in northwest Chambers County, Texas (Figure 1). The expansion facility to be constructed (the “Facility” or “Frac-3 and Frac-4 Facility”) will consist of two additional NGL fractionation trains, tie into existing linear support facilities (electrical distribution, water, etc.), and be constructed adjacent to the permitted MB3 Facility, which is currently under construction. The proposed Frac-3 and Frac-4 facility will require a Prevention of Significant Deterioration (“PSD”) permit from the U.S. Environmental Protection Agency (“EPA”) for greenhouse gas emissions. Because the project requires a PSD for Greenhouse Gas (“GHG”) emissions from the EPA, the proposed project is subject to Section 106 review under the National Historic Preservation Act (“NHPA”). In addition to performing a cultural resources evaluation of proposed Project Area, an additional background review and windshield survey was performed in order to identify cultural resources across a 4.5-km Project Review Area extending out from the proposed project boundary (Figure 2). The Project Area includes the Frac-3 and Frac-4 Facility footprint, as well as, an open field immediately adjacent to the proposed Facility footprint. The open field, which was assessed to determine if any cultural or historic resources are present, is surrounded by the proposed Facility on three sides and could potentially be affected by airborne deposits from the emissions source for the adjacent Frac-3 and Frac-4 Facility. The larger Project Review Area was determined based upon air dispersion modeling conducted by Waid Environmental in connection with OHLP’s New Source Review air permit application pending with the Texas Commission on Environmental Quality (“TCEQ”) to authorize non-GHG emissions from the Frac-3 and Frac-4 Facility.

This report presents the results of the background review, the intensive cultural resources survey, and the windshield survey. No archaeological sites or cultural resources were identified within the proposed Project Area. Forty-five historic-age Resources were identified in Project Review Area. None of these Resources are currently listed on the National Register of Historic Places (“NRHP”). Four of the Resources appear to be potentially eligible for the NRHP, however, no physical activity is planned near any of the Resources and no adverse visual impacts are anticipated. Based on the results of the Cultural Resources Review, it is the opinion of Burns & McDonnell that construction and operation of the proposed Frac-3 and Frac-4 Facility will have no adverse effect on any listed NRHP properties, or potentially eligible NRHP properties in accordance with the Section 106 process. Burns & McDonnell recommends no further cultural resources evaluation for the proposed project area addressed in this report.

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## 1.0 INTRODUCTION

Burns & McDonnell Engineering Company, Inc. was contracted by ONEOK Hydrocarbon, L. P. (OHLP) to perform a cultural resources review for the proposed expansion of the Mont Belvieu Natural Gas Liquids (“NGL”) Fractionation Facility in northwest Chambers County, Texas (Figure 1). The expansion facility to be constructed (the “Facility” or “Frac-3 and Frac-4 Facility”) will consist of two additional NGL fractionation trains, tie into existing linear support facilities (electrical distribution, water, etc.), and be constructed adjacent to the permitted MB3 Facility, which is currently under construction. The proposed Frac-3 and Frac-4 Facility will require a Prevention of Significant Deterioration (“PSD”) permit from the U.S. Environmental Protection Agency (“EPA”) for greenhouse gas emissions. Because the project requires a PSD for Greenhouse Gas (“GHG”) emissions from the EPA, the proposed project is subject to Section 106 review under the National Historic Preservation Act (“NHPA”). In addition to performing a cultural resources evaluation of proposed Project Area, an additional background review and windshield survey was performed in order to identify cultural resources across a 4.5-km Project Review Area extending out from the proposed project boundary (Figure 2). The Project Area includes the Frac-3 and Frac-4 Facility footprint, as well as, an open field immediately adjacent to the proposed Facility footprint. The open field, which was assessed to determine if any cultural or historic resources are present, is surrounded by the proposed Facility on three sides and could potentially be affected by airborne deposits from the emissions source for the adjacent Frac-3 and Frac-4 Facility. The larger Project Review Area was determined based upon air dispersion modeling conducted by Waid Environmental in connection with OHLP’s New Source Review air permit application pending with the Texas Commission on Environmental Quality to authorize non-GHG emissions from the Frac-3 and Frac-4 Facility.

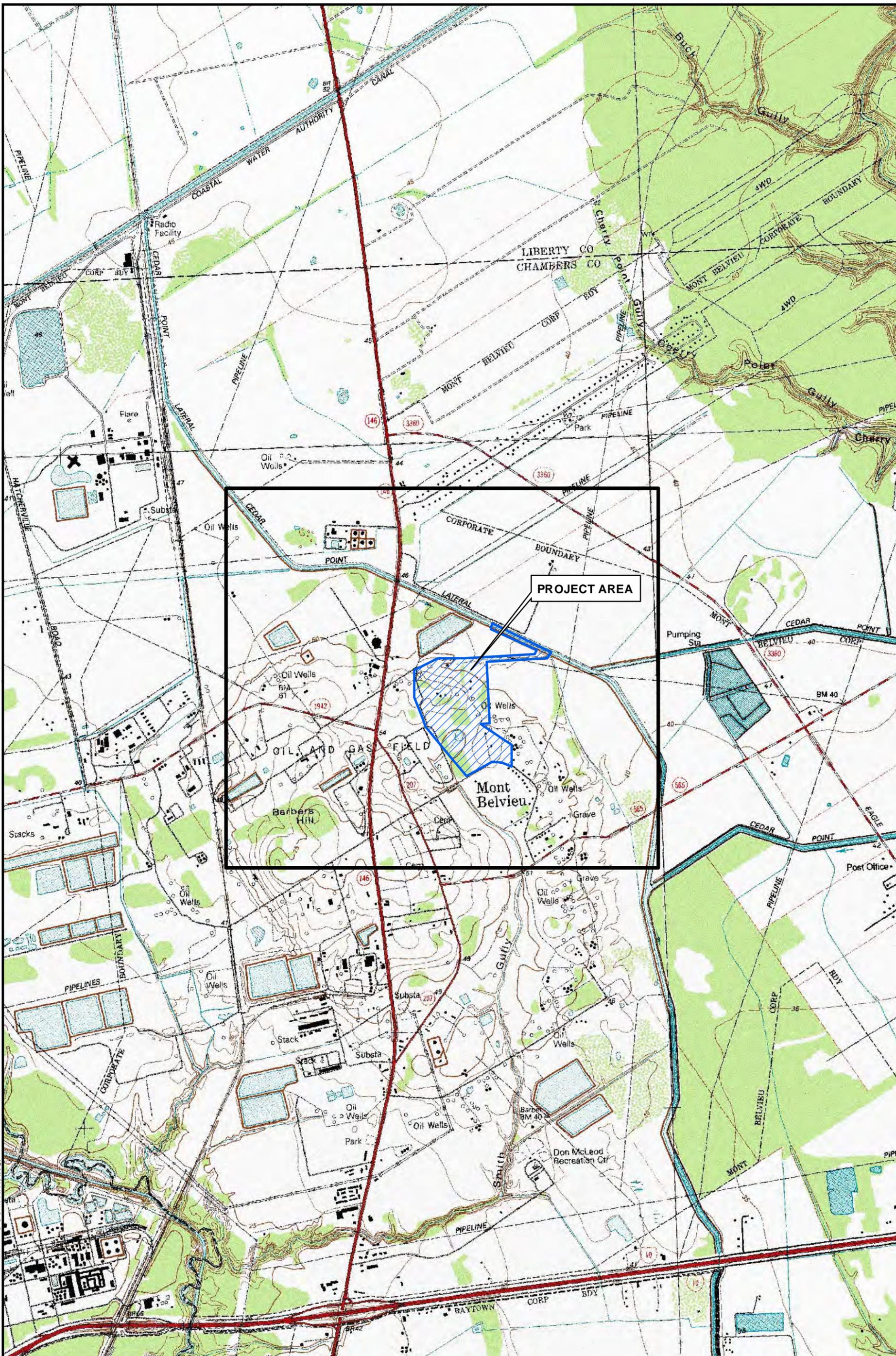
### 1.1 Project Description

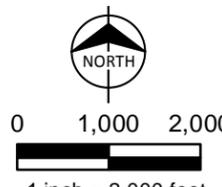
The proposed expansion project will consist of constructing and operating the Frac-3 and Frac-4 Facility, which includes two fractionation trains for NGL. Each fractionation train will have a nominal design basis of approximately 75,000 barrels per day (“bpd”) and a maximum potential operations basis of 115,000 bpd processing capacity.

The proposed Frac-3 and Frac-4 Facility will be constructed and operated by OHLP. The Frac-3 and Frac-4 Facility footprint is located entirely within the 89-acre Cultural Resources Survey Area and located at 1802 North Main Street in Mont Belvieu, Chambers County, Texas. The proposed Frac-3 and Frac-4 Facility is near the intersection of State Highways 146 and 207 and is located within a previously disturbed existing laydown area and contractor parking lot for the MB3 Facility. This area is adjacent to existing natural gas liquids storage caverns, and is on the same site as the previously-permitted MB2 and

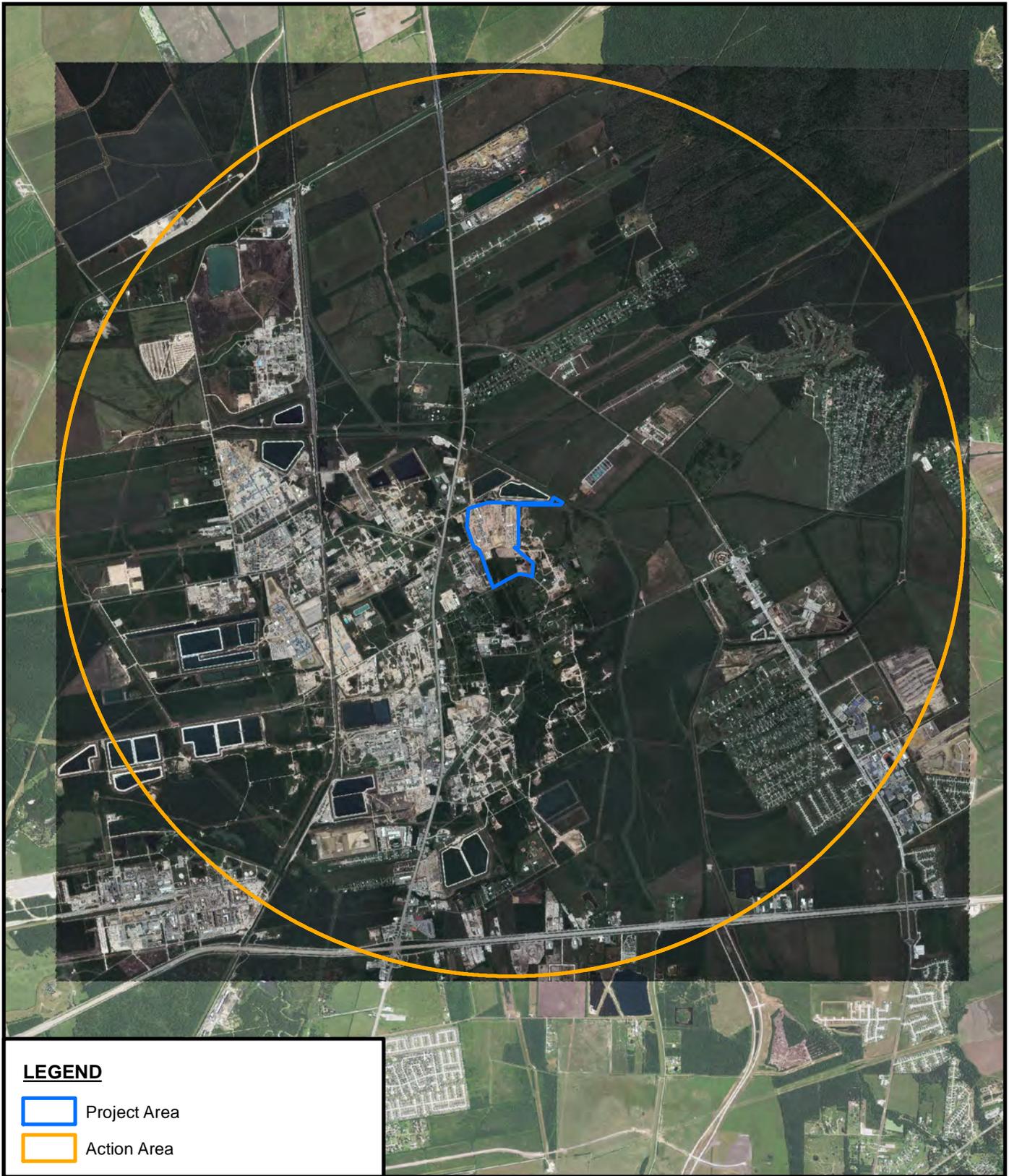
MB3 Facility fractionation plant for which ongoing construction commenced during the second quarter of 2011 (Figure 3, Appendix A). Construction of the proposed Frac-3 and Frac-4 facility is anticipated to begin in the second quarter of 2015 with operations planned to begin in the fourth quarter of 2016.

Construction Equipment would access the Facility from North Main Street, State Highway 146, Fitzgerald Road, and Winfree Street. During operation, vehicles would access the proposed MB3 and Frac-3 and Frac-4 Facility from an entrance road constructed off of Fitzgerald Road.



 Project Area				<p>Figure 1 Project Area Overview ONEOK Hydrocarbon L.P. Mont Belvieu NGL Fractionation Facility Chambers County, Texas</p>
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\\ESPSRV\Data\Data2\Projects\OneOK\66806\_Mt\_Belvieu\GIS\DataFiles\ArcDocs\Cultural\_Project\_Action\_Area\_Aerial\_Map\_MB4.mxd



**LEGEND**

-  Project Area
-  Action Area

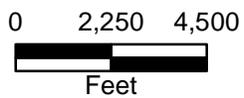


Figure 2  
Project Review Area  
ONEOK Hydrocarbon L.P.  
Mont Belvieu  
NGL Fractionation Facility  
Chambers County, Texas

Path: T:\ESP\OneOK\MB4 Cultural Resources\GIS\DataFiles\ArcDocs\Fig9\_2013Aerial.mxd barker 1/6/2014  
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-  MB3 Project Area
-  Current Project Area

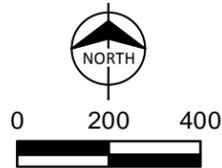


Figure 3  
Project Area Overlap  
ONEOK Hydrocarbon L.P.  
Mont Belvieu  
NGL Fractionation Facility  
Chambers County, Texas

## 1.2 Cultural Resources Review

In 2012 Burns and McDonnell performed a cultural resources review of the proposed MB3 fractionation facility at the OHLP Mont Belvieu Natural Gas Liquids Fractionation Facility. Much of the following report borrows from this previous investigation titled "Cultural Resources Reconnaissance Review and Evaluation for the Expansion Project at the Mont Belvieu Natural Gas Liquids Fractionation Facility" (Pemberton 2012). A copy of the MB3 Report is included in Appendix A. The 2012 report covered a large portion of the area where the current OHLP facilities exist and there is significant Project Area overlap between the cultural resources surveys completed for the MB3 facility and Frac-3 and Frac-4 Facility (Figure 3). No cultural resources were identified during the MB3 investigation. As such, it was determined that the portion of the Project Area that was previously investigated for the MB3 facility in 2012, and is currently under construction, did not need to be resurveyed. The only area of the proposed Facility that was subject to an intensive cultural resources survey was located to the south of the existing facilities and north of Winfree Street. This area is not currently under construction as part of the MB3 facility (Figure 4). This area measures approximately 11 acres.

Prior to any field investigations, a desktop background review of the proposed Project Area was carried out in December of 2013 to identify all previously recorded cultural resources within the immediate Project Area and the greater Project Review Area, as well as all previous cultural resources surveys. No previously recorded cultural resources were identified within the Project Area. Five documented cultural resources were identified within the 4.5-km Project Review Area including: three Official Texas Historical Markers (The First United Methodist Church and Cemetery of Mont Belvieu [Marker No. 9122], the Barber Hill Oil Field [Marker No. 9081]), the Amos Barber Homesite and Cemetery - also referred to as The Williams Cemetery [Cemetery No. CH-C018], the Fisher #2 Cemetery [Cemetery No. CH-CO17], and the Lawrence Cemetery) (Figure 5). No previously recorded archaeological sites are present within the Project Area or the Project Review Area.

Following the archival background review, an intensive cultural resources survey of the portion of the Project Area outlined in Figure 4 was performed by Burns & McDonnell archaeologists, along with a windshield survey of the greater 4.5-km Project Review Area. The following document presents the results of the archival background review, the cultural resources survey, and the windshield survey. It is the opinion of Burns & McDonnell that no archaeological resources or historic properties listed, eligible or potentially eligible for the National Register of Historic Places ("NRHP") will be adversely affected by the construction and operation of the proposed Frac-3 and Frac-4 Facility.



 Project Area  
 Intensive Cultural Resources Survey

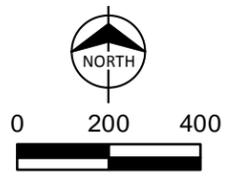
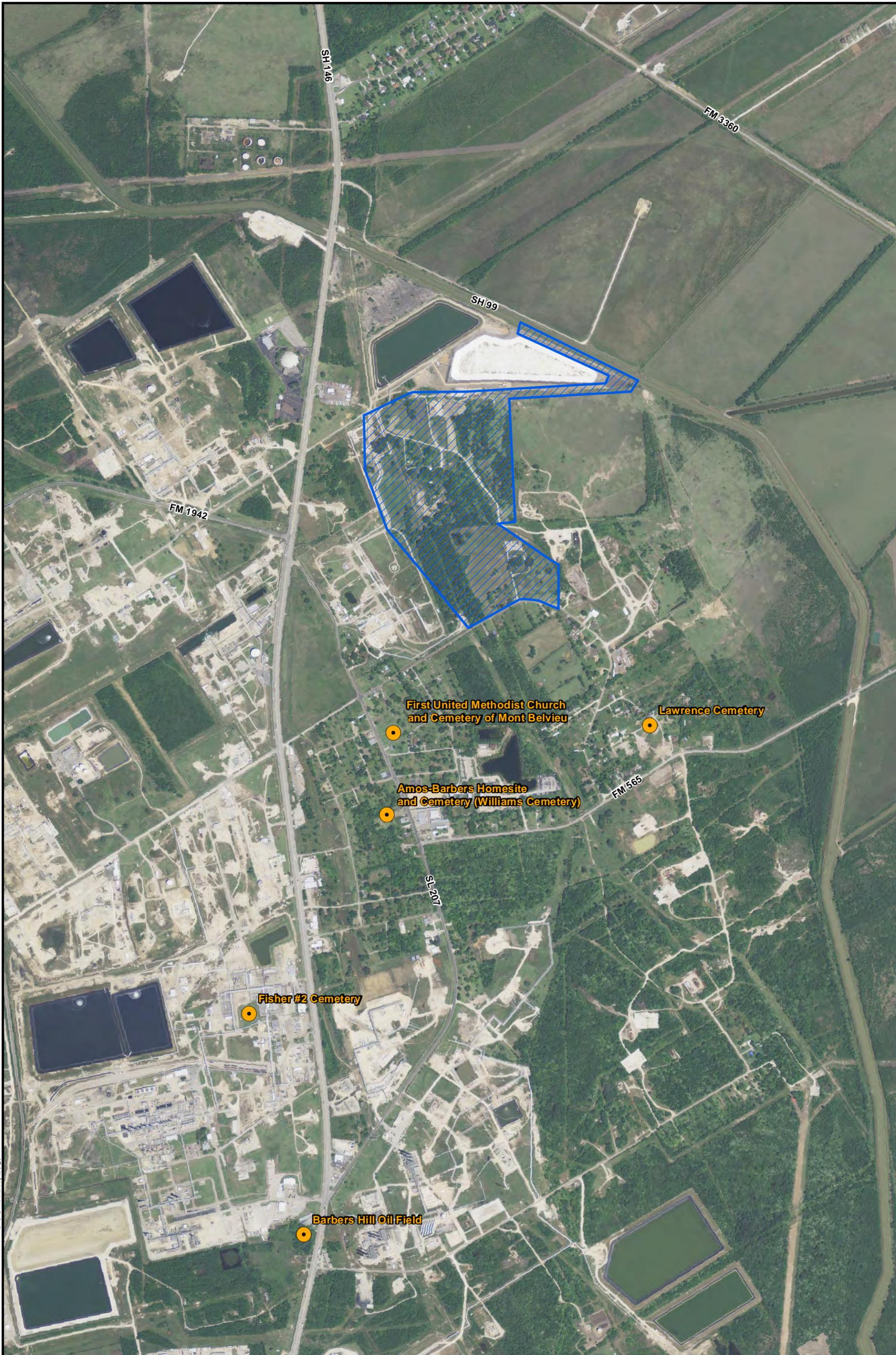


Figure 4  
Intensive Cultural  
Resource Survey  
ONEOK Hydrocarbon L.P.  
Mont Belvieu  
NGL Fractionation Facility  
Chambers County, Texas



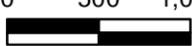
-  Identified Cultural Resources
-  Project Area



NORTH



0 500 1,000



1 inch = 1,000 feet



Figure 5  
Identified Cultural Resources  
during Background Review  
ONEOK Hydrocarbon  
L.P. Mont Belvieu  
NGL Fractionation Facility  
Chambers County, Texas

## 2.0 NATURAL ENVIRONMENT AND CULTURAL SETTING

The following chapter provides an overview of the natural environment and cultural setting where the Project Area is located. This includes a discussion of the region's physiography and the specific soils and vegetation found within the immediate vicinity of the Project Area. This section also includes a condensed regional history that addresses initial human occupation within this region, as well as the more recent history of the Mont Belvieu community.

### 2.1 Physiography

This area of Texas is defined as the Western Gulf Coastal Plain, which spans from the Rio Grande River north to the Louisiana border. First established by Fenneman, the region is only about 100 miles wide and has been further divided into multiple subregions (Fenneman 1931). The Project Area lies within a subregion referred to as the Southern Subhumid Gulf Coastal Prairie (Griffith et al. 2004). This area is relatively flat and ranges from sea level to about 400 feet above sea level and is underlain by Beaumont Clays and the Lissie Formation, both of which are Pleistocene age. Precipitation can average around 56 inches per year. Vegetation varies across the Western Gulf Coastal Plain, but can include tallgrass grasslands, live oak, mesquite, persimmon, and larger hardwoods such as sugarberry, elm, and pecan (Texas A&M Forest Service 2013). The temperatures are mild with hot summers and cool winters. Historically there was a diverse animal population here that included bison, pronghorn, white-tailed deer, and redwolves, along with many birds and waterfowl including the now endangered Attwater's prairie chicken (Griffith et al. 2004).

### 2.2 Soils

Based on a review of the online United States Department of Agriculture (USDA) Web Soil Survey, the soils within the Project Area include Anahuac silt loam (44%) and Leton silt loam (9.6%), and the remaining area is defined as oil waste due to previous development related to the petroleum industry (46.3%). Both the Anahuac and Leton soils formed from loamy fluviomarine deposits of Late Pleistocene age. These are moderately well-drained soils that are primarily used for pasture land and growing hay. Both soils have low geoarchaeological potential according to Abbott (Abbott 2001).

### 2.3 Overview of Initial Human Occupation and European Colonization

Several comprehensive reviews concerned with the history of human occupation in present day southeast Texas have been completed over the last several decades, most notably Aten's, Indians of the Upper Texas Coast (1983) and Story's, Cultural History of the Native Americans (1990). People began occupying the Gulf Coast Region of Texas in varying degrees during the Paleolithic period, which

archaeological evidence in this region suggests dates to at least 10,000 BP. The coastline has shifted significantly since this time, and many of the archaeological sites associated with these earliest inhabitants are now believed to be located several miles off shore. Paleoindian peoples are believed to have formed small extended family groups or collectives that lived a highly nomadic existence involving both hunting and gathering.

Seasonal settlement also occurred in this region throughout the Archaic period which generally spans from about 8,000 BP to approximately 2,000 BP and was characterized by a variety of different hunting and gathering cultures (Hester 1999). The shift from Paleolithic cultures to those of the Archaic is attributed to various factors, the most significant being climate change, which led to a shift towards more diversified subsistence strategies. Evidence of Archaic peoples has been found in Chambers County and along the upper Gulf Coast in the form of lithic tools and other features, with the most common being the shell midden. Along the coast, Archaic people's subsistence strategies would have relied heavily on fish and shellfish, along with other small mammals. During this period lithic technologies became more varied and the wide array of point styles, tools, and cooking features that have been found at archaeological sites suggest more intensive exploitation of plant resources.

During the Ceramic Period or Late-Prehistoric Period, which began approximately 2,000 BP, evidence of initial widespread ceramic use has been found, in particular plain sandy-paste ceramics and later grog-tempered ceramics. Lithic technologies shifted as well. The smaller "arrow" point was developed during this period and eventually appears to replace the larger "dart" points that characterized the Archaic period. People appear to become more sedentary during the Ceramic Period and while little evidence of horticulture has been found, subsistence strategies also appear to have become more diversified.

When Europeans began encroaching on the Texas Coast, the French and Spanish found the area around the lower Trinity River occupied by various groups of people who shared a common language including the Capones, Kohanis, and Kopanes, who were collectively referred to as the Karankawa (Lipscomb 2013). These nomadic groups traveled within a territory that expanded from Corpus Christi Bay to Galveston Bay and relied on a mixed subsistence of hunting, fishing, and gathering, and created both ceramics and basketry. When Spanish explorer Alvar Nunez Cabeza de Vaca was shipwrecked off the coast in 1528 he encountered the Karankawa and lived among them for several years. Over a decade later, a French expedition led by Rene Robert Cavelier, Sieu de La Salle arrived in 1665. This expedition was also met by the Karankawas, who eventually led an attack on the French establishment of Fort St. Louis near Matagorda Bay. During the eighteenth and nineteenth-century Spanish settlement of this region increased and several missions were established near the Texas coast. The Spanish attempted to

missionize the local Karankawa groups, but had little success. However, the impact of European encroachment and the spread of disease and warfare proved to be devastating for the Karankawa people. By 1840 only a few surviving groups remained in Texas. These people tried to escape by moving south into Mexico, but were eventually killed (Lipscomb 2013).

## **2.4 Recent History and Development in Mont Belvieu**

Present day Chambers County was formed in 1858 from Jefferson and Liberty Counties. The town of Wallisville was originally designated as the County Seat, but Anahuac received the title in 1907 and currently maintains this designation (Ladd 2013). While Texas was under the control of the Spanish government, the land was part of the Atascotio District, and fell within the larger Nacogdoches District. The Spanish and French had competing interests along the Gulf Coast and in the 1750s the Spanish constructed Nuestra Senora de la Luz Mission near present day Wallisville, as well as the San Agustin de Ahumada Presidio along the lower Trinity River in an effort to control the region (Kleiner 2013).

Following the Mexican war of Independence, American settlers were encouraged to settle the area and several empresarios received land grants in this region. Most of present day Chambers County was originally owned by empresarios, including Joseph Vehlein and Thomas Jefferson Chambers, for whom the County is named. Rapid American settlement led to competition between the new settlers and the Mexican government, and in 1830 Fort Anahuac was established in an effort to maintain Mexican authority in the region. Following the Texas Revolution, settlement continued to increase. Livestock was the most important economic activity, and while cotton was produced in the region, the plantation economy and slavery were not as prevalent here as in other regions of Texas (Kleiner 2013).

Amos Barber arrived in this region in the 1830s with his wife Susan Ann Fitzgerald. The couple established the first home, a double-pen, dog-trot log house, on the salt dome hill that would eventually become Mont Belvieu. The Barbers were instrumental in the community's development and played a hand in the organization of the Methodist Church and the Mont Belvieu School (Ladd 2013). The population of Mont Belvieu remained relatively small throughout the rest of the nineteenth-century and into the early-twentieth century. In 1920, only 20 people lived in the town.

This changed dramatically during the 1930s and 40s following the discovery of oil and gas in the area. In 1940 the population had risen to roughly 500 and by the 1980s over 1,700 people lived in Mont Belvieu. The community is closely tied to the Baytown-Houston area and the economy is largely driven by the petroleum industry. In 1985 an explosion at one of the oil and gas facilities caused the salt dome on which Mont Belvieu was built to become unstable, and by 1990 over 200 families had received buyouts from

local petrochemical companies to relocate their homes and other infrastructure two-miles to the east (Wooster 2013). As a result, the original town of Mont Belvieu is now mostly abandoned and the landscape is dominated by sprawling industrial facilities.

## 3.0 METHODS

The objectives of the cultural resources review were to locate any historic-age properties or archaeological sites that are listed, eligible, or potentially eligible for the National Register of Historic Places (“NRHP”) that have the potential for adverse effects from the proposed project. The following provides information regarding the sources that were consulted during the initial background review which took place before beginning the fieldwork, as well as the methods that were used during the cultural resources survey.

### 3.1 Background Review

Prior to the initiation of fieldwork, Burns and McDonnell conducted a desktop archival investigation in order to locate any known cultural resources within Project Area or within the greater 4.5-km Project Review Area. The desktop review included an examination of the Texas Archaeological Sites Atlas in order to identify previously recorded archaeological sites and other listed historic resources such as, Official Texas Historical Markers (“OTHM”), State Archaeological Landmarks (“SAL”), Texas Historic Landmarks (“THL”), NRHP-listed sites and districts, and historic cemeteries. The Sites Atlas was also used to identify previous cultural resources surveys within the 4.5-km Project Review Area. Additionally, the online sites of the Texas General Land Office, The Texas State Library, The University of Texas Library, and the Portal to Texas History were accessed in order to review available historic-age maps covering the Project Area. A literature review exploring the cultural history and development of the region was also conducted.

The information gathered during the background review was used for practical fieldwork planning, including the identification of the locations of no longer extant historic-age structures within the Project Area that had the potential to contain associated buried archaeological deposits. The review also aided in the development of a historic context exploring the development and history of the area, as well as the transformation of the landscape since Anglo- European settlement began on Barbers Hill in Mont Belvieu in 1849 (Wooster 2013).

### 3.2 Field Survey Methods – Intensive Cultural Resources Survey

As discussed in the introduction, the area that was subject to an intensive cultural resources survey is located at the southern end of the Project Area, south of the existing OHLP facilities, and is not currently under construction as part of the MB3 facility (Appendix A and Figure 4). The field methods were developed based on a review of the soils located in the Project Area and a review of historic-age maps, in particular the 1943 Mont Belvieu USGS topographic map. According to the USDA the soils located in the

Project Area formed during the Late Pleistocene, and Dr. James Abbott has argued that they all have a low potential to contain buried archaeological deposits (Abbott 2001). This suggests that the potential for encountering buried prehistoric sites within the Project Area is low. A review of a 1943 historic topographic map indicates that historic-age structures were located within two areas of this portion of Project Area. Based on this evidence, it was determined that the potential for encountering historic-age sites was relatively high. Therefore, the methods used in the field were targeted towards identifying historic-age deposits within the vicinity of the no-longer extant structure locations. The two areas where structures were previously located in 1943 were designated as high probability areas (“HPAs”) (Figure 6).

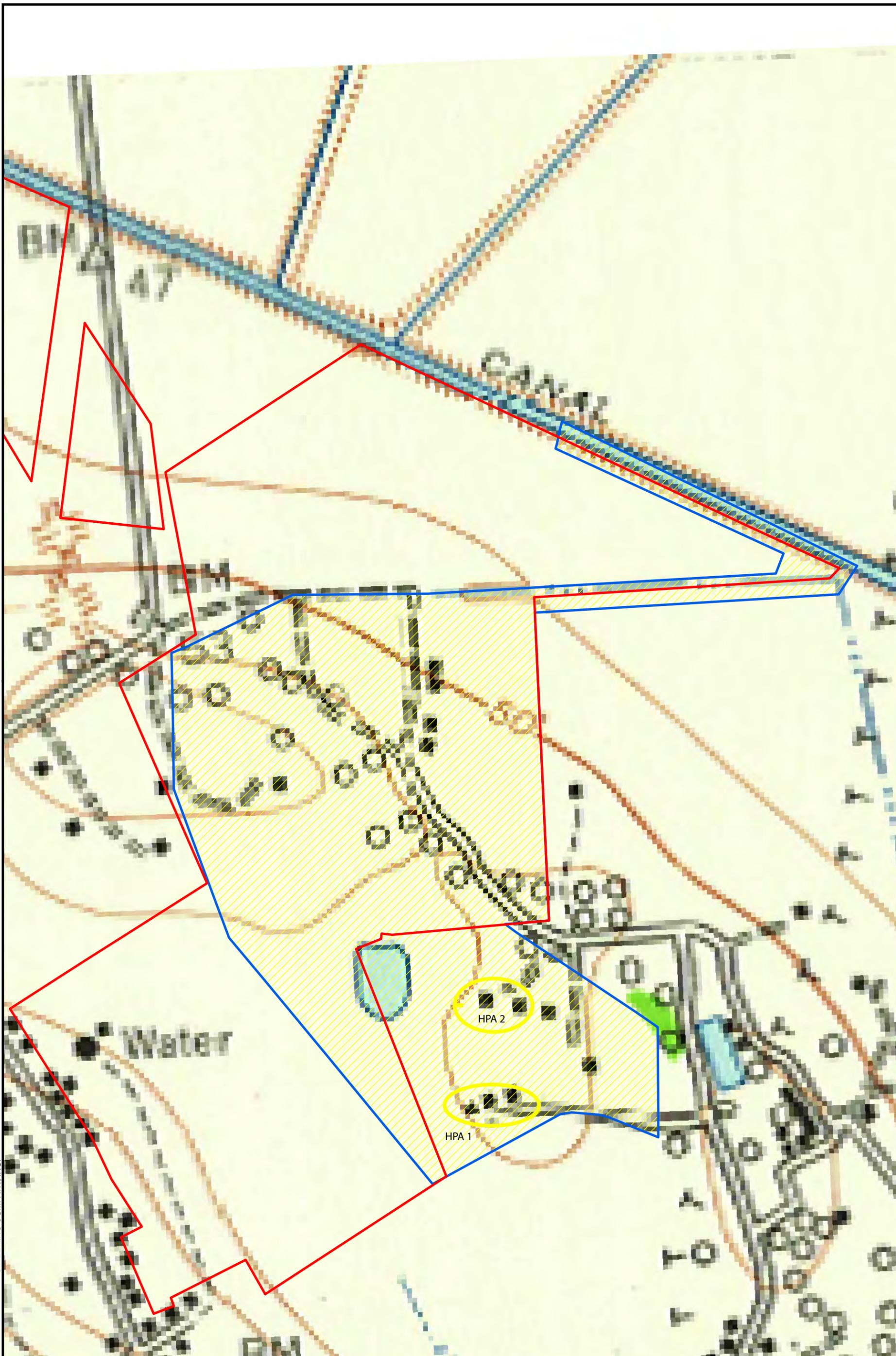
Survey methods included a combination of 100% pedestrian survey at 30-meter intervals and judgmental shovel testing in areas with a high potential to contain buried archaeological deposits. All shovel tests were approximately 30 x 30 cm and were excavated in controlled 10 cm levels. All excavated soil was screened through 0.64-cm (¼-in) hardware cloth and shovel test profiles were recorded in order to document changes in soil texture, color, and other attributes. When possible, shovel tests were excavated to sterile subsoil. Based on the age and formation of the soils, which are Late Pleistocene, it was determined that no mechanical deep testing was necessary for this project.

The survey methods met the Texas Historical Commission (“THC”) guidelines and exceeded the minimum standards for surface reconnaissance and subsurface testing in non-linear areas between 4.5–40.5 hectares (11– 100 acres) in size, which require the excavation of 1 shovel test every 0.8 hectares (2 acres). A total of 13 shovel tests were excavated within the approximately 11-acre area subject to intensive archaeological survey.

### **3.3 Field Survey Methods – Windshield Survey of the 4.5 –km Project Review Area**

Following the archival review and intensive cultural resources survey, a windshield survey was conducted in order to evaluate the wider 4.5-km radius Project Review Area (Figure 2). The windshield survey included driving public roads within the Project Area and Project Review Area in order to identify historic-age properties that have not yet been recorded that could be eligible for listing on the NRHP. Given the size of the Project Review Area, the windshield survey focused on targeting neighborhoods, and structures that appeared on the 1943 and 1961 topographic maps that are available for this area. Access and visibility varied throughout the Project Review Area, but whenever possible, historic-age structures encountered during the windshield survey were photographed and their locations were mapped. The Project Area was also photographed, as was the surrounding landscape, which is largely disturbed and dominated by industrial oil and gas production facilities.

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COPYRIGHT © 2014 BURNS & McDONNELL ENGINEERING COMPANY, INC.



<p>MB3 Project Area Current Project Area</p>	<p>TEXAS</p>	<p>0 200 400 1 inch = 400 feet</p>	<p>Burns &amp; McDonnell SINCE 1898</p>	<p>Figure 6 1943 USGS Topographic Map High Probability Areas ONEOK Hydrocarbon L.P. Mont Belvieu NGL Fractionation Facility Chambers County, Texas</p>
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## 4.0 RESULTS OF INVESTIGATIONS

The following provides the results of the initial file review and the background research, and includes a list of all previously recorded cultural resources and prior surveys that have taken place within the 4.5-km Project Review Area. The results of the intensive cultural resources survey are also presented, along with a discussion of the results of the windshield survey covering the Project Review Area. No new archaeological sites were found and no previously recorded archaeological sites exist within the Project Area or the Project Review Area. Based on a cursory examination, it appears that four of the historic-age resources that were encountered are potentially eligible for the NRHP. It is the opinion of Burns & McDonnell that the proposed project will have no negative effects on any of these resources.

### 4.1 File Review and Background Research

Numerous archeological investigations have been carried out within the vicinity of the Project Area and within the 4.5-km Project Review Area. The following is a list of these surveys including the Consultant, the Agency, the Project Planner, and the year the investigation took place. None of these prior surveys resulted in the identification of any cultural resources (Table 1).

An examination of the Texas Historic Sites Atlas found no previously recorded archeological sites or NRHP listed properties within the Project Area or the 4.5-km radius Project Review Area.

**Table 1: Previous Cultural Resources Surveys within the Project Review Area**

<b>Date</b>	<b>Consultant</b>	<b>Project Planner</b>	<b>Agency</b>
1978	Unknown		EPA
1988	Unknown	Unknown	FHWA
1998	Unknown	Unknown	FCC
2004	Blanton and Associates, Inc.	Unknown	USACE
2006	Ecomm	Unknown	TXDOT
2006	Horizon	Louis Dreyfus, Houston	USACE
2007	SWCA	Mustang Engineering	USACE
2007	HRA Gray & Pape	Berg Oliver Associates, Inc.	USACE
2007	SWCA	West Texas LPG Pipeline Limited Partnership C/O	USACE
2007	HRA Gray & Pape Archaeology & Environmental Consultants	URS Crop & Louis Dreyfus Highbridge Energy	USACE
2008	HRA Gray & Pape	ONEOK, Inc.	FERC
2008	HRA Gray & Pape	Berg Oliver Associates, Inc.	USACE
2008	TRC	Oxy LPG	FERC
2010	HRA Gray & Pape	Mont Belviue LP	USACE
2011	SWCA	Chevron Phillips Chemical Company LP.	EPA
2012	SWCA	West Texas LPG Pipeline Limited Partnership C/O	USACE
2012	SWCA	Texas Express Pipeline	USACE
2012	Morris P. Herbert, Inc.	ONEOK, Inc.	USACE
2012	Morris P. Herbert, Inc.	INEOS Chocolate Bayou Pipeline	USACE
2012	SWCA	Chevron Phillips Chemical Company LP.	EPA

#### 4.1.1 Official Texas Historical Markers (OTHM) and Cemeteries

No previously recorded cultural resources were identified within the Project Area. Five documented cultural resources were identified within the 4.5-km Project Review Area including three OTHMs (The First United Methodist Church and Cemetery of Mont Belviue [Marker No. 9122], the Barber Hill Oil Field [Marker No. 9081]), and The Amos Barber Homesite and Cemetery - also referred to as the Barber Williams Cemetery [Cemetery No. CH-C018]. All three markers are associated with the settlement of Mont Belviue and are located south of the Project Area. In addition to the three OTHMs, there are two other historic-age cemeteries located within the Project Review Area, the Fisher #2 Cemetery and the Lawrence Cemetery (Figure 5).

#### 4.1.1.1 First United Methodist Church and Cemetery of Mont Belvieu

The closest marker is associated with the First United Methodist Church and Cemetery of Mont Belvieu located approximately 750 feet south of the Project Area near the intersection of Main Street (Spur 207) and Winfree Street (Figure 7). The church was built in 1895 and was known for a period as “Fisher’s Chapel” after the local Fisher family made a large contribution towards the development of the new structure. The original 30' x 40' church house was completed in 1897 and the cemetery was established in the same year. There are 495 gravesites with 245 interments located in the cemetery. The current church sanctuary was built as an addition to the original structure in 1932. A fellowship hall was built in 1945 and an education wing was added in 1957. The OTHM was dedicated in 1979 and a few years later the church was moved to its present location along Hwy 3360 to “avoid the dangers of nearby petrochemical storage in the underground salt dome” (OTHM 2012).

The church’s association with Amos and Susan Ann Barber, founders of the Mont Belvieu community and the prominent Fisher family suggests that this resource may be eligible for listing in the NRHP for its historical importance and association with the lives of significant persons at the local level. While Title 36 Section 60.1 of the National Register Federal Programs Regulations specifies that, “properties owned by religious institutions or used for religious purposes” and “structures that have been moved from their original locations” shall not ordinarily be considered eligible for the National Register, such properties do qualify if they fall within the following categories:

(a) A religious property deriving primary significance from architectural or artistic distinction or historical importance; or

(b) A building or structure removed from its original location but which is significant primarily for architectural value, or which is the surviving structure most importantly associated with a historic person or event.

Additionally, the cemetery may be potentially eligible under Criterion B for its associations with the lives of significant persons at the local level, and , may meet Criteria Consideration D for cemeteries that “derive their primary importance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events” (NRHP Title 36. Chapter 1. Section 60.4).



Figure 7. Photograph of First United Methodist Church and Cemetery of Mont Belvieu, facing east

#### 4.1.1.2 Amos Barber Homesite and Cemetery - also referred to as The Williams Cemetery

The Amos Barber Homesite and Cemetery OTHM was erected in 1977 on the west side of Main Street (Spur 207). The marker commemorates the life of the Amos and Susan Ann Barber family who were the first Anglo-European settlers in this area, which was originally referred to as “Big Hill” and later as “Barbers Hill”. Amos and Susan Ann Barber arrived in 1849 and erected a two-story dog trot, fruit orchard, and a farm. The home was on the main road from Huntsville to Lynchberg and as such the Barbers often received visitors, including a rumored stop by Sam Houston. Barber was a real-estate broker and cattleman. Both he and his wife are buried near the former dwelling, which was dismantled in 1923. The property was acquired by the Barbers’ eldest daughter Amanda Melissa and her husband Marion Williams, and later donated to the Mont Belvieu Church of Christ. Today, the associated cemetery is referred to as the Barber Williams Cemetery and it contains over 80 internments and markers dating from the late-nineteenth century to 2010, including those of WWII and Vietnam Veterans (Figure 8).

The Barber Williams Cemetery is the final resting place of Amos Barber who is recognized as the founder of the Mont Belvieu community, and the property is recorded as being the location of the family’s

original homestead. While the homestead is no longer standing, the site may be eligible for listing in the NRHP under Criterion D for its archaeological potential to yield important information about history. Additionally, the cemetery may be eligible under Criterion B for its associations with the lives of significant persons at the local level, and specifically may meet Criteria Consideration D for cemeteries that “derive their primary importance from graves of persons of transcendent importance” (NRHP Title 36, Chapter 1, Section 60.4).

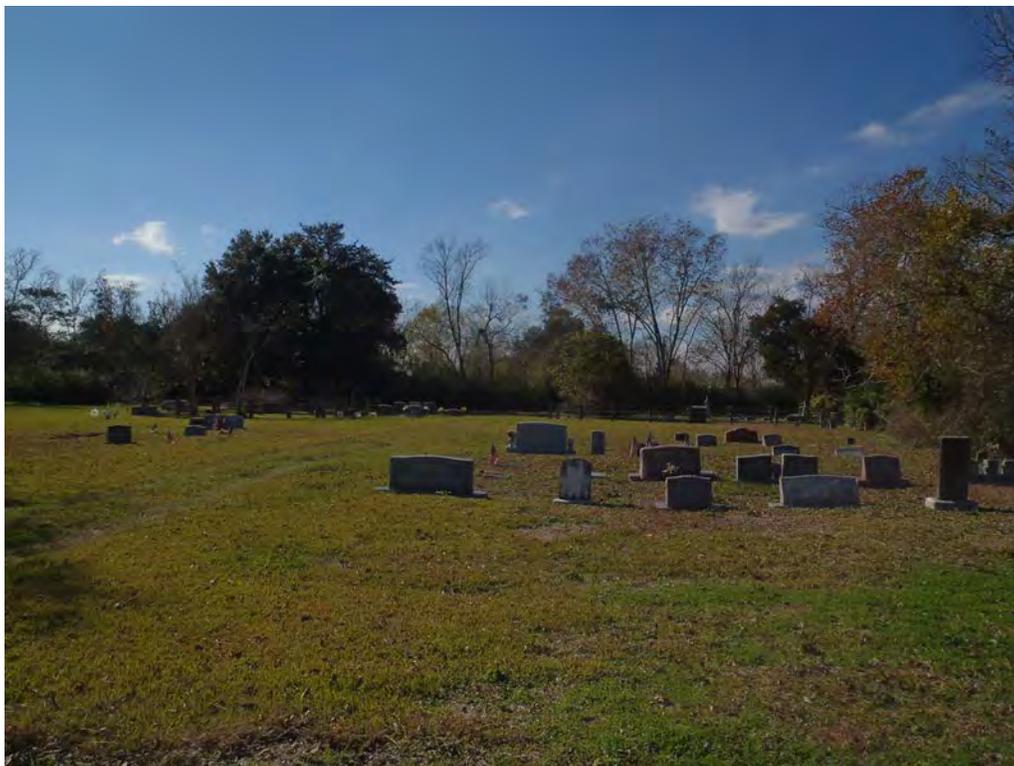


Figure 8. Photograph of the Amos Barber Homesite and Cemetery (Williams Cemetery), facing west

#### 4.1.1.3 Barber Hill Oilfield

The Barber Hill Oilfield marker was erected in 1977 and is located within the Arthur Davis Park on the west side of State Highway 146 about 2 miles north of I-10 in Mont Belvieu. The marker commemorates the discovery of “inflammable gas near the top of the salt dome known as Barbers Hill” by Elmer W. Barber (1854 – 1935), the son of Amos and Susan Ann Barber. Elmer Barber identified the gas while digging a 65-foot water well near his home in 1889. After the Spindletop discovery in 1901, many prospectors sought leases in this area and this initial discovery eventually led to the transformation of the local economy and the landscape towards the production and storage of petroleum. The Arthur Davis Park

associated with the marker has on display common oil drilling and pumping equipment from the early-twentieth century and also contains a relocated historic-age structure reported to have housed Mont Belvieu's first barber shop (Figure 9). The marker itself commemorates the discovery and production of petroleum and the relocated equipment and barber shop display do not appear to be eligible for the NRHP.



Figure 9. Photograph of Arthur Davis Park, facing southwest

#### 4.1.1.4 The Fisher #2 Cemetery

The Fisher #2 Cemetery is located on the west side of Highway 146 approximately 1.5 km southwest of the proposed Project Area. The cemetery is located within an industrial oil refinery complex owned and maintained by TARGA and is sectioned off with a fence and accessible through a locked gate. There are ten known burials that include the graves of Edgar Fisher, his mother, his brother, and his daughter. The Fisher family were early and prominent citizens of the Mont Belvieu community and they were instrumental in building the community and in the construction of the First United Methodist Church described previously. The oldest grave in the cemetery dates from 1898, and the most recent burial occurred in 1976. In 2010, the cemetery became part of a legal action between TARGA and descendants

of the Fisher family over the possible exhumation and reinternment of the graves in a new location (Opinion No. 14-11-01000-CV, Mary Catherine Levandovsky, Appellant V. Targa Resources Inc. and Targa Downstream LLC, Appellee). While cemeteries are not usually considered eligible, the Fisher #2 cemetery may be eligible under Criteria A for its association with the early local development of Mont Belvieu and Criteria B for its association with the Fishers, who appear to be significant members of the local community. Specifically, the cemetery may meet Criteria Consideration D for cemeteries that “derive their primary importance from graves of persons of transcendent importance”, or “from association with historic events” (NRHP Title 36. Chapter 1. Section 60.4).

#### **4.1.1.5 The Lawrence Cemetery**

The Lawrence Cemetery is located approximately 650 meters southeast of the Project Area on inaccessible private land and is not visible from any nearby public roads. Based on a review of locally maintained websites it appears there is only one burial in the cemetery, that of Selina Lawrence who was born in 1844 and lived on the property. She was buried here after her death in 1882 (Chambers County Genealogy 2014). The Lawrence Cemetery does not appear to meet any of the Criteria necessary for NRHP eligibility.

#### **4.2 Results of the Intensive Cultural Resources Survey**

An intensive cultural resources survey was performed by Burns & McDonnell archaeologists on December 18, 2013 for the approximately 11-acre parcel within the Project Area that is not currently under development and was not previously surveyed during the prior MB3 investigation (Figure 4, Appendix A). The portion of the Project Area that was not subject to intensive survey is part of an already existing facility and exhibits heavy disturbance and soils with low geoarchaeological potential (Figure 10 and 11). Additionally, a modern, single-family dwelling is located immediately to the east of the approximately 11-acre area that was subject to intensive survey (Figure 12 ). This area exhibits previous disturbance and no historic-age resources were observed.



Figure 10. Photograph of the Southern Half of the Project Area, facing north



Figure 11. Photograph of the Northern Half of the Project Area from SH 146, facing east



Figure 12. Photograph of the Modern, Single-Family Dwelling Located in the Southern Half of the Project Area, facing northeast

The intensive cultural resources survey resulted in the identification of no new archaeological sites or historic structures within the Project Area. A pedestrian survey was carried out at 30-meter intervals running north-south across the intensive cultural resources survey area. In total, this resulted in seven transects. A total of 13 shovel tests were excavated across the survey area (Figure 13). Two of the shovel tests contained modern debris including a piece of concrete conglomerate, an unidentified ferrous metal fragment (Shovel Test 3), and a white PVC water pipe (Shovel Test 6) that appear to date to the 1970s. The results of the shovel testing are discussed further below.

Based on a review of the online United States Department of Agriculture (USDA) Web Soil Survey, the soils within the overall Project Area include Anahuac silt loam (44%) and Leton silt loam (9.6%), and the remainder of the soils are defined as oil waste (46.3%) that has resulted from previous petroleum industry developments in this area (USDA 2013). The soils within the approximately 11-acre area that was subject to intensive cultural resources survey are mapped predominately as Anahuac silt loam with a small pocket of Leton Silt Loam along the western side of the parcel. Both soils formed from loamy fluviomarine deposits of Late-Pleistocene age. The soil profiles observed during the shovel testing were reflective of

the Anahauc soil series, and a typical profile consisted of approximately 10 – 15 centimeters of very dark greyish brown (10YR 3/2) sandy loam followed by a dark brown (10YR 3/3) loam that extended to 40 – 50 centimeters below surface. Below this, the soil typically transitioned to a brown (10YR 4/3) loam with an increase in clay. This transition was sometimes accompanied by subtle reddish brown mottling. These soils have been determined to have low geoarchaeological potential to contain buried prehistoric sites (Abbott 2001).

Prior to commencing the fieldwork, a review of the 1943 and 1961 USGS topographic maps coupled with a review of historic and current aerials photographs indicated that no longer extant historic-age structures were previously located in two areas within this parcel, designated as HPA 1 and HPA 2 (Figure 6). As such, it was determined that there was a high potential for encountering historic artifacts and features. In order to make sure that adequate surveying and shovel testing was performed to evaluate whether any historic-age archaeological deposits or features were present in association with these no longer extant structures, the field methods were modified in the areas where historic maps suggested these structures once appeared. Transect intervals were decreased to ten meters in the vicinity of each HPA in order to look for aboveground features or feature remnants such as foundations, pier stones, wells, and cisterns, and judgmental shovel testing was performed.

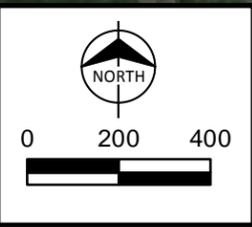
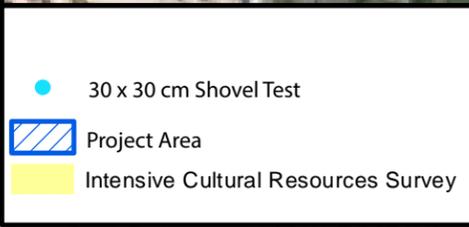


Figure 13  
Shovel Tests  
ONEOK Hydrocarbon L.P.  
Mont Belvieu  
NGL Fractionation Facility  
Chambers County, Texas

The survey of HPA 1 (Figure 14) resulted in the identification of an asphalt driveway that is on the 1970s aerial photograph of this area. The driveway appears to date to this time period (Figure 15). North of the driveway is a stand of trees approximately 50 x 50 meters that possibly formed a border around the structure and/or structures that were previously located here. Using the trees and the historic maps and aerials as a guide, shovel tests were excavated east-west and north-south at approximately 15 meter intervals across this general area in order to identify any historic-age artifacts associated with the former structure/structures. All of the shovel tests were negative for historic-age artifacts. One shovel test (ST 3) contained a piece of concrete conglomerate and a rebar fragment, and one shovel test (ST 6) revealed a modern white PVC water pipe (Figures 16 and 17). No surface features were identified and no other artifacts were recovered. The area appears to have been subject to repeated development and clearing based on the historic maps, and was possibly bulldozed in the past removing any historic-age structural remnants and/or artifacts.



Figure 14. Photograph Overview of HPA 1, facing north



Figure 15. Photograph Overview of asphalt driveway (circa 1970) located at HPA 1, facing north



Figure 16. Concrete Conglomerate and Rebar Fragment in Shovel Test 3

US EPA ARCHIVE DOCUMENT



Figure 17. Overview Photograph of PVC Water-Pipe Encountered in Shovel Test 6

HPA 2 (Figure 18) is depicted as an outbuilding on the 1961 USGS topographic map, and a driveway and several small structures appear to be present on the 1970s aerial. Visibility in this area was greater than 30%, and the survey focused on identifying any visible surface artifacts or features. Additionally, three shovel tests were excavated in order to assess whether any buried archaeological deposits were present. All of the shovel tests were negative and no surface artifacts were found. The remnants of the asphalt driveway that appears on the 1970s aerial, and a concrete slab were identified on the surface, but no historic-age features or artifacts were encountered (Figures 19 and 20). As with HPA 1, the area appears to have undergone various phases of development over the last 50 years and has been well cleared. No historic-age artifacts were identified.



Figure 18. Photograph Overview of HPA 2, facing northwest



Figure 19. Overview of Concrete Slab Identified at HPA 2



Figure 20. Overview of Asphalt Driveway Remnants Identified at HPA 2, facing southeast

As a result of the survey, a total of 13 shovel tests were excavated within soils of late Pleistocene age, which exceeds the THC's minimum standards for non-linear projects. No archaeological sites or historic-age standing structures were recorded. While structures appeared in this area on the 1943 USGS topographic map, it appears that all remnants of these former structures and any artifacts associated with them are no longer present. This was likely the result of the activities and construction that appear to have taken place during the 1970s and the later clearing of this area during the 1980s (Figure 21). Based on these results, Burns & McDonnell recommends no further cultural resources work within the surveyed areas and that the project be allowed to proceed as planned within this area.

Path: T:\ESP\OneOK\MB4 Cultural Resources\GIS\DataFiles\ArcDocs\Fig7\_1970Aerial.mxd barker 1/3/2014  
COPYRIGHT © 2014 BURNS & McDONNELL ENGINEERING COMPANY, INC.



 MB3 Project Area  
 Current Project Area

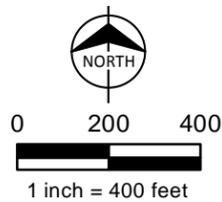


Figure 7  
 1970 Aerial Imagery  
 The Project Area  
 ONEOK Hydrocarbon  
 L.P. Mont Belvieu  
 NGL Fractionation Facility  
 Chambers County, Texas

### 4.3 Results of the Windshield Survey of the 4.5-km radius Project Review Area

The windshield survey was performed on December 18 and 19, 2013 by Burns & McDonnell archaeologists. As described in the methods section, public roads were accessed during the survey and areas were targeted based on a prior review of the 1943 and 1961 USGS topographic maps. In total, 45 historic-age, non-archaeological resources were identified within the Project Review Area. No historic-age, non-archaeological resources were identified in the Project Area. For the purposes of this report, historic-age, non-archeological resources refer to structures, buildings, objects, or districts 50 years of age or older. Each resource was photographed and plotted on a map. The structures were mostly concentrated in three distinct sections of the Project Review Area and the following provides a general characterization of the architectural styles and an overview of the landscape and development changes that have occurred within these three neighborhoods based on the windshield survey, and a review of historic maps and aerial photographs (Figure 22).

#### 4.3.1 Area 1: Central Mont Belvieu – Resources 1 – 24

Resources 1 – 24 are located within an area that is associated with the earliest settlement of Mont Belvieu. The resources recorded in this area are a mix of single-family dwellings (12), commercial properties (3), outbuildings (4), public works infrastructure (2), and cemeteries (3). Most of the single-family dwellings appear to date to the mid-twentieth century (1930 - 1950), which corresponds with the growth of the town following the discovery and commercial exploitation of oil and gas in this region. While the area was initially settled in 1849 by Amos Barber, census records indicate the population of Mont Belvieu was only around 20 individuals in 1920, but had increased to upwards of 500 people by the 1940s. All of the resources recorded in this area appear to be associated with this period of rapid growth, with a few more recent structures. No known nineteenth-century resources were identified.

The majority of the single-family homes encountered were single-story, wood-frame dwellings with gabled roofs, built in a vernacular style (Appendix B). Many of the homes have undergone various additions and replacements over the years, and several appeared to be in a deteriorated condition. Three commercial properties were located in this area during the windshield survey and include a former gas-station currently being used to house a restaurant that appears to date to the mid-twentieth century (Resource 24), a mid-twentieth century abandoned storefront (Resource 23) and a currently abandoned and heavily deteriorated early-twentieth century commercial building, whose previous function is unknown (Resource 13). Four historic-age outbuildings were also identified during the survey. Three of the outbuildings are currently being used for storage in association with various oil and gas development

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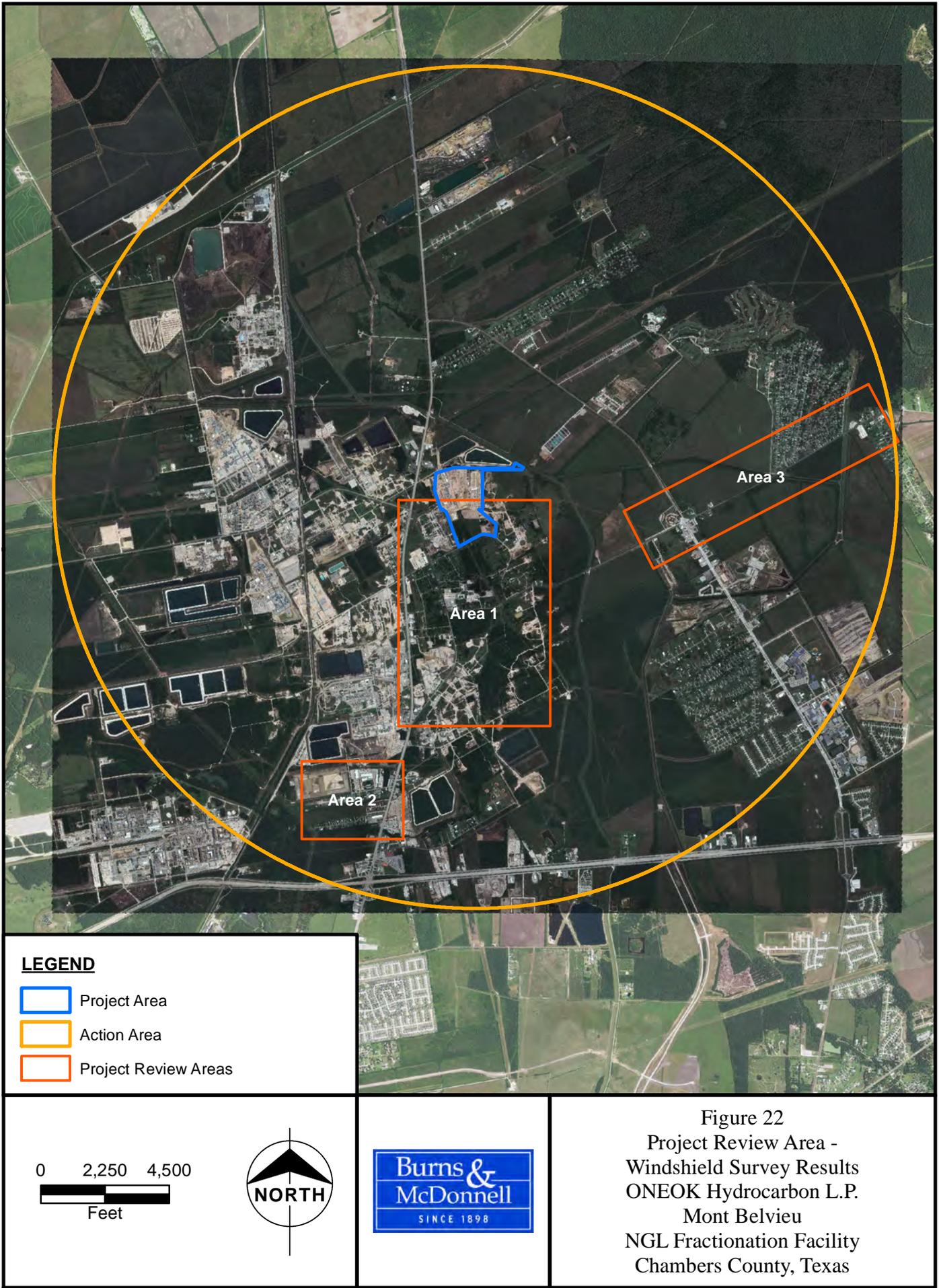


Figure 22  
Project Review Area -  
Windshield Survey Results  
ONEOK Hydrocarbon L.P.  
Mont Belvieu  
NGL Fractionation Facility  
Chambers County, Texas

operations (Resources 2 – 5). The two public works resources (Resources 8 and 11) include the former Barber Hill School which was built circa 1930, and another structure that appears to have functioned as a type of public works office. Additionally three cemeteries are located within this area; the Mont Belvieu Cemetery, the Amos Barber Homesite and Cemetery, and the Lawrence Cemetery. All three of these cemeteries were previously discussed above as part of the initial background review.

This area of Mont Belvieu was at one time heavily populated. The 1961 USGS topographic map depicts upwards of 150 structures. However, an explosion at an oil and gas plant in 1985 led to the evacuation of the area due to concerns regarding the structural stability of the natural salt dome on which the town is located. As a result, most of the neighborhood homes and other buildings were destroyed or relocated two miles to the east along Eagle Drive (3180), where the current town of Mont Belvieu is situated. This depopulation is evident from a comparison of historic-age maps with more recent topographic maps and current aerials. Driving around this area today, most parcels of land have been cleared and while the street layout remains intact, very few homes are present.

Architectural evaluations and archival research for each individual resource located in the Project Review Area to determine NRHP eligibility was not performed, but initial reconnaissance evaluations suggest that within Area 1 there are at least three resources that are potentially eligible for the NRHP. This includes the previously discussed Mont Belvieu Cemetery and the Amos Barber Homesite and Cemetery, as well as the Barber Hill School (Resource 11). The Barber Hill School (Resource 11) is currently located on private property owned by an oil and gas corporation and the area is fenced off from the public. As a result, it was not possible to fully photo-document the Resource, but at least two of the original red brick school buildings were visible from the public road, and both appear to be intact. Depending on the condition and integrity of the structures, it is possible that the school is eligible for inclusion in the NRHP under Criteria A for its association with the early development of the Mont Belvieu community during a period of significant growth in this area of Texas in relation to the petroleum industry, and under Criteria C for its architectural merit. Further research would need to be performed in order to make this determination.

#### **4.3.2 Area 2: South of Central Mont Belvieu - Resources 25 – 34**

Resources 25 – 34 are located south of Area 1 on the west side of SH 146, north of Interstate 10. All but one of the historic-age resources in this area are single-family dwellings except for the Arthur Davis Park, which was previously discussed in association with the Barber Oil Field (OTHM). Most of the dwellings are single-story, wood-frame structures with gabled roofs, built in a vernacular style, with the exception of one brick and mortar dwelling (Resource 27). As with the Resources identified in Area 1, most of these

structures also appear to date to the early to mid-twentieth century, a period of rapid growth in this area due to rising investment in the petroleum industry. Based on a review of historic USGS topographic maps, all of the structures with the exception of Resource 26, were moved to their current locations (as a result of the 1985 explosion) or built after 1961. The majority of the Resources are located along Cedar Hill Road, and do not appear on the 1943, 1961, or 1982 USGS topographic maps. Additionally most of the homes are in a heavily deteriorated state and have undergone significant alterations and additions. The neighborhood in which they are located also contains a mix of non-historic age mobile homes and trailers. In general this entire area has undergone significant transformation due to the development of refineries, transmission lines, and non-historic age commercial and residential development. All of the Resources in Area 2 appear to be of common design and lack historic integrity and/or architectural significance that would make them eligible for inclusion in the NRHP, however additional architectural and archival research concerning possible historic associations would need to be performed in order to make an eligibility determination.

#### **4.3.3 Area 3 – North Farm to Market 535 Road: Resources 35 – 44**

Resources 35 – 44 are located along North Farm to Market 535 Road (FM535) to the east of the Project Area. The Resources documented in Area 3 include several single-family dwellings (4) and associated outbuildings (2), one commercial property, and the historic-age Barbers Hill Canal (Resources 39 and 40), which crosses through the Project Review area twice along FM 535. This section of the Project Review Area remained relatively undeveloped agricultural lands throughout the twentieth century except along FM 535, and to the north, along Eagle Drive where several planned urban neighborhoods have been built since the 1970s. Several additional neighborhoods are currently under construction in this area.

Resources 36 – 38 appear to be the remnants of a small farmstead dating to the mid-twentieth century and include two outbuildings used for agricultural purposes and a single-story wood-frame circa 1935 dwelling with a gabled roof that is in a deteriorated condition. Resources 41 – 44 are located near the eastern boundary of the Project Review Area on the western outskirts of the Winfree Community. The Resources include one commercial property (Resource 41) that is not readily visible from the public road, but appears to be a converted wood-frame single-family dwelling, and Resources 42 – 44, single-family homes that appear to date to the mid-twentieth century, circa 1930s. All of the resources appear to be of common design and lack historic integrity and/or architectural significance that would make them eligible for inclusion in the NRHP, however additional architectural and archival research concerning possible historic associations would need to be performed in order to make an NRHP determination.

#### **4.3.4 Additional Resources: Resources 45 – 47**

The remaining three Resources identified during the windshield survey include two additional areas where the historic-age Barber Hill Canal crosses through the Project Review Area along SH146 (Resources 46 and 47) and a wood-frame outbuilding (Resource 45) located south of I-10 that is in an area of recent residential development. The outbuilding is of common design and appears to lack the historic integrity and/or architectural significance that would make it eligible for inclusion on the NRHP; however, additional architectural and archival research concerning possible historic associations would need to be performed in order to make an NRHP eligibility determination.

## 5.0 CONCLUSIONS AND RECOMMENDATIONS

The Project Area and the Project Review Area are located within a landscape that has undergone substantial development in relation to the oil and gas industry since the early-twentieth century and is currently characterized by large-scale refineries and production facilities (Figures 2 and 3). Most of the immediate Project Area where the ground disturbing activities for the proposed Frac-3 and Frac-4 Facility will take place is located within the existing OHLP Facility and has already undergone significant development in relation to the previous MB2 and MB3 Facility projects. Additionally, the majority of the Project Area where the Frac-3 and Frac-4 Facility is proposed overlaps with the MB3 Facility, which was evaluated for cultural resources by Burns & McDonnell in 2012. A copy of the 2012 investigation which is titled "Cultural Resources Reconnaissance Review and Evaluation for the Expansion Project at the Mont Belvieu Natural Gas Liquids Fractionation Facility" is included in Appendix A.

An initial background review identified five documented cultural resources within the 4.5-km Project Review Area, including three OTHMs: The First United Methodist Church and Cemetery of Mont Belvieu (OTHM), the Barber Hill Oil Field (OTHM), and the Amos Barber Homesite and Cemetery (OTHM) - also referred to as The Williams Cemetery, the Fisher #2 Cemetery and the Lawrence Cemetery (Figure 5). No previously recorded archaeological sites are present within the Project Review Area. No previously recorded archaeological sites or cultural resources are located within the proposed Project Area where construction of the Frac-3 and Frac-4 Facility will take place.

The soils within the Project Area are mapped as Late Pleistocene-age soils that have low geoarchaeological potential and 46.3% of the soils are mapped as oil waste based on a review of the USDA Soil Web Survey (Abbott 2001; USDA 2013).

Following the background review, an intensive cultural resources survey of approximately 11-acres of the Project Area outlined in Figure 4, that is not part of the previously surveyed MB3 Facility, and is not currently under construction, was performed by Burns & McDonnell archaeologists, along with a windshield survey of the greater 4.5-km Project Review Area.

The intensive cultural resources survey included a systematic pedestrian survey and judgmental shovel testing that exceeded the THC minimum survey standards. An evaluation of historic maps indicated that no-longer-extant structures were previously located in this approximately 11 acre section of the Project Area during the 1940s; however, no historic-age artifacts or features were encountered during the survey. A total of 13 shovel tests were excavated. No archaeological sites or historic-age cultural resources were identified.

Following the intensive cultural resources survey, a windshield survey was conducted in order to evaluate the wider 4.5-km radius Project Review Area (Figure 2). In total, 45 historic-age Resources were recorded during the windshield survey (Appendix B). All of the resources, with the exception of four (the Barber Hill School, and the previously recorded First United Methodist Church and Cemetery of Mont Belvieu, the Amos Barber Homesite, and the Fisher #2 Cemetery) appear to be of common design and lack historic integrity and/or architectural significance that would allow them to be eligible for inclusion in the NRHP. However additional architectural and archival research concerning possible historic associations would need to be performed in order to provide NRHP eligibility determinations for all of the Resources.

Although the four Resources listed above may be eligible for listing in the NRHP, no adverse effects will occur to the Resources as a result of the proposed construction activities associated with the Frac-3 and Frac-4 Facility. No physical activities will be performed within the immediate vicinity of these Resources, and no adverse visual impacts are anticipated as a result of construction. Additionally, it is not anticipated that any airborne pollutants that result from the construction and operation of the Frac-3 and Frac-4 Facility will directly impact any of the Resources.

Based on the results of the Cultural Resources Review, it is the opinion of Burns & McDonnell that construction and operation of the proposed Frac-3 and Frac-4 Facility will have no adverse effect on any listed NRHP properties, or potentially eligible NRHP properties, in accordance with the Section 106 process. Burns & McDonnell recommends no further cultural resources evaluation for the proposed project area addressed in this report. However, if any cultural resources are encountered during project construction, Burns & McDonnell recommends that project construction should cease at that location until the EPA and the THC are notified and a qualified professional archeologist is able to assess the significance of the findings.

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Published by the Texas State Historical Association.

**APPENDIX A - MB3 CULTURAL RESOURCES REPORT (2012)**



Cultural Resources Reconnaissance  
Review and Evaluation  
for the  
Expansion Project at the  
Mont Belvieu Natural Gas Liquids  
Fractionation Facility



**ONEOK Hydrocarbon, L.P.**

**Project No. 67371**

April 2013

**Cultural Resources  
Reconnaissance Review and  
Evaluation  
for the Expansion Project at the  
Mont Belvieu Natural Gas Liquids  
Fractionation Facility**

**prepared for**

**ONEOK Hydrocarbon, L.P.  
Tulsa, Oklahoma**

**April 2013**

**Project No. 67371**

**prepared by**

**Burns & McDonnell Engineering Company, Inc.  
Dallas, Texas**

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## 1.0 INTRODUCTION

A qualified professional archaeologist from Burns and McDonnell conducted a cultural resources review, which included desktop level archival investigations and a windshield reconnaissance survey of approximately 522 acres (“Project Area”) for the proposed Mont Belvieu NGL Fractionation Facility Expansion Project, in Chambers County, Texas (Figure 1, Appendix A). The survey was completed on April 5, 2012, at the request of ONEOK Hydrocarbon, L.P. (“OHLP”). OHLP proposes to construct and operate an expansion of OHLP’s Natural Gas Liquids Fractionation Facility in Mont Belvieu, Chambers County, Texas. The facility to be constructed (“the MB3 Facility”) will consist of an additional fractionation train. The proposed project is subject to National Historic Preservation Act (“NHPA”) Section 106 review because the Project will need to be authorized by a U.S. Environmental Protection Agency (“EPA”)-issued New Source Review (Prevention of Significant Deterioration) (“PSD”) air permit for greenhouse gas (“GHG”) emissions. OHLP submitted an application on September 17, 2012 to EPA for that air permit, and accordingly, provides this report pursuant to NHPA Section 106.

The archival research was supplemented with a review of local and county historical map resources maintained in libraries and museums. Following the archival review, a windshield survey was conducted within the Project Area. The survey included driving all public roads within the Project Area to determine if there are any historic properties not yet recorded that could be considered eligible for the National Register of Historic Places (“NRHP”).

These investigations were performed in compliance with the National Historic Preservation Act and that Act’s implementing regulations entitled “Protection of Historic Properties” in 36 CFR Part 800.

In the sections that follow, this report describes the comprehensive cultural resources review that Burns and McDonnell conducted regarding the proposed MB3 Facility, pursuant to which Burns and McDonnell recommends that construction and operation of the MB3 Facility will have no adverse effect on historic properties.

## 2.0 RESEARCH DESIGN AND METHODOLOGY

The NHPA “Area of Potential Effects” (“APE”) for the Project, also referred to herein as the “Project Area,” consists of approximately 552 acres of land (Figure 1, Appendix A) within which direct and indirect impacts may occur from the construction and operation of the MB3 Facility. The extent of the area of direct and indirect impacts is limited to the boundaries depicted on Figure 1 (Appendix A), which consists of mostly cleared properties owned by petrochemical companies and contains brine ponds, industrial structures, roads, and the OHLP’s Natural Gas Liquids Fractionation Facility (Photographs 1–4). The MB3 Facility is located in a previously disturbed area adjacent to existing natural gas liquids storage caverns and on the same site as the previously-permitted MB2 Facility fractionation plant for which ongoing construction commenced during the second quarter of 2011. No additional linear or ancillary facilities will be constructed for or as a part of the MB3.

The objective of the survey was to identify historic properties that are included in or could be considered eligible for the NHRP. Prior to the initiation of fieldwork, Burns and McDonnell conducted desktop level archival investigations supplemented with a review of local and county historical map resources maintained in libraries and museums to locate any known historic properties within or close to the APE. No shovel testing within the footprint of the MB3 facility was conducted because the MB3 Facility is located in a previously disturbed area adjacent to existing natural gas liquids storage caverns and on the same site as the previously-permitted MB2 Facility fractionation plant.

The desktop archival review included examination of the TXGen Website for Chambers County. The online cemetery records for Chambers County were also examined. The Texas Historic Sites Atlas Online was checked for recorded historic county courthouses, NRHP-listed architectural properties, historical markers, neighborhood surveys, and museums. Also reviewed was the online listing of the Perry-Castaneda Library Map Collection at The University of Texas at Austin; the early twentieth century highway maps for Chambers County, and the 1961 U.S. Geological Survey (“USGS”) 7.5-minute quadrangle map of Mont Belvieu, Texas. These were downloaded from the Texas State Library website and examined for structure locations within the APE. The Barber’s Hill-Mont Belvieu museum archives were also investigated for any known cultural resource properties within or close to the APE.

Following the archival review, a windshield survey was conducted which included a review of all property within the APE. The survey included driving all public roads within the APE to determine if there are any historic properties not yet recorded that could be considered eligible for the NRHP. When possible, the following information was recorded for each property within the APE: location of property,

number of structures present, and a detailed description of the property. The property on which the MB3 Facility will be located was also photographed and plotted, along with other relevant information, on a USGS topographic map (Figure 1, Appendix A).

**US EPA ARCHIVE DOCUMENT**

### 3.0 RESULTS

#### 3.1 HISTORIC BACKGROUND

The earliest recorded historic inhabitants along the Trinity River were the Karankawa, Coapite, and Copane Indians. In 1756, Spanish missionaries established missions near present-day Wallisville and on the east bank of the Trinity River along the Chambers-Liberty County line in order to work with the Orcoquiza Indians that lived in the area (TSHA 2013). By the early 1800s, the Coushatta and Alabama Indians joined the local Orcoquizas and Bidais in planting crops and trading livestock with early settlers along the Atascosito Road (TSHA 2013). It was not until the 1820s, that American settlement began in Chambers County.

Mont Belvieu was first settled by Amos Barber in 1849. Amos Barber and his wife, Susan Ann Hodges Fitzgerald, built a two-story dog trot cabin along the main road of “Barbers Hill” from Huntsville to Lynchburg (THC 2012). In 1923, the house was dismantled and replaced by a rooming house (THC 2012). Amos and his wife were buried south of their original homestead in the Amos family cemetery (Amos Barber Cemetery). The majority of Mont Belvieu sits atop the Barbers Hill Salt Dome. The salt dome consists of approximately 1,718 acres of land that rises 45 feet above the surrounding area (THC 2012). The Barber Hill Oil Field was discovered by the son of Amos Barber, Elmer Barber in 1889 while digging water well near his home (THC 2012). However, it wasn’t until the early-1900s that oil production became profitable and the town felt the effects of the oil boom.

#### 3.2 PREVIOUSLY RECORDED SITES AND SURVEYS

An examination of the Texas Historic Sites Atlas found no previously recorded archeological sites, Texas Historic Cemeteries, or National Register-listed architectural properties within the APE. Three Texas State Historical Markers are located to the south and west of the APE for the following sites: (1) the First United Methodist Church and Cemetery, (2) the Amos–Barbers Homesite and Cemetery, and (3) the Barbers Hill Oil Field and Salt Dome. The closest marker, First United Methodist Church and Cemetery, is located 750 feet south of the APE near the intersection of Spur 207 and Winfree Avenue (Photograph 5, Appendix B). The cemetery is bounded by a metal fence and contains 495 gravesites with 245 interments (THC 2012). The associated church, a 30-foot by 40-foot wooden structure, was originally built in 1897 (THC 2012). By 1986, the church was relocated to its present location along Hwy 3360 to “avoid the dangers of nearby petrochemical storage in the underground salt dome” (THC 2012). Since the church has been relocated several miles outside of the APE, its architectural properties were not evaluated.

Cemeteries are among those properties that ordinarily are not considered eligible for inclusion in the NRHP unless they meet special requirements. To qualify for listing under Criteria A (association with events), B (association with people), or C (design), a cemetery or grave must meet not only the basic criteria, but also the special requirements of Criteria Considerations C or D, relating to graves and cemeteries. Under Criteria C or D, a cemetery is eligible for the National Register if it derives its primary significance from association with historic events, from graves of transcendent importance, from distinctive design, or from great age. The Mont Belvieu Cemetery does not meet any of the Criteria for listing in the National Register.

Numerous archaeological surveys have been done in Chambers County of which five were within the boundaries of the APE (Table 1, Appendix C). In April 2011, Burns and McDonnell performed a historic property assessment of two houses and a number of outbuildings near the center of the APE for the Mont Belvieu NGL Fractionation Plant project initiated in 2011. Burns and McDonnell recommended that none of those properties met the NRHP criteria of significance and none were eligible for inclusion in the NRHP. All of those structures (houses and outbuildings) were subsequently removed in connection with the Mont Belvieu NGL Fractionation Plant project.

In 2008, Archaeological and Environmental Consultants, LLC, conducted an intensive archaeological survey that included shovel testing for a OHLP pipeline project. The survey was conducted near the northern portion of the APE just south of the Cedar Point Lateral canal on the west side of State Highway (SH) 146, as well as along Fitzgerald Road on the western edge of the APE. No cultural resources were recorded in either of the two surveyed areas. The remaining three archaeological surveys within the APE were conducted for road improvement or pipeline projects. The State Department of Highways and Public Transportation conducted a road improvement project in 1976 near FM 3360 from SH 146 to FM 565 in the northern limits of the APE. No cultural resource sites were recorded during this survey. A more recent archaeological survey for a road improvement project was conducted by Ecological Communications Corporation in 2006. The intensive archaeological survey, which included shovel testing, was located in the northern limits of the APE along SH 146 below the Cedar Point Lateral canal. No cultural resource sites were recorded during that investigation. The remaining survey was conducted by Horizon Environmental Services in 2006 for a pipeline project. The intensive archaeological survey also crossed the Project Area along the west side of SH 146 below the Cedar Point Lateral canal. No cultural resource sites were recorded during this survey.

### **3.3 RESULTS OF THE RECONNAISSANCE SURVEY**

There are two residential historic-aged properties located within 300 feet of the APE (Structures 1 and 2 on Figure 1, Appendix A). A densely vegetated fence line effectively screens the two structures from the

Project Area (Photograph 6, Appendix B). Structure 1 is situated within the southern boundary of the APE along Winfree Avenue (Figure 1, Appendix A). Structure 1 is a wood-framed, single story, vernacular residence with an attached garage and an associated shed (Photograph 7, Appendix B). Structure 2 is located outside the southern boundary of the APE near the intersection of Sonny Lane and Winfree Avenue (Figure 1, Appendix A) and is also a wood-framed, single-story vernacular residence (Photographs 8 and 9, Appendix B). Structures 1 and 2 appear to be typical of vernacular residences constructed throughout Texas in the mid-twentieth century and do not appear to meet any of the criteria of significance for inclusion in the NRHP.

Soils in the APE are of Pleistocene age and much of the APE has been impacted by prior oil and gas exploration, processing and extraction activities. In addition, archaeological surveys conducted in the area show a very low site density. There is, therefore, a low probability for intact subsurface historic or prehistoric deposits being impacted by the proposed project. The current cultural resources evaluation for the proposed project identified no historic properties (that is, property included in, or eligible for inclusion in, the NRHP) within the APE.

#### 4.0 SUMMARY AND RECOMMENDATIONS

As explained above, the cultural resource review revealed no historic properties (that is, property included in, or eligible for inclusion in, the NRHP) within the APE Area. Neither of the two standing structures observed during the survey near a boundary of the APE (Structures 1 and 2 on Figure 1, Appendix A) appear to be eligible for nomination to the NRHP. Additionally, the APE is fenced off within a heavily vegetated area, effectively screening it from those two structures. The Mont Belvieu Cemetery is located 750 feet from the APE and will not be impacted by the proposed project. In addition, the cemetery does not meet any of the Criteria for listing in the National Register.

The lack of Holocene-aged soils, along with the fact that no cultural resources were identified in previously-conducted surveys within or in the vicinity of the APE, makes it unlikely that intact buried prehistoric deposits are located in the APE. In addition, prior oil and gas industry activities have impacted the surface of much of the APE. No cultural resources were identified within the APE and there is a low probability that intact cultural resources are present that would be eligible for listing in the NRHP. It is Burns & McDonnell's opinion that the proposed project area does not require an intensive cultural resources survey, and no known archeological or historic properties eligible or potentially eligible for the NRHP would be adversely affected.

## 5.0 REFERENCES

### Texas Historical Commission (THC)

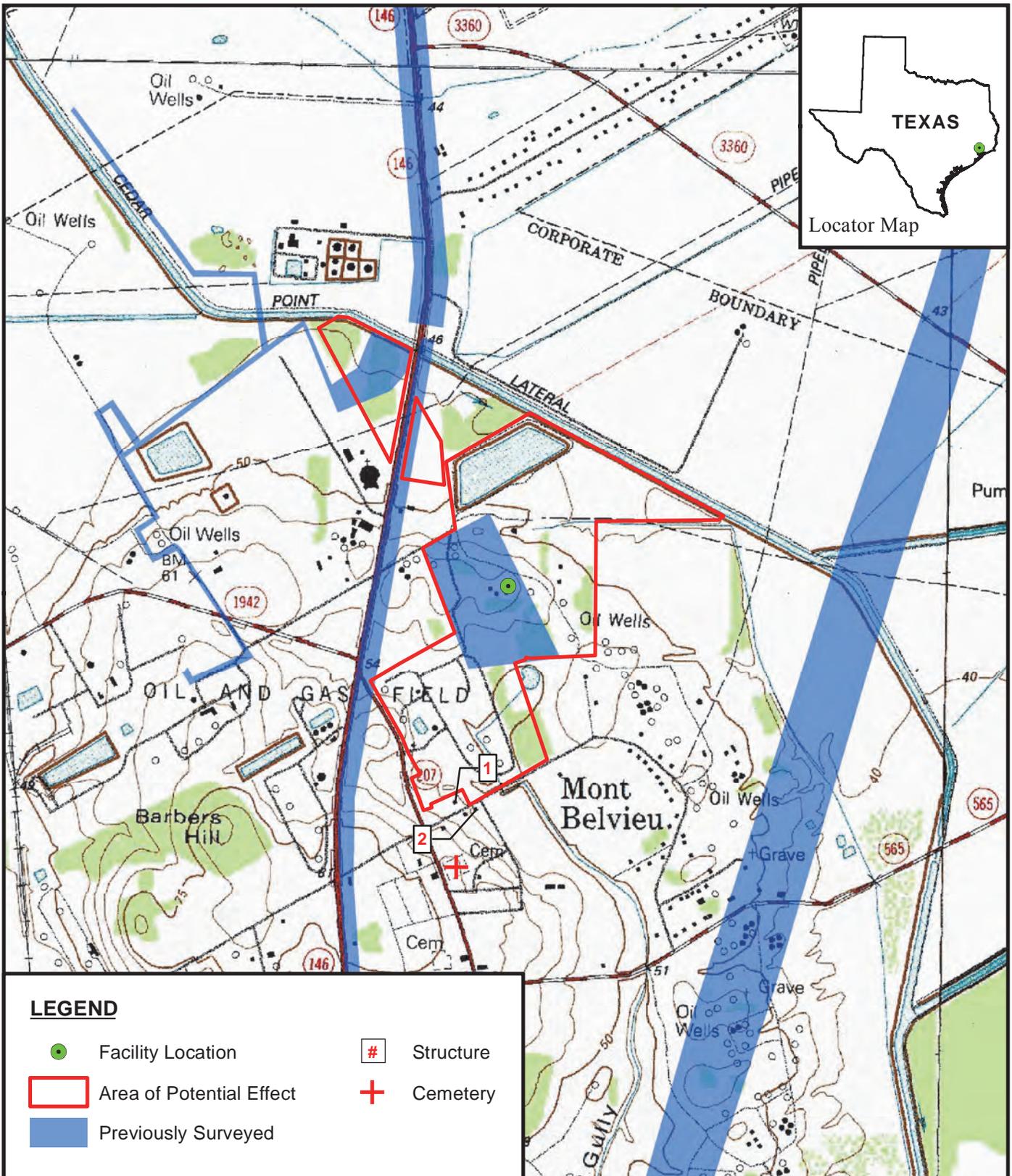
- 2012 “Texas Historical Sites Atlas”. Texas Historical Commission. <http://atlas.thc.state.tx.us/>  
(accessed March 20, 2012).

### Texas State Historical Association (TSHA)

- 2013 “Chambers County”. Texas Handbook Online Texas State Historical Association.  
<http://www.tshaonline.org/handbook/online/articles/hcc09>  
(accessed March 29, 2013).

**APPENDIX A - FIGURES**

I:\ESPRV\Data2\Projects\OneOK\66806\_Mt\_Belvieu\GIS\DataFiles\ArcDocs\Site\_Location\_Map\_2\_032713.mxd



**LEGEND**

- Facility Location
- Area of Potential Effect
- Previously Surveyed
- # Structure
- + Cemetery

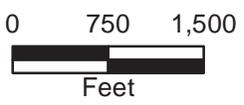


Figure 1  
 Site Location Map  
 ONEOK Hydrocarbon, L.P.  
 Mont Belvieu NGL Fractionation Facility  
 Chambers County, Texas

**APPENDIX B - PHOTOGRAPHS**



Photograph 1: Area of Potential Effect taken from center of the MB2/MB3 construction site, facing north.



Photograph 2: Area of Potential Effect taken from center of the MB2/MB3 construction site, facing south.

**ONEOK**  
**Mont Belvieu Natural Gas Liquids**  
**Fractionation Facility**  
**Mont Belvieu, Chambers County, Texas**



**Site Photographs**



Photograph 3: Area of Potential Effect taken from center of the MB2/MB3 construction site, facing east.



Photograph 4: Area of Potential Effect taken from center of the MB2/MB3 construction site, facing west.

**ONEOK**  
**Mont Belvieu Natural Gas Liquids**  
**Fractionation Facility**  
**Mont Belvieu, Chambers County, Texas**



**Site Photographs**



Photograph 5: First United Methodist Church cemetery on Main Street, facing east



Photograph 6: View of southern edge of Project Area showing vegetation line behind Structure 1, facing east.

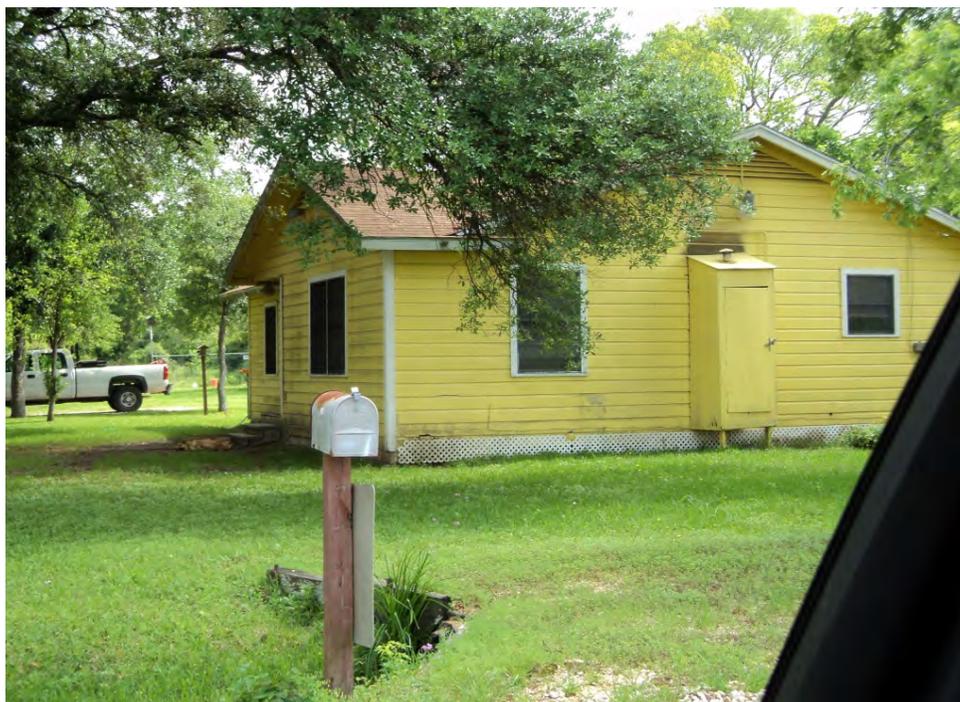
**ONEOK**  
**Mont Belvieu Natural Gas Liquids**  
**Fractionation Facility**  
**Mont Belvieu, Chambers County, Texas**



**Site Photographs**



Photograph 7: Structure 1 along Winfree Avenue, facing northeast



Photograph 8: Structure 2 along Winfree Avenue, facing south

**ONEOK**  
**Mont Belvieu Natural Gas Liquids**  
**Fractionation Facility**  
**Mont Belvieu, Chambers County, Texas**



**Site Photographs**



Photograph 9: Structure 2 along Winfree Avenue, facing south.

**ONEOK**  
**Mont Belvieu Natural Gas Liquids**  
**Fractionation Facility**  
**Mont Belvieu, Chambers County, Texas**



**Site Photographs**

**APPENDIX C - PREVIOUS ARCHAEOLOGICAL SURVEYS**

**Table 1: Previous Archaeological Surveys within the Area of Potential Effects**

Report Number	Author	Year	Report Title	Location	Sites Recorded
N/A	SDHPT	1976	Letter Report: FM 3360 From SH 146, 1.4 Mile North of FM 1942 Southeast to FM 565, Cultural Resources Assessment, Chambers County	Within Project Area	None
HJN 06007 AR	Brownlow, R. and C. Reign	2006	An Intensive Cultural Resources Survey of the USACE Jurisdictional Areas Within the Proposed 33-mile Hull to Mont Belvieu Pipeline Right-of-Way, Liberty County, Texas	Within Project Area	None
N/A	Treiweiler, N. and R. Jones	2006	Archaeological Survey of State Highway 146, Liberty County, Texas	Within Project Area	None
Series 93	Pertulla, T. and B. Nelson	2008	Archaeological Investigations of ONEOK, Inc's Proposed Arbuckle NGL 16-Inch Pipeline, Spread 3, Navarro, Freestone, Leon, Madison, Walker, San Jacinto, Liberty, and Chambers Counties, Texas	Within Project Area	None
N/A	M. Latham	2011	Letter Report: ONEOK Hydrocarbon, L.P. Proposed Project Area, Mont Belvieu, Texas	Within Project Area	Dyer homesite

**APPENDIX D- CURRICULUM VITAE OF PRINCIPAL INVESTIGATOR**

**Fiona H. Pemberton**  
**Cultural Resource Specialist**  
**Environmental Studies & Permitting**  
**Dallas Office**



**Experience:**

Archival Research  
Impact Evaluations  
Archaeological Survey  
Archaeological Testing  
Data Recovery  
Monitoring  
Artifact Analysis

**Education:**

Master of Arts in Anthropology,  
Louisiana State University, 2005

Bachelor of Arts in Anthropology,  
University of California, Davis, 2000

Associate of Arts, Solano Community  
College, Liberal Arts, 1998

**Organization:**

Council of Texas Archeologists

**Years with Burns & McDonnell:**

<1

**Total Years Experience:**

8

Mrs. Pemberton has 8 years of experience in archaeological field work, curation, and analysis of archaeological materials. Her archaeological experience includes: impact evaluation surveys; archaeological survey, testing, and data recovery investigations; monitoring of cultural resources; analysis of prehistoric lithic, ceramic, and botanical archaeological materials; curation of prehistoric and historic artifacts; historical archival research; and survey and testing plans.

She has conducted impact evaluations, terrestrial archaeological surveys in Northeast and East-Central Texas, monitoring of cultural resources in Northeast Texas and Oklahoma, and Data Recovery investigations in Rusk County. Mrs. Pemberton is responsible for the organization, supervision, and completion of cultural resource investigations to comply with federal and state legislation as well as the preparation of technical reports documenting these investigations. Mrs. Pemberton has authored or co-authored numerous cultural resource investigative reports and participated in archaeological projects in Texas, Louisiana, Mississippi, Colorado, California, Oklahoma, and Peru.

**NGL Fractionation Plant Project, ONEOK**

*Mont Belvieu, Texas*

Ms. Pemberton serves as Principal Investigator, conducting desktop level archival investigations and a windshield survey of approximately 776-acres to determine if any unrecorded National Register of Historic Places (NRHP) properties existed within the project area.

**Jacksboro-West Denton 345kV Transmission Line Project, TXU Electric Delivery**

*Dallas, Texas*

Ms. Pemberton served as Project Archaeologist for a 70.5-mile transmission line project in Jack, Wise, and Denton Counties. Fieldwork included intensive archaeological survey and cultural resource monitoring. Her responsibilities included organization, supervision, completion, and write-up of cultural resource investigations.

**Proposed Loop 9, Segment 5 Project, Texas Department of Transportation (TxDOT)**

*Dallas, Texas*

Ms. Pemberton served as Project Archaeologist for a 6.05 mile intensive archaeological survey in Smith County. Fieldwork included intensive archaeological survey. Her responsibilities included organization, supervision, completion, and write-up of cultural resource investigations.

**Southside Wastewater 138kV Transmission Line Project, TXU Electric Delivery**

*Dallas, Texas*

Ms. Pemberton served as Project Archaeologist for this transmission line rebuild project. Fieldwork included cultural resources monitoring for 15 single-pole support structures. Her responsibilities included organization, supervision, completion, and write-up of cultural resource investigations.

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**Proposed Bridge Rehabilitation of FM 981 at Desert Creek, Texas  
Department of Transportation (TxDOT)**

*Dallas, Texas*

Ms. Pemberton conducted impact evaluations and intensive archeological surveys for bridge rehabilitation projects in Collin County.

**Belton-Nolanville 138 kV Transmission Line Rebuild, TXU Electric  
Delivery**

*Bell County, Texas*

Ms. Pemberton served as Project Archaeologist for cultural resource monitoring along West Nolan Creek and Nolan Creek.

**Archeological Investigations at the McClure Homestead (41RK365),  
TXU Mining**

*Rusk County, Texas*

Ms. Pemberton conducted Archeological Investigations, supervising data recovery fieldwork and wrote the report.

**Cultural Resources Reconnaissance for Proposed Reconstruction of  
US Hwy 77, Texas Department of Transportation (TxDOT)**

*Waxahachie, Texas (Ellis County)*

Ms. Pemberton served as Project Archaeologist responsible for conducting the impact evaluation and writing the report.

**Data Recovery, Vinson Plantation (41RK128), TXU Business Services**

*Dallas, Texas (Rusk County)*

Ms. Pemberton conducted archival research and wrote research design.



Mr. Fulmer is a Cultural Resources Management Specialist with 17 years' experience in archaeology. He has supervised archaeology projects in eleven states in the Southwest, the Midwest, the Southeast, the U.S. Territory of Guam, and the Commonwealth of the Northern Mariana Islands. He has experience in obtaining cultural resources clearance for a range of energy, transportation, military, and municipal projects. He is dedicated to assisting clients in meeting their obligations under U.S. Army Corps of Engineers permits, the National Historic Preservation Act, Federal Energy Regulatory Commission permits, and other Federal and state regulations.

#### **Expertise**

- Cultural Resources Management
- CRM for Energy Projects
- CRM for Transportation Projects
- Texas Archeology
- Midwestern Archaeology
- Southeastern Archaeology
- Historic Archaeology
- Prehistoric Archaeology

#### **Education**

- BA Anthropology, University of Southern Mississippi, 1989
- MA Anthropology, University of Southern Mississippi, 1992

#### **Total Years of Experience**

17

#### **Years With Burns & McDonnell**

<1

#### **Start Date**

2012

#### **Select Cultural Resources Management Projects:**

##### **Feeder #105 Transmission Line Rebuild, GRDA**

*Delaware County, OK, 2013*

Cultural resources survey for a proposed 13-mile transmission line rebuild project; three new prehistoric archaeological sites were recorded. Two of the sites were subjected to geotechnical coring and found not to meet the criteria for eligibility for the NRHP.

##### **Iatan to Nashua 345 kV Transmission Line, KCPL**

*Clay & Platte Counties, MO, 2013*

Cultural resources survey for a proposed 31-mile transmission line replacement project. Two new archaeological sites were recorded and two previously recorded sites were revisited and assessed. KCPL was able to proceed to construction with an Unanticipated Discoveries Plan in place, prepared by Mr. Fulmer.

##### **Wildfire Recovery Efforts at Bastrop & Buescher State Parks, TPWD**

*Bastrop County, TX, 2012*

Principal Investigator for a cultural resources survey of approximately 1650 acres of Bastrop and Buescher State Parks. The project was in response to proposed replanting efforts resulting from recent wildfires and as part of a broader effort by TPWD to identify and assess cultural resources within its state park system. During the course of the survey, archeologists revisited the mapped locations of eight previously recorded archeological sites and located 29 new sites.

##### **SAWS C-13 Sewer Replacement Project, CH2M Hill**

*San Antonio, TX, 2012*

Project required an assessment of Archeological Existing Conditions in historically and prehistorically sensitive areas of downtown San Antonio prior to a proposed sewer replacement project.

##### **Jollyville Transmission Main Project, City of Austin**

*Austin, TX, 2010-2012*

Principal Investigator for a cultural resources survey for a water main associated with a new water treatment plant; two new sites were recorded and successfully avoided.

##### **Dunlap Energy Substation, City of Austin**

*Austin, TX, 2011*

Principal Investigator for a cultural resources survey of a 22-acre tract for a proposed electrical substation.

##### **CR2331 (Nueces Road) Realignment, HNTB**

*Liberty County, TX, 2011*

Principal Investigator for a cultural resources survey for a rural road realignment.

**Leon Creek Greenway Project Phase II, Terra Design Group**

*San Antonio, TX, 2011*

Principal Investigator for a cultural resources survey for a proposed creek-side trail.

**US 69 Lindale Relief Route, Bucher, Willis & Ratliff (Lochner)**

*Lindale, TX, 2011-2012*

Co-Principal Investigator for NRHP-eligibility testing of three sites in the path of the proposed US 69 Lindale Relief Route. Fifteen cubic meters were excavated in hand-dug units and a further eighty cubic meters were excavated through mechanical trenching. Several hundred artifacts were recovered and analyzed. The sites were ultimately recommended as ineligible for the NRHP as the loose, sandy deposits had limited integrity.

**Boggy Creek Trail and Bikeway, Raymond Chan & Associates, Inc.**

*Austin, TX, 2012*

Principal Investigator for a cultural resources survey for a proposed trail and bikeway requiring shovel testing and mechanical trenching along a creek on the east side of Austin.

**Bulldog Championship Park, Terra Design Group**

*Socorro, TX, 2012*

Principal Investigator for a cultural resources survey for the proposed Bulldog Championship Park requiring sixteen mechanical trenches.

**Lone Star Rail Project, Jacobs Engineering**

*Williamson, Travis, Hays, Comal and Bexar Counties, TX, 2011*

Principal Investigator for a cultural resources survey of a proposed passenger rail line between Georgetown and San Antonio, Texas.

**Mid-Cities Boulevard, URS**

*Dallas, TX, 2011*

Principal Investigator for a cultural resources survey of a road modification within DFW Airport.

**Rio Lift Station Relocation Project, City of New Braunfels and New Braunfels Utilities**

*New Braunfels, TX, 2011*

Principal Investigator for a cultural resources survey of a proposed Lift Station location.

**Proposed Facility for Austin Community College, AMEC Geomatrix**

*Kyle, TX, 2011*

Principal Investigator for a cultural resources survey for a proposed facility for Austin Community College in Kyle, Hays County, TX.

**Proposed Facility for Austin Community College, AMEC Geomatrix**

*Elgin, TX, 2011*

Principal Investigator for a cultural resources survey for a proposed facility for Austin Community College in Elgin, Travis and Bastrop Counties, TX.

**Proposed Corrigan Ranch Park Project, TPWD**

*Palo Pinto & Erath Counties, TX, 2011*

Project involved a background study for a proposed TPWD park, Palo Pinto and Erath Counties, TX.

**Two Tap Lines Associated with the Turk Power Plant, AEP**

*Hempstead County, AR, 2010*

Project involved a cultural resources survey for two tap lines adjacent to the Turk Power Plant, Hempstead County, AR.

**Turk to Sugar Hill Transmission Line, AEP**

*Miller, Hempstead and Little River Counties, AR, 2010*

Project Manager for a cultural resources survey for a transmission line associated with the Turk Power Plant. Investigations were conducted under a Memorandum of Agreement between AEP, the SHPO, the Caddo tribe, and the USACE authored by Mr. Fulmer.

**Turk to SE Texarkana Transmission Line, AEP**

*Miller, Hempstead and Little River Counties, AR, 2010*

Project Manager for a cultural resources survey for a transmission line associated with the Turk Power Plant. Investigations were conducted under a Memorandum of Agreement between AEP, the SHPO, the Caddo tribe, and the USACE authored by Mr. Fulmer.

**NRHP-Eligibility Testing of a Portion of Site 41AU86, TxDOT**

*Austin County, TX, 2008*

Principal Investigator for NRHP-eligibility testing of a prehistoric site that extended into TxDOT right of way. The portion of the site within the right of way was determined ineligible for the NRHP.

**Other Cultural Resources Management Projects as Principal Investigator:**

A Cultural Resources Survey for the CR 101 Ramp Construction Project, Brazoria County, TX.

A Cultural Resources Survey for the Proposed White Oak Bayou Mitigation Ponds, Harris County, TX.

Archeological Survey of Proposed Improvements to State Highway 36 from 0.2 Miles South of FM 2187 to 0.2 Miles North of FM 2429, Austin County, TX.

Cultural Resources Survey for the Proposed Widening of FM 1960 from Humble to the Western Edge of the San Jacinto Bridge, Harris County, TX.

NRHP Eligibility Testing of Site 41HR796, Harris County, TX.

A Cultural Resources Survey for the Proposed Widening of Crighton Road, Montgomery County, TX.

Archeological Survey for the Natural Gas Pipeline Company of America's Station 343 Compressor Replacement, Liberty County, Texas.

Cultural Resources Survey for the Rehabilitation of Carpenter's Bayou from Woodforest Boulevard to Woodford Drive, Harris County, Texas.

Archeological Survey for the Proposed Extension of Ella Boulevard from Gears Road to Rush Creek Drive, Harris County, Texas.

Cultural Resources Survey for the Farm-to-Market Road 519 Bridge Replacement at Highland Bayou, Galveston County, Texas.

Cultural Resources Survey for the Proposed Improvements to Farm-to-Market Road 359 from Precinct Line Road to US Highway 90A, Fort Bend County, Texas.

Cultural Resources Survey for the Proposed Improvements to Mason Road from Farm-to-Market Road 359 to Approximately 0.4 Miles South of State Highway 99, Fort Bend County, Texas.

Cultural Resources Survey for the Proposed Improvements to Farm-to-Market Road 1464, Fort Bend County, Texas.

Cultural Resources Survey of the 78-mile El Paso Butane Shuttle Project, Victoria, Calhoun, Refugio, and San Patricio Counties, Texas.

NRHP Testing of an Archaeological Site at Cedar Creek as part of the 117- mile El Paso Houston LPG Line Replacement Project, Brazoria County, Texas.

Cultural Resources Survey of the 117- mile El Paso Houston LPG Line Replacement Project, Harris, Fort Bend, Brazoria, Matagorda, Wharton, Jackson and Victoria Counties, Texas.

Cultural Resources Survey of El Paso South Texas Expansion Project, Hidalgo County, Texas.

Cultural Resources Survey of Proposed El Paso Drill Pads and Access Roads at El Sal del Rey, Hidalgo County, Texas.

Cultural Resources Survey of Proposed Exxon Mobil Drill Pads and Access Roads at El Sal del Rey, Hidalgo County, Texas.

Cultural Resources Survey of the PNG Hobbs Pipeline and Loop Project, Lea County, New Mexico.

Cultural Resources Survey of the Proposed CMS Beeville Natural Gas Pipeline Replacement Project, Victoria County, Texas.

Cultural Resources Survey of the Proposed Cross Timbers Pipeline, Freestone, Limestone, Leon and Robertson Counties, Texas.

Archaeological Survey and Monitoring for the Knight 3-D Seismic Survey, Polk County, Texas.

Archaeological Monitoring of the Seitel Seismic Survey, Wallisville Lake, Chambers and Liberty Counties, Texas.

Archaeological Monitoring of Kinder Morgan Pipeline Replacements at Langham Creek, Harris County, Texas.

Cultural Resources Survey of Proposed Westpark Tollway Project, Fort Bend County, Texas.

Cultural Resources Survey of Proposed Improvements to LP 197, Texas City, Galveston County, Texas.

Cultural Resources Survey of the Proposed Grand Parkway Segment E, Harris County, Texas.

Cultural Resources Survey of the Proposed Grand Parkway Segment F-1, Harris County, Texas.

Cultural Resources Survey of the Proposed Grand Parkway Segment F-2, Harris County, Texas.

Cultural Resources Survey of the Proposed Grand Parkway Segment G, Harris and Montgomery Counties, Texas.

Cultural Resources Survey of Proposed Improvements to SH332, Brazoria County, Texas.

NRHP Eligibility Testing of Three Sites in Greene County, Mississippi.

**As Project Archaeologist:**

NRHP Eligibility Testing of Three Sites in the Oak Hill Mine Area, Rusk County, Texas.

NRHP Eligibility Testing of Site 22LI504, Lincoln County, Mississippi.

Preliminary Cultural Resources Survey of the Tetco M-1 Project, Colbert and Franklin Counties, Alabama.

Subsurface Testing of the Chalan Pale Arnold Road Improvement Corridor, Tanapag and San Roque, Saipan, Commonwealth of the Northern Mariana Islands.

Survey of the Marpo Heights Homestead Project, Marpo, Tinian, Commonwealth of the Northern Mariana Islands.

Survey of the Bird Island Golf Course Project Area, Kalabera, Saipan, Commonwealth of the Northern Mariana Islands.

Excavation of Prehistoric Human Burials and Monitoring of the DFS Site, Garapan, Saipan, Commonwealth of the Northern Mariana Islands.

Salvage Excavation of Prehistoric Human Burials at the Ana Leon Geurrero House, Inarajan, Guam.

Assessment of Damage to the Togcha Beach Site, Togcha, Guam.

Test Excavations at the Orote Cave Site, Orote, Guam.

Test Excavations at the Sumay Village Site, Sumay, Guam.

Survey and Testing of the Fort Santiago Site, Orote, Guam.

Survey and Testing of Portions of the U. S. Naval Magazine, Guam.

Data Recovery Excavations at the Smiley Farmstead, O'Fallon, Illinois.

Monitoring of Improvements to Monarch Levee Affecting the Boisselier Graveyard, Chesterfield, Missouri.

Survey for Monarch Levee Borrow Areas, Chesterfield, Missouri.

Survey of St. Albans Island, St. Albans, Missouri.

NRHP Testing of the Kincaid Property(Site 23FR334), St. Albans, Missouri.

Survey of the Bick Property (Site 23FR350), St. Albans, Missouri.

Survey of Three Proposed Subdivision Tracts, Wentzville, Missouri.

**As Historian, Lab Technician, Graphic Illustrator, and/ or Field Technician:**

Architectural Survey of Proposed Improvements to Interstate 55, Jefferson County, Missouri.

Archival Search of The Ville Neighborhood, St. Louis, Missouri.

Masterplan for the Treatment of Archaeological Resources in St. Charles County, Missouri.

Survey of Proposed improvements to Interstate 55, Jefferson County, Missouri.

Testing of Seven Sites in the US Route 36 Corridor, Macon County, Missouri.

Cultural Resource Archival Search and Architectural Assessment of Two Proposed Access Corridors for a New Mississippi River Bridge, St. Louis, Missouri.

Survey of Proposed Improvements to US Route 36, Macon County, Missouri.

Assistant Instructor for Excavations at an Emergent Mississippian Site and a Colonial Era Site (East Central College Field School), Franklin County, Missouri.

Cultural Resources Archival Search of Proposed Improvements to US Route 50, Franklin, Gasconade, and Osage Counties, Missouri.

Removal of Three Exposed Historic Human Burials from the Old Lindsay Graveyard, St. Charles, Missouri.

Survey of Post- Dispatch Lake Sewer Interceptor, Forest Park, St. Louis, Missouri.

Cultural Resource Archival Search of Four St. Louis Parks, St. Louis, Missouri.

Survey of the Proposed Jefferson Barracks Casino Tract, Oakville, Missouri.

Excavations at the Orr Farmstead, Chesterfield, Missouri.

Archaeological Resources Master Plan for St. Louis City and St. Louis County, Missouri.

Cotton Homes Subdivision Survey, Florissant, Missouri.

Calhoun County Waterline Survey, Calhoun County, Illinois.

US Route 36 Expansion Architectural Survey and Cultural Resources Archival Search, Macon County, Missouri.

Pine Creek Subdivision NRHP Testing, Chesterfield, Missouri.

Premier Homes Subdivision NRHP Testing, St. Louis County, Missouri.

Ste. Genevieve Flood Mitigation Survey, Ste. Genevieve, Missouri.

Cultural Resource Salvage Investigations at the New United States Federal Court Site (Historic), St. Louis, Missouri.

Wildhorse Hills Subdivision Survey, Chesterfield, Missouri.

Data Recovery Excavations at the Truman Road Site (Archaic, Woodland, and Historic Components), St. Peters, Missouri.

Excavations at the 15th Century Walled Town of Pujini, Pemba, Tanzania.



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**APPENDIX B - PHOTOGRAPHS OF NON-ARCHAEOLOGICAL HISTORIC-  
AGE RESOURCES WITHIN THE PROJECT REVIEW AREA**



Resource 1, facing northeast



Resource 1, facing northwest



Resource 2, facing east



Resource 3, facing north



Resource 3, facing northeast



Resource 4, facing north



Resource 5, facing southeast



Resource 6, facing north



Resource 6, facing northeast



Resource 7, facing west



Resource 7, facing southeast



Resource 8, facing south



Resource 8, facing southeast



Resource 9, facing northeast



Resource 10, facing northeast



Resource 10, facing south



Resource 11 A, facing south



Resource 11 A, facing east



Resource 11 B, facing northeast



Resource 12, facing west



Resource 13, facing west



Resource 13, facing northwest



Resource 14, facing northeast



Resource 14, facing north



Resource 15, facing southwest



Resource 16, facing south



Resource 16, facing southeast



Resource 18, facing north



Resource 18, facing northeast



Overview of Resources 19, 20, and 21 facing northeast



Resource 19, facing north



Resource 20, facing north



Resource 21, facing north



Resource 22, facing southeast



Resource 22, facing northeast



Resource 23, facing northeast



Resource 24, facing east



Resource 25, facing southwest



Resource 26 and 27, facing northwest



Resource 26, facing northwest



Resource 27, facing northwest



Resource 28, facing east



Street overview of Resources 29, 30, 31, and 32



Resource 29, facing south



Resource 30, facing south



Resource 31, facing south



Resource 32, facing southwest



Resource 33, facing north



Resource 34, facing north



Street Overview of Resource 33 and 34, facing west



Resource 35, facing south



Overview of Resources 36, 37, and 38



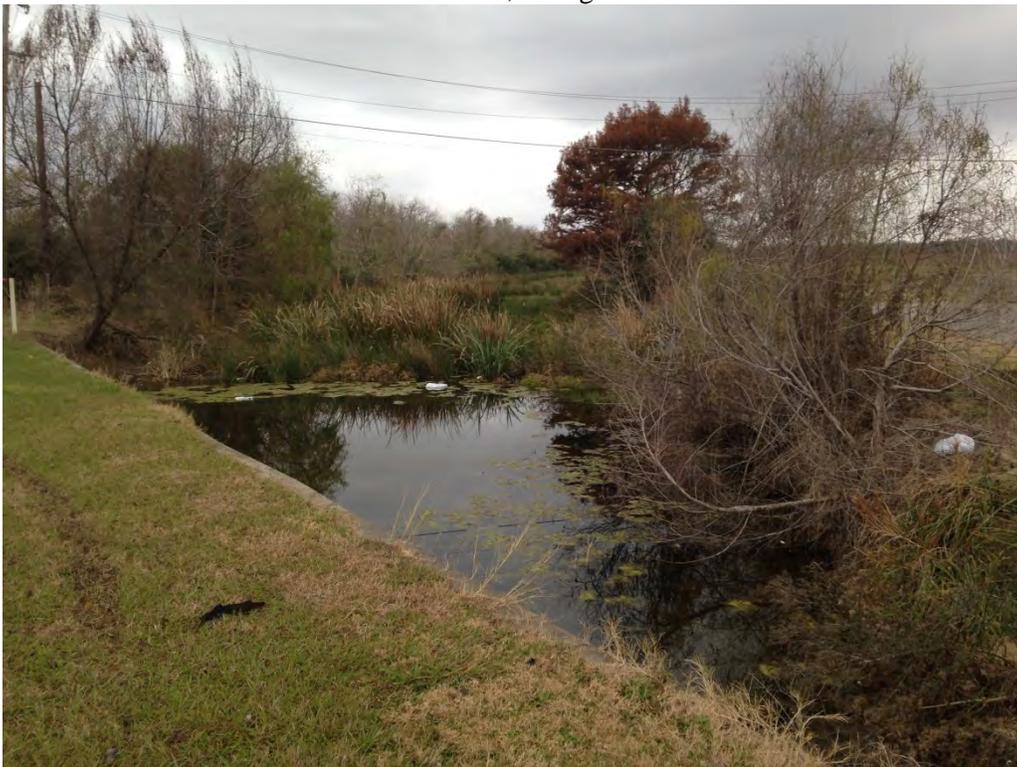
Resource 36, facing north



Resource 37, facing north



Resource 38, facing north



Resource 39, facing northwest



Resource 40, facing southeast



Resource 41, facing north



Resource 42 A and 42B, facing north



Resource 43, facing north



Resource 44, facing south



Resource 45, facing southwest

**APPENDIX C - RESUME OF PRINCIPAL INVESTIGATOR**

### Expertise

- Historic Archaeology
- Archaeological Survey
- NRHP Testing and Data Recovery
- Archaeological Monitoring
- Archival Research
- Artifact Analysis and Curation
- CRM Report Production

### Education

- Doctoral Candidate (ABD), Anthropology Department, Syracuse University
- M.A. in Anthropology, Syracuse University, 2007
- M.A. in Managing Archaeological Sites, University College London, 2006
- B.A. in Anthropology, University of Houston, 2003

### Total Years of Experience

10

### Years With Burns & McDonnell

< 1 yr.

Ms. Loftus is a Cultural Resources Specialist with over ten years of experience as an archaeologist working across Texas and other parts of the Southeastern and Midwestern United States. She has supervisory experience in a variety of archaeological project settings includes archaeological survey, National Register of Historic Places (NRHP) Testing and Data Recovery, archaeological monitoring, archival research, artifact analysis and curation, and all phases of report writing and production.

### Cultural Resources Assessment of Proposed Medina Base Road Improvement Project

*Bexar County, San Antonio, Texas*

Principal Investigator and Lead Report author for a 16-acre survey performed at the request of the City of San Antonio in order to improve Medina Base Road. The project required a Texas Antiquities Permit (TAP) #5477, and involved both intensive archaeological survey and deep testing.

### Pflugler Farm Lane Report, City of Pflugerville, Texas

*Travis County, Pflugerville, Texas*

Co-Author and Field expert for an intensive archaeological survey for Pflugler Farm Lane in the city of Pflugerville, Texas. Ms. Loftus served as an expert in historical archaeology and performed testing, mapping, and artifact analysis for an early-twentieth century farmstead.

### Northwest Water System Improvement Project, Greenwood Utilities

*Leflore County, Greenwood, Mississippi*

Principal Investigator and Lead Report Author for an intensive cultural resources survey. The project crossed through a Corp of Engineers property that contains Fort Pemberton, a Civil War Fort listed on the NRHP. Ms. Loftus secured an Archaeological Resources Protection Act (ARPA) Permit for the project and lead the field investigations and report production.

### NRHP Testing of Historic Sites 41FT592, 41FT600, 41FT619 and Archival Research for site 41FT574 Located within Luminant's Turlington Mine

*Freestone County, Texas*

Principal Investigator, Field Director, and Lead Report author for the NRHP testing of four late-nineteenth to early-twentieth century domestic sites located in Freestone County, Texas. Ms. Loftus supervised all aspects of the investigations which included pedestrian survey, shovel testing, and test unit excavation, as well as archival research and oral history.

### NRHP Data Recovery at Texas Sports Hall of Fame

*McClellan County, Waco, Texas*

Principal Investigator, Field Director, and Lead Report author for NRHP Data Recovery investigations at Site 41ML296, a domestic site that was part of an early-twentieth century African American community in Waco, Texas. Ms. Loftus supervised all aspects of the investigations which included hand and mechanical excavation, as well as archival research and oral history.

### Cultural Resources Reconnaissance Review for the Proposed Frac-3 and Frac-4 Expansion of the Mont Belvieu Natural Gas Liquids Fractionation

**Facility**

*Mont Belvieu, Chambers County, Texas*

Principal Investigator and Lead Report Author for a cultural resources survey and historic structures survey.

**NRHP Testing of Historic Sites 41RT530, 41RT537 and 41RT53, located within Luminant's Kosse Mine**

*Limestone County, Texas*

Project Archaeologist, Field Director, and Lead Report author for the NRHP testing of three late-nineteenth to early-twentieth century domestic sites located in Limestone County, Texas. Ms. Loftus supervised all aspects of the investigations which included pedestrian survey, shovel testing, and test unit excavation, as well as archival research.

**Bexar County Flood Control Improvements**

*Bexar County, San Antonio, Texas*

Project Archaeologist for the monitoring of Bexar County flood control improvements along VFW Boulevard, San Antonio, Texas.

**Cultural Resources Survey for the Houston National Cemetery Phase IV Expansion Project**

*Harris County, Texas*

Principal Investigator and report author for a 35-acre cultural resources survey performed at the request of the Department of Veteran Affairs (VA) in association with proposed development of the Houston National Cemetery.

**Burke Hollow Uranium ISR Mine, Uranium Energy Corporation**

*Bee County, Texas*

Crew Chief for intensive archaeology survey at the Burke Hollow Uranium ISR Mine.

**Sessom Creek Wastewater Improvement, City of San Marcos**

*Hays County, San Marcos, Texas*

NRHP Data Recovery and monitoring for the Sessom Creek wastewater improvement project.

**A Phase I Cultural Resources Assessment of the Proposed Southeast Market Expansion Project**

*Jasper, Forrest, Perry, Greene, and George Counties Mississippi and Mobile County Alabama*

Served as historic consultant and report co-author.

**A Phase I Cultural Resources Assessment of the Proposed Panda Power Lateral Project**

*Grayson County, Texas*

Served as historic consultant and report co-author.

**Apex-Matagorda Survey**

*Matagorda County, Texas*

Principal Investigator and Lead Report Author for the Apex-Matagorda survey.

**Tranquil Rock Shelter Excavation, O2 Ranch**

*Brewster County, Texas*

Excavation of various features associated with a middle archaic rock shelter occupation.

**Rough Cut Rock Shelter Excavation, O2 Ranch**

*Brewster County, Texas*

Excavation of various features associated with a late prehistoric rock shelter occupation.

**Cerro Chino Petroglyph Site Excavation, Pinto Canyon Ranch**

*Presidio County, Texas*

Excavations associated with the Cerro Chino Petroglyphs.

**Big Bend National Park**

*Brewster County, Texas*

Intensive cultural resources survey to systematically document and assess archaeological sites within the park boundaries.

**Sample of Additional Previous Field Experience:**

*Cultural Resources Cultural Resources Survey and NRHP Testing, Camp Gruber Maneuver Training Center, Lopez Garcia Group, Muskogee County, Oklahoma:* Field technician for the survey and NRHP testing of both prehistoric and historic sites, including extensive mapping and testing of a World War II Prisoner of War Camp

*Data Recovery for East Grand Forks Levee Construction, Great Lakes Archaeological Research Center, Polk County, Minnesota:* Field technician for data recovery at a bison kill site in Minnesota for Great Lakes Archaeological Research Center, Minneapolis

*Avon Park Air Force Base Survey, Parsons, Florida:* Field technician, cultural resources survey of the Avon Park Air Force Base that recorded multiple prehistoric and historic-age archaeological sites

*Mark Twain National Forest Survey, Parsons, Missouri:* Field technician, cultural resources survey in Mark Twain National Forest that recorded multiple prehistoric and historic-age archaeological sites

*Falcon Reservoir Survey, Lopez Garcia Group, Zapata, Texas:* Field technician, cultural resources survey of sections of Falcon Reservoir that recorded multiple prehistoric and historic-age archaeological sites including Colonial Rancheros

*National Park Service, Canaan Valley, West Virginia:* Field technician on an intensive cultural resources survey in Canaan Valley

**Syracuse University, Syracuse, New York (2010-2013)**

Field Director and Lab Director for the Benjamin Jackson Plantation Archaeological Research Project, Anderson County, Texas 2010 - present

Research Assistant, Douglas Armstrong Ph.D., Fall 2013

Teaching Assistant, Maureen Schwarz Ph.D. Professor, Syracuse University,

Instructor: ANT 111, Introduction to Cultural Anthropology, Fall 2010

Lead Teaching Assistant, Douglas Armstrong Ph.D. Maxwell Professor of Teaching Excellence, Syracuse University, Instructor: ANT/HST 145, Introduction to Historical Archaeology, Spring 2011

#### Recent Publications:

Sara Lawrence, Chris Dayton, Sarah Loftus, *Intensive archaeological survey for Pflugler Farm Lane, City of Pflugerville*, Pflugerville, Texas, Cox McLain, in press.

Jason Maywald, Chris Barry, Sarah Loftus, *A Phase I Cultural Resources Assessment of the Proposed Southeast Market Expansion Project Jasper, Forrest, Perry, Greene, and George Counties Mississippi and Mobile County Alabama*, Perennial Environmental Services, 2013.

Julie Shipp, Sarah Loftus, Jason Maywald, *A Phase I Cultural Resources Assessment of the Proposed Panda Power Lateral Project, Grayson County, Texas*, Perennial Environmental Services, 2013.

Sarah Loftus, James Karbula, *Apex-Matagorda Survey in Matagorda County*, William Self and Associates, Inc., 2012.

Sarah Loftus, Brandy Harris, *NRHP Testing of Historic Sites 41RT530, 41RT537 and 41RT538 located in Luminant's Kosse Mine*, PBS&J, 2011.

Sarah Loftus, Brandy Harris, Amy McWhorter, *Testing of Historic Sites 41FT592, 41FT600, and 41FT619 and Archival Research for 41FT574 Located within the First Five-Year Area of Luminant's Turlington Mine*, PBS&J, 2010.

Sarah Loftus, Brandy Harris, *Texas Sports Hall of Fame Expansion Data Recovery Investigation*, PBS&J, in press.

Sarah Loftus, B. Harris, *Interim Report for NRHP Testing of Historic Sites 41RT530, 41RT537, and 41RT538 located in Luminant's Kosse Mine*, September, 2009.

Sarah Loftus, B. Harris, A. McWhorter, *Interim Report for NRHP Testing of Historic Sites 41FT592, 41FT600, and 41FT619 and Archival Research for 41FT574 Located within the First Five-Year Area of Luminant's Turlington Mine*, May, 2009.

Sarah Loftus, J. Shipp, B. Harris, *A Cultural Resources Survey for the Lundelius-McDaniel Water Quality Control Project, Travis County, Texas*, Document No 080090, December 2008.

Sarah Loftus, *Interim Report for Texas Sports Hall of Fame Expansion Data Recovery Investigation*, November, 2008.

#### Conference Papers:

2012 Sarah Loftus, *Postemancipation Community Transitions on the Benjamin Walter Jackson Plantation, Anderson County, Texas*. Texas Archaeological Society Annual Conference, Tyler, Texas.

2011 Sarah Loftus and Brandy Harris, *Blunt: A lost community at Turlington Mine*.

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Society for Historical Archaeology Annual Conference, Austin, Texas.

- 2011 Brandy Harris and Sarah Loftus, *Urban Renewal and the archival record at Site 41ML296, Waco, Texas*. Society for Historical Archaeology Annual Conference, Austin, Texas.

**Grants/Awards:**

- 2013 Council of Texas Archaeologists, Student Research Grant  
2012 Anthropology Department, Syracuse University Graduate School, Research Grant  
2011 East Texas Historical Society Research Grant, Otis Locke Endowment  
2011 Maxwell School, Syracuse University, Deans Grant for Dissertation Research  
2011 Anthropology Department, Syracuse University Graduate School, Research Grant  
2010 Roscoe Martin Fund, Doctoral Dissertation Research Improvement Grant



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