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Terrace at Pecan Grove 22 Acre Development Project Fort Bend County, Texas

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GTI Environmental, LLC

Environmental Consultants

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Fort Bend County, Texas

Antiquities Permit # 7231

Prepared For:
Arenosa Development, LLC

On Behalf of:
Pecan Grove Municipal Utility District

Prepared By:
GTI Environmental, LLC

Principal Investigator:
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Abstract

GTI Environmental, LLC (GTI) conducted an intensive archeology survey and burial assessment within the Terrace at Pecan Grove 22 acre development project (Project). The Pecan Grove Municipal Utility District controls an easement within the 22 acre project area. The Project Sponsor is complying with the Antiquities Code of Texas (13TAC26). In the event this project is considered later as a federal undertaking, this report incorporates language of the National Historic Preservation Act (36CFR800) to facilitate federal agency consultation and determinations of effect. The Texas Historical Commission (THC) recommended consultation with its Historic Cemetery Preservation Coordinator. The Project Sponsor consulted with the Fort Bend County Historical Commission. The 22 acres constitutes the Project's direct *Area of Potential Effect* (APE). GTI's Principal Investigator, Sergio A. Iruegas, RPA, and Project Archaeologist, Melinda T. Iruegas, conducted the intensive archaeological survey on March 30, 2015 in accordance with the *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation* and the Texas Historical Commission's (THC) *Minimum Archaeological Survey Standards for Texas (shovel testing).* The THC issued Antiquities Permit 7231 for these intensive archaeological investigations on March 30, 2015. In general, the Project's direct APE had less than 30 percent ground surface visibility. The intensive archaeological investigation included a total of 13 shovel tests spaced evenly across the entire 22 acre Project direct APE. The Antiquities Permit application scope of work approved by THC included a 12m x 12m meter mechanical scraping area to determine the presence or absence of burial shafts for a possible cemetery location. D.D. Haven Jr filed an affidavit (Notice of the Existence of a Cemetery) at the Fort Bend County Clerk's Office on March 23, 2015 indicating possible evidence of the existence of a cemetery within the Project direct APE. The affidavit indicated the cemetery had a 10 foot by 15 foot area surrounded by a 3 foot high wrought iron fence and up to six possible burials and monuments. The Fort Bend County Historical Commission provided a 1968 aerial with the location of a possible fence alignment. GTI proposed the use of metal detecting sweep in the possible cemetery area to locate the possible wrought iron fence component. A total of six metal detecting targets (MDT) were located in the possible cemetery area spaced over a wide area. GTI's PI noted the MDT were not close together or in alignment of a possible wrought iron fence. GTI amended the mechanical scraping to a 21m x 38m area based on the MDT locations. While there was no evidence of wrought iron fence parts, monument fragments, or burial shafts in the locations of the MDTs, GTI archaeologists did note the presence of limited concrete fragments, wooden post fragments, fire pit areas, old tire and brick fragments throughout the mechanical scrap area. The 1972 aerial shows the presence of a homestead in the general area of the possible cemetery location. There was no evidence of modern or historic glass or ceramics or prehistoric artifacts or articulated or disarticulated human remains in the mechanical scrap area or the shovel testing. The proposed project will have No Effect to archaeological sites or cemeteries based on this intensive archaeology survey report, and historic and modern aerials demonstrate no structures 50 years or older are present within the Project direct and indirect APE. GTI recommends the project be allowed to proceed as planned.

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Introduction

This document presents the results of an intensive archaeological survey and burial assessment investigations for the Project Sponsor's, Arenosa Development, LLC (Arenosa), proposed Terrace at Pecan Grove 22 acre development project (Project). The Project is located in Fort Bend County, Texas, on the Sugarland, Texas 7.5 minute USGS Topographic Quadrangle Map (2995-312) as seen on Figure 1 and Figure 2.

Portions of the Terrace at Pecan Grove 22 acre development Project will be controlled by the Controlling Agency, Pecan Grove Municipal Utility District (MUD), which is a political subdivision of the State of Texas. Accordingly, the project falls under the Antiquities Code of Texas (13TAC26) and required a cultural resources background review (assessment of effect), Prior Notice (Section 191.0525), and, if necessary, an antiquities permit application. The archaeology report was prepared in accordance with *Chapter 26: Rules of Practice and Procedure* of 13TAC26. The Texas Historical Commission (THC) recommended consultation with its Historic Cemetery Preservation Coordinator. The Project Sponsor consulted with the Fort Bend County Historical Commission. The 22 acres constitutes the Project's direct *Area of Potential Effect* (APE). The THC issued Antiquities Permit 7231 for these intensive archaeological investigations and burial assessment on March 30, 2015 at 9:03 am. In the event a federal undertaking arises for this Project, the report incorporates language of the National Historic Preservation Act (NHPA) [36CFR800] to facilitate federal agency determinations of effect. GTI's Principal Investigator (PI), Sergio A. Iruegas, RPA, and Project Archaeologist, Melinda T. Iruegas, commenced the intensive archaeological survey on March 30, 2015 at 9:30am in accordance with the Texas Historical Commission's (THC) *Minimum Archaeological Survey Standards for Texas (shovel testing) and* the *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation*.

Consultation with the Fort Bend County Historical Commission and interested parties began prior to the initiation of the intensive archaeological survey. D.D. Haven Jr filed an affidavit (Notice of the Existence of a Cemetery) at the Fort Bend County Clerk's Office on March 23, 2015 indicating possible evidence of the existence of a cemetery within the Project direct APE. The affidavit indicated the cemetery was delineated with a 3 foot high 10 foot by 15 foot wrought iron fence with up to six possible burials and monuments inside the fenced area. The Project Sponsor initiated consultation with Mr. Bob Crosser of the Fort Bend County Historical Commission. The Fort Bend County Historical Commission provided a 1968 aerial with the location of a possible fence alignment. GTI consulted with Ms. Jenny McWilliams of the THC cemetery division. The agency did not have conclusive evidence for the location of a cemetery within the Project's direct APE. The affidavit and 1968 aerial provided the location of the possible cemetery for purposes of the intensive archaeological survey burial assessment efforts.

GTI conducted a cultural resources background review of the project area. The THC's restricted Atlas Database showed that archaeological surveys have been conducted surrounding the Project's direct APE and archaeological sites have been documented on similar topographic settings as the 22 acre project area. The Project's

direct APE is adjacent to an unnamed tributary of Bullhead Bayou. Accordingly the Project's direct APE was considered a high probability area where archaeological sites were likely to be present. Accordingly, GTI incorporated a shovel testing effort within the 22 acre Project direct APE to assess the proposed Project effects to archaeological sites and cemeteries.

In general, the Project's direct APE had less than 30 percent ground surface visibility. The intensive archaeological investigation included a total of 13 shovel tests spaced evenly across the entire 22 acre Project direct APE. GTI's PI prepared the Antiquities Permit application scope of work. GTI proposed to incorporate the 10 foot by 15 foot possible cemetery area within a 12m x 12m meter mechanical scraping area to determine the presence or absence of burial shafts or monuments within the possible cemetery location. GTI proposed the use of metal detecting sweep in the possible cemetery area to locate the possible wrought iron fence component or casket parts. A total of six metal detecting targets (MDT) were located in the possible cemetery area spaced over a wide area. GTI's PI noted the MDT were not close together or in alignment of a possible wrought iron fence. GTI amended the mechanical scraping to a 21m x 38m area based on the MDT locations. While there was no evidence of wrought iron fence parts, monument fragments, casket parts or burial shafts in the locations of the MDTs, GTI archaeologists did note the presence of limited concrete fragments, wooden post fragments, charcoal stained areas, old tire and brick fragments throughout the mechanical scrap area. The 1972 aerial shows the presence of a homestead in the general area of the possible cemetery location. There was no evidence of modern or historic glass or ceramics or prehistoric artifacts or articulated or disarticulated human remains in the mechanical scrap area or the shovel testing. The historic aerial photographs shows an open agricultural field in the 1940s and a cemetery was not evident. The few homesteads on the aerial are no longer present by the 1970 when development around the Project's direct APE began to be constructed. Therefore, there were no historic structures present within the Project's indirect APE immediately surrounding the Project's direct APE.

The proposed project will have No Effect to archaeological sites or cemeteries that are worthy for State Antiquities Landmark (SAL) designation or eligible for listing in the National Register of Historic Places (NRHP) based on this intensive archaeology survey report. Historic and modern aerials demonstrate no structures 50 years or older are present within the Project direct and indirect APE. GTI recommends the project be allowed to proceed as planned.

In the event human remains or funerary objects are noted during construction, all work should cease, and the Project Sponsor should consult with the Pecan Grove MUD and THC. Work may continue elsewhere within the Project's direct APE.

This report has nine sections and one appendix. After the Introduction is the Project Description that clearly identifies the project type and any associated elements. The Background Information includes topography, soils, geology, and previous work and sites within five kilometers of the Project's direct APE. The Archival Review provides a review of the information provided by the Project Sponsor regarding the potential cemetery location within the Project's direct APE and a standard review of online historic

record resources. The Regional Archaeological Chronology discusses time periods. Methodology discusses the existing disturbances and research design, which includes expectations, and type of work to be undertaken. The Results section is broken into a discussion of existing archaeological site context, burial assessment area, and shovel testing results. The Summary and Recommendations discuss the conclusions and determination of effects based the intensive archeological survey, and the References section contains all the citations used in the report. Appendix A contains the shovel test data resulting from this intensive archaeological survey and the coordinate locations for the metal detecting targets.

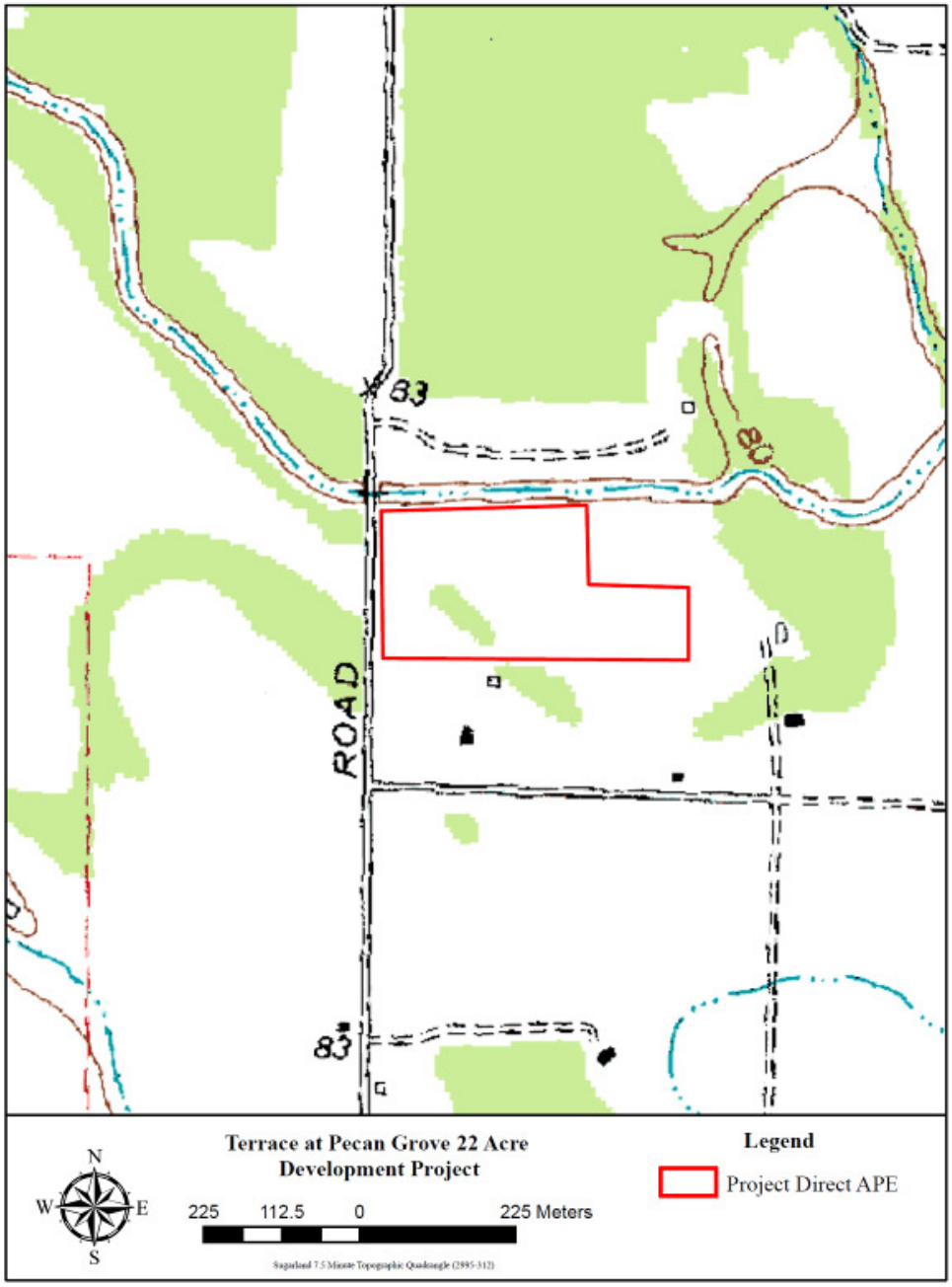

Figure 1: Topographic Map of Project Location

Figure 3: Aerial Map of Project Location

Project Description

Terrace at Pecan Grove 22 Acre Project's direct APE is located east of Pitts Road and Jones Creek, west of Bullhead Bayou, north of the Brazos River, south of Oyster Creek and an unnamed tributary of Bullhead Bayou. This project area is east of Richmond, Texas, in Fort Bend County. There is another unnamed tributary located 450 meters to the south of the Project's direct APE, which places the Project in a confluence type environmental setting. The unnamed tributary just north of the Project area has been altered and realigned into a man-made drainage ditch. Three smaller man-made drainage ditches bisects the mid-section of the Project's direct APE connecting with ditch located along the northern boundary (Figure 3 and Figure 4). The elevation of the Project's direct APE had been altered by previous development of the land as seen by the remnant of the original land surface (Figure 5). Arenosa Development, LLC plan to construct a housing community within the 22 acre tract. Fort Bend County is located on the flat broad South Texas coastal plain. The county ranges in elevation from 80 to 250 feet above sea level (Ott 2015). The Project's direct APE is broad and flat. This portion of Fort Bend County if drained by the Brazos River. The soils in the Project's direct APE are clay. Typical vegetation of Fort Bend County include pecan, oak, ash, and cottonwood located along the drainage systems. The county is rich in mineral resources including natural gas, oil, sulfur, sand, clay and gravel that are all produced commercially. The elevation of the Project's direct APE is 80 to 81 feet above sea level. The growing season for the county is 296 days a year (Ott 2015). In general, the ground surface visibility across the project area was generally less than 30 percent with a few open area with greater than 30 percent (Figure 6 and Figure 7). There were no trees within the Project's direct APE, and the ground surface was covered with clover, and grassburs.

Figure 3: Drainage Ditch Bisecting Project APE Looking South

Figure 4: Drainage Ditch Bisecting Project APE Looking North

Figure 5: Original Ground Surface in background

Figure 6: Project Area Greater Than 30 Percent Ground Surface Visibility

Figure 7: Project Area Less Than 30 Percent Ground Surface Visibility

Background Information

Topography

Fort Bend County is located in the coastal plains of southeastern Texas. The Terrace at Pecan Grove 22 Acre Project's direct APE is east of Richmond, Texas within the Fort Bend County Municipal Pecan Grove District. Fort Bend County is located on the flat broad South Texas coastal plain. The county ranges in elevation from 80 to 250 feet above sea level (Ott 2015). The Project's direct APE is broad and flat. This portion of Fort Bend County if drained by the Brazos River. The soils in the Project's direct APE are clay.

Soils

The Terrace at Pecan Grove 22 Acre Project's direct APE is located entirely within the Brazoria clay (Ma), zero to one percent slope soil series (Figure 8). The Brazoria clay soil series are very deep and slowly permeable. This soil series was formed in clayey alluvial sediments from the flood plains of the Brazos River.

The Brazoria Clay (MA) are typically found in woodland areas of Fort Bend County (USDA 2014). The slope for the Brazoria soil series ranges from nearly level to 0.2 percent. There are eight layers within the Brazoria Clay soil series. The top layer measures 0 to 6 inches below ground surface, and is dark-brown (7.5YR3/2) clay. The structure is moderate to medium wedge. The structure of the upper layer transitions to moderate medium angular and blocky. The texture is firm. There are a few very fine roots and common pores within the upper layer of the Brazoria soil series. There is approximately one percent fine carbonate nodules within the upper layer. The boundary between the upper and second layer is gradual and smooth. The second layer measures 6 to 17 inches below ground surface, and remains the dark-brown clay (7.5YR3/2). The structure and texture are consistent with the upper layer. There continue to be a few very fine roots, and five percent of the peds have a shiny surface with slickensides. There continues to be one percent carbonate nodules within the second layer. The boundary between the second and third layer is gradual and wavy. The third layer measures 17 to 28 inches below ground surface, and is brown (7.5YR4/2) clay. The structure and texture of the third layer remains consistent with the first and second layers. The slickensides of the third layer increases to 15 percent. The matrix of the third layer also contains 1 percent fine distinct dark reddish brown (5YR3/4) masses of oxidized iron. The boundary between the third and fourth layer is clear and wavy. The fourth clay layer extends from 28 to 36 inches below ground surface. The color of the fourth layer is 90 percent reddish brown (5YR 4/4) and 10 percent dark reddish brown (5YR3/2). The structure and texture are consistent with the above layers. Slickensides are 10 percent. The matrix also includes 3 percent iron-manganese nodules, and faint reddish brown carbonate nodules. The boundary between the fourth and fifth layers is clear and wavy. The fifth layer extends from 36 to 49 inches below ground surface. This layer is very-dark brown (10YR2/2) clay. The structure contains strong medium wedges which transitions to strong medium angular and blocky. Again, the texture is firm. Slickensides are 30 percent

in the fifth layer. The matrix includes 2 percent massive oxidized iron and 1 percent carbonate masses. The boundary between the fifth and sixth layer is clear and smooth. The sixth layer of clay measures 49 to 58 inches below ground surface. The color of the sixth layer is 90 percent very-dark brown (7.5YR2.5/2) and 10 percent black (7.5YR2.5/1). The structure is strong coarse wedge that transitions to strong coarse, angular and blocky. The slickensides in the sixth layer are 35 percent. Masses of oxidized iron, four percent carbonate nodules, and two percent carbonate masses are present within the matrix. The boundary between the sixth and seventh layer is gradual and smooth. The seventh layer measures 58 to 67 inches below ground surface. The color of the seventh layer clay is dark-brown (7.5YR3/3) and 10 percent dark-brown (7.5YR3/2). The structure is moderate coarse wedge and parts to moderate medium, angular and blocky. The texture becomes very firm in the seventh layer of the Brazoria Clay. Slickensides decreases to 30 percent of the matrix. There is one percent prominent reddish brown masses of oxidized iron, one percent iron-manganese nodules, and three percent carbonate nodules. The boundary between the seventh and eighth layer is gradual and smooth. The eighth layer measures 67 to 80 inches below ground surface. The color of the eighth layer clay is 30 percent dark reddish brown (5YR3/2) and 70 percent dark reddish brown (5YR3/3). The structure of the eighth layer is described as moderate, coarse wedge, and transitions to moderate, medium, angular, and blocky. The texture continues to be very firm. Slickensides decrease to 25 percent. There is one percent red masses of oxidized iron, one percent manganese masses, two percent iron-manganese nodules, and one percent fine pink carbonate nodules within the soil matrix.

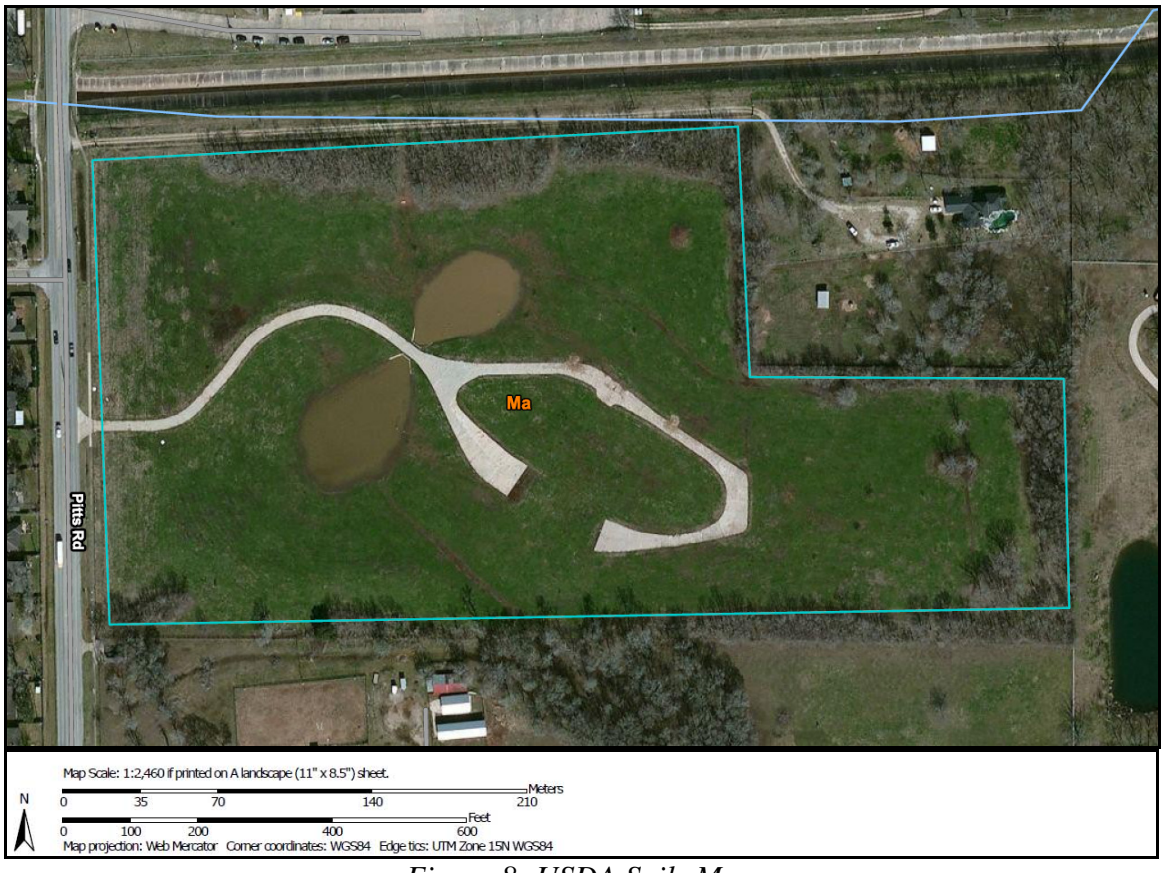

Figure 8: USDA Soils Map

Geology

The geology of the Terrace at Pecan Grove 22 Acre Projects direct APE consists of Alluvium (Bureau of Economic Geology 1982; Figure 9). The alluvium is low terrace deposits of gravel sand silt clay and abundant local organic matter Deposits include point-bar, natural levee, stream channels, backswamp, coastal marsh, mud-flats, and beach deposits.

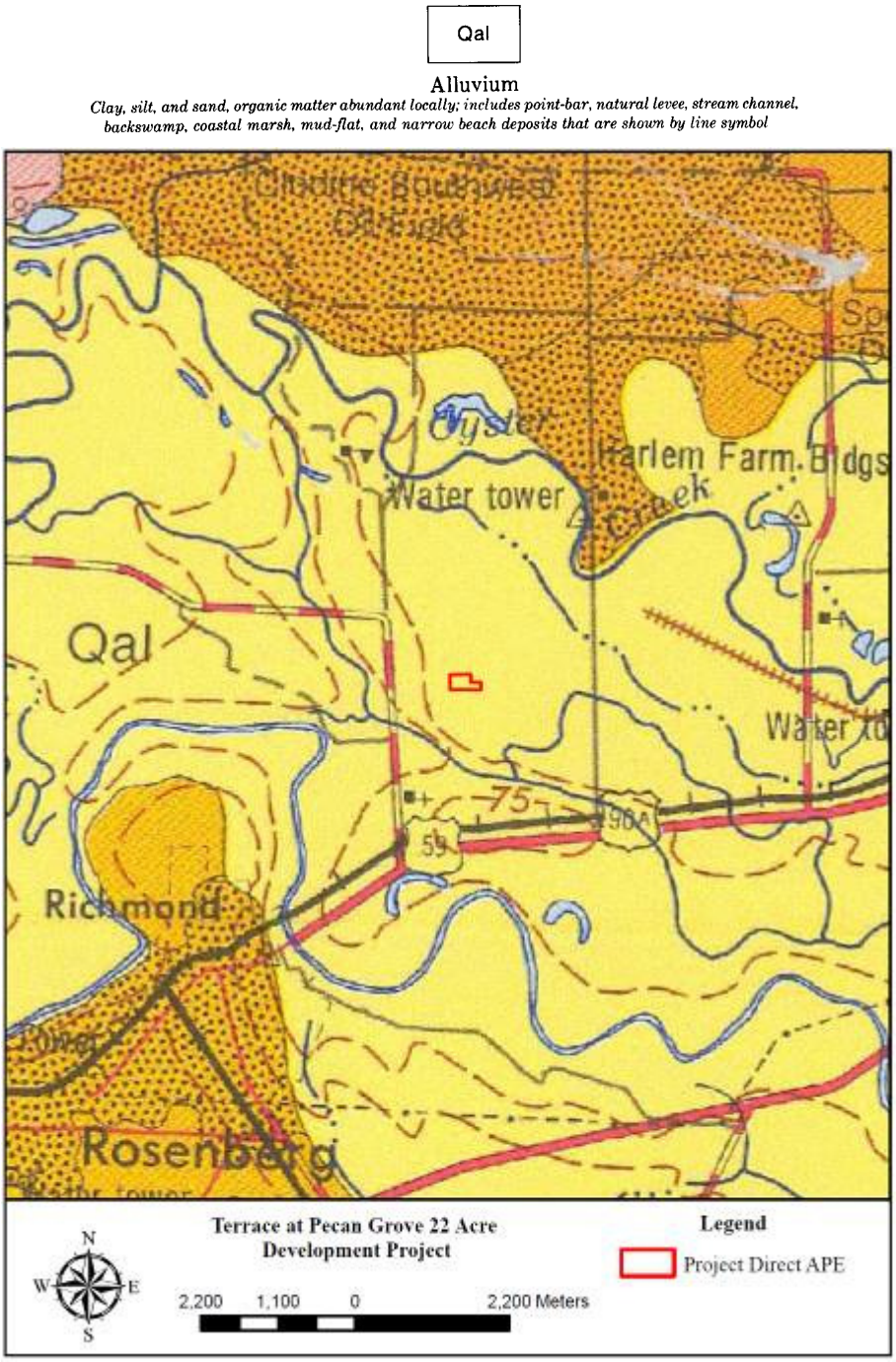

Figure 9: Geologic Map of Project Area.

Previous Work & Sites within 5 Kilometer

GTI conducted a cultural resources background review of the Project direct APE within a 5 kilometer area. The THC's restricted Atlas Database showed that archaeological surveys have been conducted surrounding the Project's direct APE and archaeological sites have been documented on similar topographic settings as the 22 acre project area. The Project's direct APE is adjacent to an unnamed tributary of Bullhead Bayou, and the historic Jester State Prison is in the immediate vicinity to the northeast of the Project area.

In 2005, the Texas Department of Transportation (TxDOT) sponsored an archaeological survey along Pitts Road on the west side of the Project's direct APE and a similar survey of Highway 90 south of the Project area in 2003. In 2008, TxDOT documented 7 ineligible archaeological sites during an archaeological survey of Highway 99 east of the project area. TxDOT also required an archaeological survey in 2004 of a portion of a previous project area which extended into areas that had not been surveyed. The Corp of Engineers (COE) had required the surveys, which established the archaeological sensitivity of the general area along Oyster Creek.

The COE required developers to conduct archaeological surveys of tracts east and north of the Project direct APE in 1997 and 1998. In the first survey, eight archaeological sites were documented along Oyster Creek and its unnamed tributaries similar to the topographic setting as the Project's direct APE. The results of the second survey documented nine archaeological sites, including 41FB255 which was a late prehistoric village site with a multiple burial ground. While these archaeological sites were recorded north of Oyster Creek, Bullhead Bayou is directly below these COE required survey areas, and the areas are similar in that they are upland terraces overlooking Oyster Creek. GTI conducted an archaeological survey under the auspices of the COE and the Fort Bend County Municipal Utility District No. 146 in 2006 and recently in 2014. Five archaeological sites had been recorded along Oyster Creek that were associated with historical archaeological sites that demonstrated a Post-Bellum Fragmented Settlement Pattern of the Tenant-Renter Type. The archaeological investigations established the validity that remnant components of Stephen F. Austin's "Old 300" colonist plantations were still present in the landscape in the general surrounding area of Oyster Creek, which includes the Project's direct APE.

The Fort Bend Independent School District sponsored an archaeological survey under the auspices of the Department of Education in 2008. The survey area was directly adjacent northeast of the Project's direct APE near the Jester State Prison. In 2000 and 2007, the Texas Department of Criminal Justice sponsored archaeological surveys and monitoring of tracts of land near the Jester State Prison. The importance of the cultural resources background review (assessment of effect) is seen when considering that the 1970s neighborhood development area surrounding the Project's direct APE. These early developments did not incorporate cultural resource considerations into their planning process. Since the Project's direct APE is a recent annexation into the Pecan Grove MUD, the Project Sponsor demonstrated a "*Good Faith Effort"* to consider cultural resources within his 22 acre development area.

Archival Review

The Archival Review chapter begins with a discussion of the information the Project Sponsor provided to GTI. The Project Sponsor included copies of the affidavit indicating evidence of the existence of a cemetery within the Project direct APE, and he initiated consultation with the Fort Bend County Historical Commission representative, Mr. Robert Crosser. This chapter briefly discusses THC's recommended consultation with its Historic Cemetery Programs division, and the chapter is concluded with GTI's archival research of the standard repositories and presents historic written record evidence for the presence or absence of possible burial locations.

The affidavit describes a small cemetery located southwest of an old house (Figure 10 and Figure 11). The cemetery was said to be surrounded by a 3 foot high black wrought iron fence 10 feet x 15 feet, and contained "as many as four to six monuments." The affidavit was filed on March 23, 2015 by D.D. Haven Jr. and notarized on March 13, 2015. GTI examined the aerial photography provided by the Project Sponsor. The aerial photographs provided date to 1941, 1968, 1972, 1978, 1985, 1996, 2004, and 2012 (Figure 12 through Figure 19).

The 1941 aerial shows the area of the Project's direct APE as an open agricultural field. At that time, there was no evidence of a structure or cemetery within the project area. A structure first appears within the Project's direct APE on the 1968 aerial. A circle was placed on the 1968 aerial indicating the described wrought iron fence and suspected location of the historic cemetery. The structure continues to appear on the 1972 and 1978 aerials. The structure is no longer present on the 1985 aerial. The Project's direct APE is wooded on the 1996 and 2004 aerials. The 2012 aerial shows development of the project area with two ponds and a curving concrete driveway.

The information provided by the Fort Bend Historical Commission contained email correspondence between David Haven who submitted the affidavit and Mr. Robert Crosser of the Fort Bend Historical Commission. The email chain references Joe Hochman a resident of the area. Oral history collected by the Fort Bend Historical Commission Cemetery Committee documented the recollections of Mr. Hochman that as a child he spent time on the property and did not recall a cemetery. He did, however, remember an old cow pen that was located on the western side of the property closer to Pitts Road. The Fort Bend Historical Commission Cemetery Committee also provided some of their notes on cemeteries in the general area. The notes were titled Investigations/Observations of three previously registered cemeteries. The notes listed three cemeteries identified as "#1 Pitts Road Cemetery, #2 Johnny Scott Cemetery, and #3 Gaston-White Cemetery" with general descriptions.

In addition to reviewing the historic aerials and information provided by Project Sponsor, GTI's historian queried findagrave.com for the cemetery names listed in the Fort Bend County Historical Commission notes. There was no cemetery listed by the name Pitts Road Cemetery in the findagrave.com database. The Johnny Scott Cemetery is

a single grave, and it was not in the findagrave.com database. Based on the description in the Fort Bend County Historical Commission notes the Johnny Scott Cemetery is not located near the Project's direct APE. The Gaston-White Cemetery was in the database. This cemetery is located near I-10 northeast of the Project's direct APE.

THC's recommended that GTI consult with its Historic Cemetery Programs division. GTI contacted Jennifer McWilliams regarding the Pitts Road Cemetery. The cemetery was listed in the Texas Historical Commissions Atlas database and was assigned number FB-C072. The description in the Atlas database of the cemetery did not provide a location. The Atlas database contains a photograph of the Pitts Road cemetery, which was also identified as the Hunter Family Cemetery. Ms. McWilliams also provided the cemetery documentation form when the cemetery was recorded. The THC's records review was inconclusive for the location of Pitts Road Cemetery or any other cemetery being documented in their records as being located within the Project's direct APE.

2 PGS AFFDVT

In the State of Texas §
§ Know all ye men by these presents
County of Fort Bend §

AFFIDAVIT

COMES NOW before me the undersigned NOTARTY, the undersigned AFFIANT who under oath duly states:

"My name is Donald "David" Haven Jr. I lived near Pitts Road in Fort Bend County in the late 1970's and 1980's as a child and into my teen years.

I recall that Pitts Road was unpaved and that it extended northward from US Highway 90A up to and beyond Hughes Road. I played, camped and hunted in the area that is now Pecan Grove. On the property that is directly north of property previously owned by Larry and Juanita Hughes (NE corner of Pitts Road and Hughes Road), stood an old wood frame house. On the north side of Mr. and Mrs. Hughes's property there was an open tractor shed. From that shed, one could walk the fence line eastward toward a stand of trees. Near that area was a low spot under which a kid could easily go under the bottom strand of barbed wire. After crossing the fence, there would be a gully or old ditch running SE-NW through which coyotes habitually travelled. When walking northwest in or along that gulley, the house and a small cemetery would have been on the right near some trees. The house had a small fenced-in area on the west side of the house that I recall was made out of something like hog wire; the fencing was heavily grown over with vines.

The small cemetery was southwest of the old house and it was surrounded by a black wrought iron fence. I recall the fence being approximately three feet in height and enclosing an area that I would approximate being ten feet by fifteen feet. Within the fence was a small cemetery containing at least three or four grave monuments. There were possibly as many as four to six monuments of some sort. I do not recall if they were all head markers or a combination of head markers and foot markers. I remember a large tree or trees near and partially overhanging the little cemetery.

The old house and cemetery remained while much of Pecan Grove was constructed in the early 1980's. The parcel of land upon which the house and cemetery were situated was bounded by Pitts Road to the west and Larry Hughes's property to the South. I later drove by the location on Pitts Road on a regular basis (when I was old enough to drive) for at least a couple years and could see the cemetery from the road when the grass was not too high.

I departed Fort Bend County to join the military in 1986. It was during a visit home some year afterward that I saw the land was cleared.

I asked my parents about the cemetery. They indicated that the house and cemetery were present when heavy equipment was delivered to the site, but that the area was leveled and the cemetery and house were gone by the end of the following day. They strongly indicated that they observed no visible effort indicative of unearthing the persons contained within the graves for relocation.

FURTHER AFFIANT SAYETH NOT.

SONIA V LLAMAS
NOTARY PUBLIC
STATE OF TEXAS
MY COMM. EXP. 9/10/16

D. D. Haven Jr. –Affiant 13 Mar 15 Date

Sworn and subscribed before me this 13 day of March 20 15

Notary Public My commission expires: 9/10/16

Figure 10: Affidavit—Notice of Existence of Cemetery

Figure 11: Modern Aerial Showing Possible Burial Location

Figure 12: 1941 Aerial

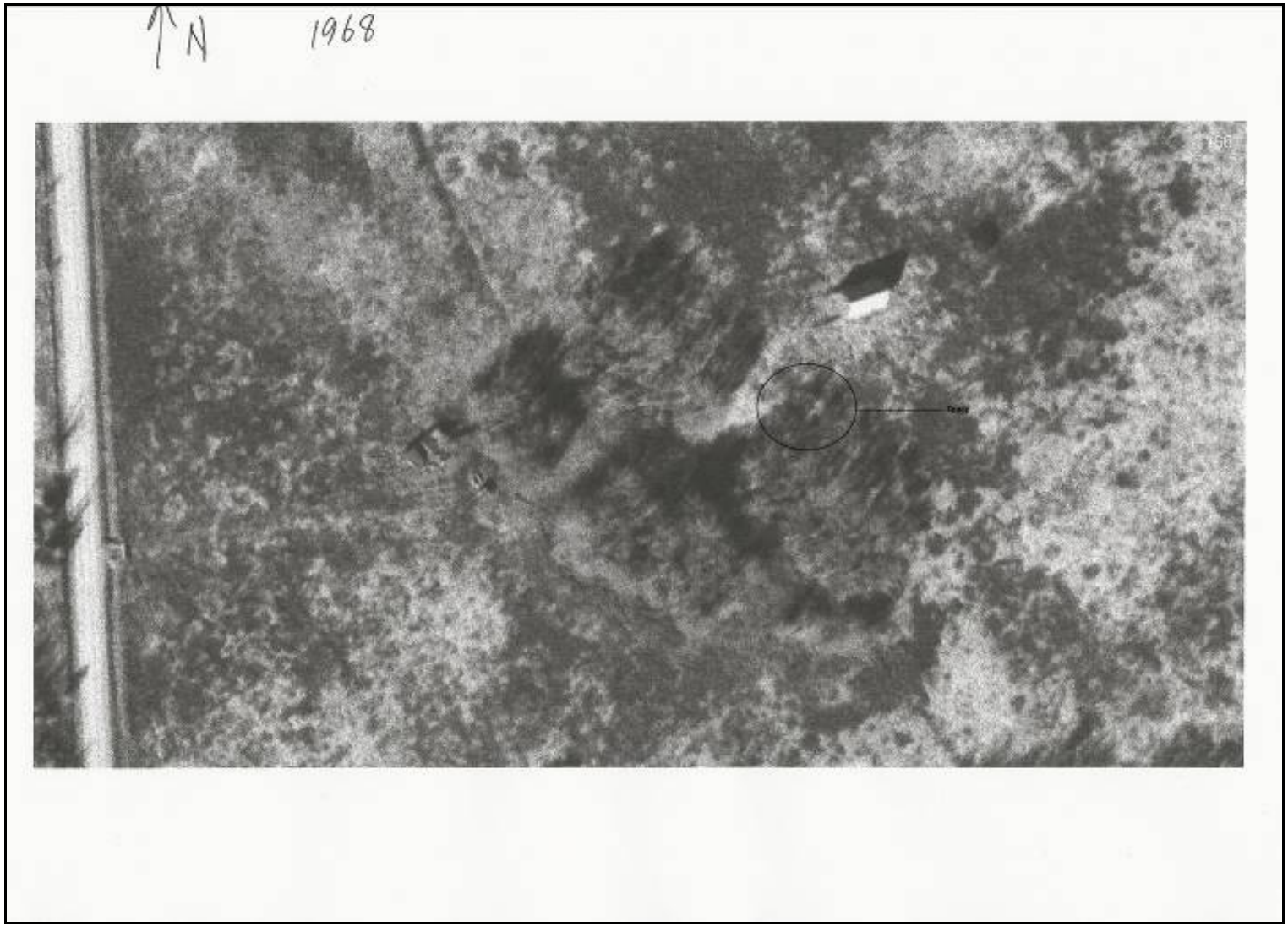

Figure 13: 1968 Aerial Photo

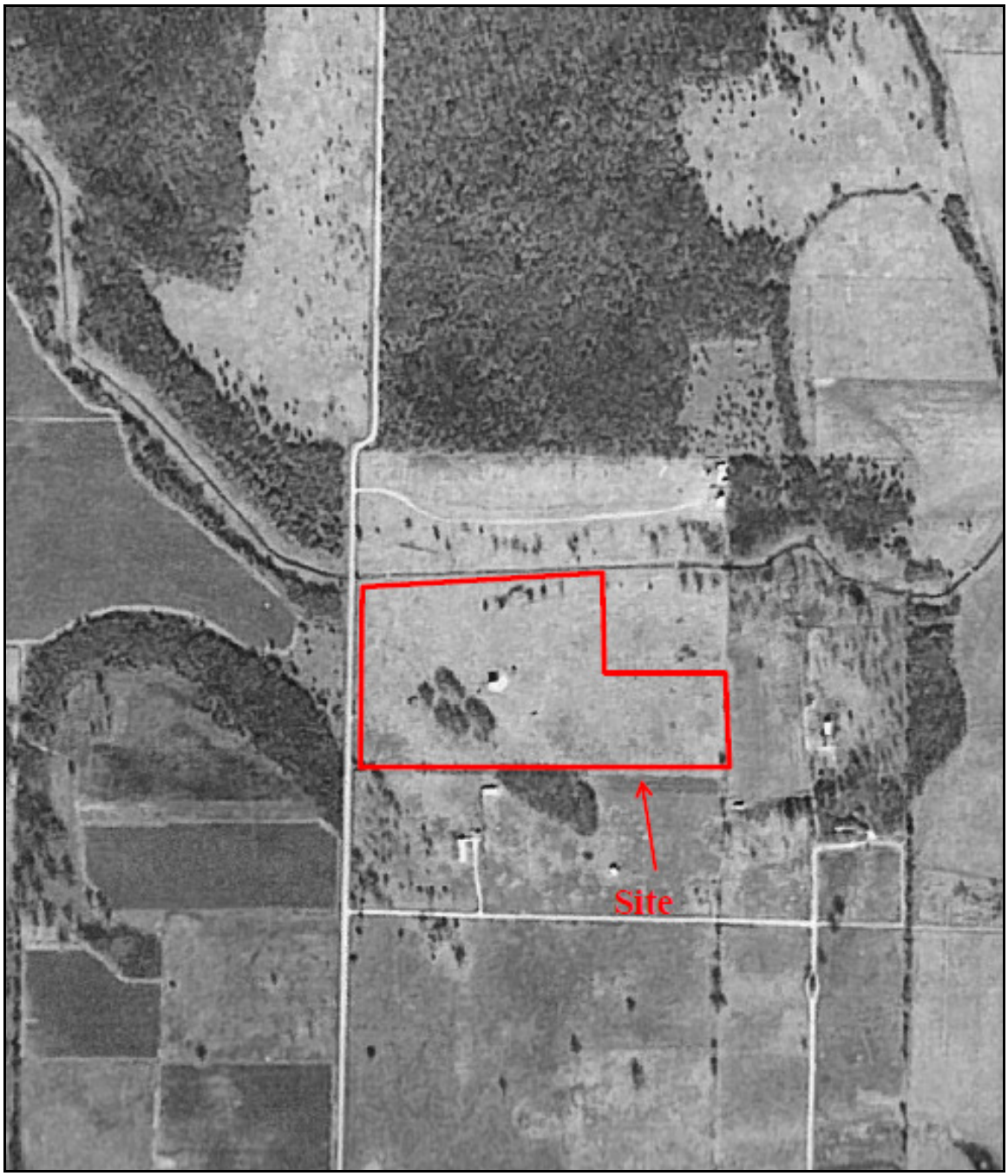

Figure 14: 1972 Aerial

Figure 15: 1978 Aerial

Figure 16: 1985 Aerial

Figure 17: 1996 Aerial

Figure 18: 2004 Aerial

Figure 19: 2012 Aerial

GTI performed its standard archival review of historic maps and online resources for the Project's direct APE. These efforts were made in order to identify any potential significant historical archaeology sites. Potential historical archaeology sites are noted on historic maps by the presence of extant structures. The archival review also considers important events or individuals that may have a historic role in Texas history by documenting the earliest known landowners and plat history of the Project's direct APE. This effort was performed to determine if any significant events or individuals could meet the National Register criteria under 36CFR60.4(a) and 36CFR60.4(b). GTI also

reviewed the historic maps and online resources regarding Pitts Road Cemetery location within Project's direct APE.

GTI's historian reviewed various historic map collections that included the searchable database of historic maps housed at the Texas General Land Office (GLO), Perry Castañeda Library Map Collection, the Portal of Texas and the Texas State Archives in order to identify the earliest history for Fort Bend County. During this research, archaeologists reviewed historic maps that included the 1839, 1865 and 1898 Fort Bend County Historic Plat map (Figure 20 through Figure 22), the 1915 Army Corps of Engineers Tactical Map (Figure 23), the 1936 General Highway Fort bend County Map (Figure 24), the 1959, 1970 and 1980 Sugarland 7.5 Minute USGS Topographic Maps (Figure 25 and Figure 27). The general Project area is indicated on the historic maps with red-line square boxes.

Anglo settlers arrived in Fort Bend County as early as the 1820s under the colonization efforts of the Spanish Government (Ott 2015). The colonization effort was initiated by Moses Austin and carried out after his death by his son, Stephen F. Austin. The Spanish government authorized 300 families to settle on the Brazos and Colorado rivers. These families today are known as the "Old 300." Among these colonists was William Morton. According to the GLO's GIS Webviewer, the Project's direct APE is located in the historic land grant of William Morton, which is located just east of Richmond, Texas (GLO File Number 1027989, Abstract A-62). Richmond was established in May 1837 by an Act of the Congress of the Republic of Texas. Fort Bend County was established on December 29, 1837, and Richmond was voted the county seat on January 13, 1838 (Ott 2015).

During the Republic of Texas era, Fort Bend County profited from agriculture, particularly the cultivation and processing of sugar cane. Nathan and Matthew Williams were among the first to cultivate sugar cane on the Oakland Plantation. The Williams early sugar business laid the ground work for larger processing of sugar, most notably by Imperial Sugar in nearby Sugar Land. Farmers in the area attributed their economic success to their slave labor and were overwhelmingly in favor of the confederacy during the Civil War. In fact, more than half the adult white male population volunteered for military service, most of those joined the Eighth Texas Cavalry (Terry's Texas Rangers), organized by Benjamin Franklin Terry, a wealthy local sugar farmer. After the abolishment of slavery in Texas, farmers, especially the large sugar planters in Fort Bend County, required another source of cheap labor to harvest and process their crops. Several plantations in the area turned to prison labor to fill the void. In 1885, the State of Texas purchased Harlem Plantation in Fort Bend County establishing it as one of the first state run prison farms. Later renamed, Jester State Prison Farm, the Harlem Prison Farm contracted its labor out for use in the fields and construction. During the late 1800s, railroads branched out across the county increasing economic stability and attracting new settlers to the area.

William Morton arrived in Texas in 1822, and he lead one of the original families that followed Stephen F. Austin to Texas. Upon his arrival in 1822, he planted his first crop on the first bend of the Brazos River. Morton received two land-grant tracts within

Austin's Colony. According to GLO's GIS Webviewer, Abstract A-63 represents (not shown) a smaller tract located on the east side of the Brazos River and eventually became part of Richmond, Texas. The second larger land-grant tract, known as A-62, extended from the west bank of the Brazos River to Oyster Creek. The title for the land grant describes Morton's ability to succeed as a colonist, because he had a large family or "crecida familia" that will help him in working the land. The larger land tract totaled one and a half leagues and a labor of land, and this is where Morton built his home on the bank of the Brazos River (Handbook of Texas 2015). He was an avid participant in the new colony, he voted in the first colonial election in 1824, and Stephen F. Austin recommended him for *regidor* of the municipality, because of Morton's participation in the settlement.

It is suggested that many believed William Morton left his family and home in Texas in 1833. The Brazos River, however, flooded that year, and it was later discovered that William Morton drowned in the river. Reportedly, his neighbor Randal Jones was the last person to see him alive (Hand Book of Texas 2015). With her husband missing, Nancy Morton filed a petition on October 28th, 1834, in an effort to have a curator appointed to manage the property. Nancy Morton specifically describes in the petition that her husband William Morton "abandoned his plantation & property." This also indicated that even by that time it was unknown if he had departed the state or had died. None the less, through the Republic of Texas era, and into early Statehood there were a number of administrators to the Morton Estate. The first guardianship was assigned to Nathan Burnett on September 12, 1843 (Case#107). The following year on August 26, 1844, Daniel Perry became the administrator (Case#142). Daniel Perry was married to one of William Morton's daughters, Louisa Ann, who continued living on the family's property. Their eldest son, John V. Morton, also continued living on the family's land tract (Walker 2008). GTI's historian took into consideration that William Morton's children continued to live on the historic land tract and may have established a family cemetery. Online research at findagrave.com, however, indicated that William Morton's family are buried at Duke Cemetery located about 16 miles southeast of the Project's direct APE in Fort Bend County. The 1839, 1865, and 1898 Fort Bend County Historic Plat maps do not identify or depict a location of a cemetery within the historic land grant of William Morton.

The 1915 Sugarland Army Corps of Engineers Tactical Map shows the area of the Project's direct APE was undeveloped. Pitts Road did not exist in 1915 or in 1936. The project area on the 1936 General Highway Map of Fort Bend County remains undeveloped. Cemeteries are depicted on the 1936 General Highway Maps as rectangles with a cross on the interior. An example of this is seen southeast of Richmond south of the Brazos River. This cemetery symbol does not occur in the area or anywhere near the Project's direct APE. The 1955, 1970, and 1980 Sugarland 7.5 Minute Topographic Maps also show the area of the Project's direct APE as undeveloped. Cemeteries on these historic topographic maps are indicated with the abbreviation "Cem" with a dashed lined indicating the outline or boundary of the cemetery location. There are no cemeteries documented within the Project's direct APE on any of the historic maps reviewed.

Figure 20: 1839 Fort Bent County Plat Map

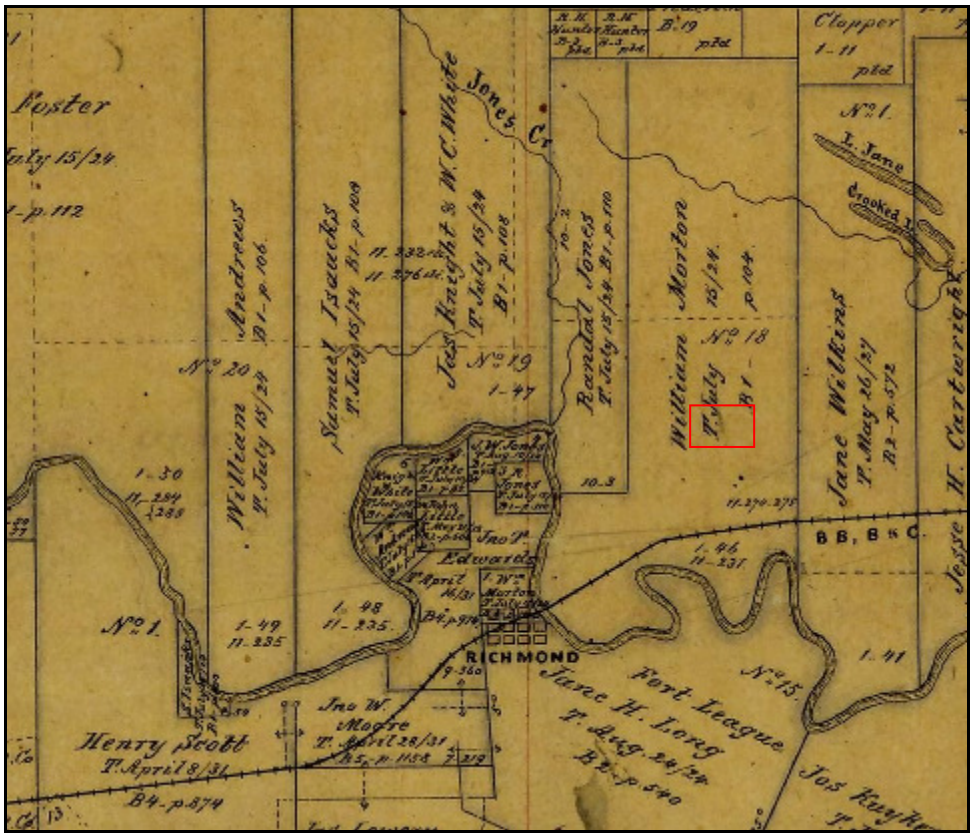

Figure 21: 1865 Fort Bent County Plat Map

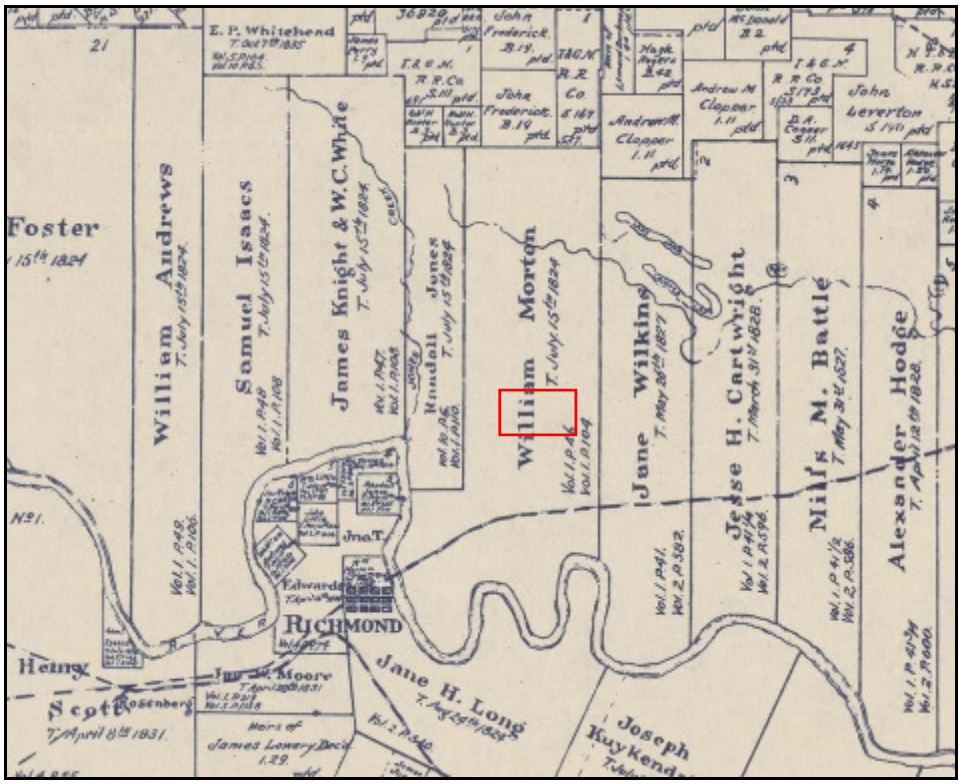

Figure 22: 1898 Fort Bent County Plat Map

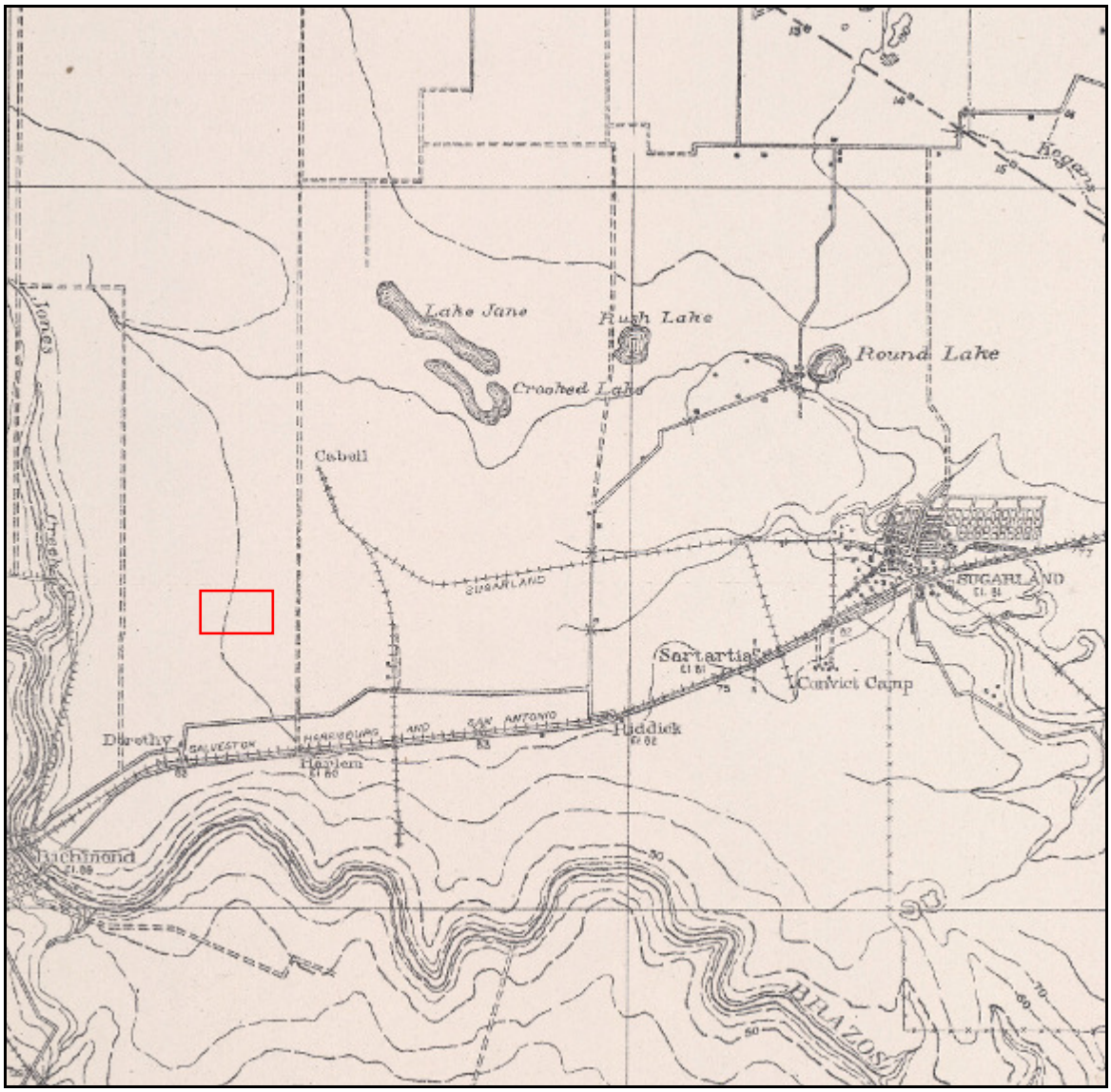

Figure 23: 1915 Sugarland Army Corps of Engineers Tactical Map

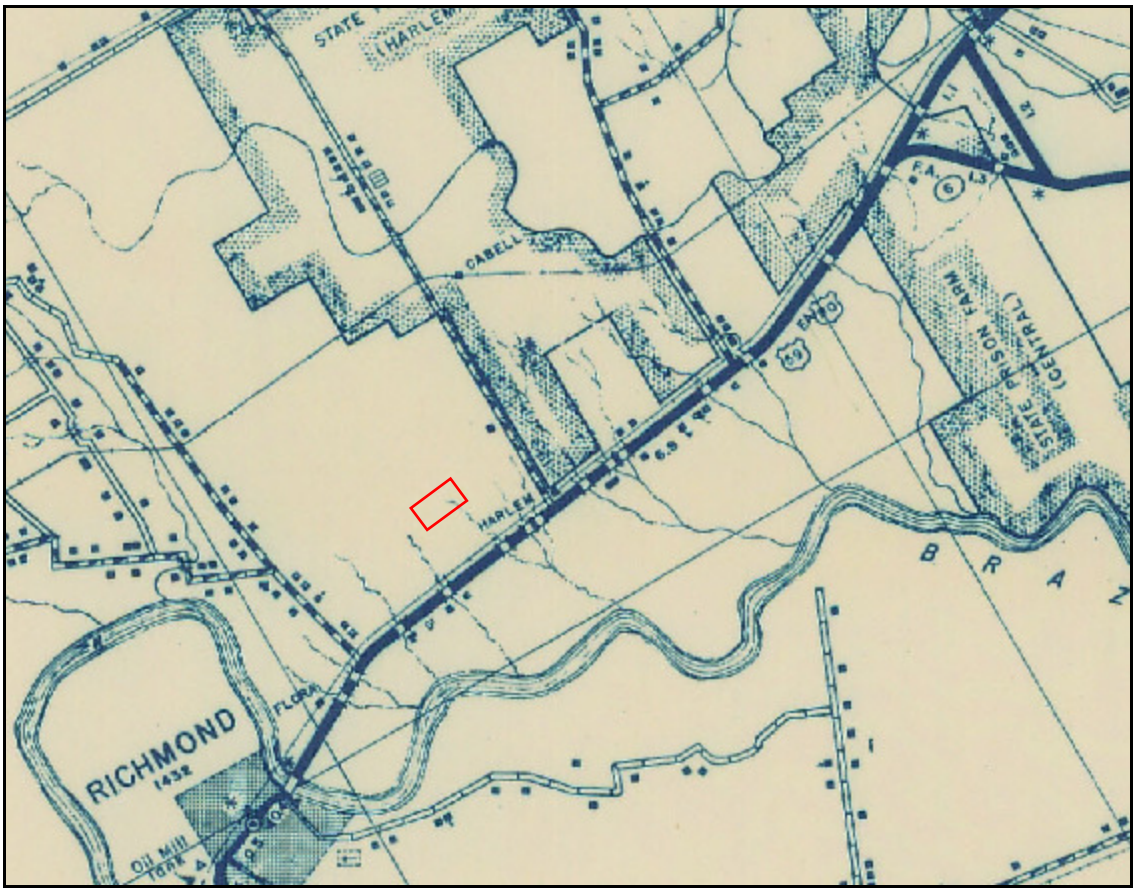

Figure 24: 1936 General Highway Fort Bend County Map

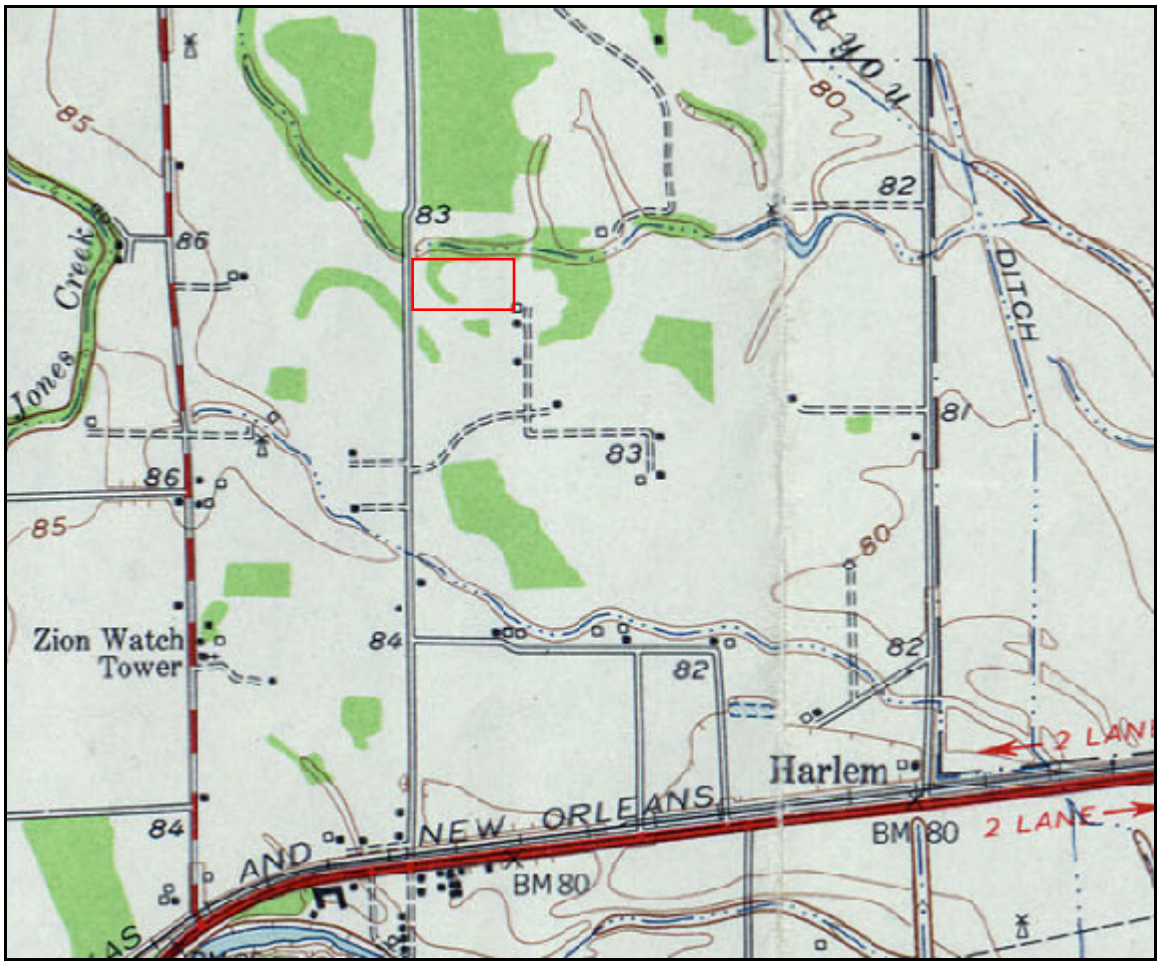

Figure 25: 1955 Sugarland 7.5 Minute Topographic Map

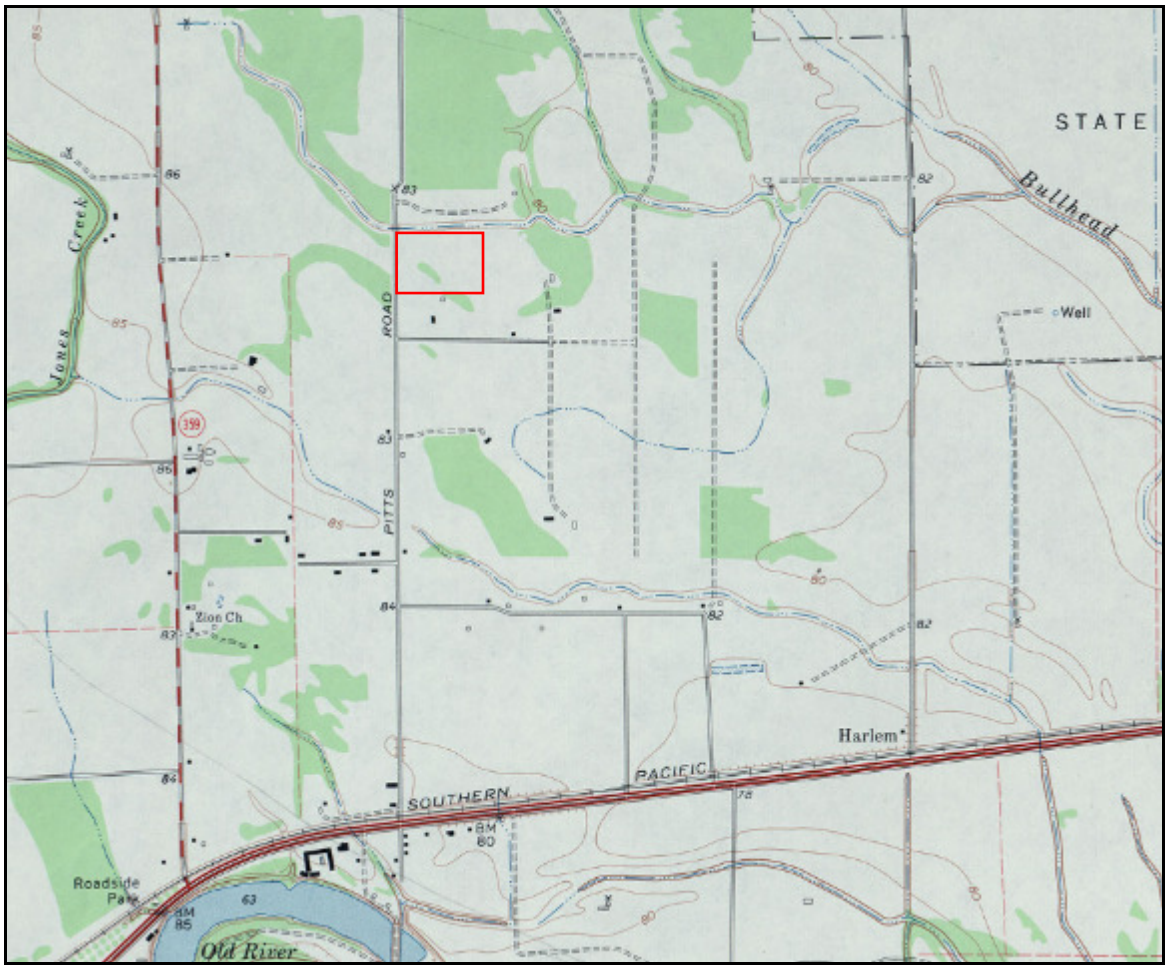

Figure 26: 1970 Sugarland 7.5 Minute Topographic Map

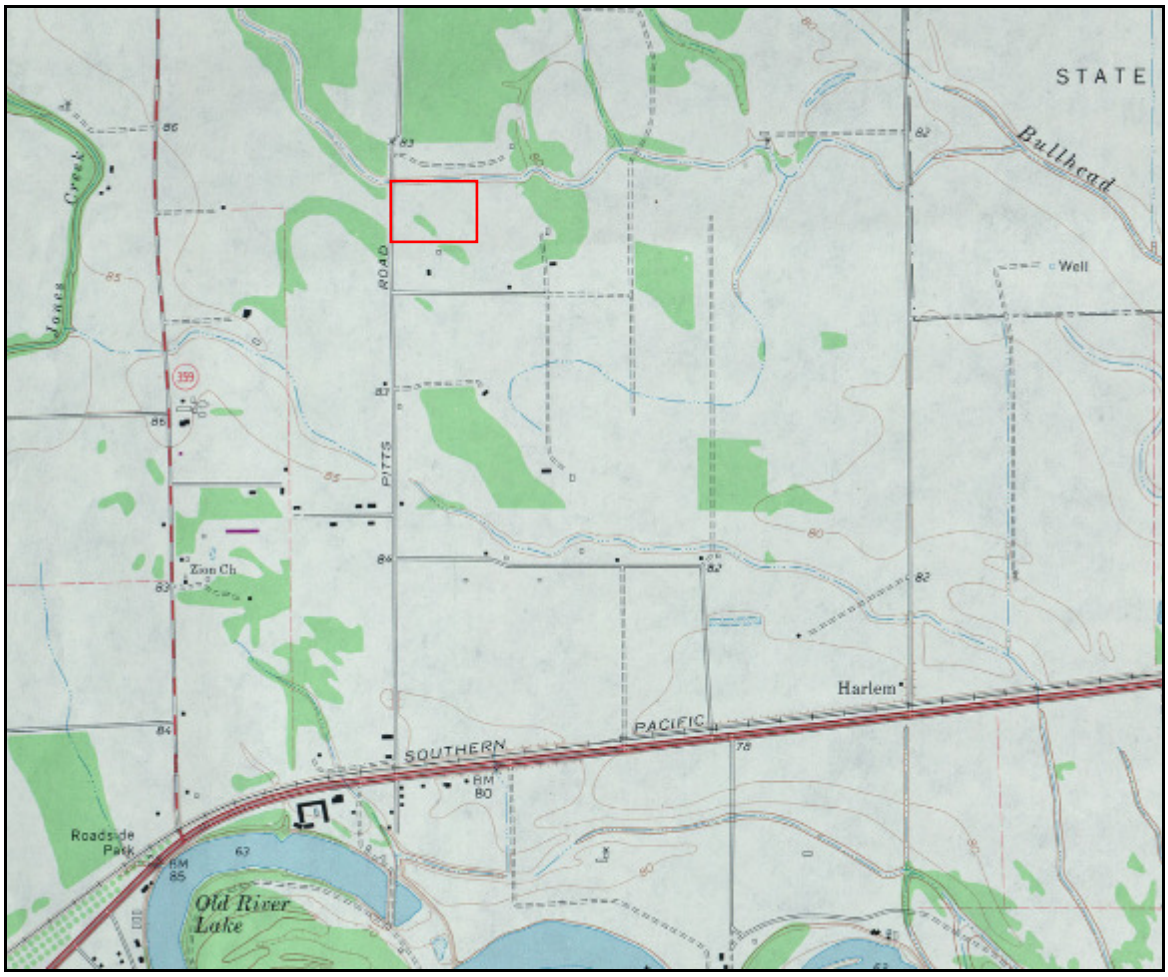

Figure 27: 1980 Sugarland 7.5 Minute Topographic Map

According to the archival review, the Project's direct APE is located within the historic land grant of William Morton (one of the Old 300). Morton built his home on the bank of the Brazos River, which is located south of the Project's direct APE. Although William Morton is a significant individual to Texas history, his home is not located within the Project's direct APE. There was no evidence of significant events or individuals that occurred within the Project's direct APE that meet the National Register criteria under 36CFR60.4(a) and 36CFR60.4(b).

Regional Archeological Chronology

A temporal framework for prehistoric archaeological sites in Texas can be categorized by three main periods: the Paleo-Indian (10,500–8500 Before Present [B.P.]), the Archaic (8500–1200 B.P.), and the Late Prehistoric (1200–400 B.P.). The Archaic period is further subdivided into the Early Archaic (8500–6000 B.P.), the Middle Archaic (6000–3500 B.P.), and the Late Archaic (3500–1200 B.P.). Suhm et al. (1954), Suhm and Jelks (1962), Prewitt (1981, 1985), and Turner and Hester (1999) established this temporal framework based on Projectile point type seriation and technological changes in diagnostic artifacts due to changing environment and subsistence strategy adaptations.

Paleo-Indian

The Paleo-Indian period dates from approximately 10,500 to 8,500 B.P. Archaeological sites from this period have been found in rock shelters and out in the open. Mobile hunters and gathers exploited mega faunal species such as mastodon, mammoth, bison, horse, and camel. The Paleo-Indian period has been documented as the earliest occupation of Texas archaeological prehistoric sites and straddles the end of the Pleistocene era and the beginning of the Holocene. Few mega faunal assemblages have been recovered at archaeological sites, however, stone tool assemblages are better known. The stone tools of this period are generally lanceolate Projectile points that include *Plainview, Clovis and Folsom* type points. Processing tools include *Clear Fork* bifaces *Albany* tools, and end scrapers (Hester 1999:246, 277, 280). Much debate has occurred in recent years regarding the beginning of this period or that a pre-Clovis culture entered North America prior to 10,500 B.P. and as early as 13,500 B.P. as evidenced at Monte Verde in Chile, South America. The basic chronology, however, remains the same for Texas at this time.

Archaic

The Archaic Period dates from approximately 8,500 to 1,200 B.P. Researchers have divided this period into the Early Archaic (8500–6000 B.P.), Middle Archaic (6000–3500 B. P.), and Late Archaic (3500–1200 B.P.). This time period was characterized by warmer temperatures and rising sea, river, and stream levels. These changing environmental conditions were the impetus for a burgeoning new ecosystem. Early inhabitants exploited these new ecosystems, which caused the demise of some big game animals like the mastodon and mammoth. As the environment changed, the Archaic people's diet changed, and their stone tool technology they used to procure and process these new plants and animals. Regional diversification in diet and material culture occurred during the Archaic Period. In general, Archaic people began to make their Projectile points with stems, and the lanceloate form fell from use. Early Archaic *Angostura, Scottsbluff, Golondrina, Merserve, Gower, Hoxie, wells, Bell, Andice, Martindale, Uvalde, Baird,* and *Taylor* points show this change in stone tool technology.

During the transition from the Early Archaic to Middle Archaic periods, stemmed points became more common and began to show a greater degree of diversity in point forms. Archaic peoples began to deposit burned rock middens. Point types found at burned rock midden sites typically include *Nolan, Travis, Bulverde, Pedernales, Marshall, Williams,* and *Lange* forms. The last three forms are considered transitional to the Late Archaic. Archaeologists know very little about the cultural practices of this time period, and the environmental conditions remained the same as previous periods. Typical Late Archaic point forms include *Marcos, Montell, Castroville, Frio, Fairland, Ensor,* and *Mahomet*. Archaic populations increased throughout this period. Social and exchange relationships developed as indicated by the ubiquitous variety of point types, forms and material cultural evidence.

Late Prehistoric

The Late Prehistoric Period dates approximately from 1,200–400 B.P. The greatest innovation during this period was the development of the bow and arrow. Stone tool technology evolved in step with this new innovation. Late Prehistoric people made their stone points smaller and more diverse in form depending on the game animals that were being hunted. Some of these stone arrow points include *Edwards, Scallorn, Zavala, Perdiz, Cuney, Padre* and *Alba* types. The second greatest innovation during this period was the development of ceramics. Settlement patterns also changed at this time as sedentary and horticultural communities became more common. Southwestern cultural groups introduced corn to groups in Texas, which indicated the existence of exchange networks between sedentary and nomadic groups. Archaeological site types also include open camps, lithic scatters, and cemeteries.

Historic Native American Period

The Historic Native American Period begins at the point of contact with European explorers in A.D. 1492. The first European explorer to reach Texas was Alvar Nunez Cabeza de Vaca during the 1528 Narvaez Expedition of the Gulf coast. Cabeza de Vaca was stranded in Texas for eight years and traveled throughout South Texas and Mexico meeting different Native American groups. He was eventually rescued and went back to Spain. During his journey, Cabeza de Vaca documented numerous groups of people, their customs, and cultural differences. Subsequent Spanish entradas in Texas began during the early 1700s with the establishment of the Spanish missions. Changing and shifting social and cultural ties characterize this time. For example, although the Tonkawa were one of the more numerous Native American groups in Texas, the Ervipiame moved into the area from northern Mexico and many of them joined the Tonkawa groups as a matter of survival (Hester 1980: 51). The Lipan Apaches immigrated and came from the northwest into Texas. Hester (1980: 51) has noted that by the early 1700s, the Lipan Apache numbered between 3,000 and 5,000 in population size and controlled the Central Texas area by 1775. Shortly thereafter, the Comanche moved into Texas from the Colorado and Wyoming areas and displaced the Tonkawa and Lipan Apache groups. Some of the Lipan Apache were pushed into Karankawa territory along the Texas Coastal Plain. By the early 1800s, these groups were being displaced by immigrants into the area.

Spanish Colonial, Early Republic of Texas, and Early Statehood Periods

By the early 1800s immigrants were coming into the Spanish province of Coahuila Y Tejas with grand designs to take the land away for their own purposes, such as Aron Burr and James Wilkinson. Aron Burr was the former Vice-President of the United States under Thomas Jefferson, and James Wilkinson was the commanding General of the Army. They attempted to take Texas and create a new government that would include Kentucky and Tennessee territory. The attempt failed with Wilkinson sent evidence of Burr's treason to Jefferson. Burr's plan failed, and later Alexander Hamilton killed him in dual. Burr's desperation to settle in a new land was rooted in his large debts accrued in the hard economic times of the early 1800s. Others came to the Texas coastal plains for the same economic reason, but they came based on the Spanish customs and colonization policies of the Empresarios—Spanish land agents with titles for land to colonize. In 1783, Moses Austin had a dry-goods store selling cloth and threat in Virginia. He was an innovator, and he developed a new lead mining process that made him wealthy. The Spanish granted him Mexican citizenship and granted him a 30 family colony in Louisiana by 1796. Moses Austin began developing the land by advertising the opportunity. In 1803, the United States bought Louisiana from Mexico. By this time, he started a bank and held notes by financing loans to people who were settling his land grant. The Panic of 1819 hit Moses Austin's economic interests hard, many people defaulted on his loans, and his bank did not survive, but Moses Austin did. Land and potential profits were plentiful in Coahuila y Texas Province of New Spain, and the Spanish Crown gave Moses Austin another land grant—this time for 300 families. Moses Austin arrived in San Antonio in 1820 and with the help of his slave, Richmond, and Baron de Bastrop, Governor Antonio Maria Martinez approved the colonization plan. On June 10, 1821, Moses Austin died on his way back to Missouri and his son, Stephen F. Austin took over his father's Texas venture. Austin took control and chose land between the Brazos and Colorado Rivers to survey for raising cattle and farming, and the land was not in Comanche territory. After advertising the opportunity, settlers lined up and 100 came from Nachitoches and another 50 were waiting for him at the border. Austin offered 13.5 cents per acre with up to 177 acres per family of farmers or one *Sitio* for cattle ranching. In return, the Spanish terms required the colonists to pledge that they would be loyal to the Spanish Crown, give up U.S. citizenship, become catholic, and give up their slaves—Slavery was abolished in New Spain during the late 16th-Century in a Papal Bull. Stephen F. Austin's Old 300 Colony began to take shape when Andrew Robinson set up the first ferry crossing on the Brazos River, which became Washington on the Brazos, and the Lively supply ship brought goods to Galveston—named for Bernado de Galvez who convinced Tejanos to donate some of their cattle for the American Revolutionary War, and he is now recognized by the United States Congress where a portrait hangs. In 1821, Mexico gained its independence from Spain, and Austin wanted to renegotiate the terms of his colonization agreement. He was gone for over a year, and the colony suffered from drought and bad relations with the Karankawa. Many settlers set up militias and called for more settlers. By 1825, the colony was meeting its goal of 300 families with 134 Anglos and 443 slaves. All total, there were 297 families and three partnerships of single men that made up Stephen F. Austin's Old 300. William Morton was among them, and the Morton land tract is the subject of this study.

Methodology

In accordance with the Antiquities Code of Texas under 13TAC26.15(6) and the National Historic Preservation Act (36CFR800), GTI conducted the intensive archaeological survey to assess the presence or absence of any archaeological deposits associated the Project's direct APE and burial assessment to assess the presence of absence of possible burial shafts within a prescribed mechanical scraping area in the Project's direct APE. In accordance with intensive archaeological survey investigation methods outlined in the Antiquities Permit SOW, GTI was tasked with defining the horizontal and vertical site boundaries of historic and prehistoric cultural deposit areas that may be within the Project's direct APE. The SOW was based on 13TAC26.13(d) and the *Secretary of the Interior's Guidelines for Identification (Intensive Survey).*

Existing Disturbances

The THC's Atlas Database base map on satellite view shows the Project's direct APE is no longer a fallow agricultural field that was present in the 1940s aerial photography provided by the Project Sponsor. The satellite view shows housing development surrounding the proposed 22 acre Project area. According to the Project Sponsor, the land has changed ownership four times since the 1990s each time with landscape alterations. The most recent alteration was the installation of a curing concrete drive way and two small shallow ponds and ground leveling.

Research Design

Expectations

As noted above, GTI anticipates locating evidence described in the affidavit. Particularly, GTI archaeologists anticipate finding fragments of a wrought iron fence that used to serve as the boundary for the possible 10 foot by 15 foot area that contained up to six burials and monuments. In addition, GTI anticipates finding fragments of monuments that may have been covered during the past landscape alterations. Archaeologists do not anticipate finding small metal fragments that may be indicated by metal detecting sweep within the context of the high plasticity of the clay soil matrix. A large piece of metal, such as a fragment of a wrought iron fence, would certainly be very apparent.

Type of Work to be Undertaken

Archival Review: GTI will review archival data obtained for this project by the Project Sponsor and review the THC record files. GTI will also assess the archival documentation and supplement the archival record with additional online research of historic maps at the intensive archaeological survey level effort to answer any questions. These efforts are made in order to identify any potential significant historical events, persons, archaeology sites, and possible grave yards or cemeteries. A cursory review of 1940s historic aerial photography shows no existing or extant structures indicating the potential for historical archaeology sites within the Project's direct APE. Accordingly,

there the Project's direct APE is considered a low probability where historical archaeological sites are likely to be present. It should be noted that the THC's restricted Atlas Database shows archaeological surveys and recorded archaeological sites surrounding the Projects direct APE, which make the Project location a high probability area where prehistoric sites are likely to be present. The archival review will include research of these past archeological survey and briefly discuss the most important archaeological sites that are relevant to the Project. The archival research will primarily focus on identifying any locations for historic graveyards or cemeteries within the proposed Project's direct APE. To this end, GTI will consult with THC Historic Cemetery Programs coordinator to review THC's cemetery files and document relevant information. The archival review also will consider important events or individuals that may have a historic role in Texas history by documenting the earliest known landowners and plat history of the Project's direct APE. This effort will be performed to determine if significant individuals or events occurred within the Project's direct APE that meets the National Register criteria under 36CFR60.4(a) and 36CFR60.4(b). GTI will conduct intensive archaeological survey level fieldwork and report write-up in accordance with 13TAC26.15(6) and 13TAC26.3(35).

Possible Burial Area: The Fort Bend County Historical Commission representative, Mr. Bob Crosser, stated to the Project Sponsor that he believed "the best way to determine whether or not there is or was a cemetery may be by the use of a magnetometer in addition to the techniques customarily used in an archaeological investigation." While Magnetometer survey or Ground Penetrating Radar survey techniques will show us ground disturbance anomalies in water or land. The anomalies on land would have to be ground-truthed using archaeological techniques, like ground scraping to search for the presence or absence of burial shafts. In this case, we have an individual that has filed an affidavit that describes the location of the possible burials surrounded by a wrought iron fence and the Fort Bend County Historical Commission has provided the developer with a 1968 aerial photograph and modern aerial showing the possible fence location.

GTI proposes the use of a metal detector sweep 12m x 12 m area in size that incorporates the 10'x15' area bounded by a "black wrought iron fence" at the location of the Project area shown in the 1968 aerial photograph. It is GTI's professional opinion this method would be more appropriate to detect remnants of the wrought iron fence and reasonable method to facilitate the Pecan Grove MUD mission to provide utilities to its customers. GTI also proposes to ground scrap the 12m x 12m area using a backhoe with flat-blade bucket to identify the presence or absence of burial shafts. In the event burial shafts are encountered, GTI will consult with the Project Sponsor (Arenosa Development) and the Controlling Agency (Pecan Grove MUD).

In the event, there are burial shafts present within the 12m x 12m area, the Project Sponsor will consult with the Fort Bend County Judge and prepare and publish newspaper notification for next of kin as described in the Texas Health and Safety Code, prior to archaeological exhumation of the burial shafts. There is a distinct possibility any human remains may be deteriorated due to the acidity of the soil. GTI will apply hand controlled excavation of the burial shafts after establishing a grid pattern within the 12m

x 12m archaeological burial assessment area. GTI proposes any exhumation of burial shafts be conducted under a separate antiquities permit.

If burial shafts are present, all work will cease in the vicinity of the burial shafts. The Project Sponsor and Controlling Agency will consult further with THC regarding the burial shafts in accordance with the Antiquities Code of Texas and in the context of the requirements outlined in the Texas Health and Safety Code in consultation with the County Judge. Work may continue in other areas while consultation regarding the burial shafts within the 12m x 12m area is ongoing.

Intensive Archaeology Survey: In accordance with the Antiquities Code of Texas [13TAC26.3(35) and 13TAC26.15(6)] and the National Historic Preservation Act (36CFR800), GTI will conduct an archaeological intensive survey to assess the presence or absence of any undocumented archaeological deposits within the remainder of the 22 acre Project direct APE. In accordance with intensive archaeological survey investigation methods outlined in 13TAC26.13(d), the *Secretary of the Interior's Guidelines for Identification (Intensive Survey)*, GTI will define the horizontal and vertical site boundaries of historic and prehistoric cultural deposit areas within the Project's direct APE, if present, and assess the integrity of the existing sites within the Project's direct APE with determination of avoidance, if necessary. Based on the *Minimum Archaeological Survey Standards for Texas* for projects 11 to 100 acres in size, 1 shovel test is required for every 2 acres. Accordingly, GTI will excavate 11 shovel tests evenly spaced across the 22 acre Project area in the event there is less than 30 percent ground surface visibility. If there is more than 30 percent ground surface visibility and artifacts are observed on the ground surface, GTI will concentrate the shovel testing efforts in the center of the cluster of artifacts and radiate shovel testing in cardinal directions approximately 10 meters to 30 meters apart until two negative shovel tests have been encountered in each cardinal direction. This method is standard practice to define the horizontal boundaries of archeological sites. GTI will excavate shovel tests down at least two negative 10 cm levels in each shovel test. This will provide the vertical archaeological site boundaries to facilitate THC's review and determination of the significance of any possible archaeological sites. GTI's PI will use two of the three possible avenues of data collection (archival, survey, and oral history) to meet THC's policy on survey-level historic sites (cemeteries as special considerations) background documentation and THC's policy on cemeteries.

Methods: All excavated matrix will be passed through 1/4-inch hardware mesh when possible or trowel sorted to inspect for cultural materials. Only temporally diagnostic artifacts (such as projectile points, ceramics, historic materials with maker's marks, etc.) and all other artifacts (such as debitage, burned rock, historic glass and metal scrap, etc.) will be tabulated and assessed in the field and left where they were found. If artifacts are collected, they will be bagged and labeled appropriately. These artifacts will be formally curated at the Texas Archeological Research Laboratory (TARL) following analysis and reporting (permitted projects must curate artifacts). Field notes will be maintained on location, disturbances, soils, shovel tests, etc. Digital photos will be taken when appropriate and recorded on a photograph log. A handheld GPS unit (UTM, NAD 83) will be used to mark the location of shovel tests as well as any newly recorded sites.

A report of the investigations will be produced following the survey in accordance with the THC's *Rules of Practice and Procedure Chapter 26.16*, the CTA Guidelines for Cultural Resource Management Reports, as well as the *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation.* The report will assess possible effects the project may have to the sites and document each site's potential eligibility status for listing in the NRHP and for formal designation as an SAL based on eligibility criteria 36CFR60.4 and 13TAC26.10. GTI will submit archaeological site forms to TARL to obtain archaeological site trinomial numbers for each newly recorded site. GTI will submit a PDF copy of the draft report to the client for approval, and upon the client's approval the client will submit copies to Pecan Grove MUD and THC. GTI will incorporate agency comments and resubmit the revised draft report to THC. Upon THC's approval of the revised draft report, GTI will submit the final report in PDF format to the client and THC. GTI will submit one unbound copy to THC along with relevant antiquities permit curation and abstract forms and archival quality CD of the report in an electronic tagged CD format to complete the permit. The unbound copy will contain at least one map with the plotted location of any and all sites recorded. The CD will contain two copies of the tagged PDF format of the report. Other report copies for THC and other parties will be distributed in compliance with 13TAC26.16.

Results

GTI's archaeology crew performed an intensive archaeological survey of the Project's direct APE. As part of the survey, GTI archaeologists considered the archaeological assemblages associated with numerous sites that surround the Project's direct APE. In particular, GTI considered the archaeological sites associated with its Long Meadow Farms Report that included a description of the sites and artifacts (Iruegas et al., 2007). A brief description of the prehistoric village and burial site, 41FB255, adjacent to the Long Meadow Farms project is provided before the results description to provide context for the Terrace at Pecan Grove 22 Acre Development Project intensive archaeological investigation. Archaeologists conducted a 100 percent pedestrian survey, mechanical scraping of a 21m x 38m area, and they excavated a total of 13 shovel tests in an effort to identify the presence of archaeological sites within the Project's direct APE. Archaeologists documented the absence of wrought iron fence fragments, monument and casket parts, or burial shafts or articulated or disarticulated human remains, and that there were no new archaeological sites within the Project's direct APE.

Existing Archaeological Site Context

This section describes 41FB255, which is located north of Oyster Creek within 5 kilometers of the Terrace at Pecan Grove 22 Acre Project. 41FB255 was discovered and recorded as an archeology site in February during an archeology survey (Sherman 1998) for the U.S. Army Corps of Engineers (USACE). The site was located on the west side of Figure Four Lake and the site boundaries, according to the Atlas database, are depicted across Farmers Road. The archeological site form indicates that "lithic debitage, bone, C-14, prehistoric and historic ceramics, glass, nails, brick, diagnostic projectile point" were encountered during the investigation. The site size was documented as approximately 7.9 acres. During the National Register testing of the site, three areas were defined as Area I, Area II and Area III. Each of these areas are east of Farmers Road. Multiple sets of human remains were encountered during the National Register investigations, which indicated a prehistoric burial ground and associated village site. The western site boundary, according to the draft report, abuts Farmers Road and runs north south. THC's concern at the time and for development in the general area of Oyster Creek is that the prehistoric burial site boundaries extend west into the Long Meadow Farms project area. Prehistoric village sites were seasonal and the inhabitants continually moved closer to the coast and further away between summer and winter months. The inhabitants would come back to seasonal village sites and reestablish their village settlements in the general area where they were located in previous seasons (Ricklis 1996). Hence the agency recommendations for an intensive archaeological survey to consider project effects to possible archaeological sites in the general area of Oyster Creek. Another concern is historical archaeological sites that represent the settlement patterns of Steven F. Austin's "Old 300" in the same general area of Oyster Creek.

Burial Assessment Area

The Burial Assessment Area discussion includes a review of the consultation between the Project Sponsor, GTI's PI, Controlling Agency and THC. Decisions made in the field are also described and justifications for any amendments to the antiquities permit scope of work are provided. The present landscape is discussed in greater detail in the context of geomorphological processes that defines what was noted in the Project Description chapter. We discuss how this data was relevant to our investigations in the mechanical scraping area, and we end this section with the description of our mechanical scraping efforts and the evidence that was noted as a result of these burial assessment effort.

The Fort Bend County Historical Commission representative, Mr. Crosser, believe "the best way to determine whether or not there is or was a cemetery may be by the use of a magnetometer in addition to the techniques customarily used in an archaeological investigation." GTI noted in the antiquities permit draft scope of work, while Magnetometer survey or Ground Penetrating Radar survey techniques will show us ground disturbance anomalies in water or land. The anomalies on land would have to be ground-truthed using archaeological techniques, like ground scraping to search for the presence or absence of burial shafts. The individual that filed the affidavit described the location of the possible burials surrounded by a wrought iron fence and the Fort Bend County Historical Commission provided the Project Sponsor with a 1968 aerial photograph and modern aerial showing the possible fence location (See Archival Review Chapter). The THC reviewed the draft scope of work and approved the *Level of Effort*. The approved Antiquities Permit Scope of Work called for the mechanical scraping of a 12m x 12m area that incorporated the 10 foot x 15 foot referenced in the affidavit filed on March 23, 2015.

GTI proposed the use of a metal detector sweep in the 12m x 12 m area that incorporated the 10 foot x 15 foot area bounded by a "black wrought iron fence" at the location of the Project area shown in the 1968 aerial photograph. It was GTI's professional opinion this method would be more appropriate to detect remnants of the wrought iron fence and reasonable method to facilitate the Pecan Grove MUD mission to provide utilities to its customers. GTI also proposed to ground scrap the 12m x 12m area using a backhoe with flat-blade bucket to identify the presence or absence of burial shafts. In the event burial shafts were encountered, GTI would consult with the Project Sponsor (Arenosa Development, LLC) and the Controlling Agency (Pecan Grove MUD).

GTI's PI and Project Archaeologist commenced the metal detecting sweep and mechanical scraping approximately around 9:30 am after receiving the antiquities permit number from the THC. The metal detector identified a total of 6 metal detecting targets (MDT) spaced over a general area of the possible burial area. The MDTs were not in alignment as anticipated for fragments of a wrought iron fence. The area that incorporated the MDT locations was greater than 12m x 12m (Figure 28). Accordingly, GTI's PI determined it was necessary to amend the scope of work [13TAC26.13(d)(4)(B)—subsequent modification of a research design]. In particular, GTI's PI amended the mechanical scrapping area to incorporate the MDT locations into a

Figure 28: Aerial Map of Burial Assessment Area with Metal Detecting Target Locations

larger 21m x 38m rectangular area. The Project Sponsor was onsite for this portion of the intensive archaeological survey and demonstrated a *Good Faith Effort* to identify cultural resources within his Project area by approving GTI's PI proposed antiquities permit scope of work amendment. The amendment was facilitated with the delivery of a track-hoe with a flat-edged bucket to the Project area instead of a backhoe in the context of timing and budgeting to complete the intensive archaeological investigation fieldwork. GTI archaeologists were able to complete the mechanical scraping of the larger 21m x 38m area in the same amount of time it would have taken for a regular backhoe to scrape a 12m x 12m area. Therefore, the Project Sponsor could demonstrate *sufficient funds* were available as budgeted to complete the fieldwork and a change-order was not necessary.

GTI's PI noted the remnant of the original ground surface and documented a soil profile. Previous landowner development removed up to 78cm (2 feet 6 1/2 inches) of soil and leveled the entire 22 acres. This geomorphological evidence was important to understand that any possible evidence of caskets or human remains would not have been disturbed by this prior landscaping alteration. Standard modern burial practices include a burial shaft 6 feet deep with the placement of a casket approximately 2 feet high leaving a gap of approximately 1 foot 6 inches to examine the ground surface for possible burial shafts. The soil profile showed remnants of the Ap-Horizon and Bt-Horizon had been removed in the past down to the lowest Bw-Horizon (Figure 29).

Figure 29: Soil Profile of Remnant Landscape

The Ap-Horizon represented properties resulting from cultivation, pasturing, or similar types of disturbance. The soil consisted of a light-brown clay loam. The 1940s aerial photography shows the general surround area of the Project was agricultural fields. The dark gray clay loam in the Bt-Horizon represented an accumulation of clay without

calcium concretions. This evidence indicated the pedogenesis of the soil was recent in geological terms which could contain buried prehistoric cultural material as opposed to a B-Horizon with accumulation of calcium carbonate (Bk-Horizon) that would indicate the soil predated human occupation time periods and any prehistoric cultural deposits would not be buried and could only be present on the ground surface. Hence, the PI determine it was still prudent to continue with shovel testing after the mechanical scrapping. The Bw-Horizon indicated the development of redder color with no apparent illuvial accumulation of material that was translocated from dissolving chemical constituents from the upper horizons. With this evidence in mind, archaeologists commenced the mechanical scrapping effort.

GTI's PI requested the track-hoe operator excavate a shallow trench north of the proposed mechanical scraping area to assess the depth of disturbed material compared to intact Bw-Horizon soil. The soil profile in the shallow trench indicated less than 6 inches of disturbed material (Figure 30). Based on this evidence, GTI's PI instructed the track-hoe operator to excavate no deeper than 1 foot to facilitate the examination for the presence or absence of burial shafts.

Mechanical scraping of the 21m x 38 m possible burial area was accomplished by excavating five blocks roughly 7m–8m wide and 21 meters long. When one of the smaller blocks was excavated, GTI's PI instructed the track-hoe operator to move directly adjacent to the next block and place the backdirt in the previously scraped area (Figure 31 through Figure 35). The amended mechanical scraping area was too large and the track-hoe would have to traverse the area with its metal treads too many times creating a palimpsest of the soil deeper than it would excavate. The intention of breaking up the 21m x 38 m burial assessment area was to preserve the remaining intact soil stratigraphy to search for possible burial shafts within small units of 7m–8m x 21m in size. GTI archaeologists stood directly adjacent to the track-hoe bucket throughout the entire mechanical scraping effort. They examined each bucket scrap with proper safety apparel in order to cease excavations immediately if any possible evidence of burials was noted for closer examination. GTI archaeologists stopped the track-hoe operator eight times and conducted closer investigations (Figure 36). In general, archaeologists noted evidence of old cedar-type posts, charcoal stain areas (possible remnants of outdoor cooking), concrete fragments, brick fragments, PVC pipe fragments, or old tire (Figure 37 through Figure 42). The concrete fragments (rubble) were less than 20 cm in size, which demonstrated the demolition of the 1970 structure that once stood nearby. The charcoal areas were approximately 70 cm x 70 cm in size or less. Archaeologists noted the absence of historic or modern glass and ceramics. This evidence corroborates the presence of yardscape patterns associated with the 1970s aerial that shows the homestead location in the general area. These yardscape patterns extended into the 21m x 38m mechanical scraping burial assessment area. The yardscape patterns are not historic, because they are less than 50 years of age. The mechanical scraping demonstrated the absence of wrought iron fence and monuments as described could be possible in the affidavit. Archaeologists did not observe any evidence of casket parts, burial shafts, or articulated or disarticulated human remains. Based on this archaeological burial assessment effort, there is no evidence of the existence of a cemetery or burials. GTI's PI noted the MDT were not wrought iron fence fragments and could have represented small pieces of metal

unassociated with caskets due to the lack of plank-wood associated with caskets and human remains.

Figure 30: Shallow Trench Showing Disturbed and Intact Soil

Figure 31: First 7m-8m x 21m Mechanical Scrap Area

Figure 32: Second 7m-8m x 21m Mechanical Scrap Area

Figure 33: Third 7m-8m x 21m Mechanical Scrap Area

Figure 34: Fourth 7m-8m x 21m Mechanical Scrap Area

Figure 35: Fifth 7m-8m x 21m Mechanical Scrap Area

Figure 36: Aerial Map Showing Location of Modern Yardscape Objects

The aerial photograph above shows the location of the modern yardscape objects observed during the mechanical scrapping (see Figure 36). Standard cultural resource management report language requires a statement that if any evidence of graves is

uncovered during further development of the property, all work should cease in the immediate area and the Project Sponsor should continue consultation with the Pecan Grove MUD and THC. Work may continue in other areas of the Project while consultation is ongoing.

Figure 37: Example of Cedar-Type Post Fragment

Figure 38: Example of Charcoal Staining in the Soil

Figure 39: Example of Concrete Rubble Fragment

Figure 40: Example of Brick Fragment

Figure 41: Example of PVC Pipe Fragment

Figure 42: Example of Old Tire

Shovel Testing Results

Following the mechanical scraping of the burial assessment area, archaeologists commenced the intensive survey with a pedestrian inspection of the Project's direct APE. The ground surface visibility was primarily less than 30 percent across the entire Projects direct APE due thick weedy vegetation coverage. Archaeologist inspected small open areas when possible (Figure 43 and Figure 44).

Figure 43: Project Showing Less Than 30 Percent Ground Surface Visibility

Figure 44: Project Showing Greater Than 30 Percent Ground Surface Visibility

In accordance with the Antiquities Code of Texas, GTI conducted an intensive archaeological survey of the proposed Project direct APE. The archaeological survey will followed the Texas Historical Commission's (THC) *Minimum Archaeology Survey Standards for Texas* and the *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation*. Based on the *Survey Standards* for projects 11 to 100 acres in size, 1 shovel test is required for every 2 acres. Accordingly, GTI proposed to excavate 11 shovel tests evenly spaced across the 22 acre Project area in the event there is less than 30 percent ground surface visibility. If there was more than 30 percent ground surface visibility and artifacts were observed on the ground surface, GTI would have concentrated the shovel testing efforts in the center of the cluster of artifacts and radiate shovel testing in cardinal directions approximately 10 meters to 30 meters apart until two negative shovel tests have been encountered in each cardinal direction. This method is standard practice to define the horizontal boundaries of archeological sites. Since there was less than 30 percent ground surface visibility, GTI evenly spaced the shovel tests across the Project's direct APE, which required a total of 13 shovel tests. GTI excavated each of the shovel tests down at least two negative 10 cm levels in each shovel test. This excavation methodology would provide the vertical archaeological site boundaries to facilitate THC's review and determination of the significance of any possible archaeological sites. In general, each shovel test revealed a soil profile consistent with the lower reddish brown clay Bw-Horizon and an absence of any prehistoric or historic archaeological cultural material (Figure 45 and Appendix A—Shovel Test Log).

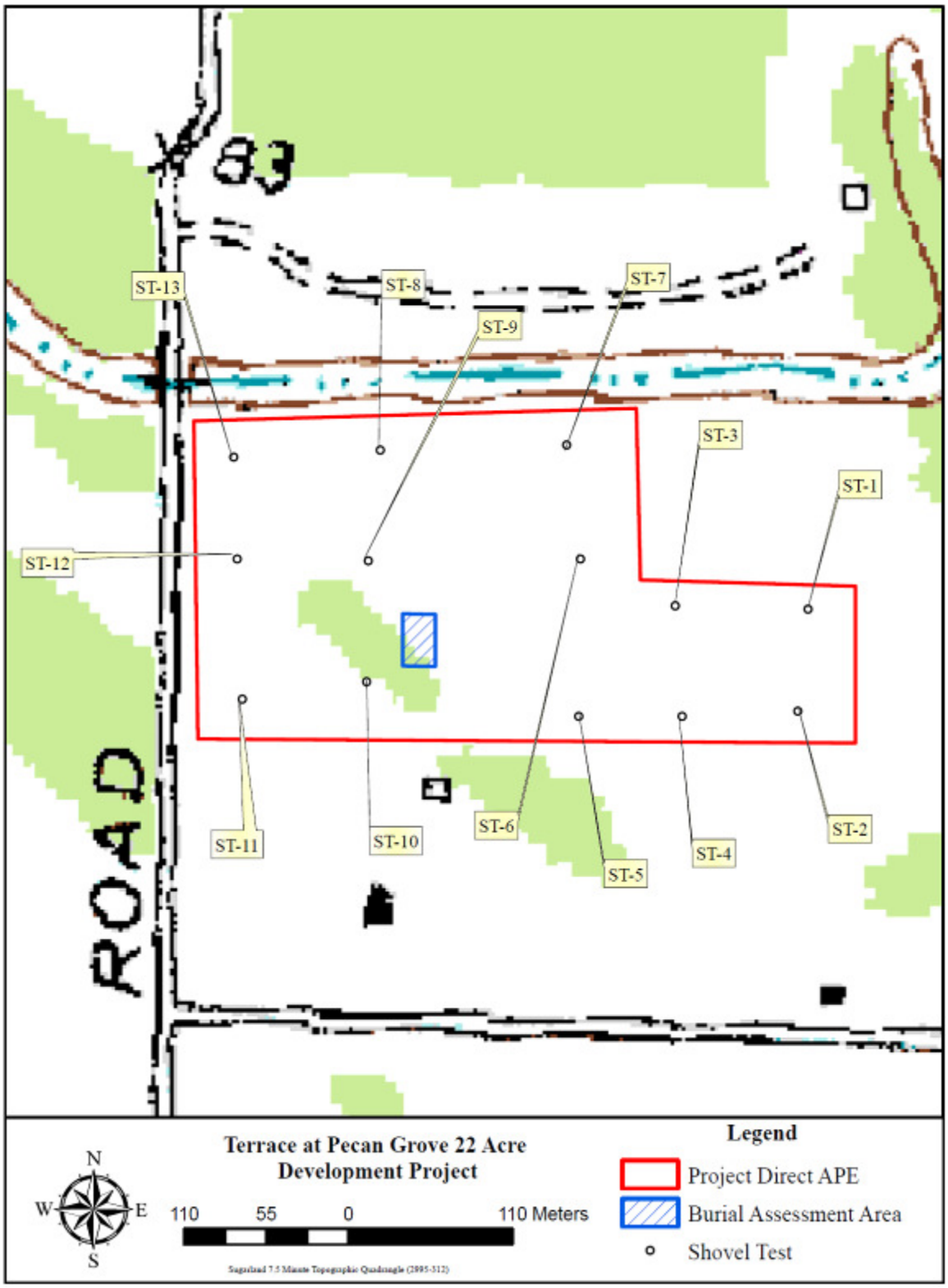

Figure 45: Topographic Map Showing Shovel Test Locations

Shovel Test One (ST-1) through ST-4 were excavated in the smaller eastern segment of the Project's direct APE in two rows of two. Each shovel test exhibited one stratigraphic layer of dark reddish brown silty clay loam consistent with the Bt-Horizon.

Archeologists excavated ST-1 down to 24 cm. The shovel test was terminated due to a large tree root (Figure 46). Shovel Test-2, ST-3, and ST-4 were excavated down to 30cm, 40 cm and 40 cm below ground surface respectively (Figure 47 and Figure 49).

Figure 46: Shovel Test-1 Soil Profile

Figure 47: Shovel Test-2 Soil Profile

Figure 48: Shovel Test-3 Soil Profile

Figure 49: Shovel Test-4 Soil Profile

The remainder of the Project's direct APE was larger and size and required three rows of three shovel tests. Archaeologists excavated the first row of three shovel tests adjacent to the eastern smaller segment of the Project's direct APE. As for the remainder of the shovel tests, archaeologists excavated them in a north south direction across the remainder of the Project. Archaeologists excavated ST-5, ST-6, and ST-7 down to 45cm, 30cm, and 34 cm below ground surface respectively. The soil profiles of ST-5 and ST-7 indicated the dark reddish brown clay, and ST-6 soil profile showed the dark gray clay soil of the Bt-Horizon. Each shovel tests demonstrated a lack of cultural material. The next row of shovel tests included ST-8, ST-9, and ST-10 in the center of the larger segment of the Project's direct APE. The shovel tests were excavated down to 35 cm, 35cm and 34 cm below ground surface. Archaeologists noted ST-8 soil profile was mottled with a mixture of the Ap-Horizon and Bt-Horizon. The soil profiles of ST-9 and ST-10 each had a soil profile showing the dark reddish brown clay soil. Archaeologists did not observe any cultural material in these shovel tests. The last row of shovel tests (ST-11, ST-12, and ST13) closest to Pitts Road western Project direct APE boundary also showed the dark reddish brown soil matrix. The archaeologists excavated the shovel tests down to 34cm, 35cm, and 30cm below ground surface. There were no archaeological deposits in these shovel test (Figure 50 through Figure 58).

Figure 50: Shovel Test-5 Soil Profile

Figure 51: Shovel Test-6 Soil Profile

Figure 52: Shovel Test-7 Soil Profile

Figure 53: Shovel Test-8 Soil Profile

Figure 54: Shovel Test-9 Soil Profile

Figure 55: Shovel Test10 Soil Profile

Figure 56: Shovel Test-11 Soil Profile

Figure 57: Shovel Test-12 Soil Profile

Figure 58: Shovel Test-13 Soil Profile

In general, past alterations of the landscape created a situation where any possible buried cultural material would be partly exposed on the surface after rain episodes. Recent heavy rain left the open areas of the ground surface pitted by the rain drops. If ground surface artifacts were present, they would have been pedestaled by the rain droplets making it easy for archaeologists to see on the ground surface. If a significant archaeological site was present within the Project's direct APE that might have been worthy for SAL or eligible for NR listing, archaeologists anticipated observing an abundance of pedestaled artifacts indicating the possibility of intact buried cultural material. While an abundance of pedestaled artifacts would suggest an important site being present, the dearth of pedestaled artifacts could indicate a lithic scatter site-type that represented a temporary prehistoric encampment. In this case, there were no observable artifacts in the soil column profile of the intact small portion of the original landscape, or pedestaled artifacts on the small open ground surface areas that had greater than 30 percent ground surface visibility, or evidence of buried cultural material in the shovel tests excavated throughout the Project's direct APE. Accordingly, GTI's PI concludes based on this intensive archaeological survey that there was no evidence of archaeological sites present within the Project's direct APE that may be worthy for SAL designation or eligible for NRHP listing.

Summary and Recommendations

The intensive archaeological survey and burial assessment report documents the results of these investigations for Arenosa Development, LLC (Arenosa) proposed Terrace at Pecan Grove 22 acre development project. The report demonstrates an absence of prehistoric and historic cultural material and burial shafts, grave monuments, and cemetery accoutrements, such as wrought iron fence fragments and casket parts. Archaeologists did not observe any articulated or disarticulated human remains within the mechanical scraping burial assessment area. The 22 acres constitutes the Project's direct *Area of Potential Effect* (APE). The archaeology report was prepared in accordance with *Chapter 26: Rules of Practice and Procedure* of 13TAC26 *and* the *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation.* In the event a federal undertaking arises for this Project, the report incorporates language of the National Historic Preservation Act (NHPA) [36CFR800] to facilitate federal agency determinations of effect.

The Antiquities Code of Texas applies to the Terrace at Pecan Grove 22 acre Development Project, because portions of the Project area will be controlled by the Pecan Grove Municipal Utility District (MUD), which is a political subdivision of the State of Texas. Accordingly, the project required an antiquities permit application. GTI's PI prepared the Antiquities Permit application scope of work. The THC issued Antiquities Permit 7231 for these intensive archaeological investigations and burial assessment on March 30, 2015 at 9:03 am.

Consultation with the Fort Bend County Historical Commission and interested parties began prior to the initiation of the intensive archaeological survey. D.D. Haven Jr filed an affidavit (Notice of the Existence of a Cemetery) at the Fort Bend County Clerk's Office on March 23, 2015 indicating possible evidence of the existence of a cemetery within the Project direct APE. The affidavit indicated the cemetery was delineated with a 3 foot high 10 foot by 15 foot wrought iron fence with up to six possible burials and monuments inside the fenced area. The Project Sponsor initiated consultation with Mr. Bob Crosser of the Fort Bend County Historical Commission. The Fort Bend County Historical Commission provided a 1968 aerial with the location of a possible fence alignment. The Texas Historical Commission (THC) recommended consultation with its Historic Cemetery Preservation Coordinator. The Project Sponsor consulted with the Fort Bend County Historical Commission. GTI consulted with Ms. Jenny McWilliams of the THC cemetery division. The agency did not have conclusive evidence for the location of a cemetery within the Project's direct APE. The affidavit and 1968 aerial provided the location of the possible cemetery for purposes of the intensive archaeological survey burial assessment efforts.

GTI conducted a cultural resources background review of the project area. The THC's restricted Atlas Database showed that archaeological surveys have been conducted surrounding the Project's direct APE and archaeological sites have been documented on similar topographic settings as the 22 acre project area. Accordingly the Project's direct APE was considered a high probability area where archaeological sites

were likely to be present. Accordingly, GTI incorporated a shovel testing effort within the 22 acre Project direct APE to assess the proposed Project effects to archaeological sites and cemeteries.

GTI's Principal Investigator (PI), Sergio A. Iruegas, RPA, and Project Archaeologist, Melinda T. Iruegas, commenced the intensive archaeological survey on March 30, 2015 at 9:30am in accordance with the Texas Historical Commission's (THC) *Minimum Archaeological Survey Standards for Texas (shovel testing).*

In general, the Project's direct APE had less than 30 percent ground surface visibility. The intensive archaeological investigation included a total of 13 shovel tests spaced evenly across the entire 22 acre Project direct APE as required by the Antiquities Permit 7231. GTI proposed to incorporate the 10 foot by 15 foot possible cemetery area within a 12m x 12m meter mechanical scraping area to determine the presence or absence of burial shafts or monuments within the possible cemetery location. GTI proposed the use of metal detecting sweep in the possible cemetery area to locate the possible wrought iron fence component or casket parts.

A total of six metal detecting targets (MDT) were located in the possible cemetery area spaced over a wide area. GTI amended the mechanical scraping to a 21m x 38m area based on the MDT locations. There was no evidence of wrought iron fence parts, monument fragments, casket parts or burial shafts in the locations of the MDTs. GTI archaeologists did note, however, the presence of limited concrete fragments, wooden post fragments, fire pit areas, old tire and brick fragments throughout the mechanical scrap area. The 1972 aerial shows the presence of a homestead in the general area of the possible cemetery location as a possible explanation for the modern refuse. There was no evidence of modern or historic glass or ceramics or prehistoric artifacts in the mechanical scrap area or the shovel testing. The historic aerial photographs shows an open agricultural field in the 1940s and a cemetery was not evident. The few homesteads on the aerial are no longer present by 1970 when development around the Project's direct APE began to be constructed. Therefore, there were no historic structures present within the Project's indirect APE immediately surrounding the Project's direct APE. In conclusion, oral history indicated there was evidence for the existence of a cemetery. The historic written record and archaeology record suggested there is no burial ground there, but we might find evidence of the house that was there in the late 1960s and early 1970s. We did not find evidence of burials, and we found evidence of a possible yardscape associated with the house.

The proposed project will have No Effect to archaeological sites or cemeteries that are worthy for State Antiquities Landmark designation or eligible for listing in the National Register of Historic Places based on this intensive archaeology survey report. Historic and modern aerials demonstrate no structures 50 years or older are present within the Project direct and indirect APE. GTI recommends the project be allowed to proceed as planned. In the event human remains or funerary objects are noted during construction, all work should cease in the immediate area of the discovery, and the Project Sponsor should consult with the Pecan Grove MUD and THC. Work may continue elsewhere within the Project's direct APE.

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Appendix A: Shovel Test Log

Shovel Test #	Easting	Northing	Level	Depth (cm)	Soil Description	Color	Artifacts
ST-1	235669.68	3279318.83	1-3	0-24	Clay	Dark Reddish Brown	None, Terminated Tree Root
ST-2	235662.75	3279250.65	1-3	0-30	Clay	Dark Reddish Brown	None
ST-3	235580.69	3279321.14	1-4	0-40	Clay	Dark Reddish Brown	None
ST-4	235585.31	3279247.18	1-4	0-40	Clay	Dark Reddish Brown	None
ST-5	235515.97	3279247.18	1-5	0-45	Clay	Dark Reddish Brown	None
ST-6	235517.13	3279352.35	1-3	0-30	Clay	Dark Reddish Brown	None
ST-7	235507.88	3279428.63	1-4	0-34	Clay	Dark Reddish Brown	None
ST-8	235383.06	3279425.16	1-4	0-35	Clay	Dark Reddish Brown	None
ST-9	235374.97	3279351.19	1-4	0-35	Clay	Dark Reddish Brown	None
ST-10	235373.82	3279270.29	1-4	0-34	Clay	Dark Reddish Brown	None
ST-11	235290.61	3279258.74	1-4	0-35	Clay	Dark Reddish Brown	None
ST-12	235287.14	3279352.35	1-3	0-30	Clay	Dark Reddish Brown	None
ST-13	235284.83	3279420.54	1-3	0-30	Clay	Dark Reddish Brown	None

Metal Detecting Target #	Easting	Northing
MDT-1	235400.70	3279298.02
MDT-2	235403.46	3279298.02
MDT-3	235401.47	3279284.30
MDT-4	235415.38	3279291.53
MDT-5	235417.36	3279289.73
MDT-6	235416.45	3279311.17