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## Archaeological Survey for the State Highway 36 Expansion Project in Austin and Fort Bend Counties, Texas

Charles E. Bludau

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## Archaeological Survey for the State Highway 36 Expansion Project in Austin and Fort Bend Counties, Texas

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# Report for Archeological Survey (FINAL)

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Archaeological Survey for the State  
Highway 36 Expansion Project in Austin  
and Fort Bend Counties, Texas

Houston and Yoakum District

Tony Scott Principal Investigator, Antiquities Permit No. 6609

CSJ: 0187-05-049 and 0187-04-029

April 5, 2017

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated 12-16-14, and executed by FHWA and TxDOT.

## **Abstract**

In June 2015, HRA Gray & Pape, LLC., of Houston, Texas, at the request of HNTB Corporation, conducted intensive pedestrian archaeological investigations within approximately 24 kilometers (14.7 miles) of property proposed for the expansion of the State Highway 36 corridor between Highway 90 and Farm-to-Market Road 1952 in Fort Bend and Austin Counties, Texas. The Texas Department of Transportation has been identified as the Lead Agency for this project. Work for this project will be completed as part of the Texas Department of Transportation Project CSJ Numbers 0187-05-049 and 0187-04-029 by the Houston and Yoakum Districts.

The goals of the survey were to determine if the initiation of this project would affect any previously identified historic properties as defined by Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800), and to establish whether or not previously unidentified archaeological resources were located within the project's Area of Potential Effects. All fieldwork and reporting activities were completed with reference to state (Antiquities Code of Texas) and federal (National Historic Preservation Act of 1966, as amended [36 CFR 800]) guidelines, and according to standards set forth by the Texas Department of Transportation Programmatic Agreement for Enhancement Projects. All research and reporting for this project was completed with reference to Texas Department of Transportation's current Standards of Uniformity for Technical Reports with regard to Review Standards for Archaeological Survey and Reporting (Texas Department of Transportation 2011; version 3).

The Area of Potential Effects for this project is defined as the project length, the existing and proposed right-of-way, and the depth of construction impacts, composed of a total of 123.5 hectares (305.2 acres). Of this, the existing right-of-way subsumes a total of 107 hectares (264 acres), while new proposed right-of-way will comprise the remaining 16.7 hectares (41.20 acres). The total area to be subjected to archaeological survey within the Area of Potential Effects is 16.7 hectares (41.20 acres), comprised of all property proposed as new right-of-way on the south side of State Highway 36. Of the 16.7 hectares (41.20 acres) of new right-of-way, right-of-entry was not provided for approximately 10.8 hectares (26.8 acres). These parcels were subjected to a desktop assessment. Although the depth of impact is unknown, belowground impacts are expected to be typical of road construction activities, impacting up to 1 meter (3 feet) below natural grade. The Area of Potential Effects depth may extend to culturally sterile depths across the project right-of-way. More often the project will entail the building up of material from the existing ground surface. No deep impacts are anticipated within the project area.

The intensive pedestrian and reconnaissance surveys completed for the service areas discussed in this report took place on easements belonging to the Texas Department of Transportation and privately-owned property. Right-of-entry was obtained by the client for privately owned land. Work conducted to complete this survey was conducted under Texas

Antiquities Permit number 6609, issued by the Texas Historical Commission's Division of Archeology in July 2013

No new or previously identified archaeological sites were recorded during the investigation. Testing results displayed soil profiles indicative of those that are mapped for the area and gave no indication of buried cultural horizons within the proposed depth of the Area of Potential Effects. Based on the negative results of the intensive pedestrian survey, HRA Gray & Pape, LLC. recommends no further work and that the project be allowed to proceed as planned.

Project Identification

Date: 04/05/2017

Date(s) of Survey: 06/09/2015 to 06/11/2015

Archeological Survey Type: Reconnaissance ☐ Intensive ☒

Report Version: Draft ☐ Final ☒

Jurisdiction: Federal ☐ State ☒

Texas Antiquities Permit Number: 6609

Districts: Houston and Yoakum

Counties: Austin and Fort Bend

USGS Quadrangle(s): Richmond, Orchard, East Bernard and Willis

Highway: State Highway 36

CSJ: 0187-05-049 and 0187-04-029

Report Author(s): Charles E. Bludau, Jr.

Principal Investigator: Tony Scott

**Texas Historical Commission Approval**

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Signature

Date

## **Project Description**

**Project Type:** State Highway 36 Expansion

**Total Project Impact Acreage:** 305.2 acres

**New Right of Way (ROW) Acreage:** 41.20 acres

**Easement Acreage:** 41.20 acres

**Area of Pedestrian Survey:** 41.20 acres

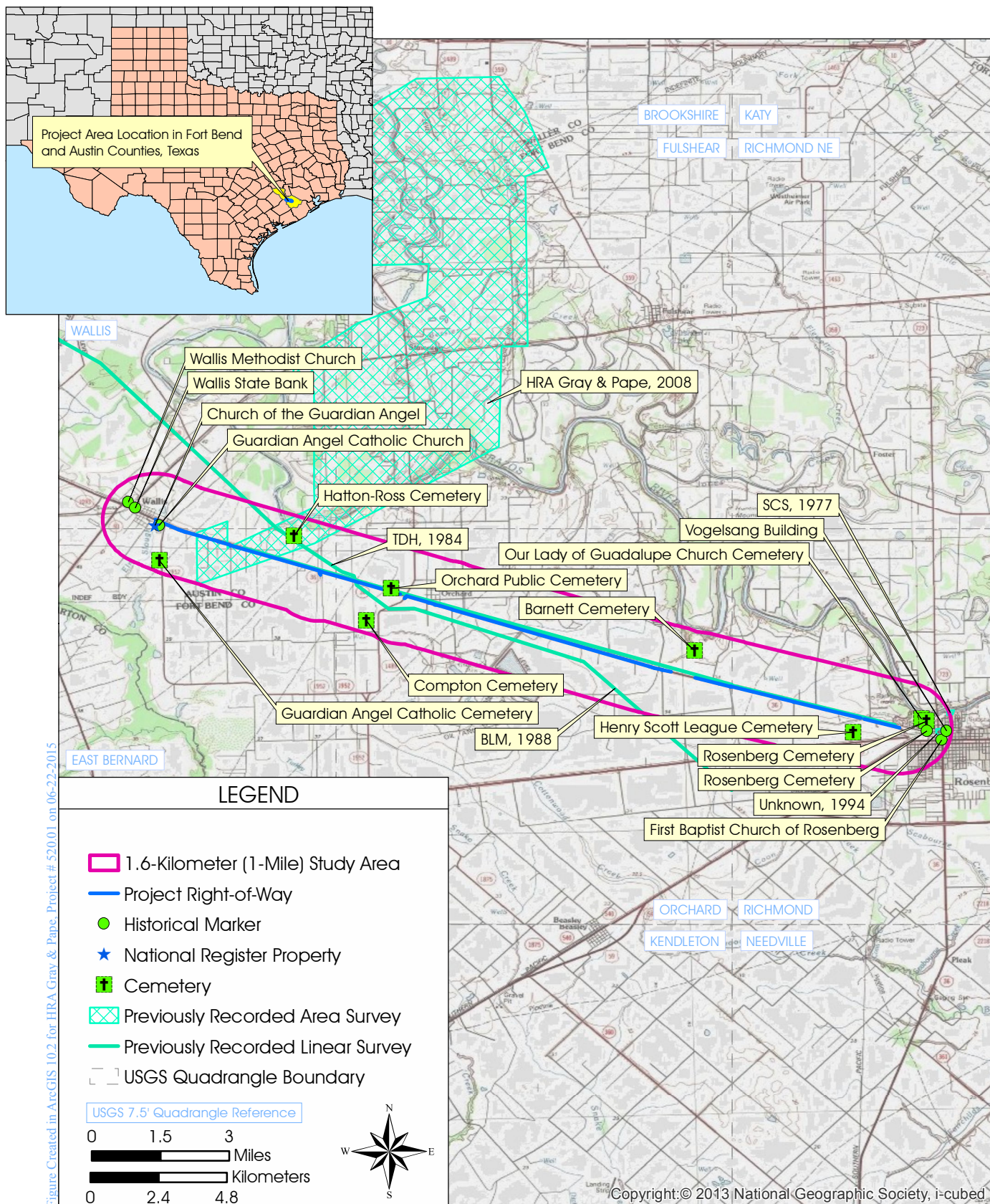
**Project Description and Impacts:** The project area is located on the Richmond (#2995-321), Orchard (#2995-322), East Bernard (#2996-411) and Wallis (#2996-414) United States Geological Survey (USGS) 7.5-minute topographic quadrangle maps (Figure 1). The project begins in Wallis, Texas at the junction of Farm-to-Market (FM) road 1952 and SH 36 in Austin County and proceeds east along SH 36, to the town of Rosenberg, Texas, ending at the junction with Highway 90.

The existing SH 36 alignment will be expanded from a 2-lane undivided roadway to a 4-lane divided rural roadway. A 2-way center left turn lane median is proposed throughout the length of the proposed project. Total project length is approximately 24 kilometers (14.7 miles). The existing right-of-way (ROW) has a usual width of 29 to 45 meters (95 to 150 feet) and an additional 25.6 to 60 meters (85 to 200 feet) of proposed usual ROW. The amount of proposed ROW acquisition is approximately 16.7 hectares (41.20 acres). The Burlington Northern Santa Fe (BNSF) Railroad tracks are present on the north side of SH 36 along the entire project length and therefore, alternatives would be limited to one build alternative on the south side of SH 36 and the no-build alternative. Refer to Appendix A for detailed project schematics (Figure 1).

**Area of Potential Effects (APE):** The APE for this project is defined as the project length, the existing and proposed ROW, and the depth of construction impacts, composed of a total of 123.5 hectares (305.2 acres). Of this, the existing ROW subsumes a total of 107 hectares (264 acres), while new proposed ROW will comprise the remaining 16.7 hectares (41.20 acres). The total area to be subjected to archaeological survey within the APE is 16.7 hectares (41.20 acres), comprised of all property proposed as new ROW on the south side of State Highway 36. Of the 16.7 hectares (41.20 acres) of new ROW, right-of-entry was not provided for approximately 10.8 hectares (26.8 acres). These parcels were subjected to a desktop assessment. Although the depth of impact is unknown, belowground impacts are expected to be typical of road construction activities, impacting up to 1 meter (3 feet) below natural grade. The APE depth may extend to culturally sterile depths across the project ROW. More often the project will entail the building up of material from the existing ground surface. No deep impacts are anticipated within the project area.

**Parcel Number(s):** N/A





Topographic Map of the Project Area in Fort Bend and Austin Counties, Texas

Figure 1



**Project Area Ownership:** The intensive pedestrian and reconnaissance surveys completed for the service areas discussed in this report took place on easements belonging to the Texas Department of Transportation and privately-owned property. Right-of-entry was obtained by the client for privately owned land.

## **Project Setting**

**Topography:** The APE is situated in the relatively flat and low-lying coastal flood plains of the Brazos River.

**Geology:** The Texas Coastal Plain makes up part of the larger Gulf Coastal Plain, a low level to gently sloping region extending from Florida to Mexico. The Texas Coastal Plain reaches as far north as the Ouachita uplift in Oklahoma and as far west as the Balcones escarpment in central Texas. The basic geomorphological characteristics of the Texas coast and associated inland areas, which includes Fort Bend and Austin Counties, resulted from depositional conditions influenced by the combined action of sea level changes from glacial advance in the northern portions of the continent and subsequent downcutting and variations in the sediment load capacity of the region's rivers. Locally, both counties are underlain by relatively recent sedimentary rocks and unconsolidated sediments ranging in age from the Miocene to Holocene (Abbott 2001; Van Siclen 1991).

**Soils:** A review of the United States Department of Agriculture (USDA) Web Soil Survey revealed that the project area is composed primarily Lake Charles clay, 0 to 1 percent slopes, Bernard-Edna complex, 0 to 1 percent slopes, Bernard clay loams, 0 to 1 percent slopes, Edna fine sandy loam, 0 to 1 percent slopes, and Katy fine sandy loam, 0 to 1 percent slopes (Soil Survey Staff, Natural Resources Conservation Service [SSS NRCS], USDA 2015).

Lake Charles clay soils (0 to 1 percent slope) have formed in clayey, late Pleistocene, fluvialmarine deposits. Lake Charles clay is typically 2 meters (80 inches) or more deep clay above the water table (SSS NRCS USDA 2015). These soils form on flat stream terraces that rarely flood. They are characterized as somewhat poorly drained and have slow to very slow permeability. These soils have a high shrink-swell potential mainly due to the considerable and lasting wetness. This clay is very sticky and becomes progressively blocky with depth. The first 30 to 127 centimeters (12 to 50 inches) of Lake Charles series clay is typically dark gray (10YR 4/1), which may be mottled with small amounts of brown or yellow clay (10YR 5/4 or 2.5Y 4/4). From 127 to 163 centimeters (50 to 64 inches), Lake Charles series soil can be a dark gray (10YR 4/1) clay, gray clay (10YR 5/1), or a light brownish gray (2.5Y 6/2) that is increasingly mottled with yellowish to olive brown clay (2.5Y 5/4). At a depth of 229 to 262 centimeters (90 to 103 inches), Lake Charles series clay is mottled yellowish red (5YR 5/6) and gray (10YR 6/1) with brownish yellow mottles (10YR 6/6) (SSS NRCS USDA 2015). These soils generally have a low potential to produce intact deeply buried resources (Abbott 2001).

Bernard-Edna complex (Be) is a mix of mainly Bernard clay loam and Edna fine sand (Mowery et al. 1960). The Bernard soil is found in flat and depressed areas while the Edna soil is found on ridges, knolls and pimple mounds. The surface layer of the Bernard clay loam is very dark gray clay loam about 15 centimeters (6 inches) thick. Below this is a layer about 122 centimeters (48 inches) thick with the upper portion being very dark gray clay and the lower portion being dark gray clay. This layer is followed by gray clay with yellowish brown mottles and calcium carbonate concretions. The surface layer of the Edna soil is dark grayish brown fine sandy loam about 25 centimeters (10 inches) thick. Below this is an 86-centimeter (34-inch) thick layer of clay with the upper portion being gray and the lower portion being olive gray. This layer is followed by gray sandy clay loam with yellowish brown mottles. These soils possess a low potential for archaeological remains (Abbott 2001:22, 23).

In general, Bernard clay loams, 0 to 1 percent slopes are composed of a surface layer of very dark gray to dark gray clay loam 15.24 centimeters (6 inches) thick. This is followed by a layer of very hard, very dark gray clay with a few iron-manganese concretions to a depth of 55.88 centimeters (22 inches). After this is a layer of extremely hard, very dark gray clay to a depth of 88.9 centimeters (35 inches). Beyond that is a layer of dark gray clay with a few yellowish brown and strong brown mottles and a few iron-manganese concretions to a depth of 127 centimeters (50 inches). Next, is a layer of grayish brown clay mottled with yellowish brown spots and includes a few iron-manganese and calcium carbonate concretions to a depth of 152.4 centimeters (60 inches). Below that is a layer of strong brown sandy clay loam to a depth of 228.6 centimeters (90 inches) (Mowery et al. 1960; SSS NRCS USDA 2015). These soils generally have a low potential to produce intact deeply buried resources (Abbott 2001).

In general, Edna loams typically consist of a surface layer of dark gray to grayish brown fine sandy loam 22.86 centimeters (9 inches) thick. This is followed by a layer with an upper portion of gray clay mottled with dark gray and grayish brown iron depletions, yellowish brown iron concentrations, and few dark brown to black iron-manganese concentrations to a depth of 48.26 centimeters (19 inches). The middle portion consists of light gray clay with light olive gray iron depletions, faint olive iron and dark brown to black iron-manganese concentrations to a depth of 96.52 centimeters (38 inches). The lower portion of the layer entails mottled light brownish gray and light yellowish brown clay loam with few dark brown and black iron-manganese concretions to a depth of 127 centimeters (50 inches). This is followed by a layer of light olive gray sandy clay loam including a few olive iron and iron-manganese concretions to a depth of 165 centimeters (65 inches) (SSS NRCS USDA 2015). These soils generally have a low potential to produce intact deeply buried resources (Abbott 2001).

Katy fine sandy loam, 0 to 1 percent slopes, has a parent material that consists of clayey alluvium of Holocene age and is found on flood plains on river valleys on coastal plains (SSS NRCS USDA 2015). It has a surface layer of fine sandy loam to a depth of 61 centimeters

(24 inches). Next is a layer of loam to 107 centimeters (42 inches) and below that is clay loam to 203 centimeters (80 inches). This soil generally has a low potential to produce intact deeply buried resources. According to Abbott (2001: Table 2) these soils all typically have a low geoarchaeological potential “or likelihood that the soil could contain buried cultural material in reasonable context” (Abbott 2001:20).

**Land Use:** The project begins in Wallis, Texas at the junction of FM road 1952 and State Highway 36 in Austin County and proceeds east along State Highway 36, to the town of Rosenberg, Texas, ending at the junction with Highway 90. The current conditions of the APE consist of mostly agricultural fields and open pasture. Portions of the highway that pass urban areas have experienced some development including private residences and businesses. The project area does not cross any major or minor natural waterways.

**Vegetation:** The existing ROW is covered by short to medium grasses, forbs, oak trees and corn.

**Estimated Ground Surface Visibility:** 25 percent

**Previous Investigations and Known Archeological Sites:** A total of 6 previously recorded cultural resources investigations have been conducted within a 1.6-kilometer (1-mile) radius of the project area. In 1977, an area survey was conducted east of the project area for SCS. No other information is known regarding this survey. In 1994, under TAC Permit Number 1418, an area survey was conducted by BC & AD Archaeology, Inc. east of the project area in Rosenberg, Texas. No other information is known regarding this survey. In 1984, a linear survey was conducted along a majority of the current project area by the TDH. No other information is known regarding this survey. In 1988, the United States Bureau of Land Management and the American Association of Professional Landmen conducted a linear survey that runs through the western portion of the project area. No other information is known regarding this survey.

In 2008, HRA Gray & Pape conducted a cultural resources probability assessment of approximately 5,665 hectares (14,000 acres) of privately-owned land proposed for development in Waller, Fort Bend, and Austin Counties, Texas, northwest of and within the project area. As a result of the desktop assessment, HRA Gray & Pape proposed a plan for intensive archaeological survey and testing of a representative sample of the project areas that would focus on areas most likely to contain archaeological sites and features, and also that would provide maximum coverage of the project area (McIntosh 2008). A part of this survey crosses into the western side of the project area in Austin County. HRA Gray & Pape did not designate this area as a high potential area to contain archeological sites.

## **Survey Methods**

**Surveyors:** Charles E. Bludau, Jr. and Jacob Hilton

**Methodological Description:** Archaeological methods utilized during the survey consisted of shovel testing, photo-documentation, and pedestrian reconnaissance. Horizontal control

was maintained by the use of a Global Positioning System (GPS) data collector. All actions performed, the general observations of the surveyor, and the results of survey actions were recorded on a shovel test form. These forms included information on provenience, survey method, and cultural materials identified.

The land parcels defined in the APE for the Fort Bend County portion of the SH 36 Expansion project crosses PALM units 2, 2a, and 4 (Figure 2, Appendix B). In general, the most appropriate type of survey method for this project is shovel testing, visual reconnaissance, and no survey recommended. Likewise, areas mapped as Map Unit 4 were surveyed less intensively where disturbances were obvious, such as developed land. A single transect was systematically subjected to shovel testing and/or visual pedestrian survey methods.

Shovel tests typically measured 30 centimeters (12 inches) in diameter and were excavated to a maximum depth of 1 meter (3 feet) into the underlying substratum, or until culturally sterile subsoil was encountered. Removed soils were screened through 0.64-centimeter (0.25-inch) hardware cloth. Descriptions of soil texture and color followed standard terminology and the Munsell (2005) soil color charts. Additional information concerning soils encountered and a profile drawing of the exposed profiles were recorded on a shovel test form for each excavation.

In general, the presence of mixed textures and colors encountered during shovel testing suggests that the majority of the APE has been previously disturbed at shallow depths, almost certainly from previous SH 36 road construction, agricultural practices, and utility construction project and can be seen in representative photographs (Figures 3 through 7: Photos D, F, G, J, and K).

Cultural resources, if located, were to be defined according to THC standards as referenced in 13 TAC 26.20 of the Antiquities Code of Texas, as amended (THC 1969, amended 1997). However, no artifacts, historic or prehistoric, were recovered during these field investigations. Therefore, site definition and laboratory methods are not included in this report.

**Other Methods:** None

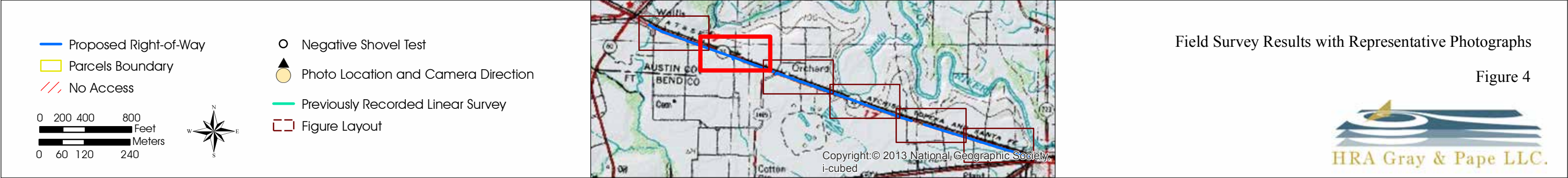
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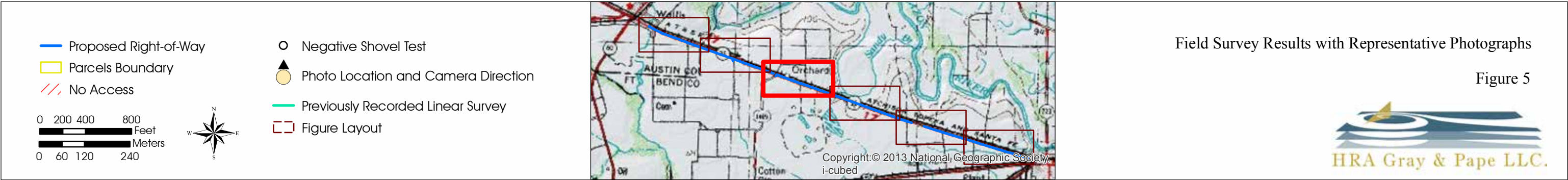




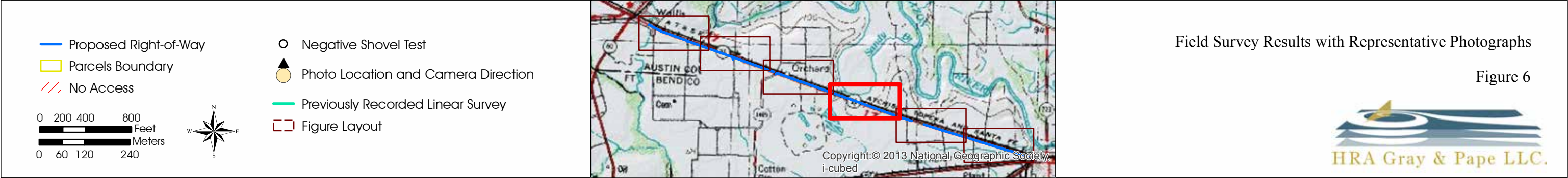




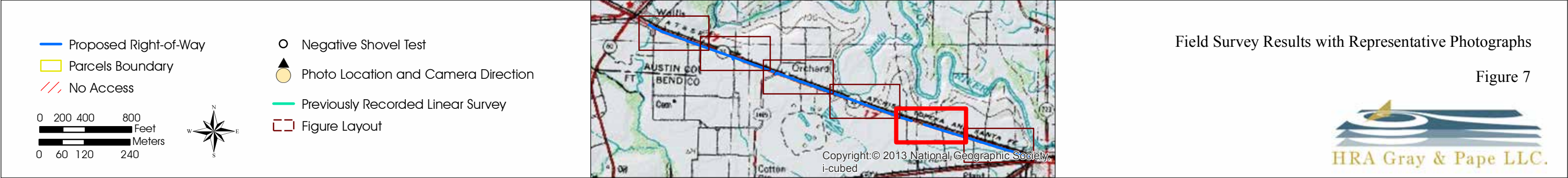














**Comments on Methods:** A cultural resources assessment and background research of parcels where right-of-entry was not permitted indicated that these parcels have been excessively disturbed due to various forms of land modifications. These areas covered a total of approximately 10.8 hectares (26.8 acres) of the total project APE (depicted as red shaded parcels on Figures 3 through 8). Forms of disturbance in these parcels included agricultural practices, buried utility lines and telephone lines, and artificial drainage ditches and were photographed from the road (Figures 3 through 8: Photos A, B, E, H, I, and L through S). The soils in these parcels are considered to be of low geoarchaeological potential for containing intact deposits (Abbott 2001: 22-23). Additionally, based on the results from shovel testing in areas where access was granted, it is unlikely that previously unrecorded cultural resources would be encountered, thus no survey is recommended for the inaccessible parcels.

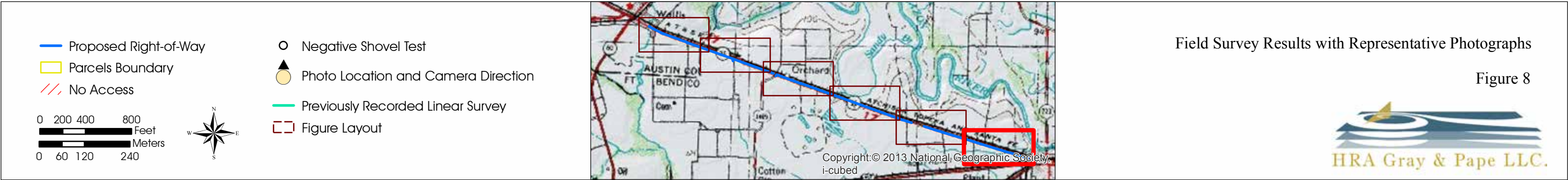
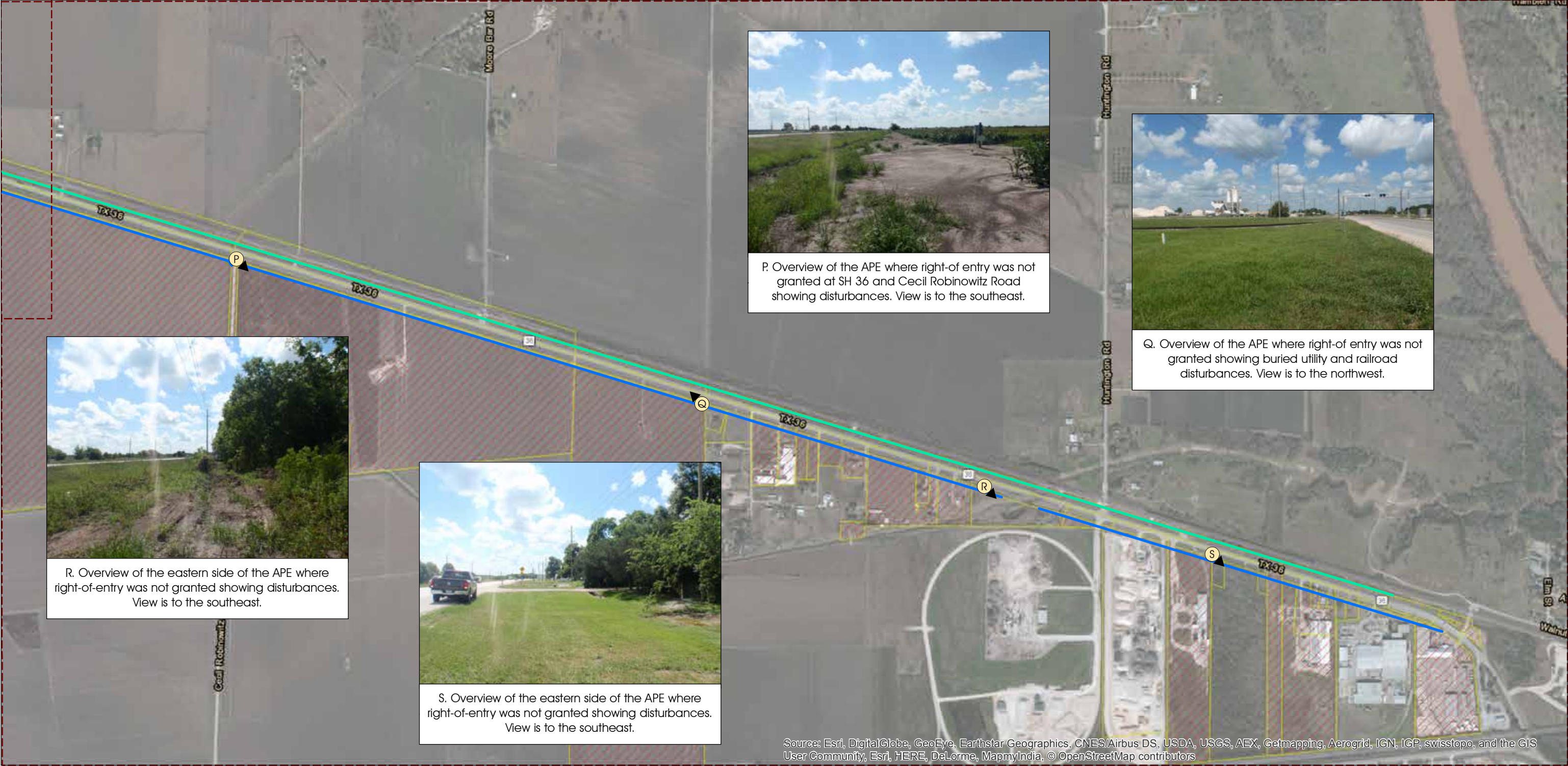
## Survey Results

**Project Area Description:** A total of 42 shovel tests were successfully excavated within the project APE, primarily within proposed ROW in Fort Bend County, composed of 16.7 hectares (41.20 acres) of new ROW (Figures 3 through 8). In general, the presence of mixed textures and colors encountered during shovel testing suggests that the majority of the APE has been previously disturbed at shallow depths, almost certainly from previous SH 36 road construction, agricultural practices, and utility construction project and can be seen in representative photographs (Figures 3 through 7: Photos D, F, G, J, and K).

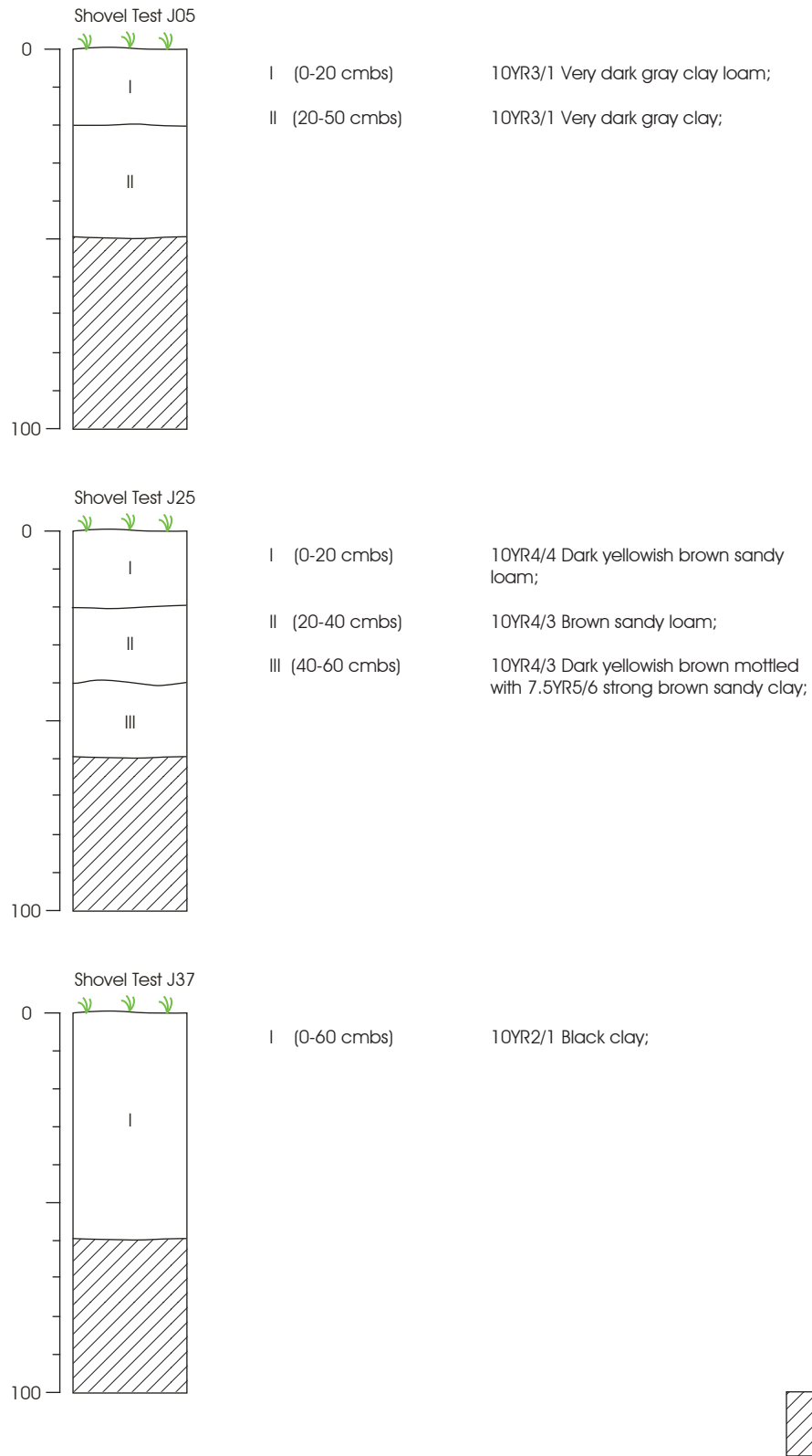
All shovel tests were negative for the presence of archaeological materials. The depth of shovel test excavation ranged between a minimum of 30 centimeters (16 inches) to a maximum of 100 centimeters (39 inches). In general, shovel tests within the western portion of the APE in Fort Bend County were excavated to an average depth of 50 centimeters (20 inches). Typical tests (J05) in this portion of the APE contained very dark gray (10YR 3/1) clay loam from the ground surface to a depth of 20 centimeters (8 inches) followed by very dark gray (10YR 3/1) clay down to 50 centimeters (20 inches) below ground surface (Figure 9). Typical shovel tests (J25) within the central portion of the APE were excavated to an average depth of 60 centimeters (24 inches) and contained dark yellowish brown (10YR4/4) sandy loam from the ground surface to a depth of 20 centimeters (8 inches) followed by brown (10YR4/3) sandy loam down to a depth of 40 centimeters (16 inches). This was followed by a brown (10YR4/3) mottled with a strong brown (7.5YR5/6) sandy clay down to a depth of 60 centimeters (24 inches) (Figure 9). A typical shovel test (J37) within the western portion of the APE contains black (10YR2/1) clay from the surface to a depth of 60 centimeters (24 inches) (Figure 9).

Walk-over survey and the judgmentally placed shovel tests within areas of obvious disturbance including the presence of drainage ditches, berms, and paved roads also proved negative for surface exposure of artifacts or buried artifacts (Figures 3 through 8). Reconnaissance-level pedestrian walkover survey was conducted over 16.7 hectares (41.20 acres) of new ROW. No exposed archaeological resources were observed as a result of the









walkover survey. The BNSF Railroad is located running parallel with SH 36 and was not subjected to intensive pedestrian survey (Figure 3: Photo D).

**Archeological Materials Identified:** Other than modern roadside trash observed on the surface within the APE, no historic-age or prehistoric cultural materials were observed on the modern ground surface or within any of shovel tests excavated in the APE.

## **Recommendations**

**APE Integrity:** The majority of the APE has been previously disturbed at shallow depths from previous SH 36 road construction, artificial drainage ditches, agricultural practices and above and below ground utility construction projects.

**Further Work:** No further work is recommended within the APE.

**Justification:** Initial investigation consisted of a background literature and site file search to identify the presence of recorded sites in close proximity to the current proposed project. These activities did not result in the identification of recorded archaeological historic properties (sites) within the APE as defined in Section 1.1. There are 3 previously recorded archaeological sites (41FB1, 41AU48, and 41AU49) within the study radius, although limited information concerning each was available on the Texas Archeological Sites Atlas.

A total of 42 shovel tests were successfully excavated within the project APE, primarily within proposed ROW in Fort Bend County, composed of 16.7 hectares (41.20 acres) of new ROW. In general, the presence of mixed textures and colors encountered during shovel testing suggests that the majority of the APE has been previously disturbed at shallow depths from previous SH 36 road construction, agricultural practices, and utility construction projects. All shovel tests were negative for the presence of archaeological materials.

A cultural resources assessment and background research of parcels where right-of-entry was not permitted indicated that these parcels have been excessively disturbed do to various forms of land modifications totaling approximately 10.8 hectares (26.8 acres) of the total project APE. Forms of disturbance in these parcels included agricultural practices, buried utility lines and telephone lines, and artificial drainage ditches. The soils in these parcels are considered to be of low geoarchaeological potential for containing intact deposits (Abbott 2001: 22-23). Additionally, based on the results from shovel testing in areas where access was granted, it is unlikely that previously unrecorded cultural resources would be encountered, thus no survey is recommended for the inaccessible parcels.

Based on the results of this investigation, HRA Gray & Pape recommends that no additional investigations be required within the parcels assessed or surveyed under Permit 6609 for SH 36 Expansion project in Austin and Fort Bend Counties, Texas. The result of survey within the project area, with regard to 36 CFR 800, falls under section § 800.4(d.1): No historic properties affected. HRA Gray & Pape also recommends that further work is not required for

those parcels where right-of-entry was not received, and that the project be allowed to proceed as planned. Should project plans change or additional details become available that indicate the need for additional survey, HRA Gray & Pape will continue agency coordination. Should unanticipated finds be encountered during construction, work will stop in the vicinity of the find and appropriate Agency representatives will be contacted

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This report was written on behalf of the Texas Department of Transportation by



110 Avondale St.  
Houston, Texas 77006

Appendix A  
SH 36 Expansion Project Schematics

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APPENDIX B:  
TxDOT's Houston-PALM  
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