Archeological Survey for the Loop 410 Improvements Project City of San Antonio, Bexar County, Texas

by
Antonia L. Figueroa, Barbara A. Meissner, and Karla J. Córdova

Texas Antiquities Permit No. 3003

Prepared for:
HNTB Corporation
85 N.E. Loop 410 Ste. 304
San Antonio, Texas 78216

Prepared by:
Center for Archaeological Research
The University of Texas at San Antonio
Archaeological Report, No. 378

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Abstract:

The Center for Archaeological Research (CAR) of the University of Texas at San Antonio was contracted by the HNTB Corporation (contracted by TxDOT) in 2000 to conduct an archeological survey of the proposed Loop 410 Improvements Project, San Antonio, Bexar County, Texas. The Area of Potential Effect (APE) is the current ROW and the proposed new ROW along Loop 410 and the three highways intersected by the loop. The project area is located along the southwestern portion of Loop 410 beginning about 0.61 miles northeast of FM 3487 (Culebra Road) and ending 2.25 miles east of IH 35 South. In addition, the project area included varying distances along three highways that intersect with Loop 410: SH 151, US 90, and US 35. The archeological work was conducted under Texas Antiquities Committee permit #3003 with Steve A. Tomka serving as Principal Investigator during the Phase I and Jennifer L. Thompson serving during Phase II and III.

The intensive pedestrian survey was conducted in three phases. Phase I was conducted from July to September 2005. Phase II, was completed in April and May of 2007. No new archeology sites were documented during Phase I and II of archeological investigations. Four sites were revisited (41BX555, 41BX556, 41BX683 and 41BX704). All proved to be impacted by development and no cultural material was recovered. Phase III of the project consisted of 16 backhoe trenches placed in areas where deeply buried cultural deposits were probable. Only one trench (BHT 13) encountered artifacts. Testing was recommended on this site to determine if the site retains enough significance to make it eligible for listing in the National Register of Historic Places (NRHP) and/or for designation as a State Archeological Landmark (SAL). Tex Site forms requesting a trinomial were submitting and the field site was deemed 41BX1749.

Access to properties along the proposed ROW was limited and 18 properties within the proposed ROW remain unsurveyed. CAR recommends survey of these properties when access is granted.

All artifacts and records collected or generated during this project are curated at the Center for Archaeological Research according to Texas Historical Commission guidelines.

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Acknowledgements:

The successful completion of this project would not have been possible without the contributions of a number of people. Several members of HNTB Corporation were instrumental in providing information related to the project including Bob Clarkson, Michelle Dippel, Kelsey Johnston and Crystal K. Garrity who kept us informed about right-of-entry requests, and Marlin Sawyer who was helpful in ushering through contractual documents. Al McGraw of TxDOT provided comments during the drafting of the report and background information on Colonial period sites in the area. Gina Salazar (TxDOT) aided with many project logistics. Thanks to the landowners who granted us access to their land. Annette Bethke of the Texas Historical Commission (THC) very kindly provided copies of a report needed for the background section of this report. Thanks also to Wayne Glander and Michael Smith of PBS&J for providing a copy of one of their reports. We greatly appreciate the San Antonio River Authority's help in obtaining the high-resolution aerial photography for the project area. Mike Lothian of CESA Contractors gave us his usual great service in providing a backhoe and operator. The operator, "Gator", provided excellent backhoe trenching in sometimes difficult situations. Thanks also to Jon Dowling for putting together the data for the high probability areas and areas recommended for backhoe trenches. Leonard Kemp and Bruce Moses prepared the figures and Bruce also served as the technical editor for this report. All lab processing and curation was done under the supervision of Marybeth Tomka. Jennifer L. Thompson and Steve A. Tomka served as Principal Investigators and aided tremendously with field logistics and report preparation. Also, thanks to Dr. Raymond Mauldin, CAR Assistant Director, for his assistance and guidance throughout the various stages of this project. Finally, many thanks to the field crews that endured the excruciating Texas summer heat and dangerous Texas thunderstorms in order to get the surveys and backhoe trenches completed. The crew for Phase I included: Claudia Branton, Brian Brothers, Jon Dowling, Leonard Kemp, Andy Speer, Daniel Teague, and Jason Whitaker. The Phase II crew included: Nate Divito, Jon Dowling, and Jason Perez. The Phase III crew included Jon Dowling, Lindy Martinez, and Joey Thompson.

To all those listed above and anyone we missed, thanks for your help. We couldn't have done it without you.

Chapter 1: Introduction

The Center for Archaeological Research (CAR) of the University of Texas at San Antonio (UTSA) was contracted by HNTB Corporation, on behalf of TxDOT in 2000 to conduct an archeological survey of the Loop 410 Improvements Project in Bexar County, Texas (Figure 1-1). The Loop 410 Improvements Project consists of construction designed to increase the capacity of the highway, operational improvements at interchanges, and service improvements and ramp revisions that will accommodate future increases in traffic volume. While much of this road construction will be conducted within the existing right-of-way (ROW), the project will involve the purchase of new ROW in many areas (Figures 1-2 and 1-3). The project area included the southwestern portion of Loop 410 and varying distances along three major intersecting highways, State Highway (SH) 151, US 90 and Interstate Highway 35, for a total linear distance of 33.6 km (20.9 miles). The project area is located on the Culebra Hill (2998-243), Macdona (2998-242), and Terrell Wells (2998-241) USGS 7.5' quadrangle maps.

This archeological survey was intended to address the requirements of Section 106 of the National Historic Preservation Act of 1966 as amended, the implementing regulations of 36 CFR Part 800, and the Texas Antiquities Code. The archeology Area of Potential Effect (APE) under consideration during this project included the current ROW and the proposed new ROW. The purpose of the survey was to identify any cultural properties within the project area and make a determination of their eligibility for listing on the National Register of Historic Places (NRHP) and/or designation as a State Archeological Landmark (SAL). The survey was conducted under Texas Antiquities Committee permit #3003 issued to Steve A. Tomka, CAR Director, as Principal Investigator. In February 2007, the permit was transferred to the new Principal Investigator, Jennifer L. Thompson. All work done by CAR was conducted under the terms and conditions of the Programmatic Agreement among the Federal Highway Administration (FHWA), TxDOT, the Texas Historical Commission (THC) and the Advisory Council on Historic Preservation (2005), as well as the Memorandum of Agreement (MOA) between TxDOT and THC.

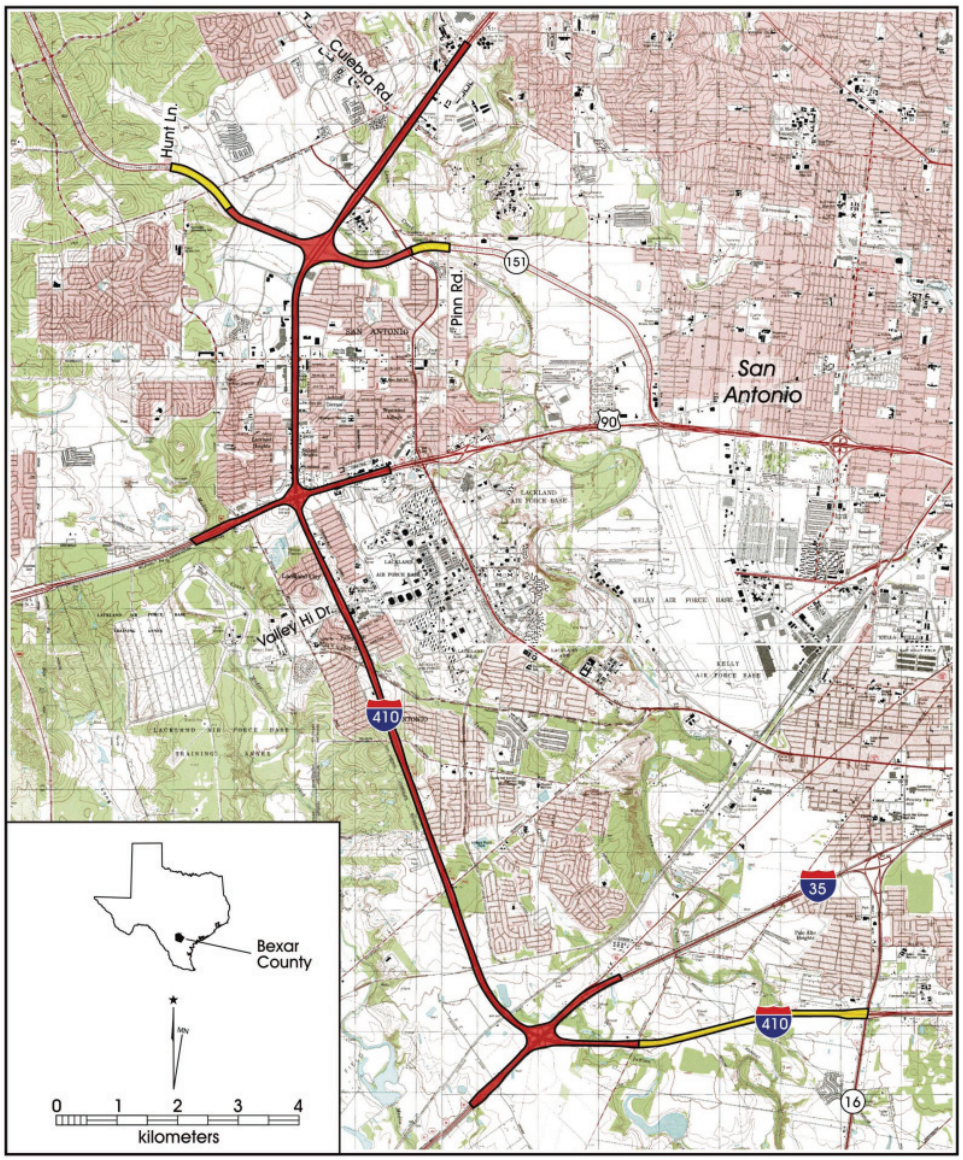

Figure 1-1. *Project area location, showing the APE for the original project (red) and the extensions (yellow)*

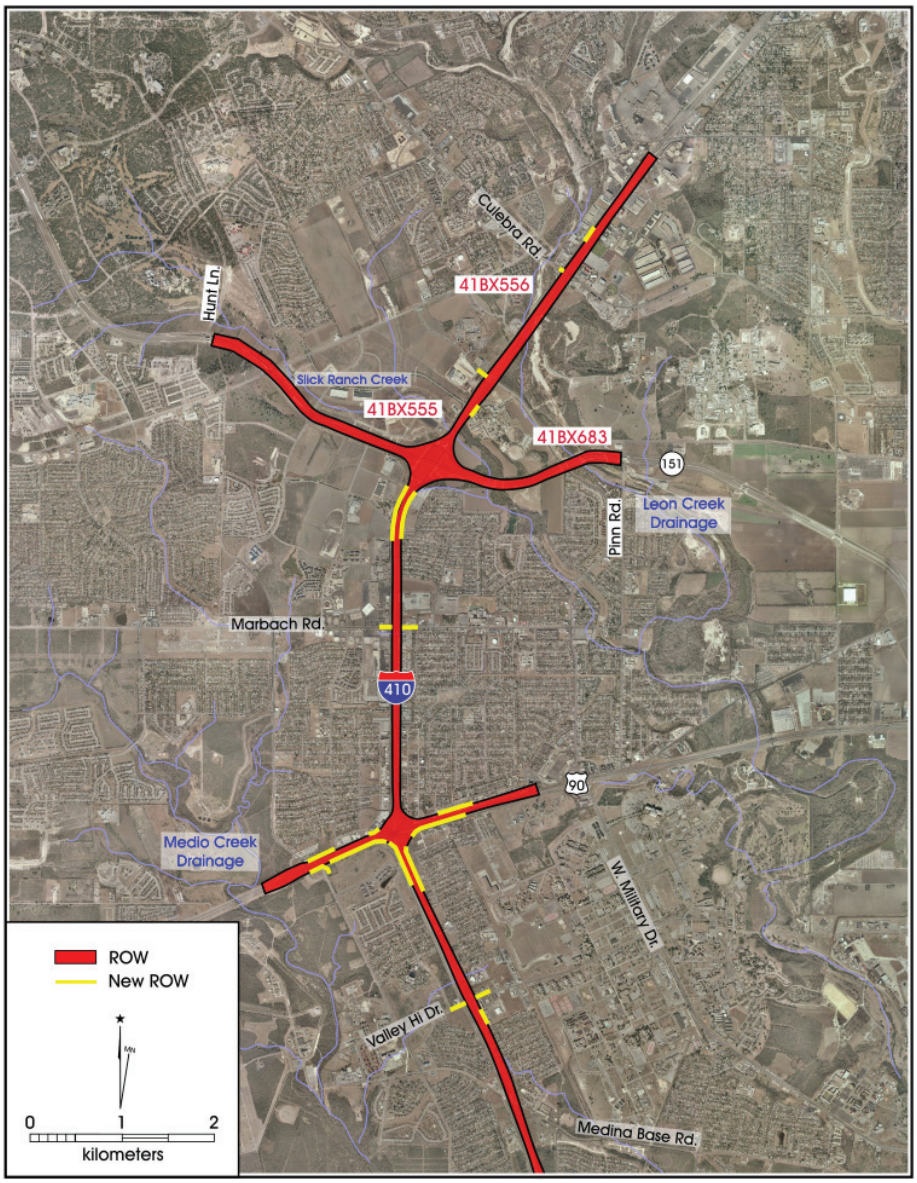

Figure 1-2. *Project area along Loop 410, from north of Culebra Road to Medina Base Road. Unchanged and proposed new ROW is indicated as well as locations of sites 41BX555, 41BX556, and 41BX683.*

The remainder of this chapter will discuss the Area of Potential Effect and issues with Right of Entry (ROE) in the proposed ROW not yet purchased by TxDOT. Finally, a discussion of the project activities will conclude this chapter. Chapter 2 presents background information on the project area, including a short discussion of the current environmental setting, a brief outline of what is known of the paleoenvironment in the area, and a review of the cultural history of the region. Furthermore, Chapter 2 will also include a summary of previous archeology investigations in the immediate vicinity of the project area. Chapter 3 discusses the methods used by CAR in archeological investigations. Chapter 4 describes the results of the investigations carried out in each phase. Chapter 5 summarizes the results and presents recommendations.

Area of Potential Effect

The APE was located along Loop 410 between 0.98 km (0.61 miles) northeast of FM 3487 (Culebra Road) at Station 2168+00 and 3.6 km (2.25 miles) east of IH 35 South at Station 1464+00 (Figures 1-2 and 1-3). There are three major highway intersections along the ROW, one at SH 151 (Figure 1-2), one at US 90 (Figure 1-2), and the third at IH 35 (Figure 1-3). Specifically, at the SH 151 intersection the APE extended 1.7 km (1.1 miles) to the west and 0.3 km (0.2) miles to the east along SH 151. On US 90 the APE extended 1.8 km (1.1 miles) to the west and 2.6 (1.6 miles) to the east. Finally, on IH 35 the APE extended 2.4 km (1.5 miles) to the northeast and 1.5 km (0.96 miles) to the southwest. These areas constituted Phase I of the archeological investigations.

The total length of the ROW during the Phase I investigation was 33.6 km (20.9 miles). The planned total width of the ROW along Loop 410 from Valley Hi Drive to IH 35 is 420 feet or 210 feet on either side of the Loop 410 Center Line. The portion of the project area that runs from Valley Hi Drive South to IH 35 (approximately 5 miles) will extend the existing ROW on each side anywhere from 150 feet from the Center Line to 210 feet from the Center Line. This means that on each side of the ROW, there will be 60 feet of ROW that has not been previously inspected for cultural resources. Similarly, the portion of the project area along Loop 410 that runs from Valley Hi Drive North to Culebra Road will have a 468-foot ROW. Along this portion of the APE, the existing 150-foot ROW will be extended to 234 feet from the Center Line, on each side of Loop 410. This means that there will be 84 feet of new ROW on both sides of the ROW that has not been previously inspected for cultural resources. The ROW along the three interchanges (SH 151, US 90, IH 35) will be widened 50 feet along each side of

the intersections. In total, the Area of Potential Effect under consideration for Phase I was roughly 965 acres (3.9 sq. km).

An additional segment continuing eastward along Loop 410, extending to the intersection with SH 16 (Palo Alto Road; also known as Poteet/ Jourdanton Freeway), approximately 2.25 miles was added to the project area after the initial archeological investigations. Additionally, project ROW was extended along SH 151 from near Ingram Road to Hunt Lane west of IH 410 and from Military Dr. West to Pinn Road east of IH 410. These additions amount to the lengthening of the project limits along IH 410 by approximately 1.1 miles. All three additional extensions included existing ROW. All three extensions added 3.35 miles of additional ROW that was not previously surveyed making the entirety of the APE 24.25 miles.

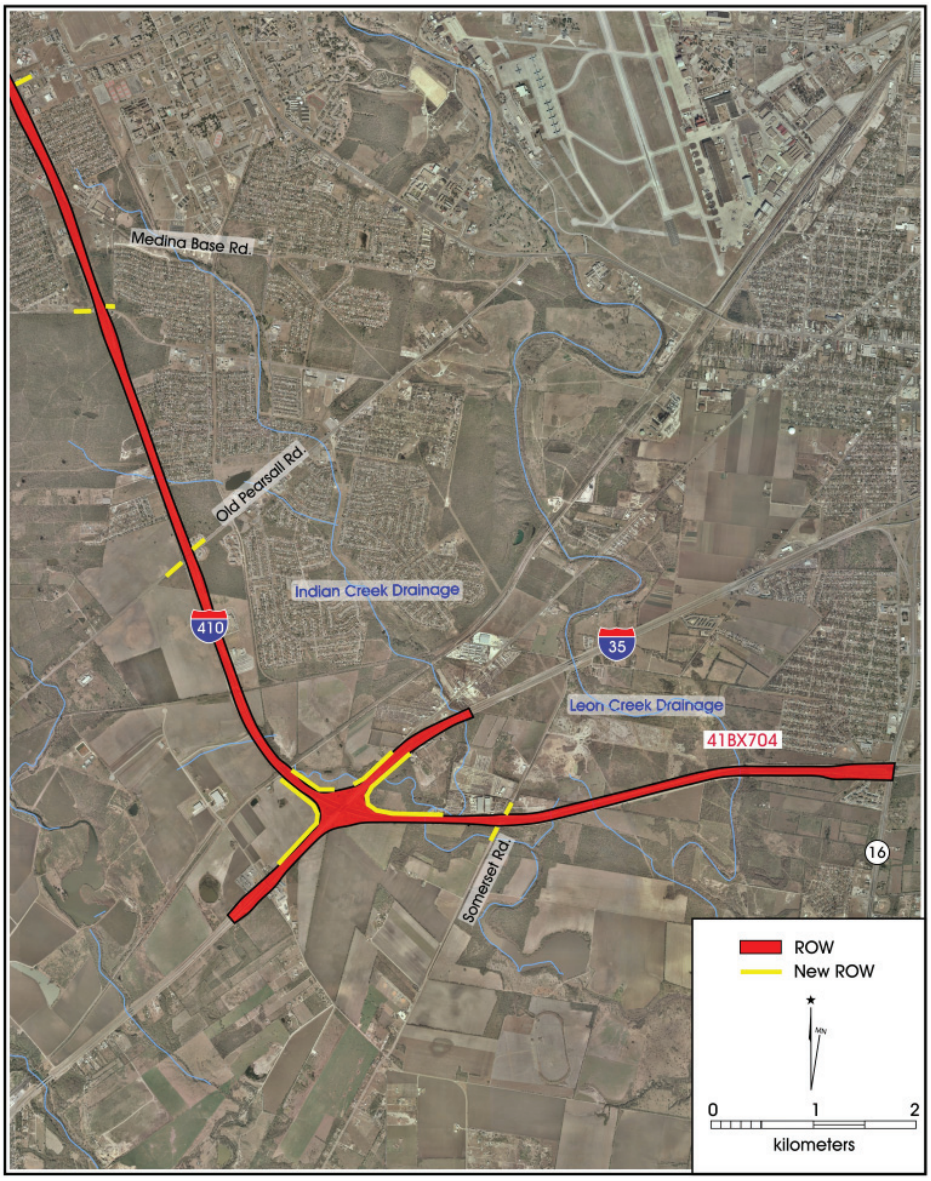

Figure 1-3. *Project area along Loop 410, from Medina Base Road to SH 16 (Palo Alto Rd.). Unchanged and proposed new ROW is indicated as well as location of site 41BX704.*

The APE crossed several creeks that include Leon Creek, Slick Ranch Creek, Medio Creek, Indian Creek as well as unnamed tributaries. Four previously recorded sites (41BX555, 41BX556, 41BX683 and 41BX704) were in the environs of the APE, though none had been reported to contain intact deposits and further excavations below previous construction were not anticipated to impact the sites. Recommendations did suggest testing in the environs of the sites if new ROW were ever to be purchased. As is the case, new ROW was not obtained in stretches of the Loop 410 Improvements Project where the sites were located.

Right of Entry

The areas within the proposed ROW were on private land; therefore, permission for right of entry (ROE) had to be obtained from landowners. HNTB sent letters requesting permission to enter the property to each of the land owners. Of the 262 private properties within the original project area, ROE was not granted to 51 properties. The areas of the APE outside the existing ROW where permission to access the land was denied by the landowners, either explicitly or by failing to respond to the letters, were not surveyed. Therefore 19% of ROW was not surveyed due to lack of ROE. Areas in which ROE was not granted but were impacted by development were not recommended for further archeological investigations. Only 18 of the 51 unsurveyed properties are recommended for archeological investigation, when ROE is obtained (refer to Chapter 4).

In April 2007, before beginning Phase II, CAR received new GIS data indicating that three new segments had been added to the project APE. The new segments did not add

new ROW therefore ROE was not a concern. The ROE for areas recommended for backhoe trenching in Phase I had not changed. As noted in the APE section, the APE added by TxDOT, consisting of the three segments was not within new ROW; therefore, ROE was not an issue.

Project Activities

The Loop 410 Improvements Project was conducted in three phases that spanned two years. During the months of August and September in 2005, CAR conducted a 100 percent pedestrian survey of the accessible portions of the original APE, with shovel testing in appropriate areas. Karla J. Córdova acted as Project Archaeologist. A draft report on this work was written and submitted for comments to HTNB, TxDOT, and THC. This work constituted Phase I of this project.

At the end of the original draft report, it was recommended that a series of backhoe trenches be excavated on terraces near creeks within new and existing ROW where there was a strong possibility of significant cultural resources buried in deep sediments. A total of 24 backhoe trenches were recommended at that time, with tentative locations marked in areas along Leon, Slick Ranch, Medio and Indian Creeks.

In November 2006, before the report on the work completed in 2005 had been published, CAR's contract with HTNB was amended to include new areas added to the original project limits, increasing the total linear distance of the APE to 39.9 km (24.2 miles). Also, funding was added to allow backhoe trenching of the areas near creeks, where there was a strong possibility of deeply buried, intact cultural deposits.

Phase II of the project involved an intensive 100 percent archeological survey of accessible portions of the new APE, conducted in April and May 2007, with Antonia L. Figueroa acting as Project Archaeologist.

In February, 2007 and again in June, 2007, the areas recommended for backhoe trenching during Phase I were reassessed, based in part on whether Right of Entry (ROE) had been received from current landowners in areas of the planned new ROW and impacts from recent developments in the area. Moreover, potential areas in the new APE were also recommended for backhoe trenching at this time. Beginning June 1, 2007 Phase III fieldwork began, with Barbara A. Meissner as Project Archaeologist. Consequently, site 41BX1749 was identified during backhoe trenching. Testing of archeological site 41BX1749 was conducted in October and November 2007. The results of eligibility testing at 41BX1749 are presented in a separate report (Figueroa 2008).

Chapter 2: Project Background

This chapter provides background information for the Loop 410 survey project area. Included, is an overview of the regional environment including paleoenvironment, a review of culture history in the area, a summary of previous archeology research projects in or near the APE, and a brief summary of previously recorded sites within 2 km of the APE.

Environmental Setting

The segment of Loop 410 that is the subject of these archeological investigations is located in west-central Bexar County (Figure 1-1). Presently, a large portion of the project area has been impacted by urban development along several areas of Loop 410 ROW (Figure 2-1). There are, however, some areas within the APE with little evidence of previous disturbance (Figure 2-2).

Bexar County is located at the juncture of three major geographic regions: the Edwards Plateau, the Blackland Prairie, and the South Texas Brush Country (Nickels et al. 1997). The Edwards Plateau, comprising the northern part of the county, gradually slopes to the southeast and ends in the Balcones Escarpment (Black 1989a: Figure 6). A strip of the Blackland Prairie runs below the escarpment across most of the central portion of the county. South of the Blackland Prairie, in southern Bexar County, is the beginning of the South Texas Plain. The project area lies within the Blackland Prairie physiographic area, in what was once a tall grass prairie cut by many creeks and rivers (Forrestal 1935:14; Hatcher 1932:55; Potter et al. 1995:12, 23). In Bexar County the Balcones Escarpment is drained by the San Antonio and Medina Rivers. The major tributaries in the project area include Leon, Indian, and Medio Creeks (Nickels et al. 1997).

Soils within the project area primarily consist of the Houston Black - Houston and Lewisville-Houston Black associations of deep clayey soils (Taylor et al. 1991). These soils comprise the majority of the uplands in central and southwest Bexar County. The Venus-Frio-Trinity association soils are located near creeks and on lower terraces. The current and proposed ROW of Loop 410 crosses streams or creeks at least 12 times along its route within the project area (Figures 1-2 and 1-3). While most of these creeks are intermittent today, this is because of the heavy use of the Edwards Aquifer by the city of San Antonio and surrounding farmlands. In the past, these creeks would only have been dry during extended

Figure 2-1. *Urban development within the project area: a) north of US 90; b) south of Demya Street.*

Figure 2-2. *Relatively undisturbed areas within the APE: a) Wooded area near SH 16 and Loop 410 intersection; b) near Culebra Road and Leon Creek.*

drought periods, and as noted above, Leon Creek still has a few pools containing little water even during droughts.

In general, the project area has a modified subtropical and sub humid climate with cool winters and hot summers (Norwine 1995). January highs average 60.8° F and lows average 37.9° F. July highs average 95.0° F and lows average 75.0° F (Bomar 1983:214-222). Annual precipitation in the area averages 29.13 inches, though there is a great deal of yearly variation. Rainfall tends to occur in a bimodal pattern with peaks between May and June and September and October (Bomar 1983:56). Sudden downpours along the Balcones Escarpment are not uncommon, where thin clay soils and limestone outcrops result in massive runoff into creeks, in turn leading to flash floods in the southern two-thirds of the county (Bomar 1983:65).

Vegetation and Fauna

Bexar County represents an ecotone, an area where several different biotic provenances meet (Blair 1950), and as such there is a great variety of both plant and animal species. Only the most common are mentioned below.

According to Gould (1975), the prairie area south of the escarpment was once dominated by tall grass species such as little bluestem (*Schizachyrium scoparium*), big bluestem (*Andropogon gerardi*), and indiangrass (*Sorghastrum nutans*). Tree species common to the drainage areas included various species of oaks (*Quercus*), elms (*Ulmus*), cottonwoods (*Populus*), hickories (*Carya*) and native pecan (*Carya illinoinensis*), while mesquites (*Prosopis* spp.) and hackberries are the most common upland trees. The original vegetation of the area was has changed dramatically due to overgrazing in the past, as well as suppression of range-fires, urban development, and introduction of foreign species. Today the small types of brush that once dotted the grasslands have largely taken over undeveloped land and invasive species such as chinaberry (*Melia azedarach*) are common. The undeveloped landscape is now dominated by whitebrush (*Aloysia gratissima*), mesquite (*Prosopis* sp.), huisache (*Acacia smallii*), and hackberry (*Celtis* sp.).

The fauna around the project area is also very diverse. Twenty-nine species of mammals and 95 species of birds can be found in the area (Cleveland and McCain 1992:1-5, 26-28), as well as numerous varieties of fish and reptiles. Common mammals include several varieties of native rats, especially packrats (*Neotoma* sp.) and cotton rats (*Sigmodon hispidus*); cottontail rabbits (*Sylvilagus* sp.); whitetail deer (*Odocoileus virginianus*); coyotes (*Canis latrans*); and bobcat (*Felis rufus*). In the creeks are catfish (*Ictalurus* spp.), bullhead catfish (*Pylodictus olivaris*), and gar (*Lepisosteus* spp.). Both softshell (*Trionyx* spp.) and slider (*Trachemys* spp.) turtles are very numerous. Changes in the ecology due to the presence

of a large human population in the area have resulted in the loss of several large mammal species present during historic times, such as antelope (*Antilocapra americana*), bear (*Ursus americanus*), wolf (*Canis lupus*), puma (*Puma concolor*), and bison (*Bison bison*) (Weniger 1997).

Paleoclimate

An excellent discussion of recent reconstruction of paleoclimate in Texas was recently presented by Greaves et al. (2002). A brief summary of that information is presented here.

Until recently, only a very general idea of the post-Pleistocene paleoclimate in Central Texas was possible, based largely on pollen from a few peat bogs, and vegetation found in packrat nests in arid areas of West Texas (Bryant and Shafer 1977). In recent decades, however, a number of more detailed studies have been completed, analyzing data sets that included pollen, phytoliths, oxygen isotopes and faunal remains. These studies allow a more refined view of climate change since the end of the Pleistocene (Greaves et al. 2002:13). The following is based on Figure 10 in Greaves et al. (2002:17) and the relevant discussion (Greaves et al. 2002:15-18).

Beginning at the time of the first known human occupation in Texas (ca. 11,000 BP) the current data for paleoclimate in Texas indicates a climate cooler and wetter than present, with cold-adapted tree species such as spruce (Picea) present in Patschke Bog (located about 320 km (200 miles) NE of the project area) (Bousman 1998, Nickels and Mauldin 2001).

In the early Holocene, between 10,000 and 8000 BP, pollen studies indicate that woodlands (indicating a mesic climate) and grasslands (indicating a xeric climate) succeeded each other in a series of fluctuations during which grasslands gradually came to dominate. The Middle Holocene (ca. 8000 to 4000 BP) appears to have been a very dry period, although there appear to have been some fluctuations and occasional wetter periods. In particular, the data from a number of sources indicate that there was a substantial mesic period between ca. 6500 to 5000 BP (Greaves et al. 2002:17) becoming much dryer by the end of the period.

In the late Holocene (4000 BP to the present) the various data sets do not agree as well as they did for earlier periods (Greaves et al. 2002:18), suggesting more regional variation than had been seen before that time. Pollen studies show a very dry period at the beginning of the Late Holocene followed by a relatively mesic period ca. 3000 BP and a somewhat dryer period about 1000 BP. Since ca. 750 BP the climate has been relatively mesic.

Cultural Background

Though Bexar County lies at the boundary between the Central Texas and South Texas Archeological Regions, as defined by Black (1989a, 1989b), this report will use the culture prehistory defined for Central Texas. A more detailed culture prehistory for the region can be found in Collins (1995) and Hester (1995).

The cultural prehistory of Bexar County is usually divided into four periods: Paleoindian, Archaic, Late Prehistoric, and Historic. Each of these has been divided more specific periods, but for the purposes of this report only a very general overview of the cultural past of Bexar County is needed.

Paleoindian (11,500 to 8800 BP)

The earliest identified prehistoric culture in Bexar County is that of the people who made the highly distinctive Clovis spear points, which have been found in several sites in the county, especially at the Pavo Real site on Leon Creek upstream of the project area (Collins et al. 2003). Folsom points, the successor to Clovis, have been found at Pavo Real, and at St. Mary's Hall (41BX229; Hester 1979, 1990). Late Paleoindian point types include Plainview, Golondrina, Dalton, and San Patrice (Greaves et al. 2002:19).

The lifestyle of the Clovis and Folsom people appeared to be highly nomadic. These two point styles, as well as associated artifacts, can be found all over North America, strongly suggesting that this cultural was far more mobile than their descendents. As the Late Paleoindian sub-period began after about 9000 BP, however, a myriad of localized spear point variants can be seen across the continent, suggesting that, as the last remnants of the Pleistocene faded, people, though still highly mobile, limited their wanderings to a specific area. Diversity in the projectile points and development of regional tool kits in this period across North America suggest that hunter-gatherers began to adapt to the specific landscape in which they found themselves.

Archaic (8800 to 1200 BP)

During the long period of the Archaic, the inhabitants of Bexar County lived as hunter-gatherer groups who probably maintained an "annual round" within a given area, moving

from one campsite to another as each food type became available during the year, adapting to the climate changes (see above) and developing different technologies (Collins 1995:383-385; Greaves et al. 2002:19). Plant gathering appears to have become a more important part of the subsistence pattern in this period, and was probably even more important during more xeric periods. In Central Texas earth ovens heated by hot limestone rocks were used to cook a variety of plant foods that were otherwise not edible, such as the roots of sotol, and yucca (Collins 1995: 383). Remains of these ovens, usually called "burned rock middens", can be found near water courses all over Central Texas.

The Archaic is usually divided into three sub-periods: Early, Middle, and Late, with archaeologists differing somewhat in details of the timing of these sub-periods. Population in Central Texas seems to have increased steadily throughout the Archaic and point types changed over time as well. Early Archaic points, such as Angostura, Gower, and Early Corner-notched, are seen in several sites near the project area, including 41BX47 on Leon Creek not far south of Pavo Real.

Middle Archaic point types include Nolan, Bell, and Travis. The large number of sites dating to this sub-period suggests that the population was increasing rapidly. The remains of earth ovens dating to this period are common.

In the early part of the Late Archaic point types include Pedernales, Marshall, Montell and Castroville, with a shift to smaller points such as Frio and Ensor types in the later part of the sub-period. In the Late Archaic, cemeteries become much more common throughout the state. The apparent use of areas designated as cemeteries has been interpreted as an increase in territoriality due to reduced mobility caused by increased population.

Late Prehistoric (1200 to ca. 500 BP)

The shift to the Late Prehistoric period is marked by the introduction of the bow and arrow, a major shift in hunting technology. Edwards, Scallorn, and later the Perdiz point types are associated with this period. In the latter, Toyah Phase of the period most Native Americans in Texas adopted ceramic technology. The type of prehistoric ceramics found in Bexar County remained a plain brownware (usually called Leon Plain) until the introduction of more highly fired and highly decorated ceramics by the Spanish after 1600 CE.

Historic

Early descriptions of the San Antonio Springs were reported by Damián Massanet as early as 1691 (Brune 2001). Some of the first known Europeans to enter Bexar County were part of the entrada lead by Pedro de Aguirre in 1709. On the way to the missions established in East Texas, they stopped in the San Antonio valley. Fray Antonio de San Buenaventura y Olivares was impressed by the many springs and creeks in the area (Chipman 2001). Olivares began a campaign to get a mission established in the area, and succeeded after almost 10 years. In 1718 the mission San Antonio de Valero and Presidio San Antonio de Béxar were established near San Pedro Springs. Later both institutions were moved several times. The mission was moved to its current location ca. 1724 while the presidio was moved across the river near the new villa of San Fernando de Béxar. These three institutions were the foundations of the city of San Antonio (Fehrenbach 2004).

For a long time, the project area was part of the wilderness outside the settlement of San Antonio. It was not until after Texas became part of the United States that immigrants, largely from the southeastern states, began to create farms around the city. After the Civil War the city became one of the foci for a wave of German immigrants whose farms soon filled in the remaining undeveloped land in the county (Fehrenbach 2004). Though it is outside the scope of this report to consider the details of ownership of the project area, aerial photographs taken in the late 1950s (Taylor et al. 1991: Map 52) show these prairie lands were being farmed before urbanization overtook the area, beginning in the 1970s.

Previous Investigations

Eighteen survey projects within or near the APE are listed in the Texas Archeological Site Atlas (THC 2007). They are listed in Table 2-1 and their extent is shown in Figure 2-3. By far the most systematic examination of land near the project area is that conducted in 1994 by CAR (Table 2-1). A large part of Lackland AFB and the Medina Annex, both of which are immediately adjacent to parts of the APE, were surveyed and later eight sites were further tested (Nickels et al. 1997; Houk and Nickels 1997). Seventy-one sites were recorded during the first phase of the project (Nickels et al. 1997). Cultural materials evidenced Early Archaic to Late Prehistoric occupations. Two of the sites tested by CAR, sites 41BX1102 and 41BX1103, were recommended eligible for listing on the National Register of Historic Places (NRHP). Site 41BX1102 consisted of a Middle Archaic as well as a

Table 2-1. List of Previous Archeological Surveys in or Near the Project APE (shown in Figure 2-3).

	Date	Agency	Contractor	Description	Reference
Not shown	1981	State Department of Highways and Public Transportation (SDHPT; now TxDOT)	SDHPT	Extent of survey not known, though sites 41BX555 and 41BX556 were recorded and tested in 1981. Both sites are within the current project APE, and both were considered to be highly disturbed with no sub-surface component within the ROW at that time.	Latimer 1981;THC 2007
1	1983	Environmental Protection Agency (EPA)/ Texas Department of Water Resources (TDWR)	UTSA-CAR	Survey of five pipeline routes surveyed for San Antonio Wastewater Treatment Facilities project, which crosses the current project APE in two places. No sites were recorded in or near the APE of the current project.	Snavely et al. 1984
2	1985	Federal Highway Administration (FHWA) / SDHPT	SDHPT	Survey conducted prior to the construction of SH 151, crosses current project APE. One site, 41BX683, was recorded within APE of current project. It was described as deflated with no intact components.	THC 2007
3	1985	FHWA /SDHPT	SDHPT	FM 1957 from 0.2 miles west of Loop 410 to FM 471. 41BX556 relocated. No new sites listed	THC 2007
4	1986	FHWA /SDHPT	SDHPT	Surveyed Loop 410 from Somerset Rd. east and north to IH 10 intersection, including portion of the current project APE. No new sites listed.	THC 2007
5	1986	FHWA /SDHPT	SDHPT	Surveyed Loop 410 ROW from Somerset Rd. east to Moursund Rd. One site identified within current project APE: 41BX704, described as severely impacted by bridge construction.	THC 2007
6	1986	SDHPT		Surveyed Spur 1957 from Loop 410 to Fm 1957. 41BX556 relocated and re-assessment recommended	THC 2007
7	1987	FHWA		Surveyed Potranco Rd., crossing the current project APE. No sites recorded near APE.	THC 2007
8	1991	FHWA /TxDOT	TxDOT	Survey of FM 2790 (Somerset Rd.) and a portion of the Medina River south of Loop 410. One site, 41BX691, was located <600 m from the current project APE.	THC 2007
9	1994	National Park Service (NPS)/US Air Force (USAF)	UTSA-CAR	Survey of Lackland AFB and Lackland Medina Annex adjacent to APE of project on US 90. Two of the 71 new sites recorded are within 100 m of the current project APE: 41BX1105 and 41BX1106.	Nickles et al. 1995
10	1996	USAF	UTSA-CAR	Tested 8 sites located in previous survey of Medina Annex. None were immediately adjacent to the current project APE.	Houk and Nickles 1997
11	2002	City of San Antonio Parks and Recreation Department (SAPRD)	UTSA-CAR	Survey of proposed park <400 m from current project APE recorded no new sites.	Figueroa 2002
12	2003	USAF	Geo-Marine	Surveyed and tested area adjacent to current project APE at eastern end of project area on US 90. No sites were recorded	THC 2007
13		City of San Antonio	PBS&J	Surveyed area for proposed Leon Creek Regional Storm Water Detention Facility. Western end of survey was immediately adjacent to Loop 410. Located three sites: 41BX1534, 41BX1535, 41BX1536, none of which was within the current project APE.	Smith et al. 2003
14	2004	FHWA /TxDOT	Parsons Brinckerhoff Quade & Douglas, Inc.	Surveyed proposed track of Kelly Parkway from US 90 to SH 16, crossing the current project ROW. Isolated finds located, but no new sites were recorded.	THC 2007
15	2005	San Antonio Water System (SAWS)	SWCA, Inc.	Surveyed proposed track of the SAWS Western Watershed Relief Main W-04 project, which crosses the APE of this project. No new sites were recorded.	THC 2007
16	2006	USAF	Geo-Marine	Testing project at Lackland AFB adjacent to US 90, no details currently available, but no sites have been recorded near project APE in this area.	THC 2007
17	2006	Rosillo Creek Development, Ltd.	Brazos Valley Research Associates	Survey of proposed Palo Alto Trails Development located 41BX1690, a lithic scatter limited to the plow zone, with no apparent intact deposits.	THC 2007

buried component. Site 41BX1103 contained deposits dating from the Middle Archaic to the end of the Archaic. Both of these sites are less than 500 meters south of the APE on US 90 (Figure 2-3).

The surveys listed in Table 2-1 documented 31 sites within 2 km (1.2 miles) of the APE; four of these sites are within the APE itself (Figure 2-3; THC 2007) and have been determined not eligible. One of the sites located within the existing ROW

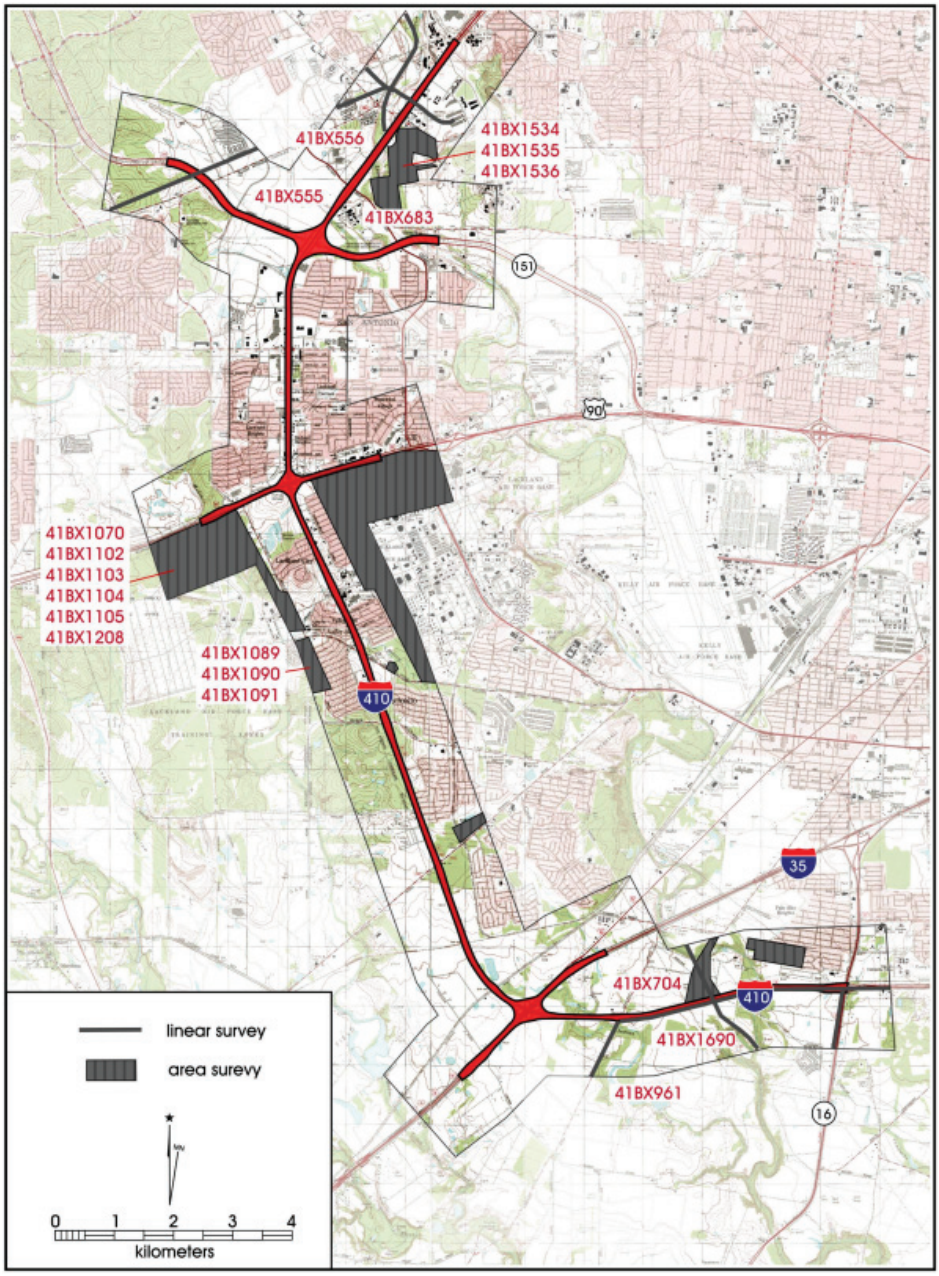

Figure 2-3. *Location of previous archeological surveys and identified sites within 2 km of APE.*

of Loop 410 is 41BX555. Site 41BX555 was originally described as a 300-x-300-ft. prehistoric site located 1.9 km (1.2 miles) southwest of the intersection of Culebra Road and Loop 410, on a terrace of Slick Branch Creek (THC 2007; see Figure 1-2). It was discovered in 1981 (Latimer 1981). At the time, the portion present within the ROW was described as heavily disturbed. Chert flakes and burned rock were noted on the surface of the terrace. However, the portion of the site that was adjacent to the existing ROW was described as undisturbed and potentially retaining research potential. Further work performed at the site by the State Department of Highways and Public Transportation in 1981 revealed no cultural material (Latimer 1981) and the site was deamed not eligible.

Site 41BX556 also is described as a 300-x-300-ft. prehistoric site on a terrace of Leon Creek, just south of the Culebra Road/Loop 410 intersection (THC 2007; see Figure 1-2). As in the case of 41BX555, it was discovered in 1981 and at the time the portion present on the terrace within the ROW was described as heavily disturbed. Chert flakes and a dart point fragment were noted on the surface of the terrace (THC 2007). The portion of the site that was adjacent to the existing ROW was undisturbed and retained research potential. Nevertheless, further work at the site revealed that the portion of the site within the Loop 410 ROW is totally disturbed (Latimer 1981) and the site was not eligible based on the current findings.

Site 41BX683 was located on the east bank of Leon Creek on a bluff disturbed prior to building of the SH151 bridge, west of Military Dr. (THC 2007; see Figure 1-2). The site was reported as an open campsite of approximately one acre represented by a surface scatter of flakes, a core, and a few burned rocks. No intact deposits were noted. The site was determined not eligible to the NRHP.

Site 41BX704 was an open camp site recorded in 1986, located on the east bank of Leon Creek in the ROW of Loop 410 (Figure 1-3). It was estimated that the portion of the site within the ROW was about 100 m^2 with no intact deposits. Further testing was recommended if the ROW was obtained. The site had a scatter of chert flakes, a few ground stone fragments and some burned rock, and appeared to extend into the adjacent private property, but within the ROW it appeared to have no intact deposits making the site not eligible.

As noted in the APE section, new ROW was not being obtained by TxDOT were the sites were located. The following is a brief description of the 27 sites found within 2 km of the project area that were not within the project area itself:

- 41BX465. Site 41BX465 is roughly 640 m north of US 90. It was recorded in 1977, described as a scatter of chert flakes, cores, and burned rock on a terrace above Medio Creek. The examination was limited to a surface inspection, and the recorder recommended that the site be tested (THC 2007). The eligibility status of the site is not known.

- 41BX599. Site 41BX599 is about 1570 m south of Loop 410. The site was recorded in 1983 and was described as a sparse lithic scatter, bounded by borrow pits on a terrace above Leon Creek, and is about 50 m^2. No diagnostics were recovered on the site (THC 2007). The eligibility status of the site is not known, but the description of the site made by the original recorder (THC 2007) suggests that it is unlikely to retain enough integrity to be eligible for listing in the National Register of Historic Places (NRHP) or for formal designation as a State Archeological Landmark (SAL).

- 41BX961. Site 41BX961, recorded in 1991, measured about 100 m^2 and consisted of chert flakes, burned rock and two small biface fragments. The site appeared disturbed by former land clearing activities, associated utility and road construction, and had been plowed in the past. No diagnostic artifacts were recorded (THC 2007). The structural integrity of the site was considered poor, making it not eligible for listing on the NRHP or for designation as an SAL.

- 41BX1002. Site 41BX2001, roughly 1720 m west of Loop 410, is a multicomponent site roughly 20,800 m^2 with both prehistoric and historic features. It was recorded in 1993 (De Vore 1993), and reexamined during the Medina Annex Survey in 1994 (Nickels et al. 1997). The historic component includes the foundations of two historic stone buildings. The historic occupation partially disturbed a prehistoric component that yielded an Early Archaic dart point. The 1994 assessment did not recommend the site for listing on the NRHP or for designation as an SAL.

- 41BX1070. Site 41BX1070 is roughly 1370 m west of Loop 410. It was recorded during the Medina Annex Survey in 1995, on a bluff near an unnamed tributary of Medio Creek. It was described as a lithic procurement site, about 1400 m^2, with a large assemblage of early reduction stage lithics. A single shovel test indicated that the deposit was limited to the surface. Nevertheless, the site appeared relatively intact and undisturbed and the preliminary assessment was that the site was potentially eligible for listing on the NRHP and/or for designation as an SAL (Nickels et al. 1997).

- 41BX1071. Site 41BX1071 is roughly 940 m west of Loop 410. It was recorded during the Medina Annex Survey in 1994, on uplands above Medio Creek. It was described as a lithic procurement and camp site, about 1400 m^2, with a large assemblage of early reduction stage lithics, and a few burned rocks. An Edgewood dart point found on the surface is from the Transitional Archaic (ca. 2300-1300 BP). The site had been damaged by road construction and surface clearing. Nevertheless, portions of the site appeared relatively intact and undisturbed and the preliminary assessment was that the site was potentially eligible for listing on the NRHP and/or for designation as an SAL (Nickels et al. 1997).

- 41BX1078. Site 41BX1078 is roughly 1480 m west of Loop 410. It is a small lithic procurement site of about 700 m^2, with artifacts limited to the surface. There is little evidence of disturbance at the site. The preliminary assessment was that the site was potentially eligible for listing on the NRHP and/or for designation as an SAL (Nickels et al. 1997).

- 41BX1086. Site 41BX1086, roughly 1970 m west of Loop 410, was identified during the Medina Annex Survey in 1994, on a terrace of Medio Creek, and described as a lithic procurement area and open camp site with an area of about 900 m^2. The artifact density on the site surface was very high and a shovel test showed that another component was present at 40-50 cmbs. The site showed few signs of disturbance. The preliminary assessment was that the site was potentially eligible for listing on the NRHP and/or for designation as an SAL (Nickels et al. 1997).

- 41BX1087. Site 41BX1087, roughly 1590 m west of Loop 410, was recorded during the Medina Annex Survey in 1994, on a terrace of Medio Creek, and described as a small open camp site with an area of about 315 m^2. Artifact density on the site surface, including debitage from all stages of lithic tool manufacture and large amounts of burned rock, was high and a shovel test indicated the component extended to 20 cmbs. A Matamoros point was found on the surface, indicating

a Late Archaic date for the component. The site showed little evidence of disturbance. The preliminary assessment was that the site was potentially eligible for listing on the NRHP and/or for designation as an SAL (Nickels et al. 1997).

- 41BX1088. Site 41BX1088, located about 1360 m west of Loop 410, is a huge site, covering 166,000 m^2 on an upland ridge above Medio Creek. It was recorded during the Medina Annex Survey in 1994 and described as a large open campsite and lithic procurement area. Large amounts of fire-cracked rock, cores, bifaces, debitage indicating all stages of lithic tool manufacture, and some ground stone were observed on the surface, especially on the higher elevations of the site. During the survey two Guadalupe bifaces, as well as Pedernales and Lange dart points, were recovered. These diagnostic artifacts indicate occupation from the Early Archaic through the Late Archaic sub-periods. The site was tested in 1996. Test units were dug to 100 cmbs and all had artifacts throughout, though artifact density dropped sharply below 20 cmbs. Artifacts recovered during the testing included Archaic dart points such as Pedernales, Darl, Edgewood, Ensor, Frio and Fairland types as well as Late Prehistoric artifacts such as Scallorn and Perdiz arrow points and Leon Plain ceramics. With the exception of the two Guadalupe tools and the Pedernales point, the diagnostic artifacts indicated a Transitional Late Archaic to Late Prehistoric occupation period. Two features were located on the surface, both of which were alignments of large stones. Feature 1 consisted of three oval stone alignments one of which measured 2.5 x 3.5 m. Feature 2 consists of large rocks arranged into parallel lines about 3 m long. No date could be assigned to these features. The site has been impacted by the construction of fire roads and fire breaks which appear to have removed about 20 to 30 cm of sediments. Otherwise, the only impact to the site that was visible was erosion. The testing resulted in a recommendation that the site is eligible for listing on the NRHP and/or for designation as an SAL (Nickels et al. 1997).

- 41BX1089. Site 41BX1089 is roughly 890 m west of Loop 410. It was recorded during the Medina Annex Survey in 1994, on the uplands overlooking Medio Creek. It was described as a lithic procurement site, about 1400 m^2, with a large assemblage of early reduction stage lithics. A shovel test indicated that the deposit was limited to the surface. Nevertheless, the site appeared relatively intact and the preliminary assessment was that the site was potentially eligible for listing on the NRHP and/or for designation as an SAL (Nickels et al. 1997).

- 41BX1090. Site 41BX1090 is roughly 820 m west of Loop 410. It was also a lithic procurement site, approximately 1040 m^2, recorded during the Medina Annex Survey in 1994, on uplands overlooking Medio Creek (Nickels et al. 1997). The site was tested in 1996. No diagnostic artifacts were recovered. It was determined that the cultural deposits did not retain sufficient integrity to make the site eligible for listing on the NRHP and/or for designation as an SAL.

- 41BX1102. Site 41BX1102 is roughly 400 m south of US 90. It is an open camp site located on the T1 terrace above Medio Creek. It measures approximately 13,975 m^2, and was recorded during the Medina Annex Survey in 1994 (Nickels et al. 1997). The site was tested in 1996 (Houk and Nickels 1997). Eight Pedernales points and two possible projectile point banks were collected from the surface during testing and survey. Shovel testing and test units excavated indicated the possible presence of three components, one at surface, a second one at about 50 cmbs and a third component buried at 70 cmbs. Although the eastern half of the site had been impacted by military activities on the base, the western half was relatively undisturbed. The site was determined to be eligible for listing on the NRHP and/or for designation as an SAL (Houk and Nickels 1997).

- 41BX1103. Site 41BX1103 is 260 m south of US 90. It was described as an open camp site located on the T1 terrace above Medio creek. It measures approximately 13,115 m^2, and was recorded during the Medina Annex Survey in 1994 (Nickels et al. 1997). The testing done in 1996 (Houk and Nickels 1997) found artifacts to at least one meter below the surface. Radiocarbon dating and diagnostic artifacts indicate the site was occupied between about 3600 and 1400 BP. Diagnostic points recovered from the surface included Edgewood, Ensor, Fairland, and Frio, all of which date to the Transitional Archaic (roughly 2400-1300 BP). Although parts of the site are disturbed by military activities, the remainder is relatively undisturbed. The site was determined to be eligible for listing on the NRHP and/or for designation as an SAL (Houk and Nickels 1997).

- 41BX1105. Site 41BX1105 is less than a 100 m from US 90, located along an intermittent unnamed tributary of Medio Creek. It appears to be a lithic procurement

site 1054 m^2, but no diagnostic artifacts were recovered and a shovel test showed that the artifacts were limited to the surface. Nevertheless, the site appeared relatively intact and was assessed as potentially eligible for listing on the NRHP and/or for designation as an SAL (Nickels et al. 1997).

- 41BX1106. Site 41BX1106 is less than a 100 m from US 90, located on a terrace near Medio Creek. It appears to be a lithic procurement site occupying 840 m^2. No diagnostic artifacts were recovered. A shovel test showed that artifact deposits continued to at least 20 cmbs. The site appeared relatively intact and the preliminary assessment was that the site was potentially eligible for listing on the NRHP and/or for designation as an SAL (Nickels et al. 1997).

- 41BX1107. Site 41BX1107 is a small open campsite about 1580 m west of Loop 410, on a broad alluvial terrace above Leon Creek and occupies about 168 m^2. The dense artifact concentration on this small site included lithic debris from the latter stages of tool manufacture, and burned rock and a Transitional Archaic Edgewood point. The site has been damaged due to its location on the Lackland AFB golf course. However, because it is one of the few relatively intact areas along Leon Creek in this area, the preliminary assessment was that the site was potentially eligible for listing on the NRHP and/or for designation as an SAL (Nickels et al. 1997).

- 41BX1115. Site 41BX1115 is a small site 1550 m west of Loop 410. The site is approximately 30 m^2, recorded during the Medina Annex Survey in 1994, on a terrace above Medio Creek. Two flakes and fire cracked rock was collected during shovel testing. It was recommended that additional subsurface testing be conducted at the site. Furthermore, the site was potentially eligible for listing on the NRHP and/or for designation as an SAL (Nickels et al. 1997).

- 41BX1119. Site 41BX1119 is a lithic procurement site 1750 m west of Loop 410. Very similar to 41BX1115, the site is approximately 30 m^2, recorded during the Medina Annex Survey in 1994, on a terrace above Medio Creek. A shovel test located no artifacts below the surface. Nevertheless, the site appeared relatively intact and the preliminary assessment was that the site was potentially eligible for listing on the NRHP and/or for designation as an SAL (Nickels et al. 1997).

- 41BX1120. Site 41BX1120 is a small open campsite site 1790 m west of Loop 410, on a terrace above Medio Creek. The site is approximately 70 m^2, recorded during the Medina Annex Survey in 1994. A shovel test located artifacts to 30 cm below the surface. The site appeared relatively intact and the preliminary assessment was that the site was potentially eligible for listing on the NRHP and/or for designation as an SAL (Nickels et al. 1997).

- 41BX1130. Site 41BX1130 is located 1730 m west of Loop 410, on a terrace of Medio Creek. The site is 2400 m^2 and has both historic and prehistoric components. There were no diagnostic prehistoric artifacts located. Temporal affiliation of the site remains unknown. The prehistoric component may have been disturbed by the building of several farm outbuildings, probably in the 1940s. The preliminary assessment was that neither component was eligible for listing on the NRHP and/or for designation as an SAL, except as a part of an archeological district (Nickels et al. 1997).

- 41BX1131. Site 41BX1131, located 1310 m southwest of the southern end of the APE on IH 35, was recorded in 1995 during a survey sponsored by the US Corps of Engineers near Mitchell Dam (THC 2007). The site was immediately adjacent to Medio Creek and was partially destroyed by building of a stilling tank for the dam. A scatter of chert flakes and burned rock were observed. There is not enough information available at this time to assess whether the site was eligible for listing on the NRHP and/or for designation as an SAL, so its eligibility status remains unknown (THC 2007).

- 41BX1208. Site 41BX1208, located about 470 m south of US 90, was recorded during the testing phase of the Lackland AFB/Medina Annex Project in 1996 (Houk and Nickels 1997). It was described as a small lithic procurement site roughly 575 m^2, near Medio Creek. A shovel test showed no artifacts below the surface. The site surface showed evidence of some disturbance, and erosion. The integrity of the site was considered insufficient to consider the site eligible for listing on the NRHP and/or for designation as an SAL (Houk and Nickels 1997).

- 41BX1534. Site 41BX1534, located roughly 300 m east of Loop 1604, was recorded in 2002 during a survey for a proposed storm water detention facility north of Leon Creek (Smith et al. 2003). The site, which measures 2250 m^2, is multicomponent, with several historic concrete foundations and historic artifacts

associated with a riding club located there in the 1950s. The prehistoric component was discovered during shovel testing, when a possible hearth and several chert artifacts were found in one shovel test at 65 to 80 cmbs. Two features were found in test units next to backhoe trenches. One feature was a group of burned rocks, a possible hearth, associated with chert debitage at 40-50 cmbs; the other was a layer of ash and charcoal that was 13 cmbs and may be modern. In 2003, the site was revisited and more testing was done, and more burned rock and associated artifacts were located at 20-30 cmbs. Artifacts collected at the site included several bifaces which appear to be dart point blanks and other lithic tools, and a Cuney-like arrow point, suggesting the site was occupied during the Archaic and Late Prehistoric. The presence of what appear to be several intact buried components resulted in the determination that the site was potentially eligible for listing on the NRHP and/or for designation as an SAL (Smith et al. 2003).

- 41BX1535. Site 41BX1535, located roughly 410 m east of Loop 410 on top of a small hill, was recorded in 2002 during a survey for a proposed storm water detention facility north of Leon Creek (Smith et al. 2003). The site, which measures 150 m^2, is a small lithic scatter. The sparse chert flakes on the surface and in shovel tests, and the lack of observable features make it unlikely that the site has significant research potential. The site was recommended not eligible for listing on the NRHP and/or for designation as an SAL (Smith et al. 2003).

- 41BX1536. Site 41BX1536, located roughly 400 m east of Loop 410 on the top of a small hill, was recorded in 2002 during a survey for a proposed storm water detention facility north of Leon Creek (Smith et al. 2003). The site, which measures 2025 m^2, is a lithic scatter. Shovel tests and one test unit found a few flakes and one biface fragment, all recovered from sediments between 0 to 50 cm below the surface. The sparse chert flakes and the lack of observable features, make it unlikely that the site has significant research potential. This resulted in the determination that the site was not eligible for listing on the NRHP and/or for designation as an SAL (Smith et al. 2003).

- 41BX1690. Site 41BX1690, recorded in 2006, is roughly 120 m south of Loop 410. The site is located on the second terrace on the east side of Leon Creek and was determined to be about 770 m^2. It was described as a lithic scatter with burned rock. No diagnostic artifacts were found. Artifacts were found to about 20 cmbs, however, it is known that the area has been plowed, and no intact deposits were found. The site was not considered to be eligible for listing on the NRHP and/or for designation as a SAL (THC 2007).

- Rancho San Lucas and the Upper Presido Road. Rancho San Lucas was one of the two ranches belonging to Mission San José y San Miguel Aguayo (McGraw et al. 1998). It is located outside the 2 km radius but worth mentioning. The location of the *rancho* lands would have encroached on this portion of Bexar County and all the way to Castroville. It was said to have been over 48,000 acres (McGraw et al. 1998:144). Moreover, the Upper Presido Road, followed closely to the modern corridor of US Highway 90 in the area (Berlandier 1980; McGraw et al. 1998).

Chapter 3: Methodology

This project, which began in 2005, occurred in three phases, as outlined in Chapter 1. Phases I and II used the same basic methods associated with the pedestrian survey, while Phase III consisted of a series of backhoe trenches in high probability areas. This chapter presents the methods used for all three phases of the project including pre-field activities, field, and laboratory methods.

Pre-Field Activities and Background Research

There were several goals specified in the scope of work for this project. The initial goal, to be completed prior to the initiation of field work, consisted of a review of known archeological sites that were within the project area. A review of site data at that time in the Texas Archeological Sites Atlas (THC 2007) suggested that while many sites were present in the general project area, four sites (41BX555, 41BX556, 41BX 683 and 41BX704) fell within the APE (see Figure 1-2 and 1-3). These four sites were scheduled for examination with shovel tests and/or backhoe trenching.

The background research also included a comprehensive review of all available archeological reports and databases to identify and characterize all archeological sites known to occur within the project area. The compilation of information related to known historic properties within the project area and its vicinity was primarily based on the information contained in the Texas Archeological Sites Atlas (THC 2007). In addition, the extensive records at CAR as well as other sources were consulted to compile a comprehensive database of all prehistoric and historic sites in and within the vicinity of the project area. As part of this effort, an archeological literature review was performed to summarize information on the types of prehistoric sites and the characteristics of the regional prehistoric settlement patterns. As part of the literature review, USGS 7.5' quadrangle maps, the Soil Surveys of Bexar County (Taylor et al. 1991), and the Bureau of Economic Geology's San Antonio Sheet of the Geologic Atlas of Texas (Barnes 1983) were examined.

The most recent aerial photos available at the time of 2005 Phase I field activities were from 2001. Given that much of the project area is in a section of San Antonio that is undergoing rapid development, large sections shown as undisturbed in the 2001 photos were likely to have been developed in the intervening four years. Consequently, a preliminary reconnaissance, consisting of a walk-over of the existing ROW for the entire length of the project, was conducted from August 3 to August 5, 2005. When highly disturbed areas were observed in proposed new ROW, the beginning and ending points of that disturbance were mapped with a Trimble GeoExplorer II GPS unit. The 2001 aerial photos were updated to include the locations of the disturbed areas.

Designation of High, Moderate, and Low Probability Areas

Within the APE, areas were classified by the potential to containing buried cultural deposits, at first using maps and aerial photographs and then by a preliminary field examination. An area was designated to have a Low Probability (LP) if it had been extensively modified by urban development, including road construction, drainage, commercial and housing property development, etc. Given the level of construction and maintenance associated with Loop 410, areas in which the ROW would not be changed and which had been surveyed in the past were also considered LP. Areas were designated as Moderate Probability (MP) if they were more than 200 m from existing creeks and there was no extensive modification evident within the proposed new ROW. All areas of the APE lying within 200 meters of existing streams were designated High Probability (HP) areas unless impacted by recent development.

Pedestrian Survey

The pedestrian survey began with a reconnaissance during which the entire length of the project was walked, prior to the commencement of shovel testing, in order to delineate areas that have been heavily disturbed by construction and development and areas with potential for cultural materials. Digital photographs were taken to document the present state of the project area.

For the purposes of the survey, as per the scope of work, sites were defined as locations having at least five artifacts within a 30-m^2 area, or as a location containing a single cultural feature such as a hearth. All other artifacts were classified as isolated occurrences.

Following the assignment of the three categories of probability to contain intact cultural deposits to the entire project area, a 100 percent, systematic pedestrian survey of

the approximately 20-mile project area was conducted within the existing and accessible portion of the proposed new ROW. All stream crossings, areas that were *a priori* judged to be high probability areas for buried archeological sites, were visited and inspected. The primary goal of these inspections was to determine if these areas would not warrant future subsurface inspection in the form of backhoe trenching due to disturbances (e.g., extensive erosion, nearby development). Secondarily, each area was inspected to determine likely locations for the future backhoe trenches, if warranted. A list of 24 potential backhoe locations was compiled.

Shovel Tests

Shovel tests were performed in accordance with the Texas Historical Commission archeological survey standards at a minimum rate of 16 shovel tests for every linear mile (about 1 shovel test every 100 meters) spaced systematically to provide consistent coverage of the project area. In areas designated as having a high probability for containing cultural resources, including the two previously recorded sites, shovel tests were excavated every 50 meters. Shovel tests were:

- recorded on standard shovel test forms, indicating soil color, texture, percentage and types of inclusions, type of artifacts recovered, and any additional observations considered pertinent;
- 30-35 cm in diameter;
- excavated in arbitrary 10 cm levels to a depth of 60 cm below ground surface (cmbs) unless an obstruction, such as large rocks or concrete, prevented further digging;
- matrix was screened using a 0.64 cm (¼") mesh screen;
- all cultural materials collected were bagged by shovel test and level;
- shovel test locations were recorded using a GPS unit and sketched onto aerial photographs to back up GPS information.

On previously recorded sites, shovel tests were excavated about every 50 meters or less in areas not currently affected by construction and development. In the single case where cultural material was encountered in a shovel test, additional shovel tests were excavated in its vicinity (within 25 meters) to define the extent of the distribution. High and moderate probability areas were not shovel tested when they showed evidence of disturbances such as ditches, utilities and/or construction.

Backhoe Trenching

According to the Phase I scope of work, CAR was not to carry out any backhoe trenching. Instead, CAR staff would visually inspect all stream-crossings to determine whether they may possess intact alluvial deposits that may contain buried cultural materials. At the end of Phase I, a list of 24 potential areas for backhoe trenching were recommended for trenching at a later date. Three more such areas were defined during Phase II. These areas were repeatedly reassessed, as continuing development on private property and failure to receive ROE eliminated some potential locations from consideration (see discussion in Chapter 3 and Table 3-1).

A total of 16 backhoe trenches were excavated during Phase III. Prior to backhoe trenching the Dig-TESS System, San Antonio Water System (SAWS) and Bexar County Metro, were notified to locate utilities in the APE within the existing ROW. All potential trench areas were either cleared by the utility companies or these companies marked the location of their utilities so that the trenches could be placed to avoid them.

All trenches were approximately 60 cm (2') wide, and were excavated to an approximate depth of 150 cmbs. Length of the trenches varied somewhat based on specific circumstances, ranging from four to seven meters. Unless the wall profile was shown to be all modern fill, a measured profile of three meters of one wall was drawn on acid-free graph paper. In one case, BHT 13, both walls were profiled due to the unique stratigraphy of each wall. Digital photographs were taken of all trenches. The color and texture of sediments were either identified in the field or samples were brought back to the lab for identification. Color was defined using a Munsell® color book. Artifacts recovered were collected with appropriate provenience information. The artifacts were returned to the lab for processing as described in the following section.

The location of each trench was obtained using a GPS unit. Locations were also drawn on aerial photographs as a backup. After all recording procedures for each trench were completed, the trenches were immediately backfilled.

Laboratory Methods

Only artifacts encountered within existing TxDOT ROW were collected, no artifacts were encountered or collected on private property. The cultural materials recovered were brought to CAR's laboratory where they were processed and catalogued according to CAR's standard practices. Processing of recovered artifacts consisted of washing and sorting into

Table 3-1. Areas Recommended for Backhoe Trenching

	Original Recommendation		Reassessment		
Creek	**Location**	**Reason**	**BHT #**	**Outcome**	**Reason**
Phase I Recommendations					
Leon	On northwest terrace, east of Loop 410, south of Culebra Road	Undisturbed creek terrace. Location of 41BX556.	**01**	**Excavated**	
Leon	Northeast terrace, west of Loop 410	Undisturbed creek terrace.	**02**	**Excavated**	
Leon	Southwest terrace, west of Loop 410	Undisturbed creek terrace.	**03**	**Excavated**	
Leon	North terrace, west of Loop 410.	Undisturbed creek terrace.	**04**	**Excavated**	
Slick Ranch	Northeast terrace, east of Loop 410, south of Richland Hills Dr.	Undisturbed creek terrace, location of 41BX555.		Not excavated	Disturbed by commercial development
Slick Ranch	Southwest terrace, east of Loop 410, near SH151 interchange	Undisturbed creek terrace.		Not excavated	Disturbed by commercial development
Slick Ranch	Northeast terrace, west of Loop 410	Undisturbed creek terrace.		Not excavated	Disturbed by commercial development
Slick Ranch	Southwest terrace, west of Loop 410, near SH151 interchange	Undisturbed creek terrace.		Not excavated	Disturbed by commercial development
Slick Ranch	West Terrace, west of Loop 410, south of SH151 interchange	Undisturbed creek terrace.	**09**	**Excavated**	
Slick Ranch	West Terrace, west of Loop 410, south of SH151 interchange	Undisturbed creek terrace.	**10**	**Excavated**	
Slick Ranch	West Terrace, west of Loop 410, south of SH151 interchange	Undisturbed creek terrace.	**11**	**Excavated**	
Medio	Terrace within horseshoe bend of creek, east of bridge on US 90	Undisturbed creek terrace.	**12**	**Excavated**	
Medio	Terrace within horseshoe bend of creek, east of bridge on US 90	Undisturbed creek terrace.	**13**	**Excavated**	
Indian	Southwest terrace, west of Loop 410 between Quintana Rd. and IH 35.	Undisturbed creek terrace.		Not excavated	No ROE
Indian	Southwest terrace, west of Loop 410 between Quintana Rd. and IH 35.	Undisturbed creek terrace.		Not excavated	No ROE
Indian	Northeast terrace, west of IH 35	Undisturbed creek terrace.	14	Not excavated	Not accessible to backhoe
Indian	Southeast terrace, west of IH 35	Undisturbed creek terrace.	**15**	**Excavated**	
Indian	West terrace, north of Loop 410 near IH 35 interchange	Undisturbed creek terrace.	**16**	**Excavated**	
Indian	West terrace, north of Loop 410 near IH 35 interchange	Undisturbed creek terrace.	**17**	**Excavated**	
Indian	East terrace, north of Loop 410 near IH 35 interchange	Undisturbed creek terrace.		Not excavated	No ROE
Indian	East terrace, south of Loop 410 near IH 35 interchange	Undisturbed creek terrace.	**18**	**Excavated**	
Indian	East terrace, south of Loop 410 between IH 35 and Somerset Rd.	Undisturbed creek terrace.	**19**	**Excavated**	
Indian	West terrace, south of Loop 410 between IH 35 and Somerset Rd.	Undisturbed creek terrace.	**20**	**Excavated**	
Indian	North terrace, south of Loop 410 between IH 35 and Somerset Rd.	Undisturbed creek terrace.	**21**	**Excavated**	
Leon	East terrace, north of SH151	Location of 41BX683	**08**	**Excavated**	
Leon	East terrace, north of Loop 410 between Somerset Rd. and SH 16.	Undisturbed creek terrace.	22	Not excavated	Not accessible to backhoe
Leon	West terrace, south of Loop 410 between Somerset Rd. and SH 16.	Location of 41BX704	23	Not excavated	Not accessible to backhoe

appropriate categories (e.g., debitage, lithic tool). Artifacts were washed, air-dried, and stored in archival-quality bags. Acid-free labels were placed in all artifact bags. Each label displayed provenience information and a corresponding lot number laser printed or written in pencil. Artifacts were separated by class and stored in acid-free boxes identified with standard labels. The data were entered into a Microsoft Access database. All artifacts are permanently curated at CAR. These procedures were the same throughout the project.

Field notes, forms, and hard copies of photographs were placed in labeled archival folders. All field forms were completed in pencil. Documents and forms were printed on acid-free paper and any soiled forms were placed in archival-quality page protectors. A copy of this report in Adobe Acrobat® file format and all digital material pertaining to the project, including photographs, were burned onto a CD and permanently curated with the field notes and documents at the Center for Archaeological Research.

Chapter 4: Results

This chapter provides a summary of the results of the Loop 410 Improvements project. Phase I and Phase II consisted of a pedestrian survey of the APE that included shovel testing. Backhoe trenching of high probability areas comprised Phase III. No new sites were identified during the pedestrian survey although one new site (41BX1749) was located during backhoe trenching. Testing of the site was conducted in October and November 2007 and is presented in a separate report (Figueroa 2008).

Phase I

The preliminary reconnaissance included the current ROW and those areas of the proposed new ROW for which access had been granted by the current landowner. No surface reconnaissance or subsurface testing was conducted in those cases where access was denied. Accessible areas within proposed new ROW that had been determined to have either a moderate or high probability for intact cultural deposits were shovel tested.

No new sites were identified during Phase I of this project. With the exception of modern material remains, no artifacts were noted on the ground surface.

During Phase I, a total of 118 shovel tests were excavated within the 20.9-mile project area. Figures 4-1 to 4-3 shows the locations of the shovel tests, as well as the backhoe trenches dug later in the project (see Phase II and III results). The High, Moderate, and Low Probability areas indicated on these figures are the original assessment. As can be seen on Figures 4-1 to 4-3, many areas of High and Moderate Probability were not shovel tested. The reasons for not excavating shovel tests in these areas are: 1) development of the area subsequent to the original assessment resulted in serious disturbance to sediments, making is unnecessary to shovel test; or 2) no ROE was granted.

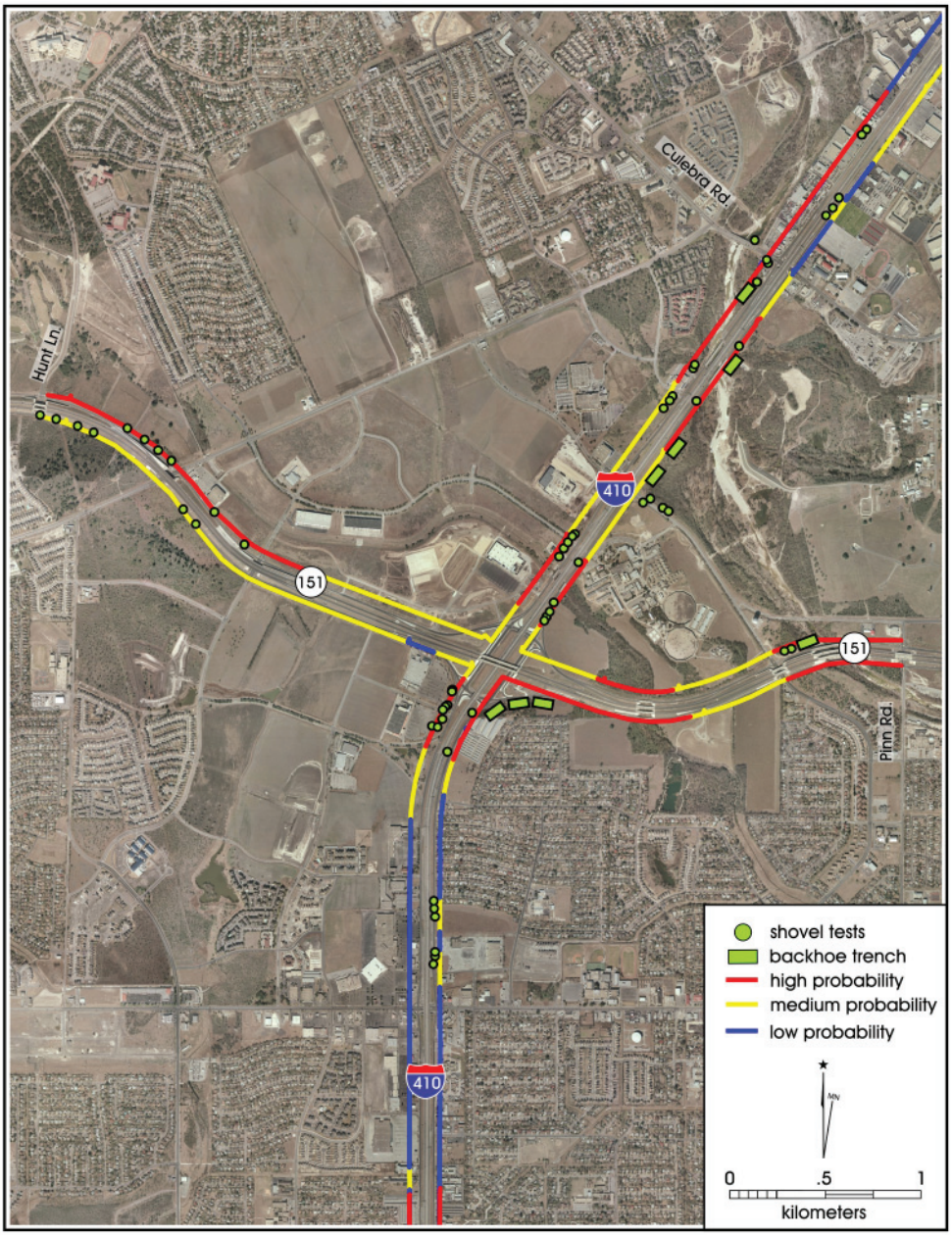

Figure 4-1. Location of shovel tests and backhoe trenches along Loop 410 from Fairgrounds Parkway to Bronco Lane.

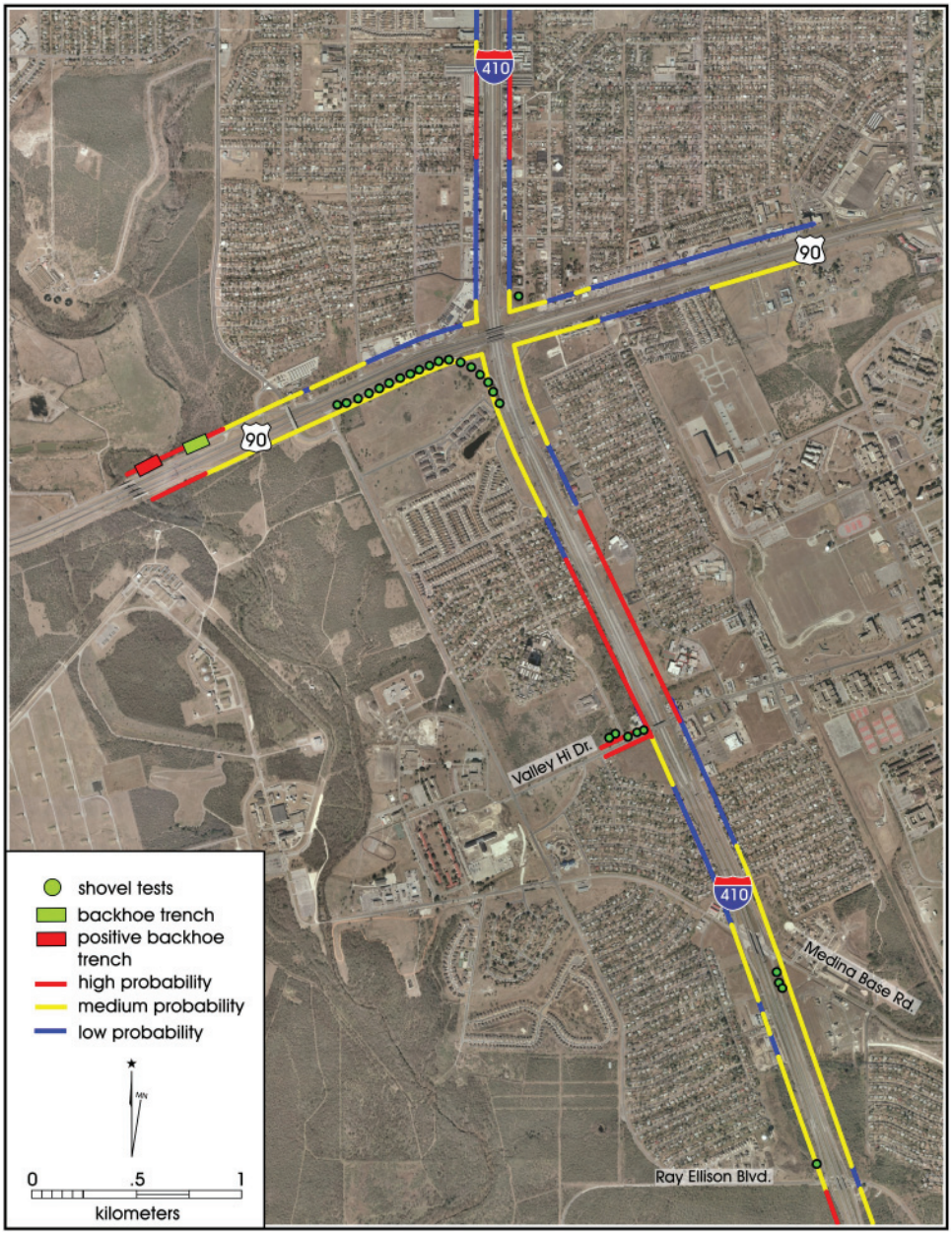

Figure 4-2. *Location of shovel tests and backhoe trenches along Loop 410 from Bronco Lane to Ray Ellison Blvd.*

Table 4-1 summarizes the results of the shovel testing. Of the 118 shovel tests, one shovel test (0.8 percent of the total) was positive. The positive shovel test, ST 85, was located approximately 700 meters east of the intersection of Loop 410 and IH-35 (Figure 4-3). The shovel test yielded two pieces of chipped stone and two small, unidentifiable mammal bone fragments. The cultural material was recovered from Level 3 (20-30 cmbs). Note that a dense clay and gravel layer was present at approximately 40 cmbs that hindered subsurface excavations. Nevertheless, ST 85 was excavated to Level 5 (40-50 cmbs). No cultural material was recovered from any of the other excavated levels. Additional shovel tests (STs 112 and 113) were excavated 25 meters west and east of ST 85. Both of these shovel tests were negative.

A combined total of seven shovel tests were excavated within sites 41BX555 and 41BX556. All of these tests were negative.

The faunal material recovered from ST 85 consists of two small fragments of unidentifiable small mammal bone from an animal roughly opossum-sized. The cultural material was composed of a piece of chert debitage and a tertiary flake which had been removed from the distal end or working edge of a Guadalupe tool (S. Tomka, personal communication 2005). The tertiary flake and its platform clearly show the abruptly truncated distal end, or bit, typical of Guadalupe tool. Examination of the flake suggests that it represents an attempt to rejuvenate the working edge. Figure 4-4 presents the actual fragment and a schematic drawing to show how it would have been attached to a Guadalupe tool.

Guadalupe tools are commonly found in Bexar County. These unique artifacts have been described by Turner and Hester (1999: 256) as thick and percussion-flaked bifacial tools with abruptly truncated distal ends that usually show a great deal of use-wear and resharpening efforts. Usually the working edge angles from the dorsal edge toward the proximal end; the working edge is generally unifacially shaped by removing narrow blade-like flakes similar to that recovered in ST 85 (Figure 4-4). Few specimens of Guadalupe tools have been recovered from well-dated and undisturbed contexts, however data from the Granberg II site (Hester 1979; Hester and Kohnitz 1975) as well as the Panther Springs Creek Site

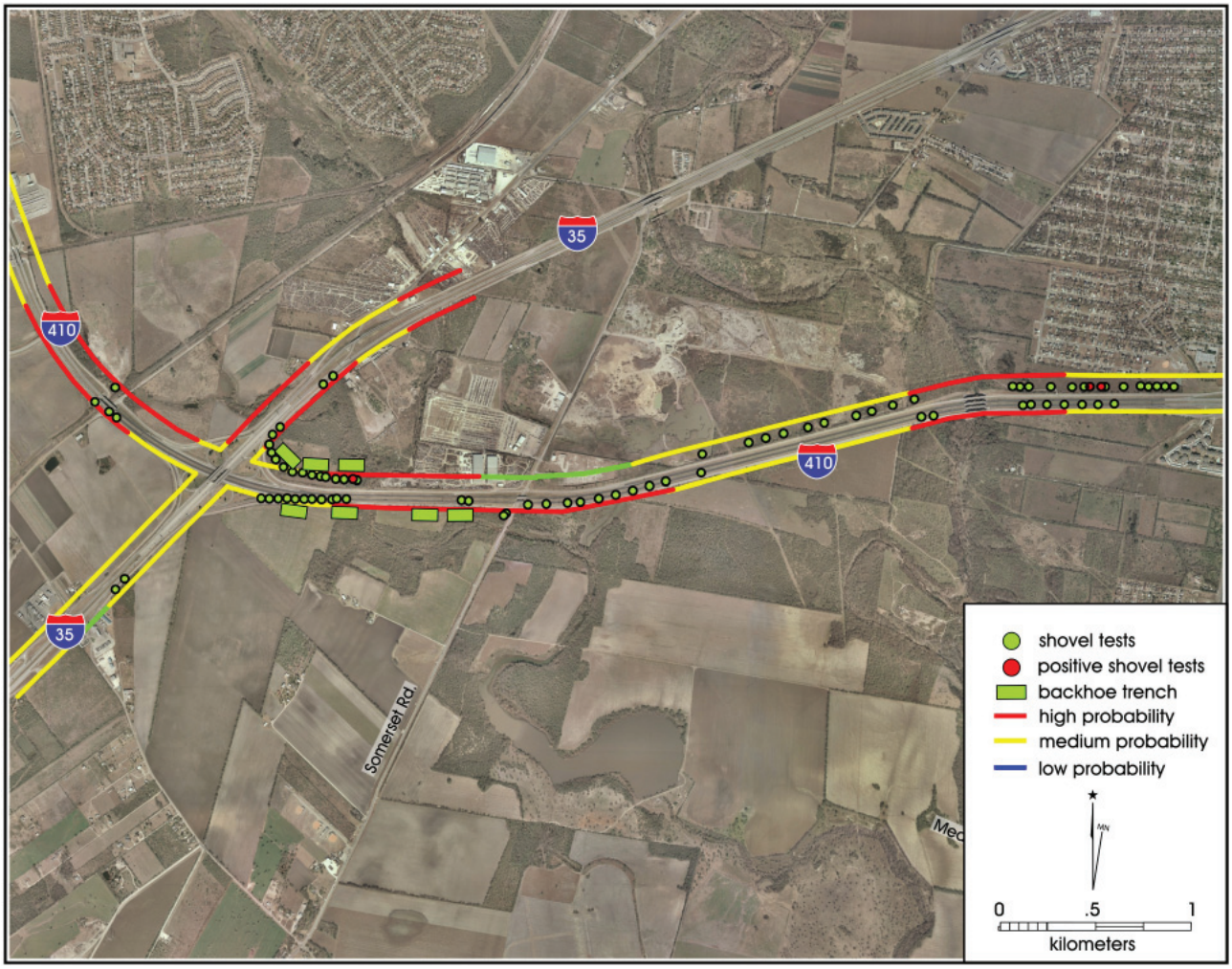

Figure 4-3. *Location of shovel tests and backhoe trenches along Loop 410 from Old Pearsall Rd. to SH 16 (Palo Alto Rd).*

(Black and McGraw 1985:146) suggests these tools may date to the later part of the Early Archaic (ca. 3600-3400 B.C.).

Revisiting and Testing of Sites

An attempt was made to relocate sites 41BX555 and 41BX556. Shovel tests were excavated within the proposed ROW at the locations defined in the Texas Archeological Sites Atlas (THC 2007).

Both sites are located in areas that have been heavily disturbed by construction and development. The shovel tests at site 41BX555 (ST 22-25) were negative for cultural materials and showed evidence of disturbances to a depth of 50 cmbs due to construction and development (Table 4-1). The shovel tests conducted at site 41BX556 (STs 3-5 and 17) yielded no cultural materials and contained road fill and asphalt fragments to a depth of 40 cmbs (Table 4-1). The results of the subsurface investigations performed at the sites are in agreement with previous investigations conducted by the State Department of Highways and Public Transportation (Latimer 1981) which concluded that these sites were disturbed, lacked integrity, were not eligible for listing to the NRHP, and did not warrant designations as SALs. No evidence of either site was observed during Phase I of this project. Subsequently, a motel was built on 41BX555; almost certainly destroying what ever might have been left of the site east of the ROW tested during Phase I.

In summary, there were 51 properties not investigated during Phase I due to a lack of ROE. These properties are presented in Table 4-2. Areas that are disturbed due to development will not be recommended for further work, but properties of high and medium probability (see Chapter 3) are recommended for backhoe trenching (high probability) or shovel testing (moderate probability). Therefore, only 18 of the 51 properties are recommended for archeological investigation when ROE is granted.

Table 4-1. Shovel Test Information from Phase I

Shovel Test No.	Cultural Potential	Depth (cmbs)	Artifacts Recovered	Evidence of Disturbance	Comments
1	High	18	none	Road fill, asphalt	road fill, asphalt
2	High	20	none	Road fill, gravel	road fill, gravel
3	High	21	none	Road fill, gravel	Within 41BX556
4	High	15	none	Road fill	Within 41BX556
5	High	30	none	Road fill, gravel	Within 41BX556
6	High	30	none	Road fill, gravel	
7	High	11	none	Road fill	
8	Moderate	60	none	Landscaping, soils appear undisturbed	
9	Moderate	60	none	Bulldozing probable	
10	Moderate	47	none	None	
11	Moderate	60	none	None	
12	High	30	none	Road fill, utilities	
13	High	20	none	Road fill, utilities	
14	Moderate	60	none	None	
15	Moderate	60	none	None	
16	Moderate	28	none	Road fill, utilities	
17	High	40	none	Road fill, asphalt	Within 41BX556
18	Moderate	5	none	Asphalt fragments	
19	Moderate	9	none	Road fill	
20	Moderate	10	none	Road fill	
21	Moderate	10	none	Road fill, asphalt	road fill and asphalt fragments
22	High	50	none	Plastic, PVC	Within 41BX555
23	High	20	none	Road fill, utilities	Within 41BX555
24	High	40	none	None	Within 41BX555
25	High	50	none	None	Within 41BX555
26	High	18	none	None	Rock layer
27	High	40	none	None	
28	High	30	none	None	
29	High	30	none	Road fill, asphalt	
30	High	20	none	None	
31	Moderate	60	none	None	
32	Moderate	60	none	None	
33	Moderate	45	none	Fill	
34	Moderate	60	none	None	
35	Moderate	42	none	None	
36	Moderate	50	none	None	
37	High	50	none	Foil paper and modern bottle glass at 30-40 cmbs	
38	High	60	none	Big Red bottle fragment at 50-60 cmbs	
39	High	60	none	None	
40	High	60	none	None	
41	High	60	none	None	
42	High	60	none	None	

Table 4-1. Continued...

Shovel Test No.	Cultural Potential	Depth (cmbs)	Artifacts Recovered	Evidence of Disturbance	Comments
43	High	18	none	Road fill	
44	Moderate	3	none	Asphalt fragments	
45	Moderate	60	none	None	
46	Moderate	60	none	Animal burrow	
47	Moderate	49	none	Cement and concrete	
48	Moderate	40	none	None	Very gravelly; eroding bedrock
49	Moderate	40	none	None	Very gravelly; eroding bedrock
50	Moderate	50	none	None	Very gravelly; eroding bedrock
51	Moderate	24	none	None	Very gravelly; eroding bedrock
52	Moderate	22	none	None	Very gravelly; eroding bedrock
53	Moderate	32	none	Modern glass at 23 cmbs	
54	Moderate	49	none	None	
55	Moderate	60	none	None	
56	Moderate	56	none	Modern glass in Lv. 6	Very gravelly
57	Moderate	60	none	None	
58	Moderate	60	none	None	
59	Moderate	60	none	Paper wrapper in Lv. 4	
60	Moderate	60	none	None	
61	Moderate	60	none	None	
62	Moderate	42	none	None	Very gravelly
63	Moderate	50	none	None	Very gravelly
64	Moderate	20	none	None	Large rock
65	Moderate	37	none	Modern glass and fill at 20-37 cmbs	
66	Moderate	6	none	None	
67	Moderate	6	none	None	
68	Moderate	30	none	Road fill, utilities	
69	High	10	none	Road fill	
70	Moderate	30	none	Road fill	
71	Moderate	60	none	Styrofoam, road fill	
72	Moderate	47	none	None	
73	Moderate	60	none	None	
74	Moderate	30	none	None	
75	Moderate	10	none	Plowed, 80% gravel	
76	High	60	none	Plowed	
77	High	60	none	Plowed	
78	High	10	none	Asphalt fragments	
79	High	10	none	Road fill, asphalt	
80	High	10	none	None	Drainage and dump area
81	Moderate	50	none	Road fill and concrete	

Table 4-1. Continued...

Shovel Test No.	Cultural Potential	Depth (cmbs)	Artifacts Recovered	Evidence of Disturbance	Comments
82	Moderate	40	none	Road fill	
83	High	40	none	None	Gravelly
84	High	60	none	None	
85	High	50	2 chert flakes in Lv. 3	None	Cobbles at 40-50 cmbs
86	High	30	none	None	Gravelly
87	High	30	none	None	Gravelly
88	Moderate	60	none	None	Gravelly
89	Moderate	30	none	None	Gravelly
90	Moderate	29	none	None	Gravelly
91	Moderate	33	none	None	Gravelly
92	Moderate	30	none	None	Gravelly
93	Moderate	40	none	None	Gravelly
94	Moderate	30	none	None	Gravelly
95	Moderate	38	none	None	Tree root at 38 cmbs
96	Moderate	55	none	None	Gravelly
97	Moderate	30	none	None	Gravelly
98	High	30	none	None	Gravelly
99	High	29	none	None	Tree root at 29 cmbs
100	High	30	none	None	Gravel layer at about 30-40 cmbs
101	Moderate	40	none	Plowed field	
102	Moderate	47	none	Plowed field	
103	Moderate	50	none	Plowed field	
104	Moderate	43	none	Plowed field	
105	Moderate	50	none	Plowed field	
106	Moderate	40	none	Plowed field	
107	Moderate	28	none	Plowed field	Large cobbles
108	Moderate	40	none	Plowed field	
109	Moderate	40	none	Plowed field	
110	Moderate	40	none	Plowed field	
111	High	40	none	Plowed field	
112	High	41	none	None	Gravel layer at about 40 cmbs
113	High	20	none	None	Gravel and cobbles
114	High	17	none	None	Large roots prevented excavation to continue
115	High	10	none	None	Large roots and rocks prevented excavation to continue
116	High	23	none	None	Large roots and rocks prevented excavation to continue
117	Moderate	50	none	None	Very hard clay
118	Moderate	50	none	None	Very hard clay

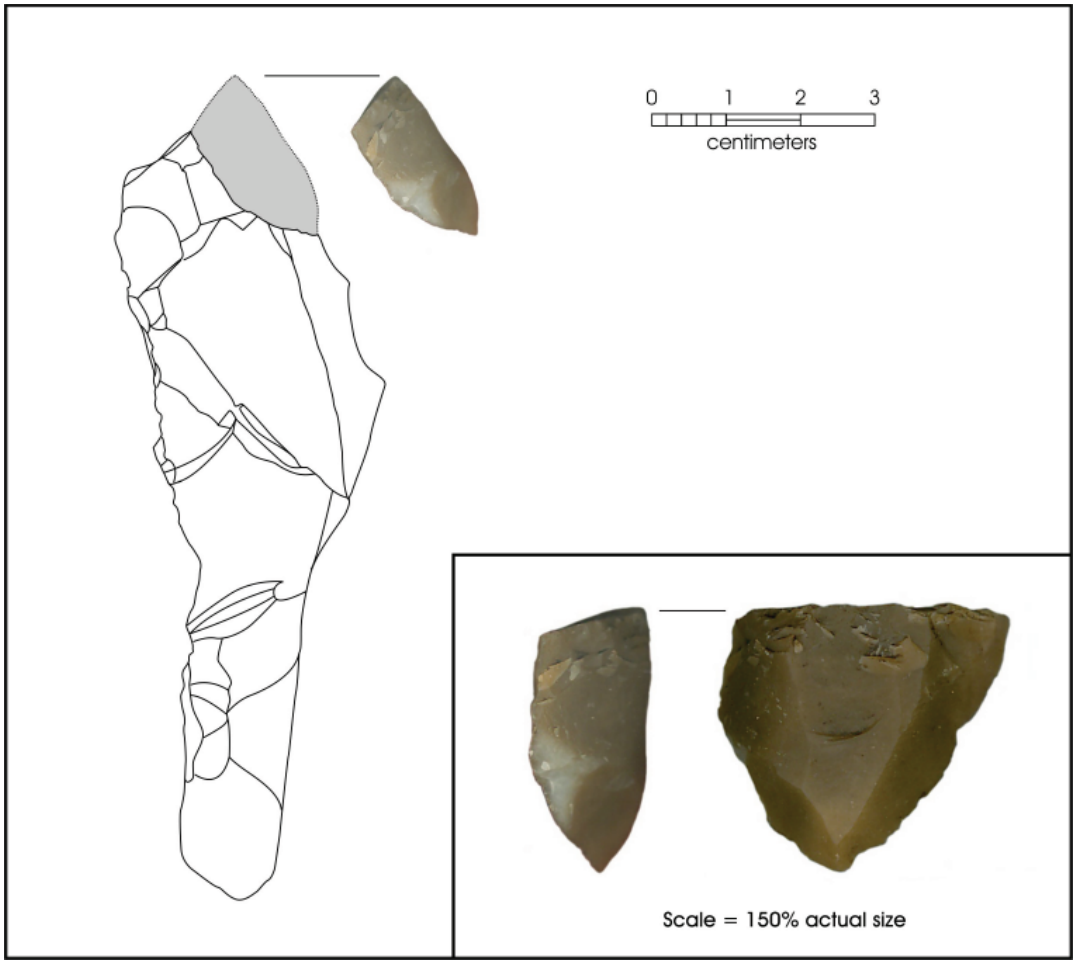

Figure 4-4. *Fragment of a Guadalupe tool, showing where it would have been located on the tool.*

Table 4-2. Properties in the APE for which ROE was not Granted

Tax ID #	CL used	Approximate CL Stations	Location	Potential for Cultural Resources	Recommendations
552170	-	(no stations available)	Southwest of Loop 410 between Quintana Rd. and IH 35	moderate	shovel testing
552187	-	(no stations available)	Southwest of Loop 410 between Quintana Rd. and IH 35	moderate	shovel testing
552193	Loop 410	1591+21 to 1605+00	Northeast of Loop 410 between Quintana Rd. and IH 35	high	backhoe trenching
552194	Loop 410	1605+00 to 1609+32	Northeast of Loop 410 between Quintana Rd. and IH 35	high	backhoe trenching
552198	Loop 410	1674+00 to 1684+21	Southwest corner of of Loop 410 and Old Pearsall Rd.	moderate	shovel testing
553926	-	(no stations available)	South of IH 35 between Fischer Rd. and Loop 411	moderate	shovel testing

Table 4-2. Continued...

Tax ID #	CL used	Approximate CL Stations	Location	Potential for Cultural Resources	Recommendations
553937	Loop 410	1584+26 to 1585+67	South of Loop 410 at south corner of intersection with IH 35	moderate	shovel testing
568540	Loop 410	1885+00 to 1896+00	West side of Loop 410 between Starting Gate and Crooked Trail	moderate	shovel testing
570146	-	(no stations available)	South of US 90 between Springvale Dr. and North St.	low	no further work
570149	US 90	213+00 to 214+16	South of US 90 between Springvale Dr. and North St.	low	no further work
570218	US 90	207+00 to 211+62	South of US 90 between Loop 410 and Springvale Dr.	low	no further work
570219	US 90	204+59 to 207+00	South of US 90 between Loop 410 and Springvale Dr.	low	no further work
570220	US 90	197+00 to 204+59	South of US 90 between Loop 410 and Springvale Dr.	low	no further work
570221	Loop 410	1897+37 to 1908+36	East of Loop 410 between US 90 and Ferncroft Dr.	moderate	shovel testing
570223	Loop 410	1895+83 to 1897+55	East of Loop 410 between Ferncroft Dr. and Knollwood Dr.	moderate	shovel testing
570224	Loop 410	1893+51 to 1895+25	East of Loop 410 between Knollwood Dr. and Evandale Dr.	low	no further work
570231	Loop 410	1897+55 to 1899+74	East of Loop 410 between Knollwood Dr. and Evandale Dr.	moderate	shovel testing
570242	Loop 410	1846+82 to 1849+00	East side of Loop 410 north of Valley Hi Dr.	low	no further work
570688	Loop 410	1844+00 to 1843+42	East side of Loop 410 between Valley Hi Dr. and Medina Base Rd.	low	no further work
570694	Loop 410	1842+00 to 1844+10	East side of Loop 410 between Valley Hi Dr. and Medina Base Rd.	moderate	shovel testing
570701	Loop 410	1843+42 to 1845+12	East side of Loop 410 between Valley Hi Dr. and Medina Base Rd.	low	no further work
575762	-	(no stations available)	North of Old Pearsall Rd., west of Loop 410	low	no further work
575297	Loop 410	2033+19 to 2037+00	East side of Loop 410, between SH 151 and Timbercreek Dr.	low	no further work
575298	Loop 410	2038+00 to 2040+12	East side of Loop 410, between SH 151 and Timbercreek Dr.	low	no further work
575739	Loop 410	2019+70 to 2021+16	East side of Loop 410, between Timbercreek Dr. and Meadowglade Dr.	low	no further work
577343	-	(no stations available)	North of US 90 between Horal St. and Hunt Ln.	moderate	shovel testing
575977	Loop 410	1987+70 to 1989+61	East of Loop 410, north of Marbach Rd.	low	no further work

Table 4-2. Continued...

Tax ID #	CL used	Approximate CL Stations	Location	Potential for Cultural Resources	Recommendations
575979	Loop 410	1985+43 to 1987+70	East of Loop 410, north of Marbach Rd.	low	no further work
577743	-	(no stations available)	North of US 90 between Loop 410 and Horal St.	low	no further work
577744	US 90	184+00 to 188+16	North of US 90 between Loop 410 and Horal St.	low	no further work
577748	US 90	188+16 to 192+00	North of US 90 between Loop 410 and Horal St.	low	no further work
579118	Loop 410	1984+21 to 1987+41	East of Loop 410, south of Marbach Rd.	low	no further work
582081	-	(no stations available)	South of US 90 between Springvale Dr. and North St.	low	no further work
582082	-	(no stations available)	South of US 90 between Springvale Dr. and North St.	low	no further work
582086	-	(no stations available)	South of US 90 between Springvale Dr. and North St.	low	no further work
604509	US 90	211+00 to 214+00	North of US 90 between Gunsmoke Dr. and Colt Dr.	low	no further work
604512	-	(no stations available)	North of US 90 between Gunsmoke Dr. and Colt Dr.	low	no further work
604516	-	(no stations available)	North of US 90 between Gunsmoke Dr. and Colt Dr.	low	no further work
604526	-	(no stations available)	North of US 90 between Gunsmoke Dr. and Colt Dr.	low	no further work
604527	-	(no stations available)	North of US 90 between Gunsmoke Dr. and Colt Dr.	low	no further work
644633	Loop 410	1846+82 to 1849+88	West side of Loop 410 and north of Valley Hi Dr.	low	no further work
649771	Loop 410	1982+49 to 1984+00	West side of Loop 410 between Marbach Rd. and Westpond Dr.	low	no further work
649800	Loop 410	1985+68 to 1987+00	West side of Loop 410 between Marbach Rd. and Westpond Dr.	low	no further work
650846	Loop 410	2021+08 to 2023+16	West side of Loop 410 between Lakeside Parkway and Water's Edge Dr.	mioderate	shovel testing
650847	Loop 410	2023+16 to 2025+00	West side of Loop 410 between Lakeside Parkway and Water's Edge Dr.	moderate	shovel testing
650851	Loop 410	2021+08 to 2019+24	West side of Loop 410 between Lakeside Parkway and Water's Edge Dr.	moderate	shovel testing
694765	Loop 410	2088+37 to 2092+00	West side of Loop 410 north of Military Dr. West	low	no further work
993855	Loop 410	2084+46 to 2070+18	West side of Loop 410 between Military Dr. West and SH 151	low	no further work
1040476	Loop 410	2084+46 to 2087+39	West side of Loop 410 south of Military Dr. West	low	no further work
1057721	Loop 410	1554+25 to 1555+00	North of Loop 410 between IH 35 and Somerset Rd.	moderate	shovel testing/ backhoe trenching
1057722	Loop 410	1555+00 to 1599+00	North of Loop 410 between IH 35 and Somerset Rd.	moderate	shovel testing

Phase II

During Phase II, a 100 percent pedestrian survey of the new APE was conducted that included three additional segments as outlined in Chapter 1 (see Figure 1-1). No new ROW was included in these three segments. As outlined in the Chapter 3, areas in which the ROW would not be changed and which had been surveyed in the past were considered low probability. Nonetheless, the segments within the existing ROW were shovel tested and areas within 200 meters of a creek were considered high probability areas while investigating this portion of the project area. No new sites were identified during this phase of the survey. Fifty-seven shovel tests were dug within the APE (Table 4-2). Two shovel tests were placed within the environs of 41BX683 north of SH 151 and west of Leon Creek in the eastern extension of the APE along SH 151 (Figure 4-1). Both of these shovel tests were negative.

Forty-four shovel tests were excavated along the eastern Extension #1 of the APE along Loop 410 to SH 16 (Palo Alto Rd.) (Figure 4-3). Two of these shovel tests were positive. A chert debitage flake was recovered from Level 1 in ST 207. Two additional shovel tests were dug ten meters east and west of the positive shovel test. In one of these, ST 242, another flake was recovered, in Level 4 at 36 cmbs (Table 4-3). The presence of only two artifacts did not define a site as outlined in Chapter 3. Therefore both finds were considered isolated finds. Development, near the SH 16 and Loop 410, intersection hindered shovel testing in this area. Pipelines and artificial drainages also prevented shovel testing in parts of the APE.

Eleven shovel tests were excavated along SH 151 between Hunt Lane and Ingram Road, in Extension #2, of the APE (Figure 4-1). All of these shovel tests were negative. Development at the Ingram Road and SH 151 intersection prevented shovel testing in that area (northern portion of the APE).

Only two shovel tests were excavated in the Extension #3 area (Figure 4-1), which extended along SH 151 from Military Drive West to Pinn Road. The two shovel tests (ST # 255 and ST # 256) were placed on the northern portion of the APE, within the borders of 41BX683, as defined on the site record (THC 2007). No cultural material was observed and soils indicated a sand fill had been brought into this portion of the APE during road construction, adjacent to Leon Creek. A backhoe trench was also excavated in this portion of Extension #3 (see Backhoe Trench 8 discussion). Disturbances in this area also included asphalted surfaces on the southern side of the APE near Leon Creek.

Phase II did not investigate new ROW, therefore, ROE was not an issue. No further work is recommended in Phase II existing ROW.

Table 4-3. Shovel Test Information from Phase II

Shovel Test No.	Depth (cmbs)	Artifacts	Evidence of Disturbance	Comments
200	60	none	None	
201	60	none	None	
202	60	none	None	Within 200 m of Commanche Creek
203	60	Modern only	Fill to 28 cmbs, glass, brick	
204	60	Modern only	Glass only in level 1	
205	60	none	None	
206	60	none	None	
207	60	Chert flake	None	Single chert flake in Lv. 1
208	60	none	None	
209	60	none	None	
210	60	none	None	
211	60	none	None	
212	60	none	None	
213	60	none	Fill to ca. 50 cmbs	Below about 50 cmbs is creek gravels with lots of large chert cobbles
214	56	Modern only	Modern artifacts to 56 cmbs	All disturbed

Table 4-3. Continued...

Shovel Test No.	Depth (cmbs)	Artifacts	Evidence of Disturbance	Comments
215	35	none	Roadfill	Area is raised above natural ground with fill
216	60	none	None	
217	60	none	None	
218	60	Modern only	Glass in Lev. 1-3. Disturbance ends at ca. 40 cmbs	
219	60	none	Sediments disturbed to bottom	ST appeared to be on mechanically built berm
220	60	Modern only	Glass and plastic in Lv. 1	
221	60	none	None	
222	60	none	None	
223	60	none	None	Creek gravel lens in Lv. 3
224	60	none	None	
225	30	none	Mechanically crushed rock throughout	
226	60	none	None	
227	60	none	None	
228	60	none	None	
229	60	none	None	
230	60	none	None	
231	60	none	None	
232	60	none	None	
233	60	none	None	Creek gravels below Lv. 4
234	60	none	None	
235	40	none	None	Ended because of very large cobbles in test
236	60	none	None	Numerous chert cobbles throughout
237	60	none	None	
238	60	none	None	
239	60	none	None	
240	60	none	None	
241	60	none	Possible disturbance to ca. 28 cmbs	
242	60	Chert flake	None	Chert flake in Lv. 4
243	60	none	None	
244	60	none	None	
245	60	none	None	
246	60	none	Sediments disturbed to ca. 50 cmbs	
247	29	none	None	Solid rock ended test
248	60	none	None	
249	60	none	None	
250	60	none	Sediments disturbed throughout	Numerous layers of fill
251	60	none	Sediments disturbed throughout	layers of full w/ many quartz chrystals throughout
252	60	none	Sediments disturbed throughout	
253	55	none	Sediments disturbed throughout	Test ended by large rocks
254	60	none	None	
255	60	none	Fill throughout	
256	60	Modern only	Fill throughout	Glass in Lv.5

Phase III

At the completion of Phase II, there were 27 areas recommended for backhoe trenching. They are listed in Table 3-1. Twenty-one backhoe trenches were excavated during this project. A brief discussion of each backhoe trench is provided below. In February 2007, the 27 potential areas identified for backhoe trenching in Phase I were re-assessed in order to determine if: 1) any new development had either disturbed the proposed backhoe area or had made access to an area impossible; and 2) if ROE had been received for areas of proposed new ROW owned by private land owners. At that time, it was determined that four potential backhoe areas had been disturbed by new development and three areas had not received ROE. These four localities are listed in Table 3-1 without BHT numbers.

During the excavation of the trenches along the southern segment of Loop 410 and IH 35, CAR determined that the area proposed for BHT 14 was too disturbed to warrant a backhoe trench and the locations of BHTs 22 and 23 were not accessible. Due to the unprecedented rains during the spring and early summer, resulting massive vegetation growth made it difficult to get the backhoe to the site safely. In summary, only 21 of the originally proposed backhoe trenches were excavated during Phase III.

BHT 1

BHT 1 was located on the west bank of Leon Creek, on the west side of Loop 410, south of Culebra Road (Figure 4-1) within the boundaries of 41BX556, when as recorded in 1981 (THC 2007). STs 3, 4, and 17 were dug in this vicinity (see Phase I results and Table 4-1). BHT 1 was 155 cm deep and approximately 5 m long.

The profile showed that beneath a 25 cm layer of loose sandy clay loam there is a series of layers most of which appear to be creek gravels of various sizes and in various matrices (Table 4-4). BHT 1 appears to be located on top of an old sand bar of Leon Creek. All sediments in this profile appeared to be the result of natural high energy deposition. Though the walls of the trench and the backfill were carefully examined, no cultural material was observed.

BHT 2

BHT 2 was located almost due south of BHT 1, on the east side of Loop 410 between recent commercial development to the north and a levee wall to the north and east (Figure 4-1). BHT 2 was excavated to 152 cmbs. It was 3.5 m long. All material exposed in this BHT was modern fill. No profile of this trench was drawn.

BHT 3

BHT 3 was placed on a terrace of the west bank of Leon Creek, on the eastern side of Loop 410, southwest of BHT 2 (Figure 4-1). BHT 3 was excavated to 165 cmbs at the deepest and was about 6 m long.

Table 4-4. Description of BHT 1

Layer	Depth of top (cmbs)	Depth of bottom (cmbs)	Sediment description
1	0	24 to 26	Loose, dark yellowish brown (10YR3/4), very sandy clay loam with about 10% 1 to 3 cm limestone gravels and occasional 5 to 7 cm chert cobbles
2	24 to 26	44 to 50	Dark yellowish brown (10YR3/2) sandy clay loam with 70% 0.5 to 5 cm gravels
3	44 to 50	56 to 70	Soft, friable, dark brown (10YR3/3) sandy clay loam with few pebbles and numerous roots
4	56 to 70	80 to 98	60% 0.5 to 3 cm pebbles, 20 percent 5 to15 cm chert cobbles in a brown (10YR5/3) sand matrix
5	80 to 98	104 to120	Brown (10YR4/3) silty sand with 50% 1 to 5 cm limestone and chert gravels
6	104 to120	122 to 150	70% iron-stained 0.5 to 5 cm pebbles, 20 percent 10-15 cm chert and limestone cobbles in a dark yellowish brown (10YR4/6) sand sand matrix
7	122 to 150	150-155	95% 1 to 7 cm limestone and chert gravels in a dark yellowish brown (10YR4/6) coarse sand matrix

Unlike BHT 2, BHT 3 uncovered intact deposits. There was only a 10 to 15 cm layer of modern fill at the top of the profile (Figure 4-5). Beneath the fill there were three relatively thin layers (2-4) of sediments above light-colored densely compact clayey silt with numerous small patches of soft, white caliche. The remainder of the profile varies only slightly in color, but Layer 6 contained almost no caliche and Layer 7 was lighter and much sandier. The walls of the trench and the backfill were carefully examined, but no cultural material was observed.

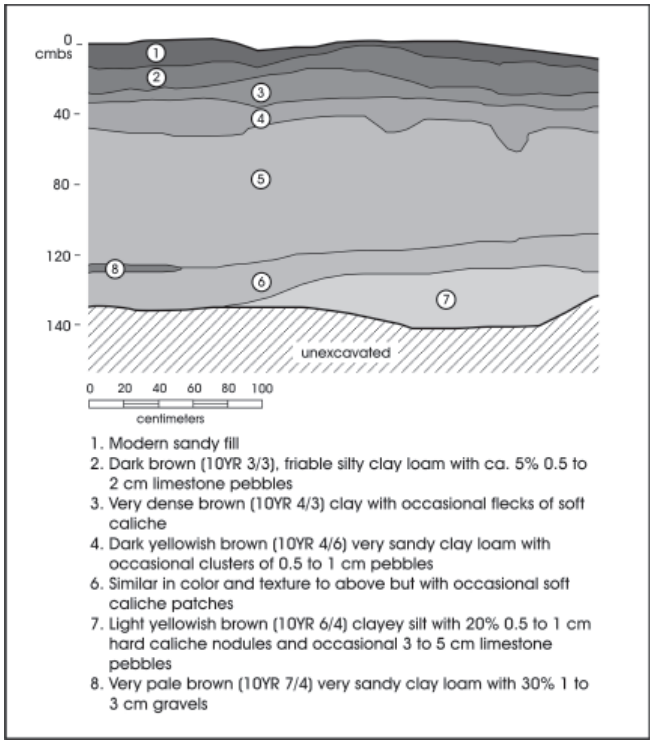

Figure 4-5. *Profile of the west wall of Backhoe Trench 3.*

BHT 4

BHT 4 was located southwest of BHT 3 on a slightly higher terrace of Leon Creek (Figure 4-1). It was 5.8 m long and was excavated to 155 cmbs. Beneath a 40 to 50 cm layer of modern sandy clay fill there were two layers of dense, compact, dark silty clay loam, the lower of which, Layer 3, was mottled with lighter clay (Table 4-5). Beneath these was a layer of very compact sandy silt with numerous soft caliche patches. The walls of the trench and the backfill were carefully examined, but no cultural material was observed.

BHT 8

BHT 8 was located on a terrace of Leon Creek, north of SH 151 (Figure 4-1), within the defined boundaries of 41BX683

Table 4-5. Description of BHT 4

Layer	Depth of top (cmbs)	Depth of bottom (cmbs)	Sediment description
1	0	40 to 50	Modern sandy fill
2	40 to 50	60 to 65	Compact very dark gray (7.5YR3/1) sandy clay loam
3	60 to 65	100 to 120	Dense very dark grayish brown (10YR3/2) silty clay loam mottled with about 20% very pale brown (10YR7/4) clay
4	100 to 120	140 to 155	Very compact dark yellowish brown (10YR4/4) sandy silt with numerous soft caliche patches

(THC 2007), near STs 255 and 256, which were dug during Phase II of the project. BHT 8 was dug both to confirm the negative results of the pedestrian survey and shovel tests (see Phase II results above) and to explore more deeply the buried sediments in this High Probability area.

BHT 8 was excavated to 142 cmbs and was 5.9 m long. The upper 50 to 60 cm of sediment was dark silty clay loam, with the upper 20 cm highly compacted and the remainder of the layer more friable (Figure 4-6). Beneath this were three layers of progressively lighter yellowish silty clays. Layers 2 and 3 had numerous patches of soft caliche.

Examination of the landscape in the area makes it clear that the terrace of Leon Creek adjacent to the bridge had been considerably graded. Construction of the bridge over Leon Creek appears to have removed all evidence of the site and thick layers of deposits within the ROW. The two shovel tests excavated during Phase II were west of the backhoe trench. They both encountered only modern fill material (see Phase II results).

BHT 9

BHT 9 was one of three backhoe trenches placed on the curve of the access road that leads from northbound Loop 410 to eastbound SH 151, on a terrace of Slick Ranch Creek (Figure

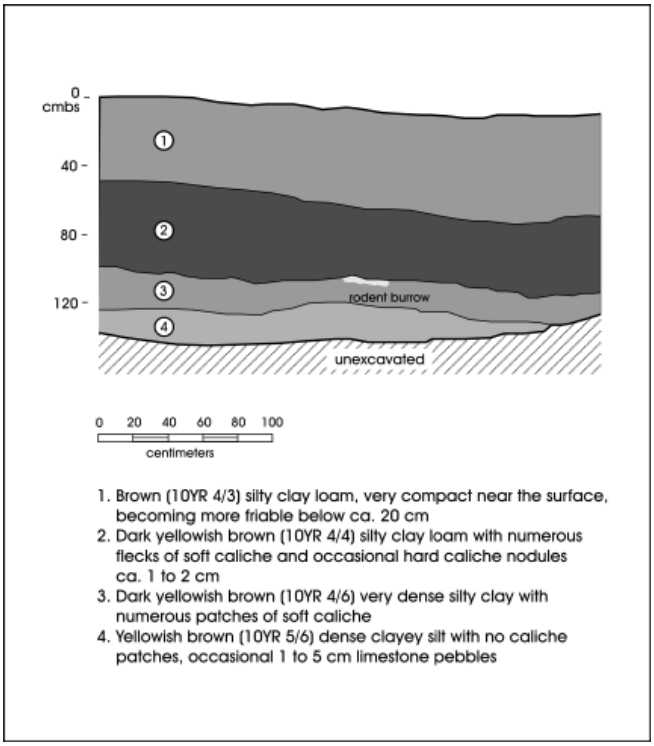

Figure 4-6. *Profile of the north wall of Backhoe Trench 8.*

4-1). These trenches were considered important because all other proposed areas for backhoe trenching along this creek (see Table 3-1) were not dug due to commercial development along Loop 410, between Military Dr. West and the SH 151 interchange.

BHT 9 was located at the edge of a wooded area (Figure 4-1). It was 6 m long and was excavated to only 138 cmbs because bedrock was reached in some parts of the trench (Table 4-6).

Examination of the trench walls showed that all but the eastern quarter of the profile was disturbed. The sediments in the rest of the south wall had been truncated, possibly in an erosional event or perhaps by some human activity, and later filled in (Figure 4-7). The disturbed sediments extended to 128 cmbs.

In the undisturbed part of the profile, the upper layers were typical of the Houston Black terrace soils of the Blackland Prairie (Taylor et al. 1991:21), as described in Chapter 2. Layer 3 has about 30% iron-stained caliche gravels and is brown, mottled with a slightly redder color. Above the bedrock, reached at 138 cmbs, is about 10 to 20 cm of caliche gravels (Table 4-6).

No cultural materials were encountered except one or two modern glass fragments found on the surface near the trench.

Table 4-6. Description of BHT 9

Layer	Depth of top (cmbs)	Depth of bottom (cmbs)	Sediment description
1	0	18 to 23	Very dense and compact black (10YR2/1) silty clay loam
2	18 to 23	60 to 70	Dense very dark gray (10YR3/1) silty clay
3	60 to 70	125 to 130	Brown (10YR4/3) silty clay with 30% iron-stained caliche from flecks to 1 cm hard pebbles. Matrix is mottled with a slightly redder color
4	125 to 130	133 to 138	90% caliche from flecks to 5 cm hard gravels. Bedrock reached in two places in the trench

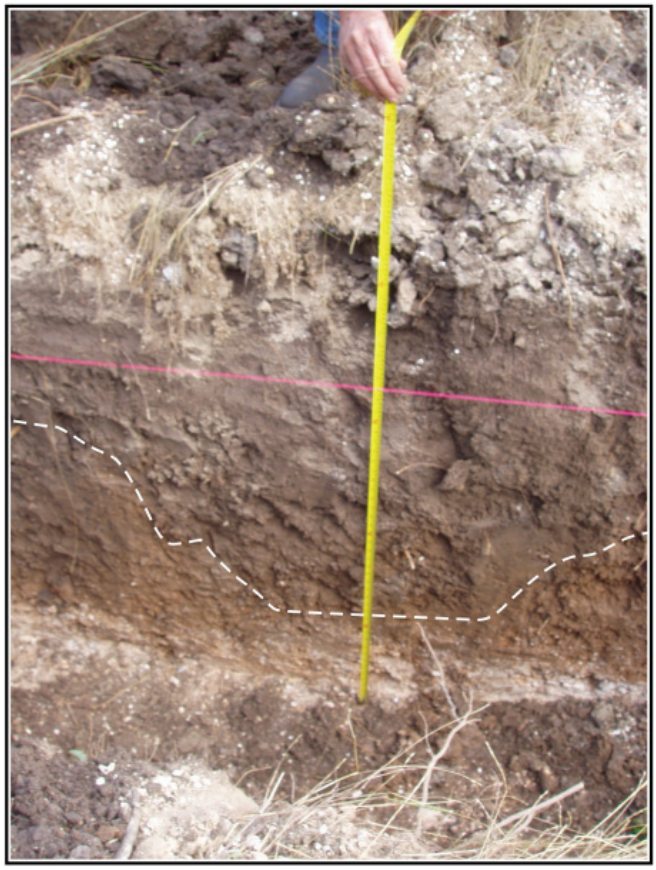

Figure 4-7. *The south wall of Backhoe Trench 9. Note the bottom of fill material indicated by dotted line.*

BHT 9 was the only trench dug during this project that encountered bedrock.

BHT 10

BHT 10 was located east northeast of BHT 9, in a wooded area that, except for nearby utility trenches, did not appear disturbed. BHT 10 was 5.2 m long and was dug to 148 cmbs (Figure 4-1).

The deposits in the upper 50 cms of BHT 10 consisted of dark, friable and sandy matrix that changed abruptly to a layer that was mottled with brown coarse sand and a matrix that contained 50 percent small limestone and caliche gravels and 50 percent yellow brown sandy silt. On the east side of the profile a layer of iron-stained caliche nodules and small chert cobbles in a dark sandy silt lies between the dark Layer 1 and the light Layer 3 (Figure 4-8). No cultural materials were encountered in this trench. A large animal burrow was seen in the profile.

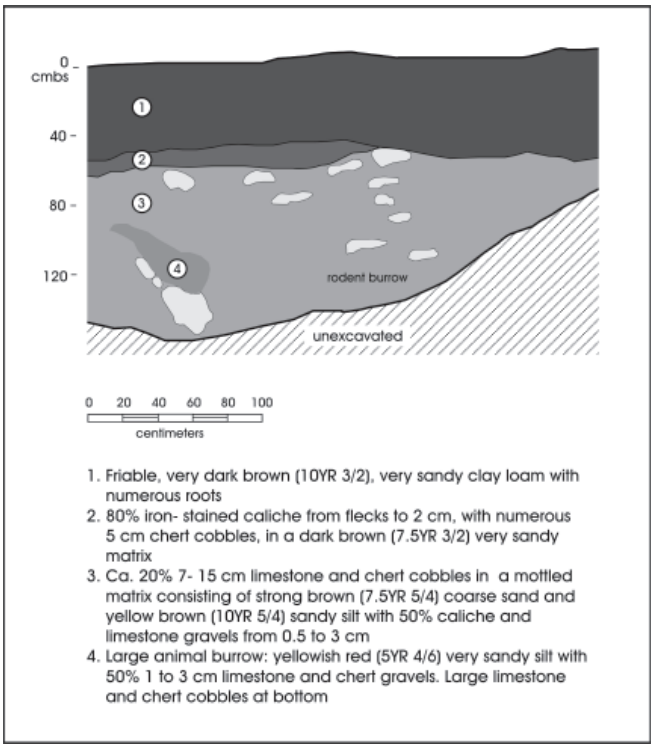

Figure 4-8. *Profile of the south wall of Backhoe Trench 10.*

BHT 11

BHT 11 was placed east of BHT 10, in an open field. BHT 11 was 150 cm deep and 6 m long. The upper 10 cm appeared disturbed, with small fragments of modern glass as deep as 7 cmbs (Table 4-7). Beneath this a 20 cm thick zone of undisturbed sediments was noted. At about 30 cmbs there was an abrupt change to a deposit of iron-stained caliche and limestone gravels in a sandy matrix. Below was a layer of even more heavily iron-stained caliche deposit in a lighter matrix. The deepest layer exposed was composed of iron-stained caliche nodules in a red sand matrix (Table 4-7). With the exception of the few pieces of modern glass in the upper-most level, no cultural materials were identified in this trench. Figure 4-9 shows the beginning of the excavation of this trench. Note the extremely dark sediments.

Table 4-7. Description of BHT 11

Layer	Depth of top (cmbs)	Depth of bottom (cmbs)	Sediment description
1	0	12 to 16	Disturbed black (10YR2/1) silty clay loam
2	12 to 16	30 to 32	Very dense black (10YR2/1) silty clay loam
3	30 to 32	60 to 68	70% iron-stained caliche and limestone pebbles from 0.5 to 3 cm in a matrix of very dark brown (10YR2/2) very sandy silt
4	60 to 68	133 to 136	80% iron-stained caliche from flecks to 3 cm gravels in a yellowish brown (10YR5/6) silty sand matrix
5	133 to 136	148 to 155	70% iron-stained caliche and limestone pebbles from 0.5 to 3 cm in a yellowish red (5YR5/6) silty sand matrix

BHT 12

BHT 12 was located near the western end of the APE on US 90 (Figure 4-2). The site was chosen because of the close proximity to Medio Creek. Previous surveys on Medio Creek (Houk and Nickels 1997; Nickels et al. 1997) had encountered many archeological sites nearby, as can be seen in Chapter 2 (Figure 2-3).

BHT 12 was located in the current ROW between two sets of buried utility lines. The trench was 6.2 m long and was excavated to 156 cmbs. There was a thin layer of gravel and sand fill that lay above a dense, black, clayey silt with

Figure 4-9. *CAR staff monitoring the beginning of Backhoe Trench 11. Note the shoulder-high vegetation and dark black soil. Looking southeast.*

occasional chert cobbles (Figure 4-10). Layer 3 is the same color and even more compact, with numerous patches of white caliche. There is a big color change in Layer 4, making it possible to see how the dark sediments above have fallen into deep cracks in the relatively light clay, appearing as vertical black streaks. Below this layer is another layer (Layer 5) of light clay that is extremely dense. Although the trench walls and the backdirt were carefully examined, no cultural materials were observed.

BHT 13 (41BX1749)

BHT 13 was the only positive trench excavated during this project and it was given the trinomial 41BX1749. A unifacial tool and several flakes were recovered from this trench.

Although it was located only about 180 m southwest of BHT 12 on the same side of Medio Creek and on the same terrace, the profile of BHT 13 is very different from BHT 12. In fact, with the exception of the upper few layers, the north wall of the trench did not look like the south wall (Figure 4-11). In general, the layers of gravels and sandy silt in the south wall of BHT 13 resemble a sand bar and/or overbank flooding not far from the water course, while the north wall shows these sediments only in the bottom two layers.

Understanding how these two disparate profiles, only about 60 cm apart, could be so different from each other cannot be accomplished with a single backhoe trench. More study, by a qualified geomorphologist, will be needed to define the series of events that created the profiles seen in Figure 4-11. One explanation is that Medio Creek, during one of its meanders, cut the sediments on the south side of the trench to a point somewhere just south of the north wall, leaving an embankment of older sediments, and subsequently the sediments we see on the south profile were deposited. Later new sediments were added over the entire area so that the upper layers in both profiles are the same.

During examination of the walls, a unifacial tool was discovered in the south profile. This tool, made on a large secondary flake or possibly split cobble, is 87.3 mm long, 60.6 mm wide, and 24.0 mm thick. The tool displays some edge retouch on the distal end (Figure 4-12).

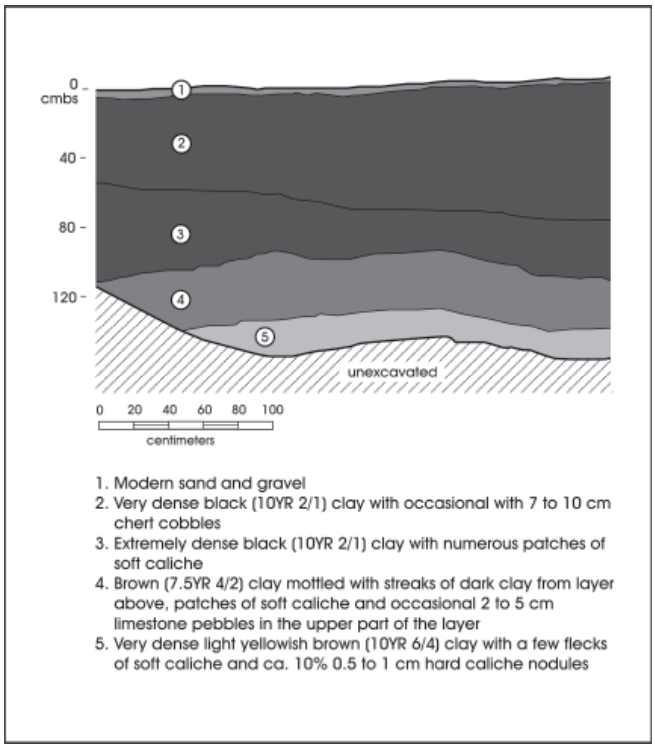

Figure 4-10. *Profile of the north wall of Backhoe Trench 12.*

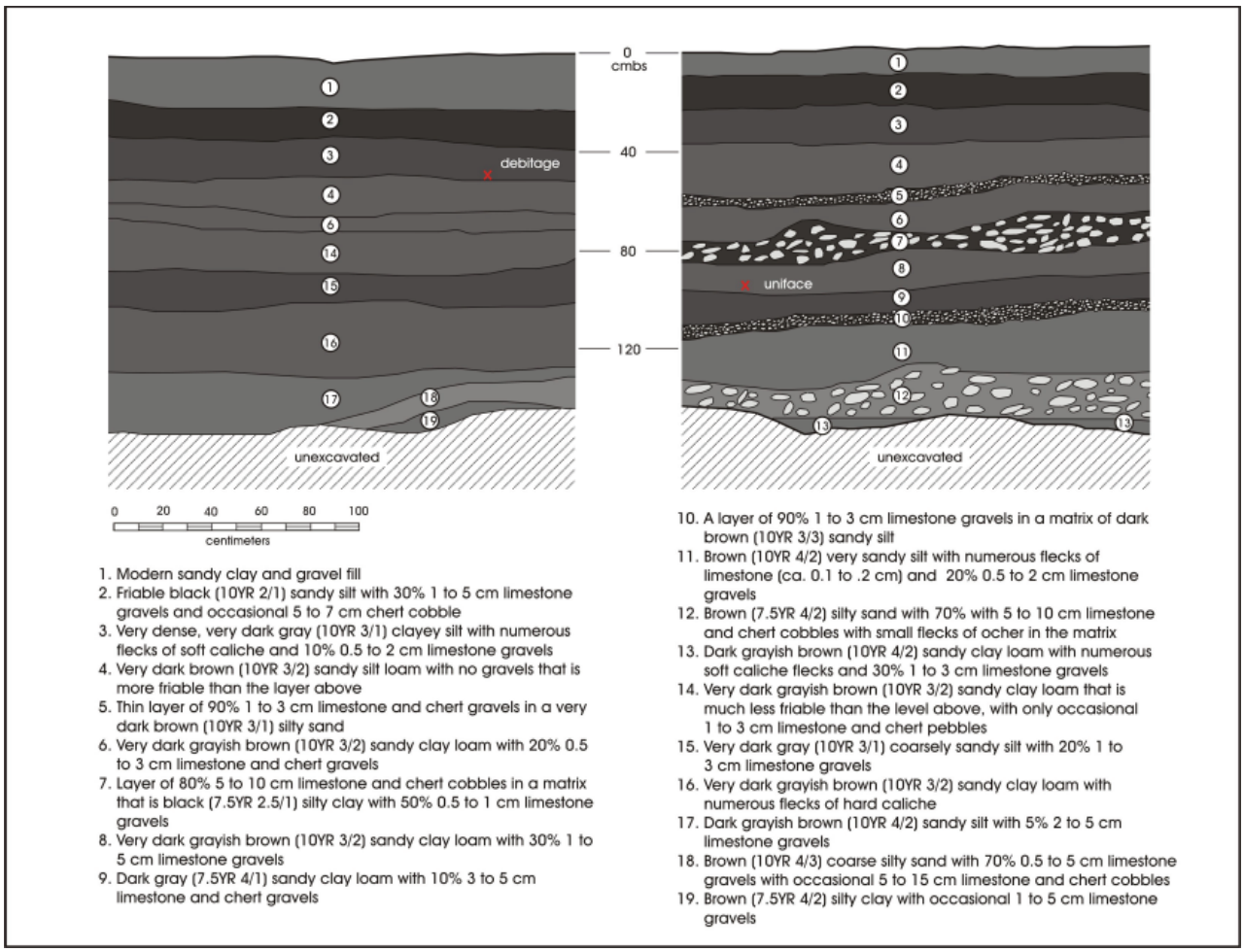

Figure 4-11. *Profiles of the north (left) and south (right) walls of Backhoe Trench 13.*

Close examination of the back dirt and walls revealed three flakes, one of which was in the north wall. One flake was found during examination of the backdirt, as were three pieces of fire cracked rock. The slope of the backhoe trench at the same level as Layer 8, where the uniface was found (Figure 4-11), was excavated back 20 cm into the east wall in an area about 20 cm wide. One more flake was recovered, adjacent to a few flecks of charcoal. A total of five lithic artifacts and three pieces of fire-cracked rock were recovered from this trench. As noted in the Methods section, sites were defined as locations having at least five artifacts within a 30-m^2 area. Subsequent to its discovery, CAR performed NRHP?SAL eligibility testing of the site. The results of testing are presented in a separate report (Figueroa 2008).

Figure 4-12. *A unifacial lithic tool from the south wall of Backhoe Trench 13.*

BHT 15

The original location planned for BHT 15 could not be accessed, in part due to massive underbrush growth

resulting from the extremely wet spring and summer of 2007. The underbrush was thick and tall, and the ground was saturated to the point that a safe route for the backhoe could not be identified. Instead, BHT 15 was excavated further south, at the interchange of Loop 410 and IH 35. The trench was excavated on a terrace above Indian Creek, north of Loop 410 and east of IH 35 (Figure 4-3). The trench was 4.5 m long and 145 cm deep.

BHT 15 had a similar profile to BHTs 4, 9, 10, 11, and 12, that is, layers of very dark silty clay or clay loams above layers of lighter sands, silts, or clays, usually with a high percentage of limestone and gravels (Table 4-8). As previously mentioned, this is the typical profile in areas where Houston Black terrace soils predominate (Taylor et al. 1991:21). No cultural materials were observed in the trench walls or back dirt of this trench.

Table 4-8. Description of BHT 15

Layer	Depth of top (cmbs)	Depth of bottom (cmbs)	Sediment description
1	0	40 to 50	Black (10YR2/1) loose silty clay
2	40 to 50	70 to 80	Mor compact very dark grayish brown (10YR3/2) silty clay
3	70 to 80	98 to 100	Dense brown (10YR4/3) clay
4	98 to 100	160	70% 1 to 3 cm limestone gravels in a highly compact brownish yellow (10YR6/6) sandy clay

BHT 16

BHT 16 was located east of BHT 15 on a terrace of Indian Creek. The trench was 4.7 m long and 160 cm deep. The upper 50 cm of this trench was a silty clay that was lighter in color than has been seen in the upper layers of most of the trenches (Figure 4-13). Beneath the light silty clay was a thin layer of clay above a layer of densely packed gravel in a sandy silt matrix. Below the gravel is a layer of very dense yellowish brown clay. No artifacts or other cultural materials were observed during excavation of this trench.

BHT 17

BHT 17 was located east of BHT 16, on a terrace immediately above the confluence of Indian Creek with an unnamed tributary, north of Loop 410 (Figure 4-3). The trench was 4.5 m long and 145 cm deep. Below the upper dark silty clay loam were layers of gravels in matrices of various colors and textures (Table 4-9). No cultural materials were seen in the trench walls or backdirt of this trench.

Table 4-9. Description of BHT 17

Layer	Depth of top (cmbs)	Depth of bottom (cmbs)	Sediment description
1	0	30 to 34	Very dark grayish brown (10YR3/1) silty clay loam with numerous roots
2	30 to 34	60 to 64	Brown (10YR4/3) sandy clay with ca. 50% 0.5 to 2 cm limestone gravels
3	60 to 64	84 to 100	70% 1 to 3 cm limestone gravels in a dark yellowish brown (10YR3/4) sandy clay with numerous 7 to 15 cm chert cobbles
4	84 to 100	110 to 114	80% 0.5 to 2 cm limestone gravels in a yellowish brown (10YR5/4) sandy clay matrix
5	110 to 114	124 to 145	70% 0.5 to 3 cm limestone gravels in a matrix of brownish yellow (10YR6/6) clay

BHT 18

BHT 18 was located south of Loop 410, east of the interchange with IH 35 on a terrace of Indian Creek (Figure 4-3). The trench was 5 m long and 140 cm deep. Two layers of silty clay overlay two layers of gravels in this profile, in a similar fashion to other profiles in this area (Table 4-10).

The sediments in BHT 18 did not appear disturbed. However, no cultural materials were noted in the walls or backdirt of the trench.

Table 4-10. Description of BHT 18

Layer	Depth of top (cmbs)	Depth of bottom (cmbs)	Sediment description
1	0	22 to 30	Very dark grayish brown (10YR3/1) silty clay
2	22 to 30	52 to 60	Dark yellowish brown (10YR3/4) silty clay
3	52 to 60	70 to 75	80% 0.5 to 2 cm gravels in a yellowish brown (10YR5/6) sandy clay matrix
4	70 to 75	140	70% 1 to 3 cm gravels in a brownish yellow (10YR6/6) sandy clay matrix

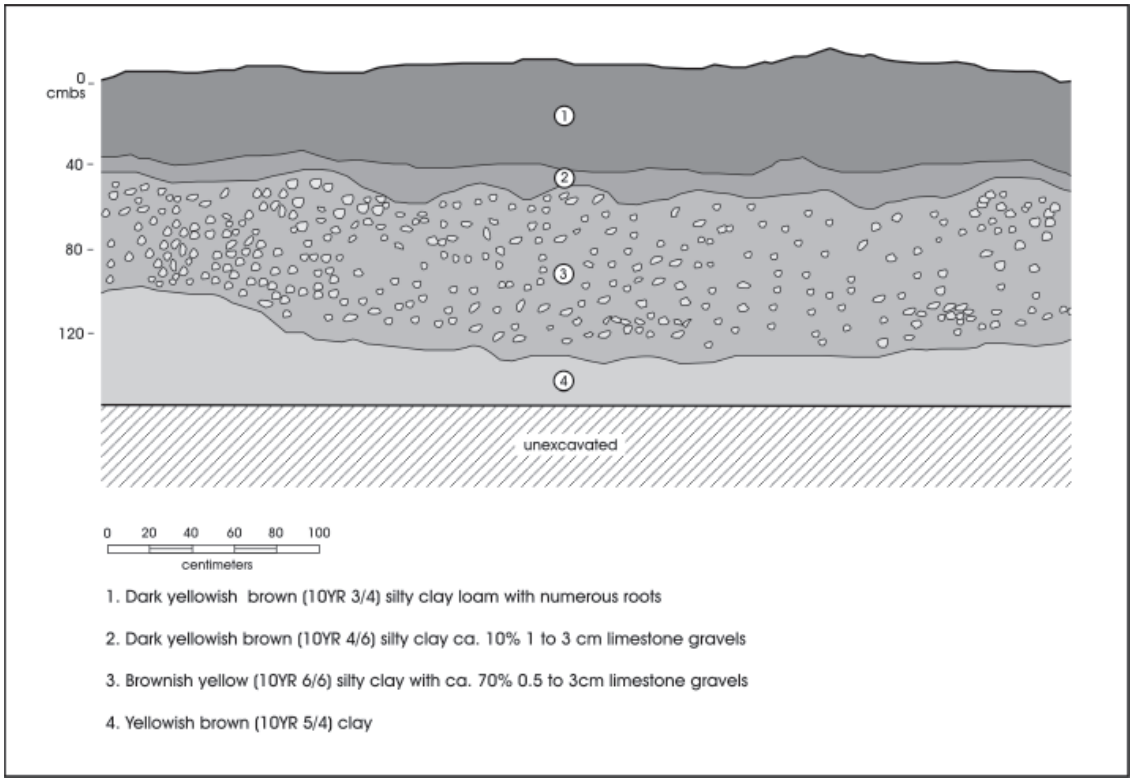

Figure 4-13. *Profile of the north wall of Backhoe Trench 16.*

BHT 19

BHT 19 was positioned east of BHT 18, on a terrace just west of Indian Creek (Figure 4-3). The trench was 4.5 m long and 160 cm deep. A 40 to 50 cm layer of dark clay loam overlies two layers of silty clay with small amounts of limestone gravels. Beneath these layers was a layer composed almost entirely of large chert and limestone cobbles in a matrix of smaller gravels and sandy clay (Figure 4-14). Close examination of the walls and backdirt of this trench did not encounter any cultural materials.

BHT 20

BHT 20 was located east of BHT 19, on a terrace north of Indian Creek (Figure 4-3). The trench was 4.8 m long and 160 cm deep. The upper 50 to 75 cm of silty clay loam had many tree roots (Table 4-11). Below this was another layer of dark silty clay and two layers of dense light-colored clay. No gravels were seen in this trench. No cultural materials were observed in the trench walls or backdirt.

BHT 21

BHT 21 was excavated east of BHT 20, on a terrace north of Indian Creek (Figure 4-3). The trench was 4.6 m long and 160 cm deep. The first layer was dark silty clay loam with numerous tree roots (Table 4-12). Below this was a layer of small gravels underlain by a layer of much larger gravels. The profile of this trench had to be drawn quickly, as water began to seep into the trench from the second gravel layer. By the time the profile had been completed most of Layer 3 could no longer be seen.

Table 4-11. Description of BHT 20

Layer	Depth of top (cmbs)	Depth of bottom (cmbs)	Sediment description
1	0	58 to 75	Very dark gray (10YR3/1) silty clay loam with numerous large roots
2	58 to 75	120 to 125	Very dark grayish brown (10YR3/2) silty clay
3	120 to 125	148 to 150	Dense yellow (10YR7/6) clay
4	148 to 150	152 to 160	A lighter shade of dense yellow (10YR7/8) clay

Further work for this phase of the project consisted of testing of 41BX1749 (completed and presented in a separate report; Figueroa 2008). Proposed backhoe trenches, west of Loop 410 between Quintana Rd. and IH 35, were not excavated due

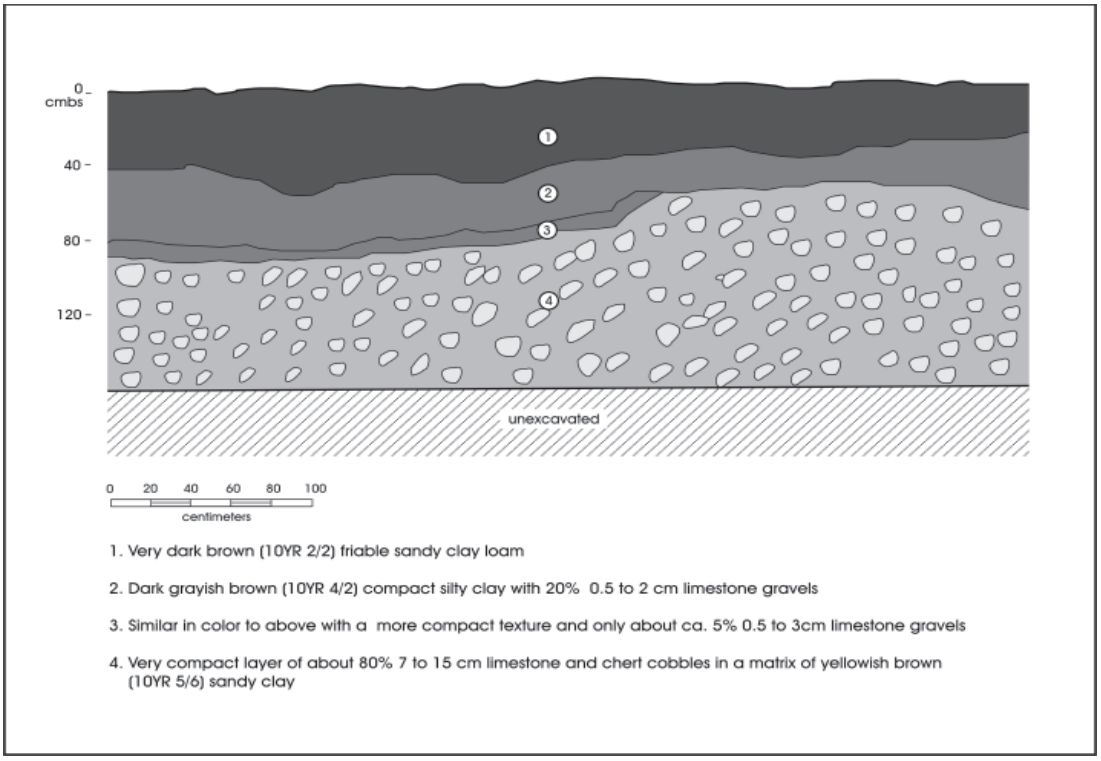

Figure 4-14. *Profile of the south wall of Backhoe Trench 19.*

Table 4-12. Description of BHT 21

Layer	Depth of top (cmbs)	Depth of bottom (cmbs)	Sediment description
1	0	60 to 70	Very dark brown (10YR2/2) silty clay loam with numerous tree roots
2	60 to 70	60 to 100	70% 0.5 to 2 cm limestone gravels in a yellowish brown (10YR5/4) silty clay
3	60 to 100	80 to 160	70% 1 to 5 cm gravels and numerous 7 to 15 cm cobbles in a brown (10YR5/3) sandy silt

to the lack of ROE. When the properties become accessible backhoe trenching is recommended in the high probability area adjacent to Indian Creek (see Table 4-2).

Discussion

One hundred and eighteen shovel tests were excavated during Phase I. Cultural materials were encountered only in ST 85, located east of the intersection of Loop 410 and IH 35 (see Table 4-1 and Figure 4-3). Nearby shovel tests were negative. The two artifacts located in ST 85 do not constitute an archeological site, as defined in the scope of work for this project (see Chapter 3: Methodology). During Phase II field investigations, 57 shovel tests were excavated, only two were positive for cultural material. A single flake was recovered from both ST 207 and ST 242. No new archeological sites were identified during this phase.

Phase III resulted in the excavation of 21 backhoe trenches. Areas that were recommended for trenching during Phase I work were included, unless ROE was not granted by the landowner. Four sites were revisited (41BX555, 41BX556, 41BX683 and 41BX704) during the three phases of archeological investigations. All proved to be impacted by development and no cultural material was recovered. None of the sites has research potential and as such, we recommend that they do not warrant formal designation as State Archeological Landmarks or listing to the National Register of Historic Places. Backhoe Trench 13 was the only positive backhoe trench and the location was defined as a site, 41BX1749. CAR recommended additional testing that was conducted in October and November of 2007 (presented in Figueroa 2008). Following the completion of the testing and report, the TxDOT in consultation with the THC determined that the site was not eligible.

Chapter 5: Summary and Recommendations

Three phases of archeological investigations were conducted by the Center for Archaeological Research of The University of Texas at San Antonio on the Loop 410 Improvements project in San Antonio, Bexar County, Texas. The archeological work consisted of a reconnaissance followed by an intensive pedestrian archeological survey of the entire length of the project area. The subsurface investigations were limited to the existing ROW and areas within the proposed new ROW to which landowners have granted right-of-entry to the HNTB Corporation and its consultants. Phase I of the project took place from July to September, 2005. One hundred and eighteen shovel tests were dug during the pedestrian survey. The investigations resulted in the documentation of one positive shovel test (ST 85) containing four artifacts buried between 20 and 30 cmbs. The Phase I investigation also included the revisiting of sites 41BX555 and 41BX556. The revisits showed both sites to be disturbed by construction.

Phase II of this project consisted of an intensive 100 percent pedestrian survey of three extensions that were added to the original project APE. A total of 57 shovel tests were excavated, of which two (STs 207 and 242) recovered a single chert flake each. Phase II of investigations included the revisiting of sites 41BX683 and 41BX704. No evidence of the sites was seen in the existing ROW during shovel testing.

During Phase III, a series 21 backhoe trenches were excavated. One backhoe trench encountered modern fill to 152 cmbs. The remainder showed undisturbed sediments beneath varying depths of fill and/or disturbance. The positive backhoe trench, BHT 13, was located on a terrace surrounded by a large loop of Medio Creek. The next closest BHT was located approximately 80 m northwest. Results of the 1994 survey of the Medina Annex at Lackland Air Force Base indicated that Medio Creek was a popular place to camp during the Middle Archaic to Late Prehistoric (Nickels et al. 1997). There are seven previously recorded sites within one mile of 41BX1749 (THC 2007). The northern edge of the Median Annex is located directly across US 90 from the location of BHT 13 and 41BX1749. BHT 13 produced a large unifacial tool (see Figure 4-12) and at least four chert flakes. The locality was designated site 41BX1749. Testing of this site to determine if it is eligible for inclusion to the NHRP or designation as an SAL was recommended and completion of the testing occurred under a separate permit. Testing of the site revealed a limited area of intact prehistoric deposits. The TxDOT, in consultation with the THC upon receipt of the testing report, determined that the site did not warrant listing to the National Register or SAL status.

In general terms, the Loop 410 Survey corridor within the APE has been heavily disturbed by construction and development (see Figure 2-1). The four sites previously recorded within the APE, 41BX555, 41BX556, 41BX683, and 41BX704 were re-examined during this project. All were determined to be not eligible for inclusion in the NRHP or listing as a SAL (Table 5-1). Areas within the present ROW, including 41BX683 and 41BX704, have been heavily impacted by the construction of Loop 410 as well as the installation of utility lines. Likewise, the majority of the areas extending outside of the present ROW, including the areas encompassing sites 41BX555 and 41BX556, have also been disturbed by utilities and commercial development. With a few exceptions, even when there was no apparent disturbance of natural sediments, no cultural deposits were encountered.

Table 5-1. Eligibility Status for Sites within the APE and Recommendations

Site #	Eligibility	Methods of testing	Notes
41BX555	Not Eligible	100 % intensive pedestrian survey within ROW 4 shovel tests	The original site record (THC 2007) indicated that the portion of the site within the ROW was highly disturbed. The pedestrian survey and shovel testing of the rest of the site located within the APE found no evidence of the the site. No cultural materials were located. Subsequent to the field work completed during this project, a motel was contructed on the site, making it impossible to excavate a backhoe trench in this area.
41BX556	Not Eligible	100 % intensive pedestrian survey within ROW 4 shovel tests 1 backhoe trench	The original site record (THC 2007) indicated that the portion of the site within the ROW was highly disturbed. All subsequent visits, including this project, did not find any evidence of the site. The backhoe trench excavated within the southern portion of the site (as originally defined) encountered deposits that indicated th presence of an old gravel bar of Leon Creek. The survey and shovel testing of the rest of the site located within the APE found no evidence of the the site. No cultural materials were located.

Table 5-1. Continued...

Site #	Eligibility	Methods of testing	Notes
41BX683	Not Eligible	100 % intensive pedestrian survey within ROW 2 shovel tests 1 backhoe trench	During pedestrian survey it appeared that the entire site had been seriously impacted by construction of the Leon Creek Bridge. Shovel tests encountered only sandy fill. The backhoe trench located undistrubed sediments, but no evidence of the site. No evidence of site remains within the ROW.
41BX704	Not Eligible	100 % intensive pedestrian survey within ROW	When this site was originally recorded, the site form described it as seriously disturbed, with the few artifacts present appearing to lay on a seriously deflated surface. The pedestrian survey found evidence that the entire area within the ROW had seriously disturbed by building of the bridge over Leon Creek. There was no evidence of the site located during the survey. However, a backhoe trench planned for the site coudl not be completed due to bad weather conditions (see Chapter 4).
41BX1749	Not Eligible	Backhoe trench, augering, and test units	Testing revealed historical and prehistoric component. The intact deposit of the prehistoric component makes the site eligible for listing on the NRHP (see testing report; Figueroa 2008). Following the completion of the testing and report, the TxDOT, in consultation with the THC, determined that the site was not eligible.

Recommendations

Eighteen properties within the proposed ROW could not be surveyed along segments of the project APE due to lack of ROE (see Table 4-2). We recommend that once ROE is secured these unsurveyed portions of the APE be subjected to intensive pedestrian survey using shovel testing and backhoe trenching as warranted along moderate and high probability segments.

CAR conducted testing at 41BX1749 in October and November of 2007 to determine: 1) the extent, nature, and depth of the deposits; and 2) if the site retains sufficient integrity and research potential to warrant listing on the National Register of Historic Places (NRHP) and/or for designation as a State Archeological Landmark (SAL). Testing of the site revealed it to be a multi-component site containing both historical and prehistoric components. In one test unit the prehistoric component was contained within an intact clay deposit (at 1 meter below surface) situated between two gravels lenses. Burned rock and a high density of lithic debitage was recovered from this deposit. The results of testing of 41BX1749 were presented in a separate report (Figueroa 2008). Following the receipt and reviews of this report, TxDOT in consultation with the THC determined that the site did not warrent listing on the National Register and designation as a SAL.

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